



MASTER CATALOG 2018

VOLUME TWO | **ROTATING TOOLS**



HOLEMAKING | TAPPING | SOLID END MILLING | INDEXABLE MILLING

The Perfect Fusion of a Solid Carbide and an Indexable Drill

The new modular drill KenTIP™ FS covers more applications and provides better performance than any other modular system, delivering substantial cost savings and process simplifications on your shop floor.

KenTIP™ FS

See pages H6–H28.

Since its inception in 1938, Kennametal has understood precisely how to improve manufacturing performance and profitability — by introducing unparalleled products and services to reduce operating costs and lead times.

These 2000+ pages bring you the latest in milling and holemaking products and superior services — specifically engineered to enhance overall productivity, even in the most challenging metalworking applications.

Rely on Kennametal to significantly boost manufacturing competitiveness. To learn more, contact your Kennametal Representative or Authorized Kennametal Distributor.

Visit us at kennametal.com.

POWERED BY



Volume II • Rotating Tools

This Catalog Consists of Two Volumes — Vol. I: Turning Tools / Vol. II: Rotating Tools

Rotating Tools

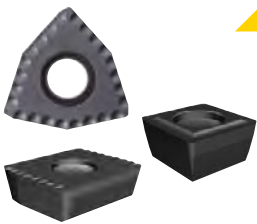
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Holemaking

PRODUCT HIGHLIGHTS



DRILL FIX™ DFSP™ INDEXABLE DRILLS WITH DS AND LP INSERTS

See section J (Volume II) for more details.

DFSP is the renamed expanded Drill Fix DFS™ indexable drilling platform. The standard diameter range is now .551–2.125" (14–55mm) in L/D ratios 2 x D, 3 x D, 4 x D, and 5 x D. The DFSP platform combines the economical squared outboard insert with the superior centering capabilities of the trigon inboard insert. These indexable drills offer increased metal removal rates and high surface quality and hole straightness.

Use new DS and LP chipbreaker insert designs with Drill Fix DFSP, DFT™, and HTS indexable drills, and KSEM PLUS™ modular drills. These inserts enable excellent chip formation on low-carbon steels and other long-chipping materials.



KENTIP™ FS THE PERFECT FUSION OF A SOLID CARBIDE AND AN INDEXABLE DRILL

See section H (Volume II) for more details.

The new modular drill KenTIP FS covers more applications and provides better performance than any other modular system, delivering substantial cost savings and process simplifications on your shop floor.

- 3-point geometries, 3 high-performance grades, 3 different shank styles.
- 6–26mm diameter range.
- Up to 12 x D drilling depths.
- Applicable in steel, stainless steel, and cast iron.



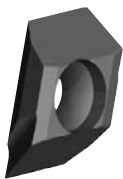
COUNTERFIX MICRO SMALL INSERTS THAT MAKE A BIG DIFFERENCE!

See section H (Volume II) for more details.

New CounterFix Micro (CFM) tangential inserts offer a new way to enhance drilling, chamfering, and counterboring operations. They enable very small incremental steps on tailor-made step drills, longer tool life per edge, and improved surface finish.

CFM inserts can be used on KentIP, KSEM™, and Drill Fix products, as well as for made-to-order indexable countersinking tools.

CounterFix Micro will be available for KentIP FS tailor-made drills in 2018 upon request.



NEW SGL DRILLS WITH THROUGH COOLANT FOR STAINLESS STEEL

See section G (Volume II) for more details.

The all-new B21_SGL series solid carbide drills are designed specifically for stainless steel applications, offering high performance and long tool life in high-temperature alloys and regular steel, also.

By combining unique Kennametal features, such as the all-new SGL-point-geometry with patented gashing, a unique flute design, and a best-in-class coating into one tool, the B21_SGL drill is the ultimate high-volume production tool.

The all-new B27_SGL series is designed specifically for deep-hole drilling up to 40 x D applications in stainless steel and high-temperature alloys.





NEW!



NEW KMH DRILLS FOR HARD MATERIALS

See section G (Volume II) for more details.

The all-new KMH solid carbide drills are engineered for hard material applications up to 65 HRC. The B94_drill series without through coolant is specifically designed to machine hardened and surface-hardened materials using flood coolant. With its 145° point angle, it is also perfectly suited as a pilot drill for the B95_drill series with through coolant and 140° point for deeper applications.

Both series come with an increased core to strengthen the drill, feature a curved cutting edge with corner chamfer to avoid chipping on the margin lands and increased tool life in these challenging materials.

RMR™ AND RHR™ DISC-STYLE REAMERS

See section K (Volume II) for more details.

Performance, quality, and regrindability, like solid carbide reamers for diameters .5512–1.6732" (14–42,5mm).

Common reamers have single tips brazed onto a steel body. The new Kennametal RMR and RHR reamers have a solid carbide disc brazed onto the steel body. This enables more regrinds than a regular tipped reamer, reducing the cost-per-hole significantly. The new KCU05 coating holds the surface finish more than twice as long as conventional reamer coatings, depending on the workpiece material.



GOTAP™ MULTIPURPOSE HSS-E TAPS

See section M (Volume II) for more details.

GOTap is our multipurpose line of taps that include optimized geometries and PVD coatings capable of tapping a wide range of ductile materials, such as stainless steels, carbon and alloy steels, cast aluminum, and ductile iron. GOTap taps versatility extends beyond the part, as it can be used in a wide range of machine tools and application conditions. The new GOTap TC multipurpose taps enable blind-hole tapping with tension/compression holders without sizing problems due to over-feeding. The versatility of GOTap taps means lower inventory costs with no loss of productivity, consistent tool life, and high-quality thread finish.

Solid End Milling

PRODUCT HIGHLIGHTS



DUO-LOCK®

See section O for more details.

Duo-Lock™ is a revolutionary new coupling for solid carbide end milling applications. This replaceable-head design combines high accuracy in runout and length repeatability with maximum stability, making it a precise and virtually unbreakable interface for challenging milling applications.

- Up to 1 x D full slotting increases metal removal rates for significantly higher productivity.
- 1.5 x D standard cutting edge length enables fewer passes.
- Cutting data and tool life comparable to high-performance solid carbide tools.



DUO-LOCK®
by HAIMER® and Kennametal



HARVI™ III FAMILY

See section P for more details.

HARVI III end mills are the first choice for high-temperature alloy machining, profiling, semi-finishing, and finishing. Beyond grade KCSM15™ delivers maximum metal removal rates and exceptional tool life in titanium and stainless steel, as well as excellent surface finishes.

- Taper ball nose for complex 5-axis machining.
- Ball nose for 3D profiling.
- Square end for semi-finishing/finishing operations.

beyond



BEYOND™ EADE SOLID CERAMIC END MILLS

See section P for more details.

Beyond™ EADE solid ceramic end mills offer higher productivity in roughing nickel-based high-temperature alloys. With reduced machining time, EADE ceramic end mills also achieve significantly longer tool life compared to carbide tooling.

— Beyond grade KYS40™ enables cutting speeds up to 3.300 SFM.



GOMILL™ GP PLATFORM

See section Q for more details.

GOMill GP tools enable plunging, slotting, and profiling, plus longer tool life, on a wide range of workpiece materials. They are designed to provide higher metal removal rates (MRR) and good surface finishes at an excellent cost-benefit ratio.

- Roughing and finishing with one tool.
- Excellent cost-benefit ratio.
- Multilayer KC633M™ grades for longer tool life.



Indexable Milling

PRODUCT HIGHLIGHTS

➤ **MILL 4-11™ AND MILL 4-15™**

See section T for more details.

The Mill 4-11™ and Mill 4-15™ series tools are specially engineered to achieve excellent surface quality and higher metal removal rates in shoulder milling applications. The unique design enables multiple passes (stepping down) with outstanding results.

Use Mill 4-11 in roughing to finishing applications in steel, cast iron, stainless steel, non-ferrous materials, and high-temp alloys. Use Mill 4-15 for roughing to finishing in steel, cast iron, stainless steel, and titanium.



➤ **MILL 16™**

See section S for more details.

The new Mill 16™ series is a tailor-made platform for rough milling of components like engine heads and blocks, housings and gear boxes in cast iron materials (CGI, DCI, GCI), and all other cast iron face milling jobs.



KCSM40™

NEW MILLING GRADE FOR TITANIUM MACHINING

Breakthrough indexable milling grade for roughing and semi-finishing operations in titanium and stainless steels — S40, M30 application range.

Available in these indexable milling platforms: Mill 1-10™, Mill 1-14™, Mill 1-18™, Mill 4-11™, Mill 4-15™, Dodeka™ Mini, Dodeka™ MAX™, MEGA™, KSOM™ Mini, KSOM™, KSRM™, NGE™, KSSM™ 90, KSSM8+™, Rodeka™, Stellram® 5230, Stellram 7713, and Stellram 7792.



STELLRAM® 7792VX HIGH-FEED SERIES

See section V for more details.

The 7792VX cutter series is designed for high-feed milling applications with superior surface generation. The 7792VX cutters are designed for a wide range of applications, including facing, pocketing, ramping, helical interpolation, and plunging. They are capable of machining all materials, including steel, stainless steel, cast iron, and high-temperature and aluminum alloys.

Turning

PRODUCT HIGHLIGHTS

➤ **BEYOND™ EVOLUTION™**

See section C (Volume I) for more details.

Kennametal proudly introduces the Beyond™ Evolution™ platform. This innovative platform is built on simplicity and challenges today's approach to grooving and cut-off. Selecting the right tool is easy with the Beyond™ Evolution™ platform because this high-performance system is versatile and flexible. It is the first portfolio in the market to compete in all grooving and cut-off applications, with up to 35% less tooling than current competitors.

The proprietary coolant delivery system directs coolant precisely to the cutting edges underneath the chip, which is the best method for heat removal in grooving and cut-off applications.



beyond™ EVOLUTION™

➤ **BEYOND™ DRIVE™**

See section B (Volume I) for more details.

Beyond™ Drive™ ISO turning inserts provide up to 50% improved insert edge utilization. The advanced surface treatment reduces coating stress and improves coating adhesion. The bronze outer layer simplifies wear detection and increases insert utilization. PVD grades KCU10™ and KCU25™ with Beyond™ technology resist the high temperatures of machining in tough alloys. Achieve up to 30–40% longer tool life for more profitability in general engineering, transportation, aerospace, energy, and earthworks markets. The PVD coating helps to maintain consistent chip control and minimize insert edge wear in turning, grooving, and cut-off operations in a wide range of materials and applications.



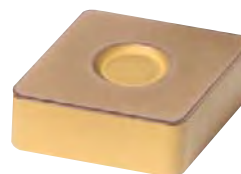
beyond™ DRIVE™



➤ CAST IRON TURNING WITH KBK45™

See section B (Volume I) for more details.

KBK45 is a new high-content PcBN grade designed for high-performance machining of gray cast iron, such as brake discs and fly wheels. It is designed for reducing waste of unused corners, reducing cost-per-part (CPP) by maintaining tool changes between shifts, and enhancing output by using more reliable products. KBK45 grade provides an excellent CPP value.



➤ HARD TURNING WITH KBH20™

See section B (Volume I) for more details.

KBH20 is the ideal PcBN hard turning grade in continuous to lightly interrupted applications with up to medium-severity interruption. The structure and different edge preparations enable tight and repeatable workpiece tolerances, excellent surface finishes, and surface integrity — even at elevated speeds.

KBH20 grade is a new substrate for applications like case-hardened components, including gears, shafts, and other drive-train components.

The nano-composite coating enhances speed capabilities and tool life. The improved edge preparation promotes longer tool life, reliable performance, and better surface finish.



Tooling Systems

PRODUCT HIGHLIGHTS



ERICKSON™

Visit kenametal.com or kenametal.com/novo for more details.

Kennametal proudly offers premium quality ERICKSON™ toolholder products, so you can be sure that you're buying the best the industry has to offer. The entire portfolio — including steep taper, HSK, straight shank extensions, collets, sleeves, and accompanying products — offers high productivity, increased accuracy, and application flexibility. Designed for both manual and automatic tool changing, ERICKSON interfaces are ideally suited for most machine tools and feature a compact and rigid construction guaranteed to handle high torque and deliver optimal metal removal rates.

Machinists have relied on the ERICKSON name for more than 60 years. With one of the broadest product offerings in the industry, ERICKSON tools can be used on all types of machine tools and in applications ranging from low-speed, heavy-milling jobs to high-speed operations greater than 20,000 RPM.



ERICKSON™



KM4X™

Visit kenametal.com or kenametal.com/novo for more details.

The KM4X spindle interface is designed for heavy-duty machining applications. It's especially suited for machining large structural components. These rotating and static tool adapters handle 3x more bending capacity than similar competitive models.

- Rigid configuration through higher clamping force.
- Design enables front-loaded spindle configurations.
- High spindle speed capability.
- Designed for use in most applications.
- Use in a wide range of high and low speeds and torques.
- Can upgrade to the KM4X system on spindles which use HSK format.
- Maintain taper contact in higher speeds.

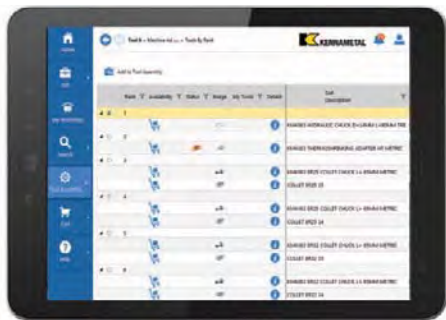


HYDROFORCE™ HYDRAULIC CHUCKS

Visit kennametal.com or kennametal.com/novo for more details.

Our most advanced and universal hydraulic chuck is your first choice for milling, drilling, and reaming applications. HydroForce hydraulic chucks require only two sizes for all tooling applications. Reducer sleeves are applied for all other diameters. We offer ERICKSON™ Safe-Lock™ Smart Coolant reducer sleeves, specially designed for secure clamping when used with end mills featuring Safe-Lock™ tool shanks. The special drive feature in the reducer sleeve and grooves in the tool shank prevent the end mill from spinning and pulling out of the sleeve during extreme machining conditions.

- High rigidity.
- Enables higher cutting parameters.
- Provides better surface quality.
- Up to 50% longer tool life and improved workpiece surface quality.
- More productivity at higher cutting speed.
- Consistently reliable clamping.
- No overtorque.
- No torque wrench required.
- Reduced toolholder inventory.
- Maximum flexibility.
- Minimum cost.



NOVO™ WITH MACHINE ADAPTER ADVISOR

Visit kennametal.com/novo for more details.

Let the NOVO Machine Adapter Advisor help you build the right assembly. With NOVO applications, simply select a rotating tool (end mill, drill, reamer, or tap), then use the Machine Adapter Advisor to build an entire assembly from machine spindle to cutting tool with minimal data input. This new feature reduces a tool configuration build from minutes to seconds, regardless of gage length. Previously, it was a manual process to select a tool then individually filter and pick one adapter after another. Now, NOVO applications make it easy.



Kennametal on the Web

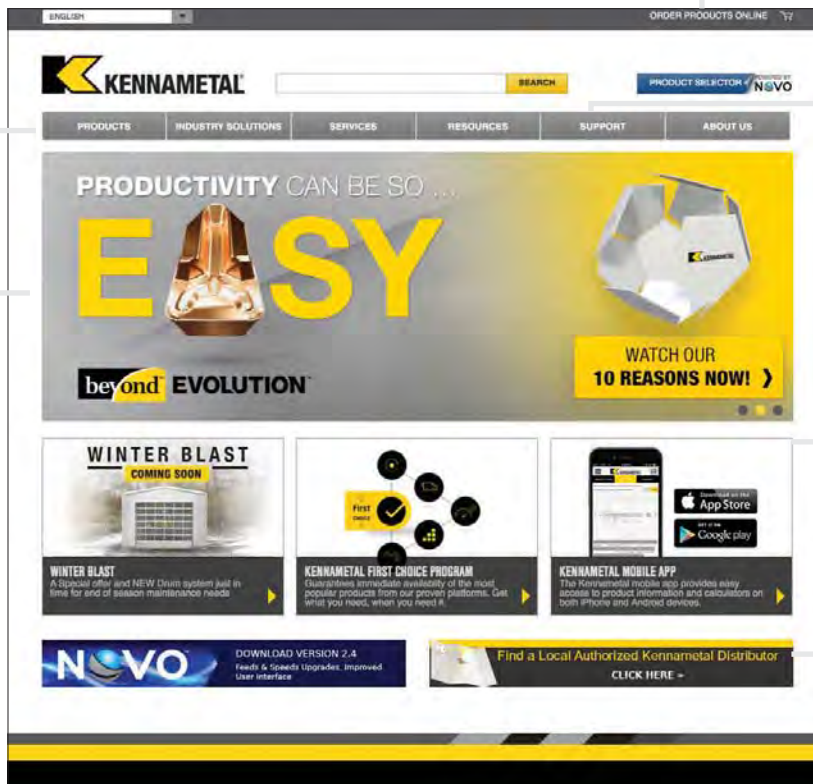
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FIND THE LATEST PRODUCT INFORMATION

Whether your operation is turning, milling, or holmaking, Kennametal brands are the high-performance tooling you need. We offer standard and custom solutions for a wide range of applications.

Find information about our most current campaigns and catalogs.

Register on Konnect for the full functionality of the Kennametal online ordering website.



CONTACT US

Our customers are important to us. We want to provide you the best customer service in the industry. If you have a comment or question, please send it to us. We strive to respond to all inquiries within 24 hours.

FIND A LOCAL AUTHORIZED DISTRIBUTOR IN YOUR AREA

Kennametal offers world-class products and services globally. Our distributors know us, and more importantly, they know you. They know better than anyone in the industry how to put the global power of Kennametal to work for you — in your industry, in your region, and for your business.

Mobile App

The Kennametal mobile app makes it easy to access product information, calculators, and much more from iPhone® and Android™ devices.



FEATURES

Scan a Kennametal tool package barcode or search a product catalog number to access complete product information.

Product information includes tool image, dimensions, grades, and product highlights.

View product availability at global locations.

Get speed and feed information in inch and metric values for all metalcutting products.

View tech tips for helpful solutions to common machining questions.

Contact Customer Support directly from the app.

MACHING CALCULATORS

View data for milling and drilling applications.

Inch and metric values calculated.

ORDERING

Login using your Konnect credentials to complete a purchase.

WHERE TO FIND IT

Download the free app today from iTunes® or the Google Play™ store.



Service and Support

Customer Application Support (CAS)

Get Fast and Reliable Answers to Your Toughest Metalcutting Problems

Our Customer Application Support (CAS) Team is the metalworking industry's leading help desk resource for tooling application solutions and problem resolution.

Easy Access to Proven Metalworking Expertise!

Kennametal Customer Application Engineers assist customers and engineering groups throughout the world with expert tool selection and application recommendations for the entire range of Kennametal tooling.

SERVICE LEVEL EXCELLENCE	Fast telephone response. Quick technical solutions. Efficient case management.	
SERVICES	Operating parameters. Process optimization. Hardware support. Tooling selection. Troubleshooting.	
BEST-IN-CLASS SUPPORT TOOLS AND TECHNOLOGY	Materials database. Application calculators. Tooling performance experts.	

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USA	English	800 835 3668	na.techsupport@kennametal.com

NOVO KNOWS SEARCH

Searching for a tool has been enhanced by Advise and Select functions from NOVO™ applications — saving you time and money.

ADVISE

Uses a rules-based approach to provide cutting tool recommendations:

- Define Machining Feature (face milling, slotting, blind hole, etc.)
- Apply Constraint Requirements (geometric, material, tolerance, etc.)
- Set Machining Sequence (single or multi-step operations, rough then finish, etc.)
- Receive Ranked Results

SELECT

A method of selecting cutting tools from a tree structure via a hierarchy or parametric search:

- If you know which product you are looking for, a quick search can be performed by just the catalog number or product description.
- Smart filters significantly reduce the amount of potential tooling solutions.
- After the tool is selected, NOVO also provides cutting and adaptive item options that fit with your solution.

NOVO applications can ensure you have the right tools on your machines, in the right sequence. Resulting in flawless execution that accelerates every job, and maximizes every shift. kenametal.com/novo



Holemaking

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Hole Finishing	K1–K220



Holemaking Products

Our latest Metalcutting Innovations are designed to deliver higher productivity, longer tool life, and increased application versatility.

For more information about the latest products and services from Kennametal, please contact your Kennametal Representative or Authorized Kennametal Distributor, or visit kennametal.com.

SOLID CARBIDE DRILLS

See Section G for more details.

- GOdrill™
- TF Drills
- Beyond™ Drills
- Deep-Hole Drills
- Y-TECH™ Drills
- TX Drills
- CFRP Drills
- Flat-Bottom Drills
- KMH Drills
- Kenna Universal™ Drills
- NC Spot Drills

NEW!

MODULAR DRILLS

See Section H for more details.

NEW!

- KenTIP™ FS
- KenTIP™
- KSEM™
- KSEM PLUS™





COMBINATION TOOLS

See Section I for more details.

BF Combination Drilling System
SEFAS™ Combination Drilling System



INDEXABLE DRILLS

See Section J for more details.

Drill Fix™ DFR™, DFSP™, and DFT™
HTS™ Series Indexable Deep-Hole
Drilling System
Indexable Drill Inserts
CTR Counterboring Tools
Counterboring Inserts



HOLE FINISHING

See Section K for more details.

Reaming Tools
SIF™ Steerable Toolholders
Romicron™ Fine-Boring System
ModBORE™ Boring System
PCD Customized Tooling



TAPS

See Section L and M for more details.

Beyond™ High-Performance
Solid Carbide Taps
High-Performance HSS-E-PM Taps
GOTap™ Multipurpose Taps
General-Purpose Taps
High-Performance Solid Carbide
Thread Mills



Select the Correct Holemaking Solution for Your Application

Added Value for Your Performance

Increase of Productivity and Efficiency

- Material and application-specific solutions.
- Maximum metal removal rates and repeatability.
- Standardized design platforms for special tools based on "proven solutions" for individual optimizations and combination tools.

Control of Total Tooling Costs

- High tool utilization through material and application-specific solutions.
- Process-safe regrinding service.
- Reduction of stocks through efficient modular concepts.
- Multiple platforms per application to achieve the most cost-efficient solution.

Solid Drilling

diameter		hourly rate			
		high to normal	normal (M/C)	normal to low	low (rough)
mm	inch	precision			
		IT8	IT9	IT10	IT11
1,0	0.0393	<p>Solid Carbide Drills</p>	<p>Modular Drills KenTIP™ & KSEM™</p>	<p>Drill Fix™ DFR™</p>	<p>HTS-R</p>
3,0	0.1181				
6,0	0.2362				
9,0	0.3543				
12,0	0.4724				
15,0	0.5906				
18,0	0.7087				
21,0	0.8268				
24,0	0.9449				
27,0	1.0630				
30,0	1.1811				
33,0	1.2992				
36,0	1.4173				
39,0	1.5354				
42,0	1.6535				
45,0	1.7717				
48,0	1.8898				
51,0	2.0079				
54,0	2.1260				
57,0	2.2441				
60,0	2.3622				
70,0	2.7559				
80,0	3.1496				
90,0	3.5433				
100,0	3.9370				
150,0	5.9055				
200,0	7.8740				
250,0	9.8425				
270,0	10				
			<p>Modular Drills KSEM PLUS™</p>	<p>Drill Fix™ DFT™ & DFSP™</p>	<p>HTS</p>

(continued)

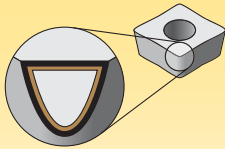
Select the Correct Holemaking Solution for Your Application *(continued)*

Optimized Purchase

- Broad selection of holemaking tools.
- Integrated into a full range of cutting tools and service offers.
- Onsite service for an efficient development and implementation of machining solutions.

Hole Finishing

diameter		hourly rate				
			very high	high (fine)	high to normal	normal (M/C)
mm		precision				
		IT5	IT6	IT7	IT8	IT9
1,0	0.0393					
3,0	0.1181					
6,0	0.2362					
9,0	0.3543					
12,0	0.4724					
15,0	0.5906					
18,0	0.7087					
21,0	0.8268					
24,0	0.9449					
27,0	1.0630					
30,0	1.1811					
33,0	1.2992					
36,0	1.4173					
39,0	1.5354					
42,0	1.6535					
45,0	1.7717					
48,0	1.8898					
50,0	1.9685					
100,0	3.937					
150,0	5.9055					
200,0	7.878					
250,0	9.8425					
300,0	11.811					
400,0	15.748					
500,0	19.685					
1000,0	39.3701					
1500,0	59.0551					
2000,0	78.7402					
2500,0	98.4252					



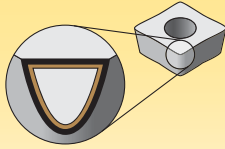
Coatings provide high-speed capability and are engineered for finishing to heavy roughing.

P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High-Temp Alloys
H	Hardened Materials
C	CFRP Materials

wear resistance ← → toughness

Solid Carbide Drill Grades

Coating	Grade Description		05	10	15	20	25	30	35	40	45	
KN15	<p>Composition: Uncoated, highly wear-resistant fine-grain carbide.</p> <p>Application: Highly polished chip flute surfaces ensure superior chip evacuation and reduce tendency for built-up edges. First choice for non-ferrous materials.</p>											
		N										
		S										
		C										
KN25	<p>Composition: Uncoated, highly wear-resistant ultra-fine-grain carbide.</p> <p>Application: Highly polished chip flute surfaces ensure superior chip evacuation and reduce tendency for built-up edges. First choice for deep-hole drilling of non-ferrous materials.</p>											
		N										
K10	<p>Composition: Uncoated, highly wear-resistant fine-grain carbide with enhanced hot hardness properties.</p> <p>Application: Best suited for dry and external flood coolant applications in aerospace materials like high-temperature resistant materials and wrought aluminum alloys. Due to its high wear-resistance, this grade is also applicable for cast iron machining at low to medium speeds.</p>											
		K										
		N										
		S										
KCPK15	<p>Composition: Multilayered PVD TiN-TiAlN coated fine-grain carbide with superior surface finish.</p> <p>Application: First choice for alloyed and high-alloyed steel and cast iron. A state-of-the-art surface condition enables superior chip evacuation and offers highest level of wear resistance at enhanced material removal rates.</p>											
		P										
		K										
KCPK20	<p>Composition: Multilayered PVD AlCrN-based coated ultra-fine-grain carbide with superior surface finish.</p> <p>Application: First choice for deep-hole drilling applications in steel and cast iron. Due to the uniquely developed coating combined with the state-of-the-art surface condition, this grade offers extraordinary wear resistance and superior chip evacuation.</p>											
		P										
		K										
KCK10	<p>Composition: Multilayered PVD AlCrN-based coated fine-grain carbide with superior surface finish.</p> <p>Application: First choice for cast iron. Due to the uniquely developed coating combined with the state-of-the-art surface condition, this grade offers extraordinary wear resistance in abrasive materials at elevated cutting conditions.</p>											
		K										
KCMS15	<p>Composition: Monolayer PVD AlTiN coated fine-grain carbide with superior surface finish.</p> <p>Application: First choice for stainless steel and high-temperature-resistant materials. The coating offers high hardness and excellent wear resistance as well as enhanced high-temperature properties increasing its applicability also to MQL machining of steel.</p>											
		P										
		M										
		S										



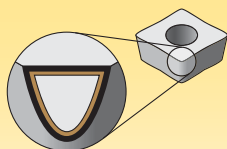
Coatings provide high-speed capability and are engineered for finishing to heavy roughing.

P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High-Temp Alloys
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wear resistance ← → toughness

Solid Carbide Drill Grades

Coating	Grade Description		05	10	15	20	25	30	35	40	45
KCMS20	<p>Composition: Monolayer PVD AlTiN coated ultra-fine-grain carbide with superior surface finish.</p> <p>Application: First choice for deep-hole drilling of stainless steel and high-temperature resistant materials. Due to the coating's enhanced high-temperature properties, this grade can also be applied to MQL applications in steel.</p>	P									
		M									
KCH10	<p>Composition: PVD AlTiN coated, ultra-fine-grain carbide.</p> <p>Application: First choice for hardened steels >55 HRC up to 5 x D.</p>										
		H									
KCH15	<p>Composition: PVD AlTiN coated, fine-grain carbide.</p> <p>Application: First choice for hardened steels between 48 and 55 HRC as well as case-hardened workpieces with hole depths >3 x D.</p>										
		H									
KC7315	<p>Composition: Multilayered PVD TiN-TiAlN coated fine-grain carbide</p> <p>Application: Applicable for steel, cast iron, and hardened materials. This grade offers excellent wear resistance and reliability at intermediate to elevated cutting speeds.</p>	P									
		K									
KC7325	<p>Composition: Multilayered PVD TiN-TiAlN coated fine-grain carbide with a TiN top layer for better wear identification.</p> <p>Application: This multipurpose grade has been combined with a unique general-purpose cutting geometry to offer high versatility and reliability across all material groups at intermediate cutting conditions.</p>	P									
		M									
KDF400	<p>Composition: CVD diamond coated fine-grain carbide.</p> <p>Application: First choice for machining carbon-fiber reinforced polymers (CFRPs). The crystalline diamond-coated grade offers a high degree of abrasive wear resistance. Paired with sharp cutting geometries and low-axial thrust point geometries, this grade is perfectly suited to machine most CFRPs.</p>	K									
		N									
		S									
		H									
		C									



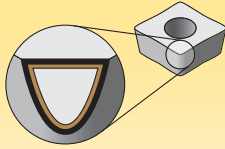
Coatings provide high-speed capability and are engineered for finishing to heavy roughing.

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wear resistance ← → toughness

Modular Drill Grades

Coating	Grade Description		05	10	15	20	25	30	35	40	45	
KCP15	Composition: Monolayer PVD AlTiN coated fine-grain carbide. Application: First choice for steel and second choice for cast iron. This AlTiN coating offers the perfect combination of enhanced high-temperature properties and optimized toughness for high-performance modular drilling applications.	P		█	█	█						
		K			█	█	█					
KCP15A	Composition: Monolayer PVD AlTiN coated fine-grain carbide Application: First choice for steel and second choice for cast iron. This grade consists of an updated AlTiN coating offering improved high-temperature properties on top of the proven fine-grain carbide substrate offering required toughness for modular drilling applications.	P		█	█	█						
		K			█	█	█					
KC7135	Composition: PVD TiCN/TiN coated medium-grain carbide with high toughness. Application: Used for KSEM™ PC pre-centering inserts in most materials. The highly wear-resistant TiCN coating combined with a tough carbide substrate are perfectly suited to help with pre-centering operations in metastable machining conditions.	P								█	█	
		M							█	█		
		K								█	█	
		S					█	█				
KC7315	Composition: Multilayered PVD TiN-TiAlN coated fine-grain carbide. Application: Applicable for steel and cast iron. This grade offers excellent wear resistance and reliability at intermediate to elevated cutting speeds.	P		█	█	█						
		K			█	█	█					
KC7320	Composition: Monolayer PVD AlTiN coated fine-grain carbide. Application: First choice for stainless steel and high-temperature-resistant materials. The coating offers high hardness and excellent wear resistance as well as enhanced high-temperature properties.	M		█	█	█						
		S		█	█	█						
KC7410	Composition: Multilayered PVD AlCrN-based coated fine-grain carbide. Application: First choice for cast iron. Due to the uniquely developed coating, this grade exhibits extraordinary wear resistance in abrasive materials offering the highest material removal rates.	K	█	█	█	█						
KCPM45	Composition: Multilayered PVD TiN-TiAlN coated medium-grain carbide. Application: Applicable for steel and cast iron. This grade offers excellent wear resistance and reliability at intermediate cutting speeds. Due to the medium-grain carbide, it offers superior chipping resistance in metastable machining conditions.	P						█	█	█	█	
		M							█	█	█	



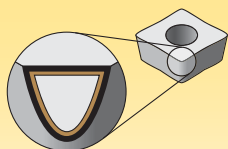
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wear resistance ← → toughness

Modular Drill Grades

Coating	Grade Description		05	10	15	20	25	30	35	40	45	
KCMS35	<p>Composition: Monolayer PVD AlTiN coated medium-grain carbide.</p> <p>Application: Applicable for stainless steel and high-temperature resistant materials. The coating offers high hardness and excellent wear resistance as well as enhanced high-temperature properties. In combination with its tough substrate, this grade offers superior chipping resistance and is best suited for metastable machining conditions.</p>											
		M										
		S										
KCU25	<p>Composition: Advanced CVD TiCN-Al₂O₃ coating combined with a tough carbide substrate.</p> <p>Application: First choice for steel, stainless steel, and cast iron. This grade offers adequate deformation resistance, excellent edge strength, and superior wear resistance over a wide range of machining conditions for high productivity with very good reliability.</p>	P										
		M										
		K										
KCU40	<p>Composition: Multilayered PVD TiN-TiAlN coated fine-grain carbide.</p> <p>Application: First choice for high reliability in most materials. This grade should be used at medium speeds and high feeds due to sharper cutting edges. As a grade developed for high toughness applications, it withstands interruptions and provides high wear resistance for long tool life. It covers steel, stainless steel, cast iron, and high-temp alloys under certain conditions.</p>	P										
		M										
		K										
		S										
KC7140	<p>Composition: PVD TiCN/TiN coated medium-grain carbide with high toughness.</p> <p>Application: Best suited for machining of steel and stainless steel. This exceptionally tough grade is perfectly suited for metastable machining conditions offering excellent tool life.</p>	P										
		M										
		S										
KC7225	<p>Composition: PVD TiAlN coated fine-grain carbide with enhanced toughness.</p> <p>Application: Best suited for machining of most materials. This grade offers excellent process reliability in metastable conditions due to enhanced carbide toughness. The TiAlN coating improves wear resistance for use at intermediate cutting conditions.</p>	M										
		K										
		N										
		S										
K715	<p>Composition: Uncoated, highly wear-resistant fine-grain carbide.</p> <p>Application: For use on KenTIP™ and KSEM™ made-to-order inserts when a sharp cutting edge is needed. Non-coated, polished carbide for drilling aluminum, titanium, and non-ferrous materials.</p>											
		N										
		S										



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C	CFRP Materials

wear resistance ← → toughness

Indexable Drill Grades

Coating	Grade Description		05	10	15	20	25	30	35	40	45	
KCPK10	<p>Composition: Advanced CVD TiCN-Al₂O₃ coating combined with a cobalt-enriched carbide substrate.</p> <p>Application: The KCPK10 grade offers a balanced combination of deformation resistance and edge toughness leading to outstanding abrasion and crater wear resistance for high-speed machining of steel and cast iron. Use for very high cutting speeds with low to medium feed rates.</p>	P										
		K										
		M										
		S										
		H										
KCU25	<p>Composition: Advanced CVD TiCN-Al₂O₃ coating combined with a tough carbide substrate.</p> <p>Application: First choice for steel, stainless steel, and cast iron. This grade offers adequate deformation resistance, excellent edge strength, and superior wear resistance over a wide range of machining conditions for high productivity with very good reliability.</p>	P										
		M										
		K										
		S										
		H										
KCU40	<p>Composition: Multilayered PVD TiN-TiAlN coated fine-grain carbide.</p> <p>Application: First choice for high reliability in most materials. This grade should be used at medium speeds and high feeds due to sharper cutting edges. As a grade developed for high toughness applications, it withstands interruptions and provides high wear resistance for long tool life. It covers steel, stainless steel, cast iron, and high-temp alloys under certain conditions.</p>	P										
		M										
		K										
		S										
		H										
KC7140	<p>Composition: PVD TiCN/TiN coated medium-grain carbide with high toughness.</p> <p>Application: Best suited for machining of steel and stainless steel. This exceptionally tough grade is perfectly suited for metastable machining conditions offering excellent tool life.</p>	P										
		M										
		K										
		S										
		H										
KD1425	<p>Composition: A multimodal PCD grade with a range of grain sizes brazed on carbide substrate.</p> <p>Application: Engineered for excellent abrasion resistance combined with good edge strength for demanding applications. An ideal choice for high-silicon aluminum alloys, MMCs, carbon fiber reinforced plastics, and other abrasive non-ferrous materials.</p>	P										
		M										
		K										
		N										
		C										

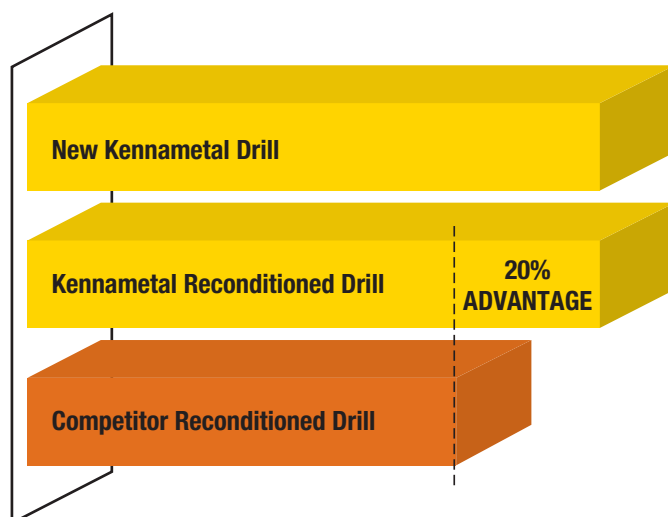
Why Reconditioning?

Reconditioning Services

Our Reconditioning Services optimize the value of your metalcutting tools by providing like-new performance to tools on-hand. Reconditioning tools is smart for business and the environment. You save money, reduce inventory, and avoid material waste.

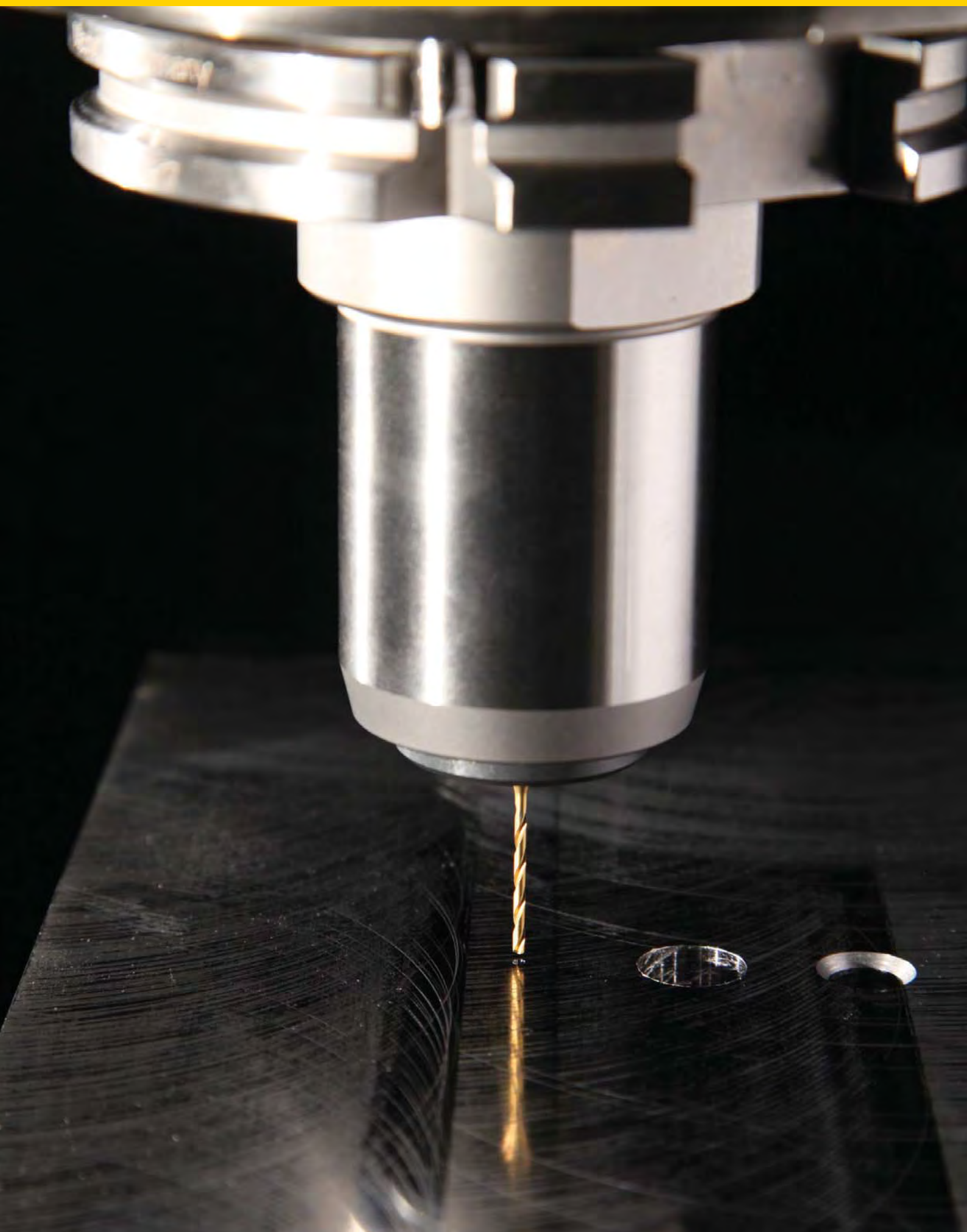
Customers purchase Kennametal tooling for its high performance. Why not continue receiving that same high performance after each reconditioning cycle? Kennametal can help you reduce tooling costs by more than 50% versus purchasing new tools. Taking advantage of our innovative tooling designs provides even greater savings because the reconditioned tool continues to achieve the same like-new performance as the original purchase.

Tooling Performance



NOTE: Estimated value. Values vary based on machining conditions.

Kennametal keeps you performing at the highest productivity rates.



Solid Carbide Drills

Tool Selection Guide.....	G2–G3
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TF Drills • High Metal Removal Rates.....	G22–G26
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YPC Beyond Drills • Iron Materials	G50–G56
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Flat-Bottom Drills	G108–G115
HP Beyond Step Drills.....	G116–G120
KMH Drills • Hard Materials.....	G122–G127
Kenna Universal Drills	G128–G142
NC Spot Drills.....	G144–G145

solid carbide drills for external coolant or dry machining	series	grade	standard*						hole tolerance	standard range			
			● first choice ○ alternate choice							diameter range		drilling depth L/D1	
			P	M	K	N	C	S		D1 mm	D1 inch		
			min-max		min-max		min-max						
	GOdrill™ for Multiple Materials	B04_CPG	KC7325	●	●	●	●	●	○	IT9-IT10	1,0-20,0	.0394-7874	3-5 x
	TF Drill for High Metal Removal Rates	B105	K10			●	●		○	IT9-IT10	3,0-21,0	.1130-8101	5 x D
	HP Drill for Dry Applications or Flood Coolant	B221/B222_HP	KCPK15	●		●				IT9-IT10	3,0-21,0	.1181-8268	3-5 x
	SPF Drill for Composite (CFRP) Materials	B53_SPF	KDF400					●		IT9-IT10	3,2-12,7	.1260-5010	3-5 x
	DAL Drill for CFRP — Metal Stack Materials	B551_DAL	KN15					●		IT9-IT10	4,763-15,875	.1875-.6250	3 x
	NEW KMH Drill for Hard Materials	B941	KCH10	○		○			●	IT9-IT10	2,5-14,0	.0984-.5512	3 x
	KU Drill for Universal Applications	B966/B967	KC7315	●		●	○			IT9-IT10	3,0-20,0	.1181-.7874	3-5 x
	NC Spot Drill 120°	B501	K10	●	○	●	○		○	-	6,0-12,0	.2352-.4724	1 x D
	NC Spot Drill 90°	B505	K10	●	○	●	○		○	-	6,0-20,0	.2362-.7874	1 x D

solid carbide drills with internal coolant channel	series	grade	standard*						hole tolerance	standard range			
			● first choice ○ alternate choice							diameter range		drilling depth L/D1	
			P	M	K	N	C	S		D1 mm	D1 inch		
			min-max		min-max		min-max						
	GOdrill™ for Multiple Materials	B05_CPG	KC7325	●	●	●	●	●	○	IT9-IT10	1,0-20,0	.0394-7874	3-8 x
	NEW SGL Drill for Stainless Steel	B21_SGL	KCMS15	○	●				●	IT9-IT10	3,0-20,5	.1181-8071	3-8 x
	HP Drill for Steel	B224/B225_HP	KCPK15	●		○				IT9-IT10	3,0-21,0	.1181-8268	3-5 x
	YPC Drill for Cast Iron Materials	B25_YPC	KCK10			●				IT9-IT10	3,0-25,0	.1181-.9844	3-8 x
	SE Drill for Steel	B256	KC7315	●		○				IT9-IT10	5,0-16,0	.1969-.6299	8 x D
	Long-Length Drill for Steel, Iron, and Stainless Steel	B269_HP	KCPK15	●	○	○				IT9-IT10	3,0-20,0	.1181-.7874	12 x D
	NEW Deep-Hole Drill for Steel, Iron, and Non-Ferrous Materials for Stainless Steel and High-Temperature Alloys	B27_HPG B27_HPS B27_SGL	KCPK20 KN25 KCMS20	●	○	●	●			IT9-IT10 IT9-IT10 IT9-IT10	2,4-16,0 2,4-16,0 2,4-16,0	.0938-.6299 .0938-.6299 .0938-.6299	15-40 x 15-40 x 15-40 x
	HPS Drill for Non-Ferrous Materials	B28_HPS	KN15				●			IT9-IT10	3,0-20,0	.1181-.7874	3-8 x
	Y-TECH™ Drill for High-Temperature Alloys	B29_YPL	KC7315	○	●				●	IT9-IT10	3,0-21,0	.1181-.8268	3-5 x
	TX Drill for Close Tolerance Holes	B411	KF1			●	●			IT8-IT9	3,2-25,0	.1250-.9843	5 x D
	DAL Drill for CFRP — Metal Stack Materials	B556_DAL	KN15					●		IT9-IT10	4,763-15,875	.1875-.6250	3 x
	Flat-Bottom Drill for Flat-Bottom Applications	B707_FBG B707_FBL B707_FBS	KC7315 KCMS15 KN15	●		●			●	IT9-IT10 IT9-IT10 IT9-IT10	3,0-21,0 3,0-21,0 3,0-21,0	.1181-.8268 .1181-.8268 .1181-.8268	3 x D 3 x D 3 x D
	HP Step Drill for Steel and Iron	B73_HP	KCPK15	●		●				IT9-IT10	3,7-19,45	.1470-.7656	short, long
	NEW KMH Drill for Hard Materials	B951	KCH15	○		○			●	IT9-IT10	3,0-16,0	.1181-.6299	3 x
	KU-Drill for Universal Applications	B97_	KC7315	●	○	●	○		○	IT9-IT10	2,4-20,0	.0938-.7874	3-8 x

*In regard to coatings, anything is possible. If a specific drill is not suitable for your workpiece material, please contact our Engineered Solutions Department for an offer about special coatings and edge preparations.

*1 Drills can be optimized for performance in specific applications. Ask your local Kennametal representative about Kennametal Custom Solutions service for special coatings, grades, or geometries to increase productivity.

*2 Step Drill Capability Guidelines: 5 steps maximum; 10 different shapes; at least 0,4mm difference in diameters; the largest diameter may not exceed the smallest diameter by more than 2x.

custom solution range			<input checked="" type="checkbox"/> standard <input type="checkbox"/> custom solution capabilities													page(s)							
diameter range		drilling depth																					
D1 mm	D1 in																						
min-max	min-max																						
1,0–20,0	.0394–.7874	1.5–12 x	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G6
3,0–25,0	.1130–1.00	1.5–8 x	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G22
3,0–25,0	.1181–1.00	1.5–8 x	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G36
3,0–25,0	.1181–1.00	1.5–5 x	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G98
3,0–25,0	.1181–1.00	1.5–5 x	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G102
2,5–20,0	.0984–.7874	1.5–8 x	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G122
3,0–25,0	.1181–1.00	1.5–8 x	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G128
6,0–20,0	.2362–.7874	1 x D	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G144
6,0–20,0	.2362–.7874	1 x D	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G144

custom solution range			<input checked="" type="checkbox"/> standard <input type="checkbox"/> custom solution capabilities													page(s)							
diameter range		drilling depth																					
D1 mm	D1 in																						
min-max	min-max																						
1,0–20,0	.0394–.7874	1.5–12 x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G14
3,0–25,0	.1181–1.00	1.5–8 x	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G28
3,0–25,0	.1181–1.00	1.5–5 x	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G36
3,0–25,0	.1181–1.00	1.5–8 x	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G50
3,0–25,0	.1181–1.00	1.5–12 x	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G57
3,0–25,0	.1181–.7874	1.5–12 x	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G60
2,4–16,0	.0938–.6299	500mm	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G66
2,4–16,0	.0938–.6299	500mm	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G66
2,4–16,0	.0938–.6299	500mm	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G66
3,0–25,0	.1181–.7874	3–8 x	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G80
3,0–25,0	.1181–1.00	1.5–8 x	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G86
3,0–25,0	.1181–1.00	1.5–12 x	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G92
3,0–25,0	.1181–1.00	1.5–5 x	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G102
3,0–25,0	.1181–1.00	1.5–8 x	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G108
3,0–25,0	.1181–1.00	1.5–8 x	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G108
3,0–25,0	.1181–1.00	1.5–8 x	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G108
3,0–25,0	.1181–1.00	1.5–8 x	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G116
3,0–20,0	.1181–.7874	1.5–12 x	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G122
2,4–25,0	.1181–1.00	1.5–12 x	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G128

*3 Drill Shank Configuration Guidelines: shank diameter may be 2 “steps” larger than the standard shank in relation to the drill diameter or 1 step smaller than the standard shank. i.e. If the standard drill has 6mm shank, shank could be changed to 4mm, 8mm, or 10mm.

4 On symmetrical 2-fluted drills the following point geometries are possible: Split point (SP), Cone point (KM*), HP* point, SE* point, FB* point & FE* point; except for G0drill™ which is limited to CP* point.

5 On asymmetrical 2-fluted drills (Y-TECH™) the Cone point and HP point are possible.



High-Performance Solid Carbide Drills

NOVO KNOWS SEARCH

Searching for a tool has been enhanced by Advise and Select functions from NOVO™ applications — saving you time and money.

ADVISE

Uses a rules-based approach to provide cutting tool recommendations:

- Define Machining Feature (face milling, slotting, blind hole, etc.)
- Apply Constraint Requirements (geometric, material, tolerance, etc.)
- Set Machining Sequence (single or multi-step operations, rough then finish, etc.)
- Receive Ranked Results

SELECT

A method of selecting cutting tools from a tree structure via a hierarchy or parametric search:

- If you know which product you are looking for, a quick search can be performed by just the catalog number or product description.
- Smart filters significantly reduce the amount of potential tooling solutions.
- After the tool is selected, NOVO also provides cutting and adaptive item options that fit with your solution.

NOVO applications can ensure you have the right tools on your machines, in the right sequence. Resulting in flawless execution that accelerates every job, and maximizes every shift. kennametal.com/novo

➤ Solid Carbide Drills • Recommendation Chart

		through coolant	flood coolant	MQL
	standard first choice = bold alternate choice = regular simple special = gray			
Material Specific	P — Steels	B224*HP B225*HP B226*HP B256	B221*HP B222*HP	B224*HP B225*HP B226*HP B256
	M — Stainless Steels	B210*SGL B211*SGL B212*SGL		
	K — Cast Iron	B254*YPC B255*YPC B256*YPC	B105	B254*YPC B255*YPC B256*YPC
	N — Non-Ferrous	B284*HPS B285*HPS B286*HPS B411	B105	B284*HPS B285*HPS B286*HPS
	C1 — CFRP, CFRP/CFRP		B531A B532A B533A	
	C2 — CFRP/Non-Ferrous C3 — CFRP/High-Temp C4 — CFRP/Stainless Steel	B546A/ B556A B547A/B557A B548A/B558A	B541A/ B551A B542A/B552A B543A/B553A	B546A/ B556A B547A/B557A B548A/B558A
	S — Heat-Resistant Alloys, Titanium Alloys	B291*YPL B292*YPL		
	H — Hardened Materials	B951/ B952 /B953 B955/B956/B957/ B958/B959	B941/ B942 /B943 B945/B946/B947	

Application-Specific Solid Carbide Drills

Kennametal material-specific drills are targeted to end users with mass production and the need for very long tool life in a specific material, high cutting feeds and speeds, and reduced cost per part through time optimization with high metal removal rates.

Application-specific drills are designed to solve certain machining operations, such as deep-hole drilling or flat-bottom drilling, to save cycle times and costs.

HP Beyond™ Drill Series is available for different materials offering highest cutting parameters and long tool life. These ultimate high-volume production tools, such as the all-new drill for aluminum, are often platform for make-to-order or Custom Solutions.

Application Specific				Versatile
dry	deep hole	flat bottom	drill and chamfer	universal
B221*HP B222*HP	B269*HP B271*HPG B272*HPG B273*HPG B274*HPG B275*HPG	B706*FBG B707*FBG B708*FBG B709*FBG	B731*HP B732*HP	B966, B967 B976, B977, B978 B041*CPG, B042*CPG B051*CPG, B052*CPG, B053*CPG
	B269*HP B271*SGL B272*SGL B273*SGL B274*SGL B275*SGL	B706*FBL B707*FBL B708*FBL B709*FBL		B966, B967 B976, B977, B978 B041*CPG, B042*CPG B051*CPG, B052*CPG, B053*CPG
B105	B269*HP B271*HPG B272*HPG B273*HPG B274*HPG B275*HPG	B706*FBG B707*FBG B708*FBG B709*FBG	B731*HP B732*HP	B966, B967 B976, B977, B978 B041*CPG, B042*CPG B051*CPG, B052*CPG, B053*CPG
	B271*HPS B272*HPS B273*HPS B274*HPS B275*HPS	B706*FBS B707*FBS B708*FBS B709*FBS		B966, B967 B976, B977, B978 B041*CPG, B042*CPG B051*CPG, B052*CPG, B053*CPG
B531A B532A B533A				
B541A/B551A B542A/B552A B543A/B553A				
		B706*FBL B707*FBL B708*FBL B709*FBL		B966, B967 B976, B977, B978 B041*CPG, B042*CPG B051*CPG, B052*CPG, B053*CPG

Versatile Solid Carbide Drills

Kennametal versatile drills are targeted to end users with the need for long tool life in many materials, versatility and saving time for tool changes, and reducing the capital spent on a variety of SC Drill styles on the shelf.

The GOdrill™ is a multi-material drill. It addresses drilling operations in a diameter range of .0394–.7874" (1–20mm) in a broad variety of materials and applications, such as fuel systems or medical components. Due to its very unique design, the GOdrill expands the advantages of modular drills into the small diameter range, enabling the full utilization of the drill's tool life capacity.

The Kenna Universal™ Drill is a multi-purpose drill. It is engineered to deliver superior performance in steel, cast iron, and stainless steel applications, making it ideal for small- and medium-sized shops. The universal application profile reduces tool change times and the number of drills in inventory. Covering a large spectrum of off-the-shelf diameters and a broad range of applications makes Kenna Universal Drills an excellent alternative to other high-performance products.

➤ Solid Carbide Drills • Dimension Tables

■ Dimensions for Kennametal Solid Carbide Drills (B_Series) • Metric

mm Ø		DIN 6535		SHORT* ~3 x D			LONG* ~5 x D			EXTRA LONG** ~8 x D			EXTRA LONG** NEW 8 x D (SGL)		
D1 min	D1 max	D	LS	L	L3	L4 max	L	L3	L4 max	L	L3	L4 max	L	L3	L4 max
1,000	1,400	4	28	58	7	5	58	9	6	58	12	10	—	—	—
1,401	1,900	4	28	58	9	6	58	12	9	58	18	15	—	—	—
1,901	2,300	4	28	58	13	9	58	18	14	66	26	22	—	—	—
2,301	2,999	4	28	58	17	12	58	22	17	66	30	25	—	—	—
3,000	3,750	6	36	62	20	14	66	28	23	78	40	33	78	40	33
3,751	4,750	6	36	66	24	17	74	36	29	87	49	41	87	49	41
4,751	6,000	6	36	66	28	20	82	44	35	94	56	48	94	56	48
6,001	7,000	8	36	79	34	24	91	53	43	105	67	57	105	67	57
7,001	8,000	8	36	79	41	29	91	53	43	110	72	61	121	82	64
8,001	10,000	10	40	89	47	35	103	61	49	122	80	68	145	102	80
10,001	12,000	12	45	102	55	40	118	71	56	141	94	79	170	122	96
12,001	14,000	14	45	107	60	43	124	77	60	155	108	91	190	142	112
14,001	16,000	16	48	115	65	45	133	83	63	171	121	101	213	162	128
16,001	18,000	18	48	123	73	51	143	93	71	185	135	113	232	181	144
18,001	20,000	20	50	131	79	55	153	101	77	200	148	124	254	201	160
20,001	22,000	20	50	141	86	60	167	112	85	217	162	136	274	221	176
22,001	25,000	25	56	153	95	65	184	126	98	238	180	150	310	251	200

* D1<20mm to DIN 6537K

D1>20mm to factory standard

** To factory standard

NOTE: Solid Carbide Drills from Kennametal in short or regular lengths conform to DIN 6537.

Drills with long lengths conform to Kennametal factory standard.

Solid Carbide Drills with diameter D1>.787" (not DIN 6537) are also standardized to factory standard.

■ Dimensions for Kennametal Solid Carbide Drills (B_Series) • Inch

inch Ø		DIN 6535		SHORT* ~3 x D			LONG* ~5 x D			EXTRA LONG** ~8 x D			EXTRA LONG** NEW 8 x D (SGL)		
D1 min	D1 max	D	LS	L	L3	L4 max	L	L3	L4 max	L	L3	L4 max	L	L3	L4 max
.0394	.0551	.1575	1.10	2.28	.28	.20	2.28	.35	.24	2.28	.47	.39	—	—	—
.0552	.0748	.1575	1.10	2.28	.35	.24	2.28	.47	.35	2.28	.71	.59	—	—	—
.0748	.0906	.1575	1.10	2.28	.51	.35	2.28	.71	.55	2.60	1.02	.87	—	—	—
.0906	.1177	.1575	1.10	2.28	.67	.47	2.28	.87	.67	2.60	1.18	.98	—	—	—
.1181	.1476	.2362	1.42	2.44	.79	.55	2.60	1.10	.91	3.07	1.57	1.30	3.07	1.57	1.30
.1477	.1870	.2362	1.42	2.60	.94	.67	2.91	1.42	1.14	3.43	1.93	1.61	3.43	1.93	1.61
.1870	.2362	.2362	1.42	2.60	1.10	.79	3.23	1.73	1.38	3.70	2.20	1.89	3.70	2.20	1.89
.2363	.2756	.3150	1.42	3.11	1.34	.94	3.58	2.09	1.69	4.13	2.64	2.24	4.13	2.64	2.24
.2756	.3150	.3150	1.42	3.11	1.61	1.14	3.58	2.09	1.69	4.33	2.83	2.40	4.76	3.23	2.52
.3150	.3937	.3937	1.57	3.50	1.85	1.38	4.06	2.40	1.93	4.80	3.15	2.68	5.71	4.02	3.15
.3937	.4724	.4724	1.77	4.02	2.17	1.57	4.65	2.80	2.20	5.55	3.70	3.11	6.69	4.80	3.78
.4725	.5512	.5512	1.77	4.21	2.36	1.69	4.88	3.03	2.36	6.10	4.25	3.58	7.48	5.59	4.41
.5512	.6299	.6299	1.89	4.53	2.56	1.77	5.24	3.27	2.48	6.73	4.76	3.98	8.39	6.38	5.04
.6300	.7087	.7087	1.89	4.84	2.87	2.01	5.63	3.66	2.80	7.28	5.32	4.45	9.13	7.13	5.67
.7087	.7874	.7874	1.97	5.16	3.11	2.17	6.02	3.98	3.03	7.87	5.83	4.88	10.00	7.91	6.30
.7874	.8661	.7874	1.97	5.55	3.39	2.36	6.57	4.41	3.35	8.54	6.38	5.35	10.79	8.70	6.93
.8662	.9843	.9843	2.20	6.02	3.74	2.56	7.24	4.96	3.86	9.37	7.09	5.91	12.20	9.88	7.87

* D1<20mm to DIN 6537K

D1>20mm to factory standard

** To factory standard

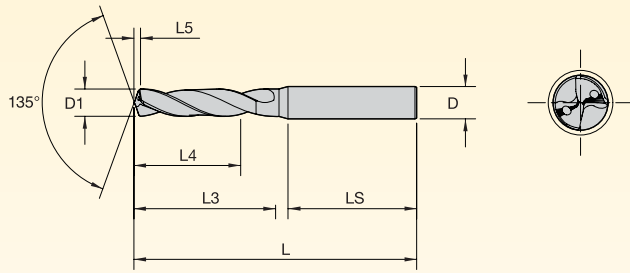
Shank designs to DIN 6535



Form HE,
2° angle
Design F



Form HA,
straight round
Design A

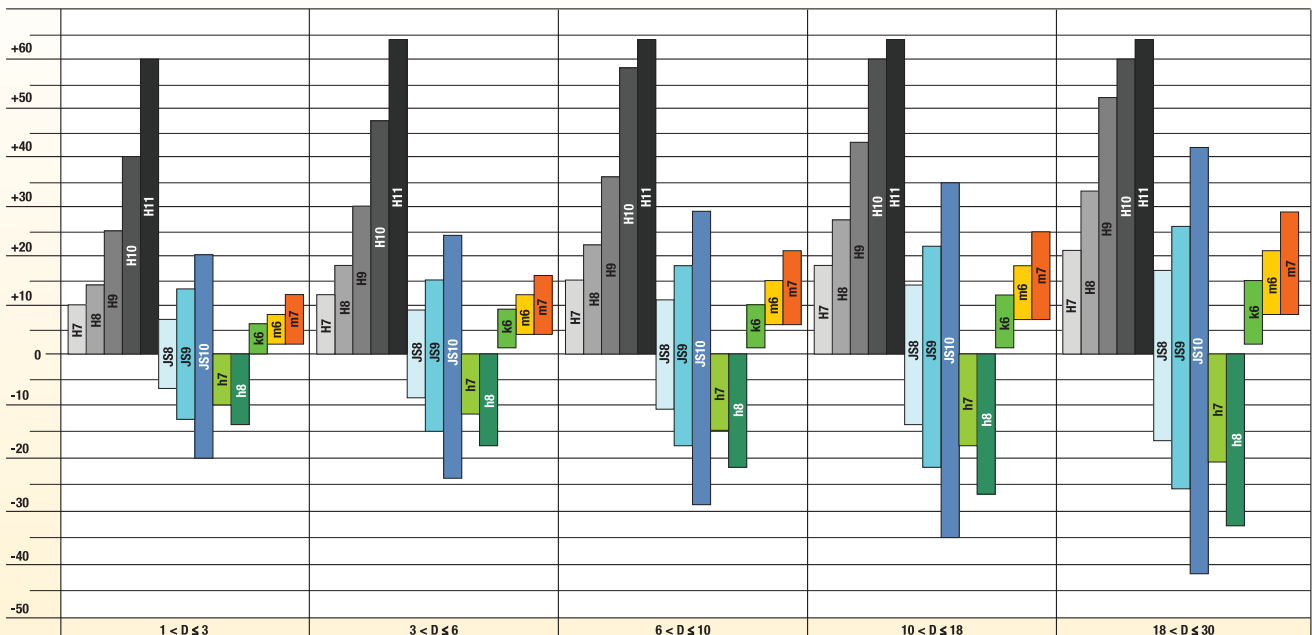


Holemaking Drilling Portfolio • Diameter Tolerances

Hole tolerances which can be achieved with solid carbide drills are listed in the table below. Achievable tolerances depend on the application (machining conditions, material etc.) and may deviate from the list below. Hole accuracy might decline with increasing drill length. Other drilling tolerances require special solid carbide drill solutions.

drill type	drill tolerance	hole tolerance	hole tolerance (best*)	drill series
GO	h8	JS10	JS9	B04*CPG, B05*CPG ≤ .1181" (3mm) B04*CPG, B05*CPG ≥ .1181" (3mm)
	h7	JS9	JS8	
TF	m7	H9	H8	B105
HP/SGL	m7	H9	H8	B21*SGL, B22*HP, B269*HP
YPC	m7	H9	H8	B25*YPC
SE	m7	H9	H8	B256
HPG/SGL	h7	JS9	JS8	B27*HPG, B27*KMG, B27*SGL
HPS	h7	JS9	JS8	B27*HPS, B27*KMS
HPS	m7	H9	H8	B28*HPS
Y-TECH	m7	H9	H8	B29*YPL
BF	h7	JS9	JS8	B343
SPF	m7	H10	H9	B53*SPF
TX	k6	H8	H7	B41* ≤ 5 x D B41* ≥ 5 x D
	k6	H9	H8	
DAL	k6	H8	H7	B54*, B55* ≤ 5 x D B54*, B55* ≥ 5 x D
	k6	H9	H8	
FB*	m7	H11	H9	B70*FBG, B70*FBL B70*FBS
	m7	H10	H8	
KMH	m7	H9	H8	B94*, B95* B96*, B97*
	m7	H9	H8	

* Can be achieved in very good conditions.



Achievable hole tolerance in µm per diameter range (mm).
Tolerance table according to DIN EN ISO 286-1.

GOdrill™

For Multiple Materials

Primary Application

The GOdrill platform addresses drilling operations in a diameter range of 1–20mm (.0394–.7874") in a broad variety of materials and applications such as fuel systems or medical components. Due to its very unique design, the GOdrill platform expands the advantages of modular drills into the small diameter range: high-end grades, wear-indicator coating, and new, proprietary geometries enable full utilization of the drill's tool life capacity. The GOdrill platform qualifies as a very cost-effective, throwaway-type tool in the given diameter range.

Features and Benefits

GOdrill Design

- Marginless design for reduced friction and heat — thus longer tool life.
- Very versatile tool works in a wide range of materials.
- Cost-effective, no regrind logistics.
- No setup.
- Throw away or recycle.
- Through-coolant option down to diameter 1mm (.0394").

CPG Point

- Optimized gashing design for microdrilling ensures free flow of chips in the center of the drill.
- Excellent centering capabilities.
- Reduced axial forces.
- Good hole quality, roundness, and cylindricity for all materials.

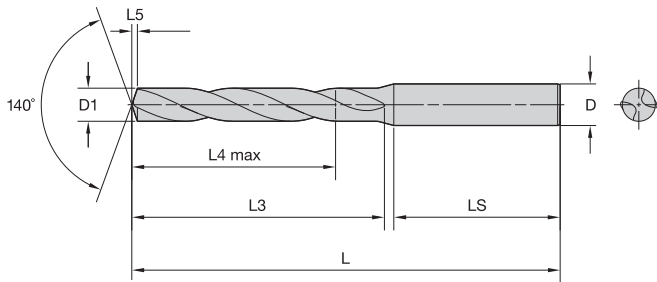
The high-performance solid carbide drill tailored for very small- to medium-diameter drilling applications.

KC7325™ Grade

The grade contains a double coating:

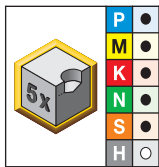
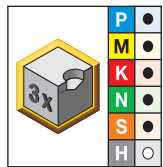
- The multilayer, TiAlN-based coating with high hot hardness enables the drill to run at high cutting speeds as well as in MQL applications.
- A TiN top layer serves as wear indicator for easier monitoring on small drills, which can be difficult to see.
- Improved visibility of wear helps to utilize the tool's full tool life capacity.





For information on L, L3, and L4 max, see the Solid Carbide Drills foldout table.

■ B041A/B042A • ~3 x D/~5 x D



● first choice

○ alternate choice

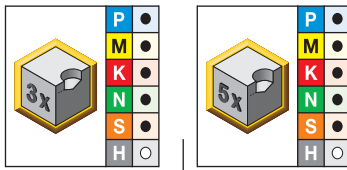
		D1 diameter				L5	LS	D
short • KC7325	long • KC7325	mm	in	fraction	wire size			
B041A01000CPG	B042A01000CPG	1,000	.0394	—	—	0,1	28	4
B041A01016CPG	B042A01016CPG	1,016	.0400	—	—	0,1	28	4
B041A01041CPG	B042A01041CPG	1,041	.0410	—	—	0,2	28	4
B041A01067CPG	B042A01067CPG	1,067	.0420	—	—	0,2	28	4
B041A01092CPG	B042A01092CPG *	1,092	.0430	—	—	0,2	28	4
B041A01100CPG	B042A01100CPG	1,100	.0433	—	—	0,2	28	4
B041A01181CPG	B042A01181CPG	1,181	.0465	—	—	0,2	28	4
B041A01191CPG	B042A01191CPG	1,191	.0469	3/64	—	0,2	28	4
B041A01200CPG	B042A01200CPG	1,200	.0472	—	—	0,2	28	4
B041A01300CPG	B042A01300CPG	1,300	.0512	—	—	0,2	28	4
B041A01321CPG	B042A01321CPG	1,321	.0520	—	—	0,2	28	4
B041A01397CPG	B042A01397CPG	1,397	.0550	—	—	0,2	28	4
B041A01400CPG	B042A01400CPG	1,400	.0551	—	—	0,2	28	4
B041A01500CPG	B042A01500CPG	1,500	.0591	—	—	0,2	28	4
B041A01600CPG	B042A01600CPG	1,600	.0630	—	—	0,2	28	4
B041A01700CPG	B042A01700CPG	1,700	.0669	—	—	0,3	28	4
B041A01800CPG	B042A01800CPG	1,800	.0709	—	—	0,3	28	4
B041A01900CPG	B042A01900CPG	1,900	.0748	—	—	0,3	28	4
B041A01984CPG	B042A01984CPG	1,984	.0781	5/64	—	0,3	28	4
B041A02000CPG	B042A02000CPG	2,000	.0787	—	—	0,3	28	4
B041A02100CPG	B042A02100CPG	2,100	.0827	—	—	0,3	28	4
B041A02200CPG	B042A02200CPG	2,200	.0866	—	—	0,3	28	4
B041A02300CPG	B042A02300CPG	2,300	.0906	—	—	0,4	28	4
B041A02383CPG	B042A02383CPG	2,383	.0938	3/32	—	0,4	28	4
B041A02400CPG	B042A02400CPG	2,400	.0945	—	—	0,4	28	4
B041A02439CPG	B042A02439CPG	2,439	.0960	—	41	0,4	28	4
B041A02489CPG	B042A02489CPG	2,489	.0980	—	40	0,4	28	4
B041A02500CPG	B042A02500CPG	2,500	.0984	—	—	0,4	28	4
B041A02578CPG	B042A02578CPG	2,578	.1015	—	38	0,4	28	4
B041A02600CPG	B042A02600CPG	2,600	.1024	—	—	0,4	28	4
B041A02642CPG	B042A02642CPG	2,642	.1040	—	37	0,4	28	4
B041A02700CPG	B042A02700CPG	2,700	.1063	—	—	0,4	28	4

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(B041A/B042A • ~3 x D/~5 x D — continued)



Solid Carbide Drills



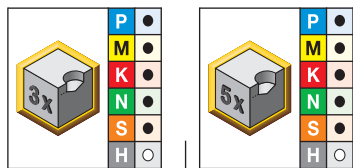
- first choice
- alternate choice

		D1 diameter				L5	LS	D
short • KC7325	long • KC7325	mm	in	fraction	wire size			
B041A02705CPG	B042A02705CPG	2,705	.1065	—	36	0,4	28	4
B041A02779CPG	B042A02779CPG	2,779	.1094	7/64	—	0,4	28	4
B041A02800CPG	B042A02800CPG	2,800	.1102	—	—	0,5	28	4
B041A02820CPG	B042A02820CPG	2,820	.1110	—	34	0,5	28	4
B041A02870CPG	B042A02870CPG	2,870	.1130	—	33	0,5	28	4
B041A02900CPG	B042A02900CPG	2,900	.1142	—	—	0,5	28	4
B041A02947CPG	B042A02947CPG	2,947	.1160	—	32	0,5	28	4
B041A03000CPG	B042A03000CPG	3,000	.1181	—	—	0,5	36	6
B041A03048CPG	B042A03048CPG	3,048	.1200	—	31	0,5	36	6
B041A03100CPG	B042A03100CPG	3,100	.1220	—	—	0,5	36	6
B041A03175CPG	B042A03175CPG	3,175	.1250	1/8	—	0,5	36	6
B041A03200CPG	B042A03200CPG	3,200	.1260	—	—	0,5	36	6
B041A03264CPG	B042A03264CPG	3,264	.1285	—	30	0,5	36	6
B041A03300CPG	B042A03300CPG	3,300	.1299	—	—	0,5	36	6
B041A03400CPG	B042A03400CPG	3,400	.1339	—	—	0,6	36	6
B041A03455CPG	B042A03455CPG	3,455	.1360	—	29	0,6	36	6
B041A03500CPG	B042A03500CPG	3,500	.1378	—	—	0,6	36	6
B041A03571CPG	B042A03571CPG	3,571	.1406	9/64	—	0,6	36	6
B041A03600CPG	B042A03600CPG	3,600	.1417	—	—	0,6	36	6
B041A03658CPG	B042A03658CPG	3,658	.1440	—	27	0,6	36	6
B041A03700CPG	B042A03700CPG	3,700	.1457	—	—	0,6	36	6
B041A03734CPG	B042A03734CPG	3,734	.1470	—	26	0,6	36	6
B041A03800CPG	B042A03800CPG	3,800	.1496	—	—	0,6	36	6
B041A03900CPG	B042A03900CPG	3,900	.1535	—	—	0,6	36	6
B041A03970CPG	B042A03970CPG	3,970	.1563	5/32	—	0,7	36	6
B041A04000CPG	B042A04000CPG	4,000	.1575	—	—	0,7	36	6
B041A04039CPG	B042A04039CPG	4,039	.1590	—	21	0,7	36	6
B041A04090CPG	B042A04090CPG	4,090	.1610	—	20	0,7	36	6
B041A04100CPG	B042A04100CPG	4,100	.1614	—	—	0,7	36	6
B041A04200CPG	B042A04200CPG	4,200	.1654	—	—	0,7	36	6
B041A04217CPG	B042A04217CPG	4,217	.1660	—	19	0,7	36	6
B041A04300CPG	B042A04300CPG	4,300	.1693	—	—	0,7	36	6
B041A04366CPG	B042A04366CPG	4,366	.1719	11/64	—	0,7	36	6
B041A04400CPG	B042A04400CPG	4,400	.1732	—	—	0,7	36	6
B041A04500CPG	B042A04500CPG	4,500	.1772	—	—	0,7	36	6
B041A04600CPG	B042A04600CPG	4,600	.1811	—	—	0,8	36	6
B041A04623CPG	B042A04623CPG	4,623	.1820	—	14	0,8	36	6
B041A04700CPG	B042A04700CPG	4,700	.1850	—	13	0,8	36	6
B041A04763CPG	B042A04763CPG	4,763	.1875	3/16	—	0,8	36	6
B041A04800CPG	B042A04800CPG	4,800	.1890	—	12	0,8	36	6
B041A04852CPG	B042A04852CPG	4,852	.1910	—	11	0,8	36	6
B041A04900CPG	B042A04900CPG	4,900	.1929	—	—	0,8	36	6
B041A05000CPG	B042A05000CPG	5,000	.1969	—	—	0,8	36	6
B041A05100CPG	B042A05100CPG	5,100	.2008	—	—	0,8	36	6
B041A05106CPG	B042A05106CPG	5,106	.2010	—	7	0,8	36	6
B041A05159CPG	B042A05159CPG	5,159	.2031	13/64	—	0,9	36	6
B041A05200CPG	B042A05200CPG	5,200	.2047	—	—	0,9	36	6
B041A05300CPG	B042A05300CPG	5,300	.2087	—	—	0,9	36	6
B041A05400CPG	B042A05400CPG	5,400	.2126	—	—	0,9	36	6
B041A05410CPG	B042A05410CPG	5,410	.2130	—	3	0,9	36	6
B041A05500CPG	B042A05500CPG	5,500	.2165	—	—	0,9	36	6
B041A05558CPG	B042A05558CPG	5,558	.2188	7/32	—	0,9	36	6

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(B041A/B042A • -3 x D/~5 x D — continued)

Solid Carbide Drills



● first choice
○ alternate choice

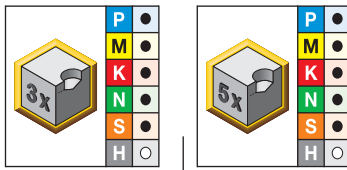
		D1 diameter				L5	LS	D
short • KC7325	long • KC7325	mm	in	fraction	wire size			
B041A05600CPG	B042A05600CPG	5,600	.2205	—	—	0,9	36	6
B041A05616CPG	B042A05616CPG	5,616	.2211	—	2	0,9	36	6
B041A05700CPG	B042A05700CPG	5,700	.2244	—	—	1,0	36	6
B041A05800CPG	B042A05800CPG	5,800	.2283	—	—	1,0	36	6
B041A05900CPG	B042A05900CPG	5,900	.2323	—	—	1,0	36	6
B041A05954CPG	B042A05954CPG	5,954	.2344	15/64	—	1,0	36	6
B041A06000CPG	B042A06000CPG	6,000	.2362	—	—	1,0	36	6
B041A06100CPG	B042A06100CPG	6,100	.2402	—	—	1,0	36	8
B041A06200CPG	B042A06200CPG	6,200	.2441	—	—	1,0	36	8
B041A06300CPG	B042A06300CPG	6,300	.2480	—	—	1,1	36	8
B041A06350CPG	B042A06350CPG	6,350	.2500	1/4	E	1,1	36	8
B041A06400CPG	B042A06400CPG	6,400	.2520	—	—	1,1	36	8
B041A06500CPG	B042A06500CPG	6,500	.2559	—	—	1,1	36	8
B041A06528CPG	B042A06528CPG	6,528	.2570	—	F	1,1	36	8
B041A06600CPG	B042A06600CPG	6,600	.2598	—	—	1,1	36	8
B041A06630CPG	B042A06630CPG	6,630	.2610	—	G	1,1	36	8
B041A06700CPG	B042A06700CPG	6,700	.2638	—	—	1,1	36	8
B041A06746CPG	B042A06746CPG	6,746	.2656	17/64	—	1,1	36	8
B041A06800CPG	B042A06800CPG	6,800	.2677	—	—	1,1	36	8
B041A06900CPG	B042A06900CPG	6,900	.2717	—	—	1,2	36	8
B041A07000CPG	B042A07000CPG	7,000	.2756	—	—	1,2	36	8
B041A07100CPG	B042A07100CPG	7,100	.2795	—	—	1,2	36	8
B041A07145CPG	B042A07145CPG	7,145	.2813	9/32	—	1,2	36	8
B041A07200CPG	B042A07200CPG	7,200	.2835	—	—	1,2	36	8
B041A07300CPG	B042A07300CPG	7,300	.2874	—	—	1,2	36	8
B041A07400CPG	B042A07400CPG	7,400	.2913	—	—	1,3	36	8
B041A07500CPG	B042A07500CPG	7,500	.2953	—	—	1,3	36	8
B041A07541CPG	B042A07541CPG	7,541	.2969	19/64	—	1,3	36	8
B041A07600CPG	B042A07600CPG	7,600	.2992	—	—	1,3	36	8
B041A07700CPG	B042A07700CPG	7,700	.3031	—	—	1,3	36	8
B041A07800CPG	B042A07800CPG	7,800	.3071	—	—	1,3	36	8
B041A07900CPG	B042A07900CPG	7,900	.3110	—	—	1,3	36	8
B041A07938CPG	B042A07938CPG	7,938	.3125	5/16	—	1,3	36	8
B041A08000CPG	B042A08000CPG	8,000	.3150	—	—	1,4	36	8
B041A08100CPG	B042A08100CPG	8,100	.3189	—	—	1,4	40	10
B041A08200CPG	B042A08200CPG	8,200	.3228	—	—	1,4	40	10
B041A08300CPG	B042A08300CPG	8,300	.3268	—	—	1,4	40	10
B041A08334CPG	B042A08334CPG	8,334	.3281	21/64	—	1,4	40	10
B041A08400CPG	B042A08400CPG	8,400	.3307	—	—	1,4	40	10
B041A08433CPG	B042A08433CPG	8,433	.3320	—	Q	1,4	40	10
B041A08500CPG	B042A08500CPG	8,500	.3346	—	—	1,4	40	10
B041A08600CPG	B042A08600CPG	8,600	.3386	—	—	1,5	40	10
B041A08700CPG	B042A08700CPG	8,700	.3425	—	—	1,5	40	10
B041A08733CPG	B042A08733CPG	8,733	.3438	11/32	—	1,5	40	10
B041A08800CPG	B042A08800CPG	8,800	.3465	—	—	1,5	40	10
B041A08900CPG	B042A08900CPG	8,900	.3504	—	—	1,5	40	10
B041A09000CPG	B042A09000CPG	9,000	.3543	—	—	1,5	40	10
B041A09100CPG	B042A09100CPG	9,100	.3583	—	—	1,5	40	10
B041A09129CPG	B042A09129CPG	9,129	.3594	23/64	—	1,6	40	10
B041A09200CPG	B042A09200CPG	9,200	.3622	—	—	1,6	40	10
B041A09300CPG	B042A09300CPG	9,300	.3661	—	—	1,6	40	10
B041A09347CPG	B042A09347CPG	9,347	.3680	—	U	1,6	40	10

(continued)

(B041A/B042A • -3 x D/-5 x D — continued)



Solid Carbide Drills



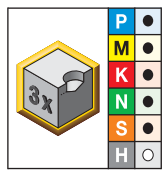
- first choice
- alternate choice

		D1 diameter				L5	LS	D
short • KC7325	long • KC7325	mm	in	fraction	wire size			
B041A09400CPG	B042A09400CPG	9,400	.3701	—	—	1,6	40	10
B041A09500CPG	B042A09500CPG	9,500	.3740	—	—	1,6	40	10
B041A09525CPG	B042A09525CPG	9,525	.3750	3/8	—	1,6	40	10
B041A09600CPG	B042A09600CPG	9,600	.3780	—	—	1,6	40	10
B041A09700CPG	B042A09700CPG	9,700	.3819	—	—	1,7	40	10
B041A09800CPG	B042A09800CPG	9,800	.3858	—	—	1,7	40	10
B041A09900CPG	B042A09900CPG	9,900	.3898	—	—	1,7	40	10
B041A09921CPG	B042A09921CPG	9,921	.3906	25/64	—	1,7	40	10
B041A10000CPG	B042A10000CPG	10,000	.3937	—	—	1,7	40	10
B041A10100CPG	B042A10100CPG	10,100	.3976	—	—	1,7	45	12
B041A10200CPG	B042A10200CPG	10,200	.4016	—	—	1,7	45	12
B041A10300CPG	B042A10300CPG	10,300	.4055	—	—	1,8	45	12
B041A10320CPG	B042A10320CPG	10,320	.4063	13/32	—	1,8	45	12
B041A10400CPG	B042A10400CPG	10,400	.4094	—	—	1,8	45	12
B041A10500CPG	B042A10500CPG	10,500	.4134	—	—	1,8	45	12
B041A10600CPG	B042A10600CPG	10,600	.4173	—	—	1,8	45	12
B041A10700CPG	B042A10700CPG	10,700	.4213	—	—	1,8	45	12
B041A10716CPG	B042A10716CPG	10,716	.4219	27/64	—	1,8	45	12
B041A10800CPG	B042A10800CPG	10,800	.4252	—	—	1,8	45	12
B041A10900CPG	B042A10900CPG	10,900	.4291	—	—	1,9	45	12
B041A11000CPG	B042A11000CPG	11,000	.4331	—	—	1,9	45	12
B041A11100CPG	B042A11100CPG	11,100	.4370	—	—	1,9	45	12
B041A11113CPG	B042A11113CPG	11,113	.4375	7/16	—	1,9	45	12
B041A11200CPG	B042A11200CPG	11,200	.4409	—	—	1,9	45	12
B041A11300CPG	B042A11300CPG	11,300	.4449	—	—	1,9	45	12
B041A11400CPG	B042A11400CPG *	11,400	.4488	—	—	2,0	45	12
B041A11500CPG	B042A11500CPG	11,500	.4528	—	—	2,0	45	12
B041A11509CPG	B042A11509CPG	11,509	.4531	29/64	—	2,0	45	12
B041A11600CPG	B042A11600CPG	11,600	.4567	—	—	2,0	45	12
B041A11700CPG	B042A11700CPG	11,700	.4606	—	—	2,0	45	12
B041A11800CPG	B042A11800CPG	11,800	.4646	—	—	2,0	45	12
B041A11900CPG	B042A11900CPG	11,900	.4685	—	—	2,0	45	12
B041A11908CPG	B042A11908CPG	11,908	.4688	15/32	—	2,0	45	12
B041A12000CPG	B042A12000CPG	12,000	.4724	—	—	2,1	45	12
B041A12100CPG	B042A12100CPG	12,100	.4764	—	—	2,1	45	14
B041A12200CPG	B042A12200CPG	12,200	.4803	—	—	2,1	45	14
B041A12300CPG	B042A12300CPG	12,300	.4843	—	—	2,1	45	14
B041A12304CPG	B042A12304CPG	12,304	.4844	31/64	—	2,1	45	14
B041A12400CPG	B042A12400CPG *	12,400	.4882	—	—	2,1	45	14
B041A12500CPG	B042A12500CPG	12,500	.4921	—	—	2,1	45	14
B041A12600CPG	B042A12600CPG	12,600	.4961	—	—	2,2	45	14
B041A12700CPG	B042A12700CPG	12,700	.5000	1/2	—	2,2	45	14
B041A12800CPG	B042A12800CPG	12,800	.5039	—	—	2,2	45	14
B041A12900CPG	B042A12900CPG	12,900	.5079	—	—	2,2	45	14
B041A13000CPG	B042A13000CPG	13,000	.5118	—	—	2,2	45	14
B041A13096CPG	B042A13096CPG	13,096	.5156	33/64	—	2,3	45	14
B041A13100CPG	B042A13100CPG	13,100	.5157	—	—	2,3	45	14
B041A13200CPG	B042A13200CPG	13,200	.5197	—	—	2,3	45	14
B041A13300CPG	B042A13300CPG	13,300	.5236	—	—	2,3	45	14
B041A13400CPG	B042A13400CPG	13,400	.5276	—	—	2,3	45	14
B041A13500CPG	B042A13500CPG	13,500	.5315	—	—	2,3	45	14
B041A13600CPG	B042A13600CPG	13,600	.5354	—	—	2,3	45	14

(continued)

(B041A/B042A • -3 x D/~5 x D — continued)

Solid Carbide Drills

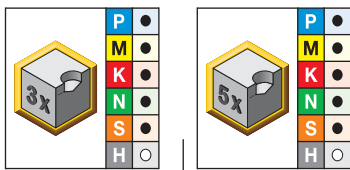


● first choice
○ alternate choice

		D1 diameter				L5	LS	D
short • KC7325	long • KC7325	mm	in	fraction	wire size			
B041A13700CPG	B042A13700CPG	13,700	.5394	—	—	2,4	45	14
B041A13800CPG	B042A13800CPG	13,800	.5433	—	—	2,4	45	14
B041A13891CPG	B042A13891CPG	13,891	.5469	35/64	—	2,4	45	14
B041A13900CPG	B042A13900CPG	13,900	.5472	—	—	2,4	45	14
B041A14000CPG	B042A14000CPG	14,000	.5512	—	—	2,4	45	14
B041A14100CPG	B042A14100CPG	14,100	.5551	—	—	2,4	48	16
B041A14200CPG	B042A14200CPG	14,200	.5591	—	—	2,5	48	16
B041A14288CPG	B042A14288CPG	14,288	.5625	9/16	—	2,5	48	16
B041A14300CPG	B042A14300CPG	14,300	.5630	—	—	2,5	48	16
B041A14400CPG	B042A14400CPG	14,400	.5669	—	—	2,5	48	16
B041A14500CPG	B042A14500CPG	14,500	.5709	—	—	2,5	48	16
B041A14600CPG	B042A14600CPG	14,600	.5748	—	—	2,5	48	16
B041A14684CPG	B042A14684CPG	14,684	.5781	37/64	—	2,5	48	16
B041A14700CPG	B042A14700CPG	14,700	.5787	—	—	2,5	48	16
B041A14800CPG	B042A14800CPG	14,800	.5827	—	—	2,6	48	16
B041A14900CPG	B042A14900CPG	14,900	.5866	—	—	2,6	48	16
B041A15000CPG	B042A15000CPG	15,000	.5906	—	—	2,6	48	16
B041A15083CPG	B042A15083CPG	15,083	.5938	19/32	—	2,6	48	16
B041A15100CPG	B042A15100CPG	15,100	.5945	—	—	2,6	48	16
B041A15200CPG	B042A15200CPG	15,200	.5984	—	—	2,6	48	16
B041A15300CPG	B042A15300CPG	15,300	.6024	—	—	2,6	48	16
B041A15400CPG	B042A15400CPG	15,400	.6063	—	—	2,7	48	16
B041A15479CPG	B042A15479CPG	15,479	.6094	39/64	—	2,7	48	16
B041A15500CPG	B042A15500CPG	15,500	.6102	—	—	2,7	48	16
B041A15600CPG	B042A15600CPG	15,600	.6142	—	—	2,7	48	16
B041A15700CPG	B042A15700CPG	15,700	.6181	—	—	2,7	48	16
B041A15800CPG	B042A15800CPG	15,800	.6220	—	—	2,7	48	16
B041A15875CPG	B042A15875CPG	15,875	.6250	5/8	—	2,7	48	16
B041A15900CPG	B042A15900CPG	15,900	.6260	—	—	2,8	48	16
B041A16000CPG	B042A16000CPG	16,000	.6299	—	—	2,8	48	16
B041A16100CPG	B042A16100CPG	16,100	.6339	—	—	2,8	48	18
B041A16200CPG	B042A16200CPG	16,200	.6378	—	—	2,8	48	18
B041A16271CPG	B042A16271CPG	16,271	.6406	41/64	—	2,8	48	18
B041A16300CPG	B042A16300CPG	16,300	.6417	—	—	2,8	48	18
B041A16400CPG	B042A16400CPG	16,400	.6457	—	—	2,8	48	18
B041A16500CPG	B042A16500CPG	16,500	.6496	—	—	2,9	48	18
B041A16600CPG	B042A16600CPG	16,600	.6535	—	—	2,9	48	18
B041A16670CPG	B042A16670CPG	16,670	.6563	21/32	—	2,9	48	18
B041A16700CPG	B042A16700CPG	16,700	.6575	—	—	2,9	48	18
B041A16800CPG	B042A16800CPG	16,800	.6614	—	—	2,9	48	18
B041A16900CPG	B042A16900CPG	16,900	.6654	—	—	2,9	48	18
B041A17000CPG	B042A17000CPG	17,000	.6693	—	—	2,9	48	18
B041A17100CPG	B042A17100CPG	17,100	.6732	—	—	3,0	48	18
B041A17200CPG	B042A17200CPG	17,200	.6772	—	—	3,0	48	18
B041A17300CPG	B042A17300CPG	17,300	.6811	—	—	3,0	48	18
B041A17400CPG	B042A17400CPG	17,400	.6850	—	—	3,0	48	18
B041A17463CPG	B042A17463CPG	17,463	.6875	11/16	—	3,0	48	18
B041A17500CPG	B042A17500CPG	17,500	.6890	—	—	3,0	48	18
B041A17600CPG	B042A17600CPG	17,600	.6929	—	—	3,1	48	18
B041A17700CPG	B042A17700CPG	17,700	.6969	—	—	3,1	48	18
B041A17800CPG	B042A17800CPG	17,800	.7008	—	—	3,1	48	18
B041A17859CPG	B042A17859CPG	17,859	.7031	45/64	—	3,1	48	18

(continued)

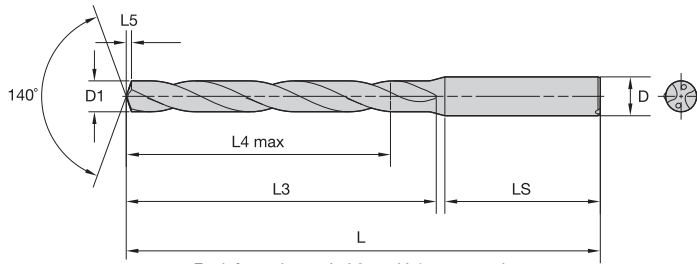
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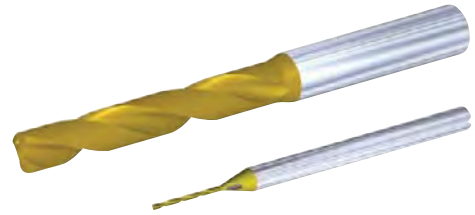
● first choice
○ alternate choice

		D1 diameter				L5	LS	D
short • KC7325	long • KC7325	mm	in	fraction	wire size			
B041A17900CPG	B042A17900CPG	17,900	.7047	—	—	3,1	48	18
B041A18000CPG	B042A18000CPG	18,000	.7087	—	—	3,1	48	18
B041A18100CPG	B042A18100CPG	18,100	.7126	—	—	3,1	50	20
B041A18200CPG	B042A18200CPG	18,200	.7165	—	—	3,2	50	20
B041A18258CPG	B042A18258CPG	18,258	.7188	23/32	—	3,2	50	20
B041A18300CPG	B042A18300CPG	18,300	.7205	—	—	3,2	50	20
B041A18400CPG	B042A18400CPG	18,400	.7244	—	—	3,2	50	20
B041A18500CPG	B042A18500CPG	18,500	.7283	—	—	3,2	50	20
B041A18600CPG	B042A18600CPG	18,600	.7323	—	—	3,2	50	20
B041A18654CPG	B042A18654CPG	18,654	.7344	47/64	—	3,2	50	20
B041A18700CPG	B042A18700CPG	18,700	.7362	—	—	3,2	50	20
B041A18800CPG	B042A18800CPG	18,800	.7402	—	—	3,3	50	20
B041A18900CPG	B042A18900CPG	18,900	.7441	—	—	3,3	50	20
B041A19000CPG	B042A19000CPG	19,000	.7480	—	—	3,3	50	20
B041A19050CPG	B042A19050CPG	19,050	.7500	3/4	—	3,3	50	20
B041A19100CPG	B042A19100CPG	19,100	.7520	—	—	3,3	50	20
B041A19200CPG	B042A19200CPG	19,200	.7559	—	—	3,3	50	20
B041A19300CPG	B042A19300CPG	19,300	.7598	—	—	3,4	50	20
B041A19400CPG	B042A19400CPG	19,400	.7638	—	—	3,4	50	20
B041A19500CPG	B042A19500CPG	19,500	.7677	—	—	3,4	50	20
B041A19600CPG	B042A19600CPG	19,600	.7717	—	—	3,4	50	20
B041A19700CPG	B042A19700CPG	19,700	.7756	—	—	3,4	50	20
B041A19800CPG	B042A19800CPG	19,800	.7795	—	—	3,4	50	20
B041A19900CPG	B042A19900CPG	19,900	.7835	—	—	3,5	50	20
B041A20000CPG	B042A20000CPG	20,000	.7874	—	—	3,5	50	20

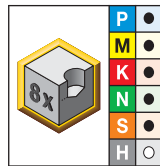
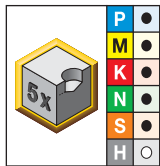
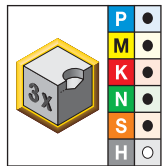
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.



For information on L, L3, and L4 max, see the Solid Carbide Drills foldout table.



■ B051A/B052A/B053A • ~3 x D/~5 x D/~8 x D



- first choice
- alternate choice

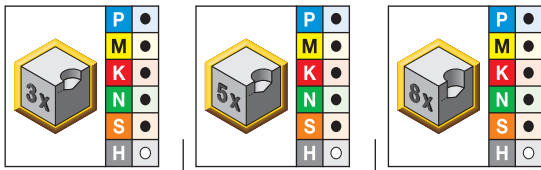
			D1 diameter			wire size	L5	LS	D
short • KC7325	long • KC7325	extra long • KC7325	mm	in	fraction				
—	—	B053A01000CPG	1,000	.0394	—	—	0,1	28	4
—	—	B053A01016CPG	1,016	.0400	—	60	0,1	28	4
—	—	B053A01067CPG	1,067	.0420	—	58	0,2	28	4
—	—	B053A01100CPG	1,100	.0433	—	—	0,2	28	4
—	—	B053A01181CPG	1,181	.0465	—	56	0,2	28	4
—	—	B053A01191CPG	1,191	.0469	3/64	—	0,2	28	4
—	—	B053A01200CPG	1,200	.0472	—	—	0,2	28	4
—	—	B053A01300CPG	1,300	.0512	—	—	0,2	28	4
—	—	B053A01321CPG	1,321	.0520	—	55	0,2	28	4
—	—	B053A01397CPG	1,397	.0550	—	54	0,2	28	4
—	—	B053A01400CPG	1,400	.0551	—	—	0,2	28	4
B051A01500CPG	B052A01500CPG	B053A01500CPG	1,500	.0591	—	—	0,2	28	4
B051A01600CPG	B052A01600CPG	B053A01600CPG	1,600	.0630	—	—	0,2	28	4
B051A01700CPG	B052A01700CPG	B053A01700CPG	1,700	.0669	—	—	0,3	28	4
B051A01800CPG	B052A01800CPG	B053A01800CPG	1,800	.0709	—	—	0,3	28	4
B051A01900CPG	B052A01900CPG	B053A01900CPG	1,900	.0748	—	—	0,3	28	4
B051A01984CPG	B052A01984CPG	B053A01984CPG	1,984	.0781	5/64	—	0,3	28	4
B051A02000CPG	B052A02000CPG	B053A02000CPG	2,000	.0787	—	—	0,3	28	4
B051A02100CPG	B052A02100CPG	B053A02100CPG	2,100	.0827	—	—	0,3	28	4
B051A02200CPG	B052A02200CPG	B053A02200CPG	2,200	.0866	—	—	0,3	28	4
B051A02300CPG	B052A02300CPG	B053A02300CPG	2,300	.0906	—	—	0,4	28	4
B051A02383CPG	B052A02383CPG	B053A02383CPG	2,383	.0938	3/32	—	0,4	28	4
B051A02400CPG	B052A02400CPG	B053A02400CPG	2,400	.0945	—	—	0,4	28	4
B051A02439CPG	B052A02439CPG	B053A02439CPG	2,439	.0960	—	41	0,4	28	4
B051A02489CPG	B052A02489CPG	B053A02489CPG	2,489	.0980	—	40	0,4	28	4
B051A02500CPG	B052A02500CPG	B053A02500CPG	2,500	.0984	—	—	0,4	28	4
B051A02578CPG	B052A02578CPG	B053A02578CPG	2,578	.1015	—	38	0,4	28	4
B051A02600CPG	B052A02600CPG	B053A02600CPG	2,600	.1024	—	—	0,4	28	4
B051A02642CPG	B052A02642CPG	B053A02642CPG	2,642	.1040	—	37	0,4	28	4
B051A02700CPG	B052A02700CPG	B053A02700CPG	2,700	.1063	—	—	0,4	28	4
B051A02705CPG	B052A02705CPG	B053A02705CPG	2,705	.1065	—	36	0,4	28	4
B051A02779CPG	B052A02779CPG	B053A02779CPG	2,779	.1094	7/64	—	0,4	28	4
B051A02800CPG	B052A02800CPG	B053A02800CPG	2,800	.1102	—	—	0,5	28	4
B051A02820CPG	B052A02820CPG	B053A02820CPG	2,820	.1110	—	34	0,5	28	4
B051A02870CPG	B052A02870CPG	B053A02870CPG	2,870	.1130	—	33	0,5	28	4
B051A02900CPG	B052A02900CPG	B053A02900CPG	2,900	.1142	—	—	0,5	28	4

(continued)

(B051A/B052A/B053A • ~3 x D/-5 x D/-8 x D — continued)



Solid Carbide Drills

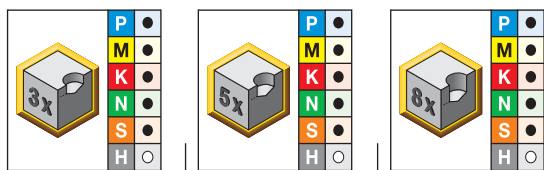

 ● first choice
 ○ alternate choice

			D1 diameter						
short • KC7325	long • KC7325	extra long • KC7325	mm	in	fraction	wire size	L5	LS	D
B051A02947CPG	B052A02947CPG	B053A02947CPG	2,947	.1160	—	32	0,5	28	4
B051A03000CPG	B052A03000CPG	B053A03000CPG	3,000	.1181	—	—	0,5	36	6
B051A03048CPG	B052A03048CPG	B053A03048CPG	3,048	.1200	—	31	0,5	36	6
B051A03100CPG	B052A03100CPG	B053A03100CPG	3,100	.1220	—	—	0,5	36	6
B051A03175CPG	B052A03175CPG	B053A03175CPG	3,175	.1250	1/8	—	0,5	36	6
B051A03200CPG	B052A03200CPG	B053A03200CPG	3,200	.1260	—	—	0,5	36	6
B051A03264CPG	B052A03264CPG	B053A03264CPG	3,264	.1285	—	30	0,5	36	6
B051A03300CPG	B052A03300CPG	B053A03300CPG	3,300	.1299	—	—	0,5	36	6
B051A03400CPG	B052A03400CPG	B053A03400CPG	3,400	.1339	—	—	0,6	36	6
B051A03455CPG	B052A03455CPG	B053A03455CPG	3,455	.1360	—	29	0,6	36	6
B051A03500CPG	B052A03500CPG	B053A03500CPG	3,500	.1378	—	—	0,6	36	6
B051A03571CPG	B052A03571CPG	B053A03571CPG	3,571	.1406	9/64	—	0,6	36	6
B051A03600CPG	B052A03600CPG	B053A03600CPG	3,600	.1417	—	—	0,6	36	6
B051A03658CPG	B052A03658CPG	B053A03658CPG	3,658	.1440	—	27	0,6	36	6
B051A03700CPG	B052A03700CPG	B053A03700CPG	3,700	.1457	—	—	0,6	36	6
B051A03734CPG	B052A03734CPG	B053A03734CPG	3,734	.1470	—	26	0,6	36	6
B051A03800CPG	B052A03800CPG	B053A03800CPG	3,800	.1496	—	—	0,6	36	6
B051A03900CPG	B052A03900CPG	B053A03900CPG	3,900	.1535	—	—	0,6	36	6
B051A03970CPG	B052A03970CPG	B053A03970CPG	3,970	.1563	5/32	—	0,7	36	6
B051A04000CPG	B052A04000CPG	B053A04000CPG	4,000	.1575	—	—	0,7	36	6
B051A04039CPG	B052A04039CPG	B053A04039CPG	4,039	.1590	—	21	0,7	36	6
B051A04090CPG	B052A04090CPG	B053A04090CPG	4,090	.1610	—	20	0,7	36	6
B051A04100CPG	B052A04100CPG	B053A04100CPG	4,100	.1614	—	—	0,7	36	6
B051A04200CPG	B052A04200CPG	B053A04200CPG	4,200	.1654	—	—	0,7	36	6
B051A04217CPG	B052A04217CPG	B053A04217CPG	4,217	.1660	—	19	0,7	36	6
B051A04300CPG	B052A04300CPG	B053A04300CPG	4,300	.1693	—	—	0,7	36	6
B051A04366CPG	B052A04366CPG	B053A04366CPG	4,366	.1719	11/64	—	0,7	36	6
B051A04400CPG	B052A04400CPG	B053A04400CPG	4,400	.1732	—	—	0,7	36	6
B051A04500CPG	B052A04500CPG	B053A04500CPG	4,500	.1772	—	—	0,7	36	6
B051A04600CPG	B052A04600CPG	B053A04600CPG	4,600	.1811	—	—	0,8	36	6
B051A04623CPG	B052A04623CPG	B053A04623CPG	4,623	.1820	—	14	0,8	36	6
B051A04700CPG	B052A04700CPG	B053A04700CPG	4,700	.1850	—	13	0,8	36	6
B051A04763CPG	B052A04763CPG	B053A04763CPG	4,763	.1875	3/16	—	0,8	36	6
B051A04800CPG	B052A04800CPG	B053A04800CPG	4,800	.1890	—	12	0,8	36	6
B051A04852CPG	B052A04852CPG	B053A04852CPG	4,852	.1910	—	11	0,8	36	6
B051A04900CPG	B052A04900CPG	B053A04900CPG	4,900	.1929	—	—	0,8	36	6
B051A05000CPG	B052A05000CPG	B053A05000CPG	5,000	.1969	—	—	0,8	36	6
B051A05100CPG	B052A05100CPG	B053A05100CPG	5,100	.2008	—	—	0,8	36	6
B051A05106CPG	B052A05106CPG	B053A05106CPG	5,106	.2010	—	7	0,8	36	6
B051A05159CPG	B052A05159CPG	B053A05159CPG	5,159	.2031	13/64	—	0,9	36	6
B051A05200CPG	B052A05200CPG	B053A05200CPG	5,200	.2047	—	—	0,9	36	6
B051A05300CPG	B052A05300CPG	B053A05300CPG	5,300	.2087	—	—	0,9	36	6
B051A05400CPG	B052A05400CPG	B053A05400CPG	5,400	.2126	—	—	0,9	36	6
B051A05410CPG	B052A05410CPG	B053A05410CPG	5,410	.2130	—	3	0,9	36	6
B051A05500CPG	B052A05500CPG	B053A05500CPG	5,500	.2165	—	—	0,9	36	6
B051A05558CPG	B052A05558CPG	B053A05558CPG	5,558	.2188	7/32	—	0,9	36	6
B051A05600CPG	B052A05600CPG	B053A05600CPG	5,600	.2205	—	—	0,9	36	6
B051A05616CPG	B052A05616CPG	B053A05616CPG	5,616	.2211	—	2	0,9	36	6
B051A05700CPG	B052A05700CPG	B053A05700CPG	5,700	.2244	—	—	1,0	36	6
B051A05800CPG	B052A05800CPG	B053A05800CPG	5,800	.2283	—	—	1,0	36	6
B051A05900CPG	B052A05900CPG	B053A05900CPG	5,900	.2323	—	—	1,0	36	6
B051A05954CPG	B052A05954CPG	B053A05954CPG	5,954	.2344	15/64	—	1,0	36	6

(continued)

(B051A/B052A/B053A • ~3 x D/-5 x D/-8 x D — continued)

Solid Carbide Drills



● first choice
○ alternate choice

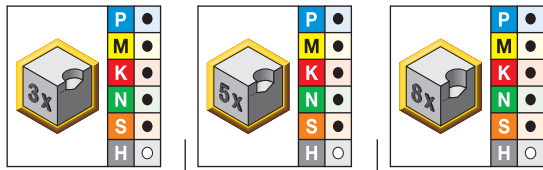
			D1 diameter			Wire size	L5	LS	D
short • KC7325	long • KC7325	extra long • KC7325	mm	in	fraction				
B051A06000CPG	B052A06000CPG	B053A06000CPG	6,000	.2362	—	—	1,0	36	6
B051A06100CPG	B052A06100CPG	B053A06100CPG	6,100	.2402	—	—	1,0	36	8
B051A06200CPG	B052A06200CPG	B053A06200CPG	6,200	.2441	—	—	1,0	36	8
B051A06300CPG	B052A06300CPG	B053A06300CPG	6,300	.2480	—	—	1,1	36	8
B051A06350CPG	B052A06350CPG	B053A06350CPG	6,350	.2500	1/4	E	1,1	36	8
B051A06400CPG	B052A06400CPG	B053A06400CPG	6,400	.2520	—	—	1,1	36	8
B051A06500CPG	B052A06500CPG	B053A06500CPG	6,500	.2559	—	—	1,1	36	8
B051A06528CPG	B052A06528CPG	B053A06528CPG	6,528	.2570	—	F	1,1	36	8
B051A06600CPG	B052A06600CPG	B053A06600CPG	6,600	.2598	—	—	1,1	36	8
B051A06630CPG	B052A06630CPG	B053A06630CPG	6,630	.2610	—	G	1,1	36	8
B051A06700CPG	B052A06700CPG	B053A06700CPG	6,700	.2638	—	—	1,1	36	8
B051A06746CPG	B052A06746CPG	B053A06746CPG	6,746	.2656	17/64	—	1,1	36	8
B051A06800CPG	B052A06800CPG	B053A06800CPG	6,800	.2677	—	—	1,1	36	8
B051A06900CPG	B052A06900CPG	B053A06900CPG	6,900	.2717	—	—	1,2	36	8
B051A07000CPG	B052A07000CPG	B053A07000CPG	7,000	.2756	—	—	1,2	36	8
B051A07100CPG	B052A07100CPG	B053A07100CPG	7,100	.2795	—	—	1,2	36	8
B051A07145CPG	B052A07145CPG	B053A07145CPG	7,145	.2813	9/32	—	1,2	36	8
B051A07200CPG	B052A07200CPG	B053A07200CPG	7,200	.2835	—	—	1,2	36	8
B051A07300CPG	B052A07300CPG	B053A07300CPG	7,300	.2874	—	—	1,2	36	8
B051A07400CPG	B052A07400CPG	B053A07400CPG	7,400	.2913	—	—	1,3	36	8
B051A07500CPG	B052A07500CPG	B053A07500CPG	7,500	.2953	—	—	1,3	36	8
B051A07541CPG	B052A07541CPG	B053A07541CPG	7,541	.2969	19/64	—	1,3	36	8
B051A07600CPG	B052A07600CPG	B053A07600CPG	7,600	.2992	—	—	1,3	36	8
B051A07700CPG	B052A07700CPG	B053A07700CPG	7,700	.3031	—	—	1,3	36	8
B051A07800CPG	B052A07800CPG	B053A07800CPG	7,800	.3071	—	—	1,3	36	8
B051A07900CPG	B052A07900CPG	B053A07900CPG	7,900	.3110	—	—	1,3	36	8
B051A07938CPG	B052A07938CPG	B053A07938CPG	7,938	.3125	5/16	—	1,3	36	8
B051A08000CPG	B052A08000CPG	B053A08000CPG	8,000	.3150	—	—	1,4	36	8
B051A08100CPG	B052A08100CPG	B053A08100CPG	8,100	.3189	—	—	1,4	40	10
B051A08200CPG	B052A08200CPG	B053A08200CPG	8,200	.3228	—	—	1,4	40	10
B051A08300CPG	B052A08300CPG	B053A08300CPG	8,300	.3268	—	—	1,4	40	10
B051A08334CPG	B052A08334CPG	B053A08334CPG	8,334	.3281	21/64	—	1,4	40	10
B051A08400CPG	B052A08400CPG	B053A08400CPG	8,400	.3307	—	—	1,4	40	10
B051A08433CPG	B052A08433CPG	B053A08433CPG	8,433	.3320	—	Q	1,4	40	10
B051A08500CPG	B052A08500CPG	B053A08500CPG	8,500	.3346	—	—	1,4	40	10
B051A08600CPG	B052A08600CPG	B053A08600CPG	8,600	.3386	—	—	1,5	40	10
B051A08700CPG	B052A08700CPG	B053A08700CPG	8,700	.3425	—	—	1,5	40	10
B051A08733CPG	B052A08733CPG	B053A08733CPG	8,733	.3438	11/32	—	1,5	40	10
B051A08800CPG	B052A08800CPG	B053A08800CPG	8,800	.3465	—	—	1,5	40	10
B051A08900CPG	B052A08900CPG	B053A08900CPG	8,900	.3504	—	—	1,5	40	10
B051A09000CPG	B052A09000CPG	B053A09000CPG	9,000	.3543	—	—	1,5	40	10
B051A09100CPG	B052A09100CPG	B053A09100CPG	9,100	.3583	—	—	1,5	40	10
B051A09129CPG	B052A09129CPG	B053A09129CPG	9,129	.3594	23/64	—	1,6	40	10
B051A09200CPG	B052A09200CPG	B053A09200CPG	9,200	.3622	—	—	1,6	40	10
B051A09300CPG	B052A09300CPG	B053A09300CPG	9,300	.3661	—	—	1,6	40	10
B051A09347CPG	B052A09347CPG	B053A09347CPG	9,347	.3680	—	U	1,6	40	10
B051A09400CPG	B052A09400CPG	B053A09400CPG	9,400	.3701	—	—	1,6	40	10
B051A09500CPG	B052A09500CPG	B053A09500CPG	9,500	.3740	—	—	1,6	40	10
B051A09525CPG	B052A09525CPG	B053A09525CPG	9,525	.3750	3/8	—	1,6	40	10
B051A09600CPG	B052A09600CPG	B053A09600CPG	9,600	.3780	—	—	1,6	40	10
B051A09700CPG	B052A09700CPG	B053A09700CPG	9,700	.3819	—	—	1,7	40	10
B051A09800CPG	B052A09800CPG	B053A09800CPG	9,800	.3858	—	—	1,7	40	10

(continued)

(B051A/B052A/B053A • ~3 x D/-5 x D/-8 x D — continued)



Solid Carbide Drills

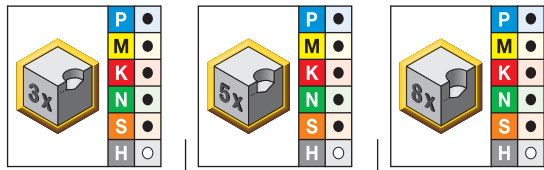

 ● first choice
 ○ alternate choice

			D1 diameter						
short • KC7325	long • KC7325	extra long • KC7325	mm	in	fraction	wire size	L5	LS	D
B051A09900CPG	B052A09900CPG	B053A09900CPG	9,900	.3898	—	—	1,7	40	10
B051A09921CPG	B052A09921CPG	B053A09921CPG	9,921	.3906	25/64	—	1,7	40	10
B051A10000CPG	B052A10000CPG	B053A10000CPG	10,000	.3937	—	—	1,7	40	10
B051A10100CPG	B052A10100CPG	B053A10100CPG	10,100	.3976	—	—	1,7	45	12
B051A10200CPG	B052A10200CPG	B053A10200CPG	10,200	.4016	—	—	1,7	45	12
B051A10300CPG	B052A10300CPG	B053A10300CPG	10,300	.4055	—	—	1,8	45	12
B051A10320CPG	B052A10320CPG	B053A10320CPG	10,320	.4063	13/32	—	1,8	45	12
B051A10400CPG	B052A10400CPG	B053A10400CPG	10,400	.4094	—	—	1,8	45	12
B051A10500CPG	B052A10500CPG	B053A10500CPG	10,500	.4134	—	—	1,8	45	12
B051A10600CPG	B052A10600CPG	B053A10600CPG	10,600	.4173	—	—	1,8	45	12
B051A10700CPG	B052A10700CPG	B053A10700CPG	10,700	.4213	—	—	1,8	45	12
B051A10716CPG	B052A10716CPG	B053A10716CPG	10,716	.4219	27/64	—	1,8	45	12
B051A10800CPG	B052A10800CPG	B053A10800CPG	10,800	.4252	—	—	1,8	45	12
B051A10900CPG	B052A10900CPG	B053A10900CPG	10,900	.4291	—	—	1,9	45	12
B051A11000CPG	B052A11000CPG	B053A11000CPG	11,000	.4331	—	—	1,9	45	12
B051A11100CPG	B052A11100CPG	B053A11100CPG	11,100	.4370	—	—	1,9	45	12
B051A11113CPG	B052A11113CPG	B053A11113CPG	11,113	.4375	7/16	—	1,9	45	12
B051A11200CPG	B052A11200CPG	B053A11200CPG	11,200	.4409	—	—	1,9	45	12
B051A11300CPG	B052A11300CPG	B053A11300CPG	11,300	.4449	—	—	1,9	45	12
B051A11400CPG	B052A11400CPG	B053A11400CPG	11,400	.4488	—	—	2,0	45	12
B051A11500CPG	B052A11500CPG	B053A11500CPG	11,500	.4528	—	—	2,0	45	12
B051A11509CPG	B052A11509CPG	B053A11509CPG	11,509	.4531	29/64	—	2,0	45	12
B051A11600CPG	B052A11600CPG	B053A11600CPG	11,600	.4567	—	—	2,0	45	12
B051A11700CPG	B052A11700CPG	B053A11700CPG	11,700	.4606	—	—	2,0	45	12
B051A11800CPG	B052A11800CPG	B053A11800CPG	11,800	.4646	—	—	2,0	45	12
B051A11900CPG	B052A11900CPG	B053A11900CPG	11,900	.4685	—	—	2,0	45	12
B051A11908CPG	B052A11908CPG	B053A11908CPG	11,908	.4688	15/32	—	2,0	45	12
B051A12000CPG	B052A12000CPG	B053A12000CPG	12,000	.4724	—	—	2,1	45	12
B051A12100CPG	B052A12100CPG	B053A12100CPG	12,100	.4764	—	—	2,1	45	14
B051A12200CPG	B052A12200CPG	B053A12200CPG	12,200	.4803	—	—	2,1	45	14
B051A12300CPG	B052A12300CPG	B053A12300CPG	12,300	.4843	—	—	2,1	45	14
B051A12304CPG	B052A12304CPG	B053A12304CPG	12,304	.4844	31/64	—	2,1	45	14
B051A12400CPG	B052A12400CPG	B053A12400CPG	12,400	.4882	—	—	2,1	45	14
B051A12500CPG	B052A12500CPG	B053A12500CPG	12,500	.4921	—	—	2,1	45	14
B051A12600CPG	B052A12600CPG	B053A12600CPG	12,600	.4961	—	—	2,2	45	14
B051A12700CPG	B052A12700CPG	B053A12700CPG	12,700	.5000	1/2	—	2,2	45	14
B051A12800CPG	B052A12800CPG	B053A12800CPG	12,800	.5039	—	—	2,2	45	14
B051A12900CPG	B052A12900CPG	B053A12900CPG	12,900	.5079	—	—	2,2	45	14
B051A13000CPG	B052A13000CPG	B053A13000CPG	13,000	.5118	—	—	2,2	45	14
B051A13096CPG	B052A13096CPG	B053A13096CPG	13,096	.5156	33/64	—	2,3	45	14
B051A13100CPG	B052A13100CPG	B053A13100CPG	13,100	.5157	—	—	2,3	45	14
B051A13200CPG	B052A13200CPG	B053A13200CPG	13,200	.5197	—	—	2,3	45	14
B051A13300CPG	B052A13300CPG	B053A13300CPG	13,300	.5236	—	—	2,3	45	14
B051A13400CPG	B052A13400CPG	B053A13400CPG	13,400	.5276	—	—	2,3	45	14
B051A13500CPG	B052A13500CPG	B053A13500CPG	13,500	.5315	—	—	2,3	45	14
B051A13600CPG	B052A13600CPG	B053A13600CPG	13,600	.5354	—	—	2,3	45	14
B051A13700CPG	B052A13700CPG	B053A13700CPG	13,700	.5394	—	—	2,4	45	14
B051A13800CPG	B052A13800CPG	B053A13800CPG	13,800	.5433	—	—	2,4	45	14
B051A13891CPG	B052A13891CPG	B053A13891CPG	13,891	.5469	35/64	—	2,4	45	14
B051A13900CPG	B052A13900CPG	B053A13900CPG	13,900	.5472	—	—	2,4	45	14
B051A14000CPG	B052A14000CPG	B053A14000CPG	14,000	.5512	—	—	2,4	45	14
B051A14100CPG	B052A14100CPG	B053A14100CPG	14,100	.5551	—	—	2,4	48	16

(continued)

(B051A/B052A/B053A • ~3 x D/-5 x D/-8 x D — continued)

Solid Carbide Drills



● first choice
○ alternate choice

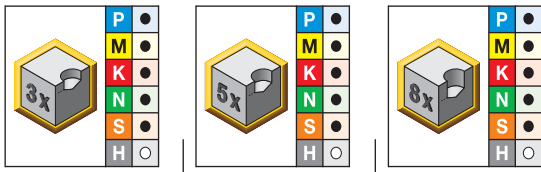
			D1 diameter			Wire size	L5	LS	D
short • KC7325	long • KC7325	extra long • KC7325	mm	in	fraction				
B051A14200CPG	B052A14200CPG	B053A14200CPG	14,200	.5591	—	—	2,5	48	16
B051A14288CPG	B052A14288CPG	B053A14288CPG	14,288	.5625	9/16	—	2,5	48	16
B051A14300CPG	B052A14300CPG	B053A14300CPG	14,300	.5630	—	—	2,5	48	16
B051A14400CPG	B052A14400CPG	B053A14400CPG	14,400	.5669	—	—	2,5	48	16
B051A14500CPG	B052A14500CPG	B053A14500CPG	14,500	.5709	—	—	2,5	48	16
B051A14600CPG	B052A14600CPG	B053A14600CPG	14,600	.5748	—	—	2,5	48	16
B051A14684CPG	B052A14684CPG	B053A14684CPG	14,684	.5781	37/64	—	2,5	48	16
B051A14700CPG	B052A14700CPG	B053A14700CPG	14,700	.5787	—	—	2,5	48	16
B051A14800CPG	B052A14800CPG	B053A14800CPG	14,800	.5827	—	—	2,6	48	16
B051A14900CPG	B052A14900CPG	B053A14900CPG	14,900	.5866	—	—	2,6	48	16
B051A15000CPG	B052A15000CPG	B053A15000CPG	15,000	.5906	—	—	2,6	48	16
B051A15083CPG	B052A15083CPG	B053A15083CPG	15,083	.5938	19/32	—	2,6	48	16
B051A15100CPG	B052A15100CPG	B053A15100CPG	15,100	.5945	—	—	2,6	48	16
B051A15200CPG	B052A15200CPG	B053A15200CPG	15,200	.5984	—	—	2,6	48	16
B051A15300CPG	B052A15300CPG	B053A15300CPG	15,300	.6024	—	—	2,6	48	16
B051A15400CPG	B052A15400CPG	B053A15400CPG	15,400	.6063	—	—	2,7	48	16
B051A15479CPG	B052A15479CPG	B053A15479CPG	15,479	.6094	39/64	—	2,7	48	16
B051A15500CPG	B052A15500CPG	B053A15500CPG	15,500	.6102	—	—	2,7	48	16
B051A15600CPG	B052A15600CPG	B053A15600CPG	15,600	.6142	—	—	2,7	48	16
B051A15700CPG	B052A15700CPG	B053A15700CPG	15,700	.6181	—	—	2,7	48	16
B051A15800CPG	B052A15800CPG	B053A15800CPG	15,800	.6220	—	—	2,7	48	16
B051A15875CPG	B052A15875CPG	B053A15875CPG	15,875	.6250	5/8	—	2,7	48	16
B051A15900CPG	B052A15900CPG	B053A15900CPG	15,900	.6260	—	—	2,8	48	16
B051A16000CPG	B052A16000CPG	B053A16000CPG	16,000	.6299	—	—	2,8	48	16
B051A16100CPG	B052A16100CPG	B053A16100CPG	16,100	.6339	—	—	2,8	48	18
B051A16200CPG	B052A16200CPG	B053A16200CPG	16,200	.6378	—	—	2,8	48	18
B051A16271CPG	B052A16271CPG	B053A16271CPG	16,271	.6406	41/64	—	2,8	48	18
B051A16300CPG	B052A16300CPG	B053A16300CPG	16,300	.6417	—	—	2,8	48	18
B051A16400CPG	B052A16400CPG	B053A16400CPG	16,400	.6457	—	—	2,8	48	18
B051A16500CPG	B052A16500CPG	B053A16500CPG	16,500	.6496	—	—	2,9	48	18
B051A16600CPG	B052A16600CPG	B053A16600CPG	16,600	.6535	—	—	2,9	48	18
B051A16670CPG	B052A16670CPG	B053A16670CPG	16,670	.6563	21/32	—	2,9	48	18
B051A16700CPG	B052A16700CPG	B053A16700CPG	16,700	.6575	—	—	2,9	48	18
B051A16800CPG	B052A16800CPG	B053A16800CPG	16,800	.6614	—	—	2,9	48	18
B051A16900CPG	B052A16900CPG	B053A16900CPG	16,900	.6654	—	—	2,9	48	18
B051A17000CPG	B052A17000CPG	B053A17000CPG	17,000	.6693	—	—	2,9	48	18
B051A17100CPG	B052A17100CPG	B053A17100CPG	17,100	.6732	—	—	3,0	48	18
B051A17200CPG	B052A17200CPG	B053A17200CPG	17,200	.6772	—	—	3,0	48	18
B051A17300CPG	B052A17300CPG	B053A17300CPG	17,300	.6811	—	—	3,0	48	18
B051A17400CPG	B052A17400CPG	B053A17400CPG	17,400	.6850	—	—	3,0	48	18
B051A17463CPG	B052A17463CPG	B053A17463CPG	17,463	.6875	11/16	—	3,0	48	18
B051A17500CPG	B052A17500CPG	B053A17500CPG	17,500	.6890	—	—	3,0	48	18
B051A17600CPG	B052A17600CPG	B053A17600CPG	17,600	.6929	—	—	3,1	48	18
B051A17700CPG	B052A17700CPG	B053A17700CPG	17,700	.6969	—	—	3,1	48	18
B051A17800CPG	B052A17800CPG	B053A17800CPG	17,800	.7008	—	—	3,1	48	18
B051A17859CPG	B052A17859CPG	B053A17859CPG	17,859	.7031	45/64	—	3,1	48	18
B051A17900CPG	B052A17900CPG	B053A17900CPG	17,900	.7047	—	—	3,1	48	18
B051A18000CPG	B052A18000CPG	B053A18000CPG	18,000	.7087	—	—	3,1	48	18
B051A18100CPG	B052A18100CPG	B053A18100CPG	18,100	.7126	—	—	3,1	50	20
B051A18200CPG	B052A18200CPG	B053A18200CPG	18,200	.7165	—	—	3,2	50	20
B051A18258CPG	B052A18258CPG	B053A18258CPG	18,258	.7188	23/32	—	3,2	50	20
B051A18300CPG	B052A18300CPG	B053A18300CPG	18,300	.7205	—	—	3,2	50	20

(continued)

(B051A/B052A/B053A • ~3 x D/-5 x D/-8 x D — continued)



Solid Carbide Drills


 ● first choice
 ○ alternate choice

			D1 diameter			wire size	L5	LS	D
short • KC7325	long • KC7325	extra long • KC7325	mm	in	fraction				
B051A1840CPG	B052A1840CPG	B053A1840CPG	18,400	.7244	—	—	3,2	50	20
B051A1850CPG	B052A1850CPG	B053A1850CPG	18,500	.7283	—	—	3,2	50	20
B051A1860CPG	B052A1860CPG	B053A1860CPG	18,600	.7323	—	—	3,2	50	20
B051A1865CPG	B052A1865CPG	B053A1865CPG	18,654	.7344	47/64	—	3,2	50	20
B051A1870CPG	B052A1870CPG	B053A1870CPG	18,700	.7362	—	—	3,2	50	20
B051A1880CPG	B052A1880CPG	B053A1880CPG	18,800	.7402	—	—	3,3	50	20
B051A1890CPG	B052A1890CPG	B053A1890CPG	18,900	.7441	—	—	3,3	50	20
B051A1900CPG	B052A1900CPG	B053A1900CPG	19,000	.7480	—	—	3,3	50	20
B051A1905CPG	B052A1905CPG	B053A1905CPG	19,050	.7500	3/4	—	3,3	50	20
B051A1910CPG	B052A1910CPG	B053A1910CPG	19,100	.7520	—	—	3,3	50	20
B051A1920CPG	B052A1920CPG	B053A1920CPG	19,200	.7559	—	—	3,3	50	20
B051A1930CPG	B052A1930CPG	B053A1930CPG	19,300	.7598	—	—	3,4	50	20
B051A1940CPG	B052A1940CPG	B053A1940CPG	19,400	.7638	—	—	3,4	50	20
B051A1950CPG	B052A1950CPG	B053A1950CPG	19,500	.7677	—	—	3,4	50	20
B051A1960CPG	B052A1960CPG	B053A1960CPG	19,600	.7717	—	—	3,4	50	20
B051A1970CPG	B052A1970CPG	B053A1970CPG	19,700	.7756	—	—	3,4	50	20
B051A1980CPG	B052A1980CPG	B053A1980CPG	19,800	.7795	—	—	3,4	50	20
B051A1990CPG	B052A1990CPG	B053A1990CPG	19,900	.7835	—	—	3,5	50	20
B051A2000CPG	B052A2000CPG	B053A2000CPG	20,000	.7874	—	—	3,5	50	20

NOTE: GOdrills with a D1 <.0591" (1,5mm) have coolant exiting the shank.

nominal size range	Tolerance • Inch	
	D1 tolerance	D tolerance h6
.0394-.1181	.0000/-0.0006 (h8)	.0000/-0.0002
>.1181-.2362	.0000/-0.0005 (h7)	.0000/-0.0003
>.2362-.3937	.0000/-0.0006 (h7)	.0000/-0.0004
>.3937-.7087	.0000/-0.0007 (h7)	.0000/-0.0004
>.7087-.7874	.0000/-0.0008 (h7)	.0000/-0.0005

nominal size range	Tolerance • Metric	
	D1 tolerance	D tolerance h6
1-3	0,000/-0,014 (h8)	0,000/-0,006
>3-6	0,000/-0,012 (h7)	0,000/-0,008
>6-10	0,000/-0,015 (h7)	0,000/-0,009
>10-18	0,000/-0,018 (h7)	0,000/-0,011
>18-20	0,000/-0,021 (h7)	0,000/-0,013

GOdrill™ • B04_CPG Series • Grade KC7325™ • Flood Coolant • Drill Diameters 1–20mm (.0394–.7874")

Solid Carbide Drills

Material Group	Cutting Speed – vc				Metric										
	Range – m/min				Recommended Feed Rate (f) by Diameter										
	min	Starting Value	max		1,0	2,0	3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0	
P	0	70	80	115	mm/r	0,03–0,08	0,04–0,09	0,05–0,11	0,08–0,14	0,09–0,19	0,11–0,22	0,13–0,26	0,15–0,30	0,19–0,36	0,24–0,46
	1	60	70	100	mm/r	0,04–0,09	0,05–0,11	0,06–0,13	0,09–0,16	0,11–0,22	0,13–0,26	0,15–0,31	0,18–0,35	0,22–0,42	0,28–0,54
	2	80	90	100	mm/r	0,04–0,09	0,05–0,11	0,06–0,13	0,08–0,16	0,12–0,22	0,14–0,26	0,17–0,31	0,20–0,35	0,24–0,42	0,31–0,53
	3	50	70	90	mm/r	0,05–0,11	0,06–0,13	0,07–0,15	0,09–0,17	0,13–0,23	0,15–0,28	0,19–0,33	0,22–0,38	0,26–0,47	0,34–0,59
	4	50	70	100	mm/r	0,04–0,12	0,05–0,13	0,06–0,15	0,08–0,17	0,12–0,23	0,14–0,28	0,17–0,33	0,19–0,38	0,23–0,47	0,29–0,59
	5	30	40	60	mm/r	0,03–0,05	0,04–0,06	0,05–0,07	0,06–0,10	0,08–0,14	0,10–0,18	0,12–0,22	0,14–0,24	0,18–0,32	0,23–0,41
M	6	30	40	60	mm/r	0,03–0,05	0,04–0,06	0,05–0,07	0,06–0,10	0,08–0,14	0,10–0,18	0,12–0,22	0,14–0,24	0,18–0,32	0,23–0,41
	1	20	30	40	mm/r	0,02–0,05	0,03–0,06	0,04–0,07	0,05–0,09	0,08–0,11	0,09–0,12	0,10–0,14	0,12–0,16	0,14–0,18	0,16–0,20
	2	30	40	50	mm/r	0,02–0,06	0,03–0,07	0,04–0,08	0,06–0,10	0,08–0,12	0,09–0,14	0,10–0,16	0,12–0,18	0,14–0,20	0,16–0,22
K	3	20	30	40	mm/r	0,02–0,05	0,03–0,06	0,04–0,07	0,06–0,09	0,08–0,11	0,09–0,12	0,10–0,14	0,12–0,16	0,14–0,18	0,16–0,20
	1	80	130	170	mm/r	0,09–0,18	0,10–0,20	0,11–0,22	0,12–0,24	0,16–0,31	0,20–0,38	0,23–0,44	0,25–0,49	0,31–0,60	0,38–0,74
	2	90	110	120	mm/r	0,06–0,13	0,08–0,15	0,10–0,17	0,12–0,19	0,16–0,25	0,20–0,31	0,23–0,36	0,25–0,40	0,31–0,48	0,38–0,60
N	3	80	110	130	mm/r	0,05–0,11	0,06–0,13	0,07–0,15	0,09–0,19	0,12–0,25	0,14–0,30	0,17–0,35	0,19–0,40	0,25–0,48	0,30–0,60
	1	90	230	270	mm/r	0,05–0,12	0,06–0,13	0,08–0,14	0,10–0,16	0,12–0,20	0,16–0,24	0,20–0,28	0,24–0,32	0,28–0,40	0,32–0,48
	2	90	220	270	mm/r	0,04–0,08	0,06–0,12	0,08–0,16	0,10–0,20	0,12–0,24	0,16–0,28	0,20–0,32	0,24–0,36	0,28–0,44	0,32–0,52
	3	90	180	225	mm/r	0,10–0,13	0,11–0,14	0,12–0,14	0,13–0,16	0,14–0,20	0,16–0,24	0,20–0,28	0,24–0,32	0,28–0,40	0,32–0,44
S	4	90	130	270	mm/r	0,04–0,08	0,06–0,12	0,08–0,16	0,10–0,20	0,12–0,24	0,16–0,28	0,20–0,32	0,24–0,36	0,28–0,40	0,32–0,48
	1	20	25	30	mm/r	0,01–0,04	0,02–0,05	0,03–0,06	0,04–0,08	0,06–0,10	0,08–0,12	0,09–0,13	0,10–0,14	0,12–0,16	0,14–0,18
	2	10	20	30	mm/r	0,01–0,03	0,02–0,03	0,02–0,04	0,03–0,06	0,05–0,08	0,07–0,10	0,08–0,11	0,09–0,12	0,10–0,14	0,11–0,16
	3	20	25	40	mm/r	0,01–0,03	0,02–0,03	0,02–0,04	0,02–0,05	0,04–0,07	0,06–0,09	0,07–0,10	0,08–0,11	0,09–0,13	0,10–0,15
H	4	20	25	50	mm/r	0,01–0,03	0,02–0,03	0,02–0,04	0,03–0,06	0,05–0,08	0,07–0,10	0,08–0,11	0,09–0,12	0,10–0,14	0,11–0,16
	1	10	15	30	mm/r	0,01–0,03	0,02–0,03	0,02–0,04	0,03–0,06	0,05–0,08	0,07–0,10	0,08–0,11	0,09–0,12	0,10–0,14	0,11–0,16
H	2	10	10	30	mm/r	0,01–0,03	0,02–0,03	0,02–0,04	0,02–0,05	0,04–0,07	0,06–0,09	0,07–0,10	0,08–0,11	0,09–0,13	0,10–0,15
Material Group	Cutting Speed – vc				Inch										
	Range – SFM				Recommended Feed Rate (f) by Diameter										
	min	Starting Value	max		3/64 .047	5/64 .078	1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750	
P	0	200	230	330	IPR	.001-.003	.002-.004	.002-.004	.003-.005	.004-.007	.004-.009	.005-.010	.006-.012	.007-.014	.009-.018
	1	200	230	330	IPR	.002-.004	.002-.004	.002-.005	.004-.006	.004-.009	.005-.010	.006-.012	.007-.014	.009-.017	.011-.021
	2	260	300	330	IPR	.002-.004	.002-.004	.002-.005	.003-.006	.005-.009	.006-.010	.007-.012	.008-.014	.009-.017	.012-.021
	3	160	230	300	IPR	.002-.004	.002-.005	.003-.006	.004-.007	.005-.009	.006-.011	.008-.013	.009-.015	.010-.019	.013-.023
	4	160	230	330	IPR	.002-.005	.002-.005	.002-.006	.003-.007	.005-.009	.006-.011	.007-.013	.008-.015	.009-.019	.011-.023
	5	100	130	200	IPR	.001-.002	.002-.002	.002-.003	.002-.004	.003-.006	.004-.007	.005-.009	.006-.009	.007-.013	.009-.016
M	6	100	130	200	IPR	.001-.002	.002-.002	.002-.003	.002-.004	.003-.006	.004-.007	.005-.009	.006-.009	.007-.013	.009-.016
	1	70	100	130	IPR	.001-.002	.001-.002	.002-.003	.002-.004	.003-.004	.004-.005	.004-.006	.005-.006	.006-.007	.006-.008
	2	100	130	160	IPR	.001-.002	.001-.003	.002-.003	.002-.004	.003-.005	.004-.006	.004-.006	.005-.007	.006-.008	.006-.009
K	3	70	100	130	IPR	.001-.002	.001-.002	.002-.003	.002-.004	.003-.004	.004-.005	.004-.006	.005-.006	.006-.007	.006-.008
	1	260	430	560	IPR	.004-.007	.004-.008	.004-.009	.005-.009	.006-.012	.008-.015	.009-.017	.010-.019	.012-.024	.015-.029
	2	300	360	390	IPR	.002-.005	.003-.006	.004-.007	.005-.008	.006-.010	.008-.012	.009-.014	.010-.016	.012-.019	.015-.024
N	3	260	360	430	IPR	.002-.004	.002-.005	.003-.006	.004-.008	.005-.010	.006-.012	.007-.014	.008-.016	.010-.019	.012-.024
	1	300	750	890	IPR	.002-.005	.002-.005	.003-.006	.004-.006	.005-.008	.006-.009	.008-.011	.009-.013	.011-.016	.013-.019
	2	300	720	890	IPR	.002-.003	.002-.005	.003-.006	.004-.008	.005-.009	.006-.011	.008-.013	.009-.014	.011-.017	.013-.021
	3	300	590	740	IPR	.004-.005	.004-.006	.005-.006	.005-.006	.006-.008	.006-.009	.008-.011	.009-.013	.011-.016	.013-.017
S	4	300	430	890	IPR	.002-.003	.002-.005	.003-.006	.004-.008	.005-.009	.006-.011	.008-.013	.009-.014	.011-.016	.013-.019
	1	70	80	100	IPR	.000-.002	.001-.002	.001-.002	.002-.003	.002-.004	.003-.005	.004-.005	.004-.006	.005-.006	.006-.007
	2	30	70	100	IPR	.000-.001	.001-.001	.001-.001	.001-.002	.002-.003	.003-.004	.004-.005	.004-.006	.004-.006	.004-.006
	3	70	80	130	IPR	.000-.001	.001-.001	.001-.001	.001-.002	.002-.003	.002-.004	.003-.004	.003-.004	.004-.005	.004-.006
H	4	70	80	160	IPR	.000-.001	.001-.001	.001-.002	.001-.002	.002-.003	.003-.004	.003-.004	.004-.005	.004-.006	.004-.006
	1	30	50	100	IPR	.000-.001	.001-.001	.001-.002	.001-.002	.002-.003	.003-.004	.003-.004	.004-.005	.004-.006	.004-.006
H	2	30	30	100	IPR	.000-.001	.001-.001	.001-.002	.001-.002	.002-.003	.002-.004	.003-.004	.003-.004	.004-.005	.004-.006

GOdrill™ • B05_CPG Series • Grade KC7325™ • Through Coolant • Drill Diameters 1–20mm (.0394–.7874")

Solid Carbide Drills

Material Group		Cutting Speed – vc			Metric										
		Range – m/min			Recommended Feed Rate (f) by Diameter										
		min	Starting Value	max	1,0	2,0	3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0	
P	0	70	80	115	mm/r	0,03–0,08	0,04–0,09	0,05–0,11	0,08–0,14	0,09–0,19	0,11–0,22	0,13–0,26	0,15–0,30	0,19–0,36	0,24–0,46
	1	70	100	140	mm/r	0,04–0,09	0,05–0,12	0,07–0,14	0,08–0,16	0,11–0,22	0,13–0,26	0,15–0,31	0,18–0,35	0,22–0,42	0,28–0,54
	2	90	120	140	mm/r	0,04–0,09	0,05–0,12	0,07–0,14	0,08–0,16	0,12–0,22	0,14–0,26	0,17–0,31	0,20–0,35	0,24–0,42	0,31–0,53
	3	60	80	100	mm/r	0,05–0,10	0,06–0,13	0,08–0,15	0,09–0,17	0,13–0,23	0,15–0,28	0,19–0,33	0,22–0,38	0,26–0,47	0,34–0,59
	4	50	80	100	mm/r	0,05–0,10	0,06–0,13	0,07–0,15	0,08–0,17	0,12–0,23	0,14–0,28	0,17–0,33	0,19–0,38	0,23–0,47	0,29–0,59
	5	40	50	70	mm/r	0,03–0,05	0,04–0,06	0,05–0,07	0,06–0,10	0,08–0,14	0,10–0,18	0,12–0,22	0,14–0,24	0,18–0,32	0,23–0,41
M	6	40	50	70	mm/r	0,03–0,05	0,04–0,06	0,05–0,08	0,06–0,10	0,08–0,14	0,10–0,18	0,13–0,22	0,14–0,24	0,18–0,32	0,23–0,41
	1	20	30	40	mm/r	0,02–0,05	0,03–0,06	0,04–0,07	0,05–0,09	0,08–0,11	0,09–0,12	0,10–0,14	0,12–0,16	0,14–0,18	0,16–0,20
	2	30	40	50	mm/r	0,02–0,06	0,03–0,07	0,04–0,08	0,06–0,10	0,08–0,12	0,09–0,14	0,10–0,16	0,12–0,18	0,14–0,20	0,16–0,22
K	3	20	30	40	mm/r	0,02–0,05	0,03–0,06	0,04–0,07	0,05–0,09	0,08–0,11	0,09–0,12	0,10–0,14	0,12–0,16	0,14–0,18	0,16–0,20
	1	80	120	170	mm/r	0,08–0,16	0,09–0,17	0,11–0,22	0,12–0,24	0,16–0,31	0,20–0,38	0,23–0,44	0,25–0,49	0,31–0,60	0,38–0,74
	2	80	110	140	mm/r	0,10–0,14	0,11–0,15	0,12–0,16	0,13–0,19	0,16–0,25	0,20–0,31	0,23–0,36	0,25–0,40	0,31–0,48	0,38–0,60
N	3	80	100	130	mm/r	0,05–0,13	0,07–0,15	0,08–0,17	0,09–0,19	0,12–0,25	0,14–0,30	0,17–0,35	0,19–0,40	0,24–0,48	0,30–0,60
	1	90	230	315	mm/r	0,05–0,12	0,06–0,13	0,08–0,14	0,10–0,16	0,12–0,20	0,16–0,24	0,20–0,28	0,24–0,32	0,28–0,40	0,32–0,48
	2	90	225	270	mm/r	0,04–0,08	0,06–0,12	0,08–0,16	0,10–0,20	0,12–0,24	0,16–0,28	0,20–0,32	0,24–0,36	0,28–0,44	0,32–0,52
	3	90	180	270	mm/r	0,10–0,13	0,11–0,14	0,12–0,14	0,13–0,16	0,14–0,20	0,16–0,24	0,20–0,28	0,24–0,32	0,28–0,40	0,32–0,44
S	4	90	135	180	mm/r	0,04–0,08	0,06–0,12	0,08–0,16	0,10–0,20	0,12–0,24	0,16–0,28	0,20–0,32	0,24–0,36	0,28–0,40	0,32–0,48
	1	10	25	30	mm/r	0,01–0,04	0,02–0,05	0,03–0,06	0,04–0,08	0,06–0,10	0,08–0,12	0,09–0,13	0,10–0,14	0,12–0,16	0,14–0,18
	2	10	20	25	mm/r	0,01–0,03	0,02–0,03	0,02–0,04	0,03–0,06	0,05–0,08	0,07–0,10	0,08–0,11	0,09–0,12	0,10–0,14	0,11–0,16
	3	10	25	30	mm/r	0,01–0,03	0,02–0,03	0,02–0,04	0,02–0,05	0,04–0,07	0,06–0,09	0,07–0,10	0,08–0,11	0,09–0,13	0,10–0,15
H	4	10	25	40	mm/r	0,01–0,03	0,02–0,03	0,02–0,04	0,03–0,06	0,05–0,08	0,07–0,10	0,08–0,11	0,09–0,12	0,10–0,14	0,11–0,16
	1	10	15	30	mm/r	0,01–0,03	0,02–0,03	0,02–0,04	0,03–0,06	0,05–0,08	0,07–0,10	0,08–0,11	0,09–0,12	0,10–0,14	0,11–0,16
H	2	10	10	30	mm/r	0,01–0,03	0,02–0,03	0,02–0,04	0,02–0,05	0,04–0,07	0,06–0,09	0,07–0,10	0,08–0,11	0,09–0,13	0,10–0,15

Material Group		Cutting Speed – vc			Inch										
		Range – SFM			Recommended Feed Rate (f) by Diameter										
		min	Starting Value	max	3/64 .047	5/64 .078	1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750	
P	0	230	260	380	IPR	.001–.003	.002–.004	.002–.004	.003–.005	.004–.007	.004–.009	.005–.010	.006–.012	.007–.014	.009–.018
	1	230	330	460	IPR	.002–.004	.002–.005	.003–.006	.003–.006	.004–.009	.005–.010	.006–.012	.007–.014	.009–.017	.011–.021
	2	300	390	460	IPR	.002–.004	.002–.005	.003–.006	.003–.006	.005–.009	.006–.010	.007–.012	.008–.014	.009–.017	.012–.021
	3	200	260	330	IPR	.002–.004	.002–.005	.003–.006	.004–.007	.005–.009	.006–.011	.008–.013	.009–.015	.010–.019	.013–.023
	4	160	260	330	IPR	.002–.004	.002–.005	.003–.006	.003–.007	.005–.009	.006–.011	.007–.013	.008–.015	.009–.019	.011–.023
	5	130	160	230	IPR	.001–.002	.002–.002	.002–.003	.002–.004	.003–.006	.004–.007	.005–.009	.006–.009	.007–.013	.009–.016
M	6	130	160	230	IPR	.001–.002	.002–.002	.002–.003	.002–.004	.003–.006	.004–.007	.005–.009	.006–.009	.007–.013	.009–.016
	1	70	100	130	IPR	.001–.002	.001–.002	.002–.003	.002–.004	.003–.004	.004–.005	.004–.006	.005–.006	.006–.007	.006–.008
	2	100	130	160	IPR	.001–.002	.001–.003	.002–.003	.002–.004	.003–.005	.004–.006	.004–.006	.005–.007	.006–.008	.006–.009
K	3	70	100	130	IPR	.001–.002	.001–.002	.002–.003	.002–.004	.003–.004	.004–.005	.004–.006	.005–.006	.006–.007	.006–.008
	1	260	390	560	IPR	.003–.006	.004–.007	.004–.009	.005–.009	.006–.012	.008–.015	.009–.017	.010–.019	.012–.024	.015–.029
	2	260	360	460	IPR	.004–.006	.004–.006	.005–.006	.005–.008	.006–.010	.008–.012	.009–.014	.010–.016	.012–.019	.015–.024
N	3	260	330	430	IPR	.002–.005	.003–.006	.003–.007	.004–.008	.005–.010	.006–.012	.007–.014	.008–.016	.009–.019	.012–.024
	1	300	750	1030	IPR	.002–.005	.002–.005	.003–.006	.004–.006	.005–.008	.006–.009	.008–.011	.009–.013	.011–.016	.013–.019
	2	300	740	890	IPR	.002–.003	.002–.005	.003–.006	.004–.008	.005–.009	.006–.011	.008–.013	.009–.014	.011–.017	.013–.021
	3	300	590	890	IPR	.004–.005	.004–.006	.005–.006	.005–.006	.006–.008	.006–.009	.008–.011	.009–.013	.011–.016	.013–.017
S	4	300	440	590	IPR	.002–.003	.002–.005	.003–.006	.004–.008	.005–.009	.006–.011	.008–.013	.009–.014	.011–.016	.013–.019
	1	30	80	100	IPR	.000–.002	.001–.002	.001–.002	.002–.003	.002–.004	.003–.005	.004–.005	.004–.006	.005–.006	.006–.007
	2	30	70	80	IPR	.000–.001	.001–.001	.001–.002	.001–.002	.002–.003	.003–.004	.003–.004	.004–.005	.004–.006	.004–.006
	3	30	80	100	IPR	.000–.001	.001–.001	.001–.002	.001–.002	.002–.003	.003–.004	.003–.004	.003–.004	.004–.005	.004–.006
H	4	30	80	130	IPR	.000–.001	.001–.001	.001–.002	.001–.002	.002–.003	.003–.004	.003–.004	.004–.005	.004–.006	.004–.006
	1	30	50	100	IPR	.000–.001	.001–.001	.001–.002	.001–.002	.002–.003	.003–.004	.003–.004	.004–.005	.004–.006	.004–.006
H	2	30	30	100	IPR	.000–.001	.001–.001	.001–.002	.001–.002	.002–.003	.003–.004	.003–.004	.004–.005	.004–.006	.004–.006

➤ TF Drill for High Metal Removal Rates

Primary Application

B105 solid carbide drills are ideal for high metal removal rates and excellent hole quality in short chipping materials such as gray cast iron, ductile iron, and aluminum as well as in short-hole titanium applications.

Features and Benefits

Three Cutting Edges

- Higher feed rates than with two-edged drills.

Three Spacious Flutes

- Rapid chip evacuation.
- Three-margin lands deliver better hole quality and straightness than two-flute drills.

Wear-Resistant Carbide Grade

- High tool life in abrasive materials such as cast iron and aluminum die cast alloys.

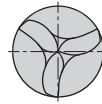
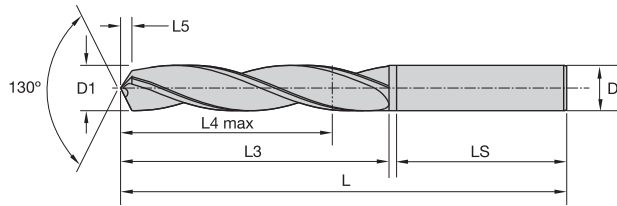


Uncoated K10™ Grade

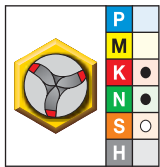
- The uncoated grade helps to prevent built-up edge in drilling aluminum and high-temp alloys.

Customization

- Intermediate diameters available as engineered solutions.
- Length variations and step drills available as custom solutions.



■ B105 • ~5 x D



● first choice

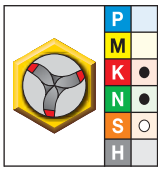
○ alternate choice

K10	D1 diameter				L	L3	L4 max	L5	LS	D
	mm	in	fraction	wire size						
B105A03000	3,000	.1181	—	—	66	28	23	0,7	36	6
B105A03100	3,100	.1220	—	—	66	28	23	0,8	36	6
B105A03200	3,200	.1260	—	—	66	28	23	0,8	36	6
B105A03300	3,300	.1299	—	—	66	28	23	0,8	36	6
B105A03400	3,400	.1339	—	—	66	28	23	0,8	36	6
B105A03500	3,500	.1378	—	—	66	28	23	0,9	36	6
B105A03600	3,600	.1417	—	—	66	28	23	0,9	36	6
B105A03700	3,700	.1457	—	—	66	28	23	0,9	36	6
B105A03800	3,800	.1496	—	—	74	36	29	0,9	36	6
B105A03900	3,900	.1535	—	—	74	36	29	1,0	36	6
B105A04000	4,000	.1575	—	—	74	36	29	1,0	36	6
B105A04100	4,100	.1614	—	—	74	36	29	1,0	36	6
B105A04200	4,200	.1654	—	—	74	36	29	1,0	36	6
B105A04300	4,300	.1693	—	—	74	36	29	1,1	36	6
B105A04500	4,500	.1772	—	—	74	36	29	1,1	36	6
B105A04600	4,600	.1811	—	—	74	36	29	1,1	36	6
B105A04650	4,650	.1831	—	—	74	36	29	1,2	36	6
B105A04700	4,700	.1850	—	13	74	36	29	1,2	36	6
B105A04800	4,800	.1890	—	12	82	44	35	1,2	36	6
B105A04900	4,900	.1929	—	—	82	44	35	1,2	36	6
B105A05000	5,000	.1969	—	—	82	44	35	1,2	36	6
B105A05100	5,100	.2008	—	—	82	44	35	1,3	36	6
B105A05200	5,200	.2047	—	—	82	44	35	1,3	36	6
B105A05400	5,400	.2126	—	—	82	44	35	1,3	36	6
B105A05500	5,500	.2165	—	—	82	44	35	1,4	36	6
B105A05550	5,550	.2185	—	—	82	44	35	1,4	36	6
B105A05600	5,600	.2205	—	—	82	44	35	1,4	36	6
B105A05700	5,700	.2244	—	—	82	44	35	1,4	36	6
B105A05800	5,800	.2283	—	—	82	44	35	1,4	36	6
B105A06000	6,000	.2362	—	—	82	44	35	1,5	36	6
B105A06100	6,100	.2402	—	—	91	53	43	1,5	36	8
B105A06200	6,200	.2441	—	—	91	53	43	1,5	36	8
B105A06300	6,300	.2480	—	—	91	53	43	1,6	36	8
B105A06350	6,350	.2500	1/4	—	91	53	43	1,6	36	8
B105A06400	6,400	.2520	—	—	91	53	43	1,6	36	8
B105A06500	6,500	.2559	—	—	91	53	43	1,6	36	8

(continued)

(B105 • ~5 x D — continued)

Solid Carbide Drills



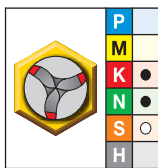
- first choice
- alternate choice

K10	D1 diameter				L	L3	L4 max	L5	LS	D
	mm	in	fraction	wire size						
B105A06600	6,600	.2598	—	—	91	53	43	1,6	36	8
B105A06700	6,700	.2638	—	—	91	53	43	1,7	36	8
B105A06800	6,800	.2677	—	—	91	53	43	1,7	36	8
B105A07000	7,000	.2756	—	—	91	53	43	1,7	36	8
B105A07100	7,100	.2795	—	—	91	53	43	1,8	36	8
B105A07400	7,400	.2913	—	—	91	53	43	1,8	36	8
B105A07500	7,500	.2953	—	—	91	53	43	1,9	36	8
B105A07600	7,600	.2992	—	—	91	53	43	1,9	36	8
B105A07800	7,800	.3071	—	—	91	53	43	1,9	36	8
B105A08000	8,000	.3150	—	—	91	53	43	2,0	36	8
B105A08100	8,100	.3189	—	—	103	61	49	2,0	40	10
B105A08200	8,200	.3228	—	—	103	61	49	2,0	40	10
B105A08300	8,300	.3268	—	—	103	61	49	2,1	40	10
B105A08400	8,400	.3307	—	—	103	61	49	2,1	40	10
B105A08500	8,500	.3346	—	—	103	61	49	2,1	40	10
B105A08600	8,600	.3386	—	—	103	61	49	2,1	40	10
B105A08700	8,700	.3425	—	—	103	61	49	2,2	40	10
B105A08800	8,800	.3465	—	—	103	61	49	2,2	40	10
B105A09000	9,000	.3543	—	—	103	61	49	2,2	40	10
B105A09100	9,100	.3583	—	—	103	61	49	2,3	40	10
B105A09300	9,300	.3661	—	—	103	61	49	2,3	40	10
B105A09500	9,500	.3740	—	—	103	61	49	2,4	40	10
B105A09700	9,700	.3819	—	—	103	61	49	2,4	40	10
B105A09800	9,800	.3858	—	—	103	61	49	2,4	40	10
B105A10000	10,000	.3937	—	—	103	61	49	2,5	40	10
B105A10100	10,100	.3976	—	—	118	71	56	2,5	45	12
B105A10200	10,200	.4016	—	—	118	71	56	2,5	45	12
B105A10300	10,300	.4055	—	—	118	71	56	2,6	45	12
B105A10400	10,400	.4094	—	—	118	71	56	2,6	45	12
B105A10500	10,500	.4134	—	—	118	71	56	2,6	45	12
B105A10700	10,700	.4213	—	—	118	71	56	2,7	45	12
B105A10800	10,800	.4252	—	—	118	71	56	2,7	45	12
B105A11000	11,000	.4331	—	—	118	71	56	2,7	45	12
B105A11100	11,100	.4370	—	—	118	71	56	2,8	45	12
B105A11200	11,200	.4409	—	—	118	71	56	2,8	45	12
B105A11500	11,500	.4528	—	—	118	71	56	2,9	45	12
B105A11700	11,700	.4606	—	—	118	71	56	2,9	45	12
B105A11800	11,800	.4646	—	—	118	71	56	2,9	45	12
B105A12000	12,000	.4724	—	—	118	71	56	3,0	45	12
B105A12100	12,100	.4764	—	—	124	77	60	3,0	45	14
B105A12500	12,500	.4921	—	—	124	77	60	3,1	45	14
B105A12700	12,700	.5000	1/2	—	124	77	60	3,2	45	14
B105A12800	12,800	.5039	—	—	124	77	60	3,2	45	14
B105A13000	13,000	.5118	—	—	124	77	60	3,2	45	14
B105A13100	13,100	.5157	—	—	124	77	60	3,3	45	14
B105A13500	13,500	.5315	—	—	124	77	60	3,4	45	14
B105A13800	13,800	.5433	—	—	124	77	60	3,4	45	14
B105A14000	14,000	.5512	—	—	124	77	60	3,5	45	14

(continued)

(B105 • ~5 x D — continued)

Solid Carbide Drills



● first choice
○ alternate choice

K10	D1 diameter				L	L3	L4 max	L5	LS	D
	mm	in	fraction	wire size						
B105A14200	14,200	.5591	—	—	133	83	63	3,5	48	16
B105A14500	14,500	.5709	—	—	133	83	63	3,6	48	16
B105A15000	15,000	.5906	—	—	133	83	63	3,7	48	16
B105A15100	15,100	.5945	—	—	133	83	63	3,8	48	16
B105A15500	15,500	.6102	—	—	133	83	63	3,9	48	16
B105A15800	15,800	.6220	—	—	133	83	63	3,9	48	16
B105A16000	16,000	.6299	—	—	133	83	63	4,0	48	16
B105A16500	16,500	.6496	—	—	143	93	71	4,1	48	18
B105A17000	17,000	.6693	—	—	143	93	71	4,2	48	18
B105A17500	17,500	.6890	—	—	143	93	71	4,4	48	18
B105A18000	18,000	.7087	—	—	143	93	71	4,5	48	18
B105A18500	18,500	.7283	—	—	153	101	77	4,6	50	20
B105A19000	19,000	.7480	—	—	153	101	77	4,7	50	20
B105A19500	19,500	.7677	—	—	153	101	77	4,9	50	20
B105A20000	20,000	.7874	—	—	153	101	77	5,0	50	20
B105A20500	20,500	.8071	—	—	167	112	85	5,1	50	20
B105A21000	21,000	.8268	—	—	167	112	85	5,2	50	20

nominal size range	Tolerance • Inch	
	D1 tolerance m7	D tolerance h6
>.1181-.2362	.0002/.0006	.0000/- .0003
>.2362-.3937	.0002/.0008	.0000/- .0004
>.3937-.7087	.0003/.0010	.0000/- .0004
>.7087-1.0000	.0003/.0011	.0000/- .0005

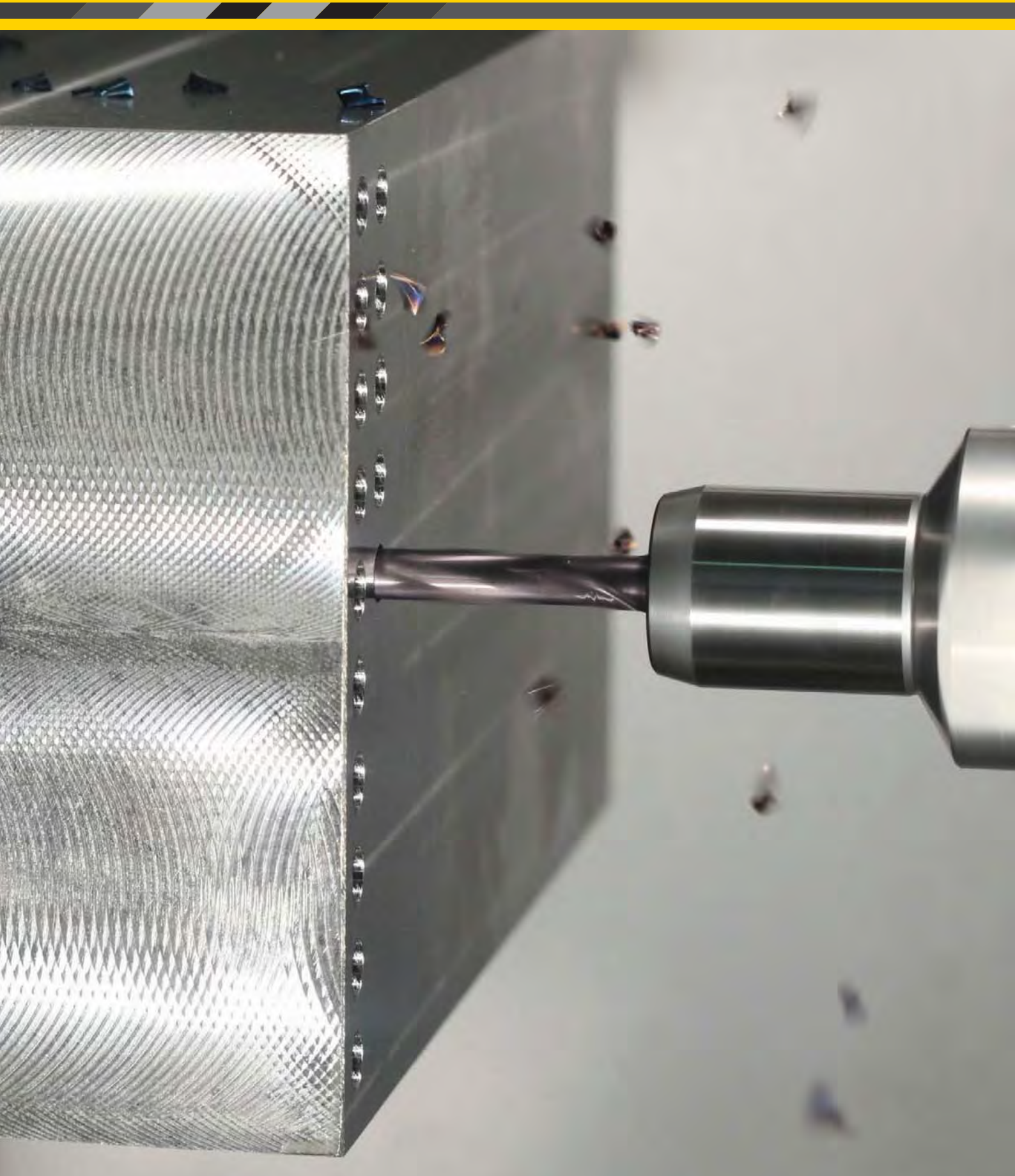
nominal size range	Tolerance • Metric	
	D1 tolerance m7	D tolerance h6
>3-6	0,004/0,016	0,000/-0,008
>6-10	0,006/0,021	0,000/-0,009
>10-18	0,007/0,025	0,000/-0,011
>18-25,4	0,008/0,029	0,000/-0,013

Application Data

■ TF Drills • B105 Series • Grade K10™ • Flood Coolant • Drill Diameters 3–20mm (.1181–.7874")

Material Group		Cutting Speed — vc			Recommended Feed Rate (f) by Diameter									
		Range — m/min			Metric									
		min	Starting Value	max	3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0		
K	1	60	85	110	mm/r	0,11-0,20	0,12-0,20	0,16-0,28	0,20-0,35	0,22-0,42	0,24-0,50	0,28-0,61	0,30-0,68	
	2	70	70	90	mm/r	0,11-0,20	0,12-0,20	0,16-0,28	0,20-0,35	0,22-0,42	0,24-0,50	0,28-0,61	0,30-0,68	
	3	50	50	70	mm/r	0,09-0,18	0,10-0,18	0,14-0,26	0,18-0,33	0,02-0,40	0,22-0,48	0,26-0,59	0,28-0,66	
N	1	100	210	410	mm/r	0,09-0,15	0,10-0,20	0,18-0,33	0,20-0,38	0,25-0,43	0,03-0,51	0,43-0,58	0,64-0,79	
	2	100	250	250	mm/r	0,10-0,19	0,12-0,21	0,18-0,33	0,25-0,42	0,30-0,50	0,35-0,58	0,44-0,74	0,52-0,88	
	3	100	180	400	mm/r	0,09-0,16	0,10-0,20	0,12-0,26	0,16-0,36	0,20-0,40	0,24-0,45	0,30-0,50	0,34-0,60	
S	4	60	170	250	mm/r	0,08-0,15	0,13-0,18	0,18-0,33	0,20-0,36	0,23-0,38	0,33-0,46	0,38-0,48	0,58-0,76	
	4	20	20	50	mm/r	0,03-0,05	0,04-0,07	0,07-0,09	0,09-0,12	0,11-0,15	0,13-0,18	0,17-0,24	0,22-0,30	

Material Group		Cutting Speed — vc			Recommended Feed Rate (f) by Diameter									
		Range — SFM			Inch									
		min	Starting Value	max	1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750		
K	1	200	280	360	IPR	.004-.008	.005-.008	.006-.011	.008-.014	.009-.017	.009-.020	.011-.024	.012-.027	
	2	230	230	300	IPR	.004-.008	.005-.008	.006-.011	.008-.014	.009-.017	.009-.020	.011-.024	.012-.027	
	3	160	160	230	IPR	.004-.007	.004-.007	.006-.010	.007-.013	.001-.016	.009-.019	.010-.023	.011-.026	
N	1	330	690	1340	IPR	.004-.006	.004-.008	.007-.013	.008-.015	.010-.017	.001-.020	.017-.023	.025-.031	
	2	330	820	820	IPR	.004-.008	.005-.008	.007-.013	.010-.017	.012-.020	.014-.023	.017-.029	.021-.035	
	3	330	590	1310	IPR	.004-.006	.004-.008	.005-.010	.006-.014	.008-.016	.009-.018	.012-.020	.013-.024	
S	4	200	560	820	IPR	.003-.006	.005-.007	.007-.013	.008-.014	.009-.015	.013-.018	.015-.019	.023-.030	
	4	70	70	160	IPR	.001-.002	.002-.003	.003-.004	.004-.005	.004-.006	.005-.007	.007-.009	.009-.012	



➤ New SGL Drills with Through Coolant for Stainless Steel



Primary Application

The all-new B21_SGL series solid carbide drills are designed specifically for stainless steel applications, offering high performance and long tool life in high-temperature alloys and regular steel, also.

By combining unique Kennametal features, such as the all-new SGL-point-geometry with patented gashing, a unique flute design, and a best-in-class coating into one tool, the B21_SGL drill is the ultimate high-volume production tool.

Features and Benefits

New SGL Point Design

- Improved web thinning and patented gashing which migrates in a straight cutting edge, enables high cutting parameters (feeds).
- Creates controlled chips, which lead to a reliable performance.
- Improved centering capabilities for better positioning accuracy and improved hole quality.

Unique Flute Design

- Large chip-flute cross-section and small web diameter improve the chip evacuation and the capability to drill deeper holes in difficult-to-machine materials.
- The highly-polished surface ensures superior chip evacuation, even when low-pressure coolant is applied.

New KCMS15™ Beyond Grade

- A monolayer PVD AlTiN-coated fine-grain carbide with superior surface finish.
- First choice for stainless steel and high-temperature resistant materials for longer tool life.
- The coating offers high hardness and excellent abrasive and adhesive wear resistance, as well as enhanced high-temperature properties, increasing its applicability, also, to MQL machining of steel.

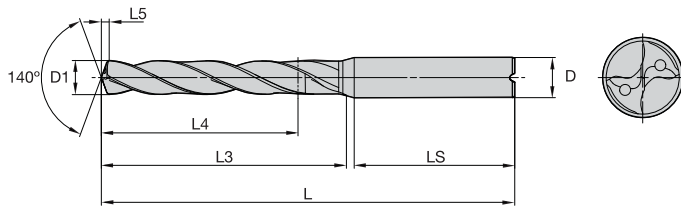
Specifically for stainless steel applications.



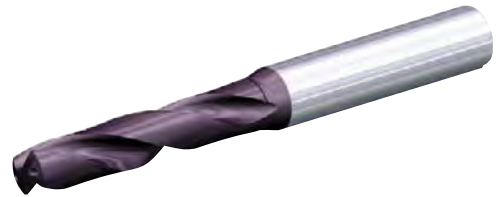
Customization

- Intermediate diameters available as semi-standards.
- Length variations and step drills available as custom solutions.
- High step diameter ratios and very complex step drill geometries are not recommended for austenitic stainless steel.
- Using Kennametal slim line hydraulic chucks is recommended if workpiece contours need to be bypassed.

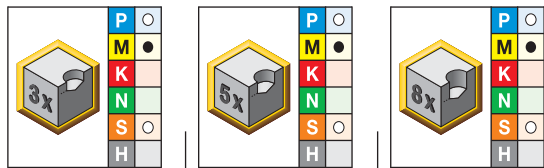




For information on L, L3, and L4 max, see the Solid Carbide Drills foldout table.



■ B210/B211/B212_SGL • ~3 x D/~5 x D/~8 x D



● first choice
○ alternate choice

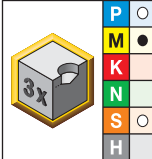
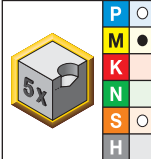
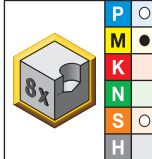
			D1 diameter						
short • KCMS15	long • KCMS15	extra long • KCMS15	mm	in	fraction	wire size	L5	LS	D
B210Z02500SGL	-	-	2,500	.0984	-	-	0,4	28	3
B210A03000SGL	B211A03000SGL	B212A03000SGL	3,000	.1181	-	-	0,4	36	6
B210A03048SGL	B211A03048SGL	-	3,048	.1200	-	31	0,5	36	6
-	B211A03100SGL	-	3,100	.1220	-	-	0,5	36	6
B210A03175SGL	B211A03175SGL	B212A03175SGL	3,175	.1250	1/8	-	0,5	36	6
B210A03200SGL	B211A03200SGL	B212A03200SGL	3,200	.1260	-	-	0,5	36	6
B210A03264SGL	-	B212A03264SGL	3,264	.1285	-	30	0,5	36	6
B210A03300SGL	B211A03300SGL	B212A03300SGL	3,300	.1299	-	-	0,5	36	6
B210A03400SGL	B211A03400SGL	-	3,400	.1339	-	-	0,5	36	6
B210A03455SGL	B211A03455SGL	B212A03455SGL	3,455	.1360	-	-	0,5	36	6
B210A03500SGL	B211A03500SGL	B212A03500SGL	3,500	.1378	-	-	0,5	36	6
-	B211A03571SGL	B212A03571SGL	3,571	.1406	9/64	-	0,5	36	6
-	B211A03600SGL	-	3,600	.1417	-	-	0,5	36	6
-	B211A03658SGL	B212A03658SGL	3,658	.1440	-	-	0,5	36	6
-	B211A03700SGL	B212A03700SGL	3,700	.1457	-	-	0,5	36	6
B210A03700SGL	-	-	3,700	.1457	-	-	0,6	36	6
-	B211A03734SGL	-	3,734	.1470	-	26	0,6	36	6
B210A03800SGL	B211A03800SGL	B212A03800SGL	3,800	.1496	-	-	0,6	36	6
-	B211A03861SGL	-	3,861	.1520	-	24	0,6	36	6
-	B211A03900SGL	-	3,900	.1535	-	-	0,6	36	6
B210A04000SGL	B211A04000SGL	B212A04000SGL	4,000	.1575	-	-	0,6	36	6
-	B211A04039SGL	B212A04039SGL	4,039	.1590	-	-	0,6	36	6
B210A04100SGL	B211A04100SGL	B212A04100SGL	4,100	.1614	-	-	0,6	36	6
B210A04200SGL	B211A04200SGL	B212A04200SGL	4,200	.1654	-	-	0,6	36	6
-	B211A04217SGL	-	4,217	.1660	-	-	0,6	36	6
B210A04300SGL	B211A04300SGL	B212A04300SGL	4,300	.1693	-	-	0,6	36	6
-	B211A04366SGL	B212A04366SGL	4,366	.1719	-	-	0,6	36	6
B210A04366SGL	-	-	4,366	.1719	-	-	0,7	36	6
-	B211A04400SGL	-	4,400	.1732	-	-	0,7	36	6
B210A04500SGL	B211A04500SGL	B212A04500SGL	4,500	.1772	-	-	0,7	36	6
-	B211A04600SGL	-	4,600	.1811	-	-	0,7	36	6
B210A04700SGL	B211A04700SGL	B212A04700SGL	4,700	.1850	-	-	0,7	36	6

(continued)

(B210/B211/B212_SGL • ~3 x D/~5 x D/~8 x D — continued)



Solid Carbide Drills

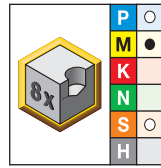
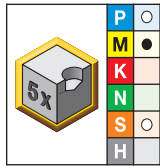
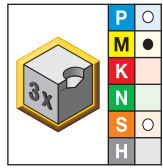
  			D1 diameter						
short • KCMS15	long • KCMS15	extra long • KCMS15	mm	in	fraction	wire size	L5	LS	D
-	B211A04763SGL	-	4,763	.1875	3/16	-	0,7	36	6
B210A04800SGL	B211A04800SGL	B212A04800SGL	4,800	.1890	-	-	0,7	36	6
-	B211A04852SGL	B212A04852SGL	4,852	.1910	-	-	0,7	36	6
B210A04900SGL	B211A04900SGL	-	4,900	.1929	-	-	0,7	36	6
B210A05000SGL	B211A05000SGL	B212A05000SGL	5,000	.1969	-	-	0,7	36	6
B210A05100SGL	B211A05100SGL	B212A05100SGL	5,100	.2008	-	-	0,8	36	6
B210A05106SGL	B211A05106SGL	-	5,106	.2010	-	-	0,8	36	6
B210A05159SGL	B211A05159SGL	-	5,159	.2031	-	-	0,8	36	6
B210A05200SGL	B211A05200SGL	B212A05200SGL	5,200	.2047	-	-	0,8	36	6
B210A05300SGL	B211A05300SGL	-	5,300	.2087	-	-	0,8	36	6
B210A05400SGL	B211A05400SGL	-	5,400	.2126	-	-	0,8	36	6
B210A05500SGL	B211A05500SGL	B212A05500SGL	5,500	.2165	-	-	0,8	36	6
-	B211A05558SGL	-	5,558	.2188	-	-	0,8	36	6
-	B211A05600SGL	-	5,600	.2205	-	-	0,8	36	6
B210A05616SGL	-	-	5,616	.2211	-	2	0,8	36	6
-	B211A05700SGL	-	5,700	.2244	-	-	0,8	36	6
B210A05800SGL	B211A05800SGL	B212A05800SGL	5,800	.2283	-	-	0,9	36	6
-	B211A05900SGL	-	5,900	.2323	-	-	0,9	36	6
B210A05954SGL	B211A05954SGL	-	5,954	.2344	15/64	-	0,9	36	6
B210A06000SGL	B211A06000SGL	B212A06000SGL	6,000	.2362	-	-	0,9	36	6
B210A06100SGL	B211A06100SGL	-	6,100	.2402	-	-	0,9	36	8
B210A06200SGL	B211A06200SGL	-	6,200	.2441	-	-	0,9	36	8
B210A06300SGL	B211A06300SGL	-	6,300	.2480	-	-	0,9	36	8
B210A06350SGL	B211A06350SGL	B212A06350SGL	6,350	.2500	1/4	-	0,9	36	8
-	B211A06400SGL	-	6,400	.2520	-	-	0,9	36	8
B210A06400SGL	-	-	6,400	.2520	-	-	1,0	36	8
B210A06500SGL	B211A06500SGL	B212A06500SGL	6,500	.2559	-	-	1,0	36	8
-	B211A06600SGL	-	6,600	.2598	-	-	1,0	36	8
-	B211A06630SGL	B212A06630SGL	6,630	.2610	-	-	1,0	36	8
B210A06700SGL	B211A06700SGL	-	6,700	.2638	-	-	1,0	36	8
B210A06800SGL	B211A06800SGL	B212A06800SGL	6,800	.2677	-	-	1,0	36	8
B210A06900SGL	B211A06900SGL	-	6,900	.2717	-	-	1,0	36	8
B210A07000SGL	B211A07000SGL	B212A07000SGL	7,000	.2756	-	-	1,0	36	8
B210A07100SGL	B211A07100SGL	-	7,100	.2795	-	-	1,1	36	8
B210A07145SGL	-	-	7,145	.2813	9/32	-	1,1	36	8
-	B211A07200SGL	-	7,200	.2835	-	-	1,1	36	8
-	B211A07300SGL	-	7,300	.2874	-	-	1,1	36	8
B210A07400SGL	B211A07400SGL	-	7,400	.2913	-	-	1,1	36	8
B210A07500SGL	B211A07500SGL	-	7,500	.2953	-	-	1,1	36	8
-	-	B212A07500SGL	7,500	.2953	-	-	1,1	74	8
-	B211A07600SGL	-	7,600	.2992	-	-	1,1	36	8
-	B211A07700SGL	-	7,700	.3031	-	-	1,1	36	8
B210A07800SGL	B211A07800SGL	B212A07800SGL	7,800	.3071	-	-	1,2	36	8
-	B211A07900SGL	-	7,900	.3110	-	-	1,2	36	8
B210A07938SGL	B211A07938SGL	-	7,938	.3125	5/16	-	1,2	36	8
B210A08000SGL	B211A08000SGL	B212A08000SGL	8,000	.3150	-	-	1,2	36	8
B210A08100SGL	B211A08100SGL	-	8,100	.3189	-	-	1,2	40	10
B210A08200SGL	B211A08200SGL	-	8,200	.3228	-	-	1,2	40	10
B210A08400SGL	B211A08400SGL	B212A08400SGL	8,400	.3307	-	-	1,2	40	10
B210A08433SGL	-	-	8,433	.3320	-	-	1,3	40	10
B210A08500SGL	B211A08500SGL	B212A08500SGL	8,500	.3346	-	-	1,3	40	10
B210A08600SGL	B211A08600SGL	-	8,600	.3386	-	-	1,3	40	10

● first choice
○ alternate choice

(continued)

(B210/B211/B212_SGL • ~3 x D/-5 x D/-8 x D — continued)

Solid Carbide Drills



● first choice
○ alternate choice

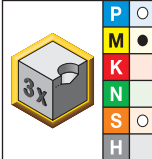
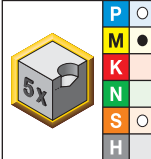
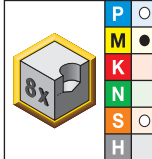
			D1 diameter						
short • KCMS15	long • KCMS15	extra long • KCMS15	mm	in	fraction	wire size	L5	LS	D
B210A08700SGL	B211A08700SGL	-	8,700	.3425	-	-	1,3	40	10
B210A08800SGL	B211A08800SGL	B212A08800SGL	8,800	.3465	-	-	1,3	40	10
-	B211A08900SGL	-	8,900	.3504	-	-	1,3	40	10
B210A09000SGL	B211A09000SGL	B212A09000SGL	9,000	.3543	-	-	1,3	40	10
B210A09093SGL	-	-	9,093	.3580	-	-	1,4	40	10
-	B211A09100SGL	-	9,100	.3583	-	-	1,3	40	10
-	B211A09200SGL	-	9,200	.3622	-	-	1,4	40	10
-	B211A09300SGL	-	9,300	.3661	-	-	1,4	40	10
-	B211A09400SGL	-	9,400	.3701	-	-	1,4	40	10
B210A09500SGL	B211A09500SGL	B212A09500SGL	9,500	.3740	-	-	1,4	40	10
-	B211A09525SGL	-	9,525	.3750	3/8	-	1,4	40	10
-	B211A09600SGL	-	9,600	.3780	-	-	1,4	40	10
B210A09700SGL	B211A09700SGL	-	9,700	.3819	-	-	1,4	40	10
B210A09800SGL	B211A09800SGL	-	9,800	.3858	-	-	1,5	40	10
-	B211A09900SGL	-	9,900	.3898	-	-	1,5	40	10
B210A09921SGL	-	-	9,921	.3906	25/64	-	1,5	40	10
B210A10000SGL	B211A10000SGL	B212A10000SGL	10,000	.3937	-	-	1,5	40	10
-	B211A10100SGL	-	10,100	.3976	-	-	1,5	45	12
B210A10200SGL	B211A10200SGL	B212A10200SGL	10,200	.4016	-	-	1,5	45	12
-	B211A10300SGL	-	10,300	.4055	-	-	1,5	45	12
B210A10400SGL	B211A10400SGL	-	10,400	.4094	-	-	1,5	45	12
B210A10500SGL	B211A10500SGL	B212A10500SGL	10,500	.4134	-	-	1,6	45	12
-	B211A10700SGL	-	10,700	.4213	-	-	1,6	45	12
B210A10716SGL	-	-	10,716	.4219	-	-	1,6	45	12
B210A10800SGL	B211A10800SGL	-	10,800	.4252	-	-	1,6	45	12
B210A11000SGL	B211A11000SGL	B212A11000SGL	11,000	.4331	-	-	1,6	45	12
-	B211A11100SGL	-	11,100	.4370	-	-	1,6	45	12
-	B211A11113SGL	-	11,113	.4375	7/16	-	1,6	45	12
B210A11200SGL	B211A11200SGL	-	11,200	.4409	-	-	1,7	45	12
-	B211A11400SGL	-	11,400	.4488	-	-	1,7	45	12
B210A11500SGL	B211A11500SGL	-	11,500	.4528	-	-	1,7	45	12
B210A11509SGL	-	-	11,509	.4531	-	-	1,7	45	12
-	B211A11700SGL	-	11,700	.4606	-	-	1,7	45	12
-	B211A11800SGL	B212A11800SGL	11,800	.4646	-	-	1,7	45	12
B210A12000SGL	B211A12000SGL	B212A12000SGL	12,000	.4724	-	-	1,8	45	12
-	B211A12100SGL	-	12,100	.4764	-	-	1,8	45	14
B210A12200SGL	B211A12200SGL	-	12,200	.4803	-	-	1,8	45	14
-	B211A12300SGL	-	12,300	.4843	-	-	1,8	45	14
B210A12304SGL	-	-	12,304	.4844	31/64	-	1,8	45	14
B210A12500SGL	B211A12500SGL	B212A12500SGL	12,500	.4921	-	-	1,9	45	14
B210A12700SGL	B211A12700SGL	-	12,700	.5000	1/2	-	1,9	45	14
B210A12800SGL	B211A12800SGL	-	12,800	.5039	-	-	1,9	45	14
-	B211A12900SGL	-	12,900	.5079	-	-	1,9	45	14
B210A13000SGL	B211A13000SGL	B212A13000SGL	13,000	.5118	-	-	1,9	45	14
-	B211A13100SGL	-	13,100	.5157	-	-	1,9	45	14
-	B211A13200SGL	-	13,200	.5197	-	-	2,0	45	14
-	B211A13300SGL	-	13,300	.5236	-	-	2,0	45	14
B210A13495SGL	-	-	13,495	.5313	17/32	-	2,0	45	14
B210A13500SGL	B211A13500SGL	B212A13500SGL	13,500	.5315	-	-	2,0	45	14
-	B211A13800SGL	-	13,800	.5433	-	-	2,0	45	14
B210A14000SGL	B211A14000SGL	B212A14000SGL	14,000	.5512	-	-	2,1	45	14
B210A14100SGL	B211A14100SGL	-	14,100	.5551	-	-	2,1	48	16

(continued)

(B210/B211/B212_SGL • ~3 x D/-5 x D/-8 x D — continued)



Solid Carbide Drills

  			D1 diameter				● first choice ○ alternate choice		
short • KCMS15	long • KCMS15	extra long • KCMS15	mm	in	fraction	wire size	L5	LS	D
B210A14200SGL	-	-	14,200	.5591	-	-	2,1	48	16
-	B211A14300SGL	-	14,300	.5630	-	-	2,1	48	16
-	B211A14400SGL	-	14,400	.5669	-	-	2,1	48	16
-	B211A14500SGL	-	14,500	.5709	-	-	2,1	48	16
B210A14500SGL	-	-	14,500	.5709	-	-	2,2	48	16
-	B211A14600SGL	-	14,600	.5748	-	-	2,2	48	16
-	B211A14800SGL	-	14,800	.5827	-	-	2,2	48	16
B210A15000SGL	B211A15000SGL	-	15,000	.5906	-	-	2,2	48	16
-	B211A15100SGL	-	15,100	.5945	-	-	2,2	48	16
-	B211A15300SGL	-	15,300	.6024	-	-	2,3	48	16
B210A15500SGL	B211A15500SGL	-	15,500	.6102	-	-	2,3	48	16
-	B211A15700SGL	-	15,700	.6181	-	-	2,3	48	16
B210A15875SGL	B211A15875SGL	-	15,875	.6250	5/8	-	2,4	48	16
B210A16000SGL	B211A16000SGL	-	16,000	.6299	-	-	2,4	48	16
-	B211A16100SGL	-	16,100	.6339	-	-	2,4	48	18
B210A16129SGL	-	-	16,129	.6350	-	-	2,4	48	18
B210A16500SGL	B211A16500SGL	-	16,500	.6496	-	-	2,4	48	18
B210A16670SGL	-	-	16,670	.6563	21/32	-	2,5	48	18
B210A17000SGL	B211A17000SGL	-	17,000	.6693	-	-	2,5	48	18
B210A17500SGL	B211A17500SGL	-	17,500	.6890	-	-	2,6	48	18
-	B211A17700SGL	-	17,700	.6969	-	-	2,6	48	18
B210A18000SGL	B211A18000SGL	-	18,000	.7087	-	-	2,7	48	18
B210A18500SGL	B211A18500SGL	-	18,500	.7283	-	-	2,7	50	20
-	B211A19000SGL	-	19,000	.7480	-	-	2,8	50	20
B210A19050SGL	-	-	19,050	.7500	3/4	-	2,8	50	20
-	B211A19159SGL	-	19,159	.7543	-	-	2,8	50	20
-	B211A19300SGL	-	19,300	.7598	-	-	2,9	50	20
B210A19500SGL	-	-	19,500	.7677	-	-	2,9	50	20
B210A20000SGL	-	-	20,000	.7874	-	-	3,0	50	20
-	B211A20500SGL	-	20,500	.8071	-	-	3,0	50	20

Tolerance • Metric





nominal size range	D1 tolerance m7	D tolerance h6
>3-6	0,004/0,016	0,000/-0,008
>6-10	0,006/0,021	0,000/-0,009
>10-18	0,007/0,025	0,000/-0,011
>18-25,4	0,008/0,029	0,000/-0,013

Tolerance • Inch

nominal size range	D1 tolerance m7	D tolerance h6
>.1181 to .2362	.0002/.0006	.0000/-0.0003
>.2362 to .3937	.0002/.0008	.0000/-0.0004
>.3937 to .7087	.0003/.0010	.0000/-0.0004
>.7087 to 1.0000	.0003/.0011	.0000/-0.0005

HP Drills • B21_SGL Series • Grade KCMS15 • Through Coolant

Solid Carbide Drills

Material Group		Cutting Speed – vc			Metric								
		Range – m/min			Recommended Feed Rate per Rev								
		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
		 											
P	1	110	160	210	mm/r	0,05–0,13	0,08–0,19	0,11–0,24	0,14–0,30	0,16–0,35	0,18–0,39	0,20–0,46	0,23–0,51
	2	130	170	210	mm/r	0,05–0,13	0,08–0,17	0,11–0,20	0,14–0,24	0,16–0,28	0,18–0,32	0,20–0,37	0,23–0,41
	3	110	150	190	mm/r	0,08–0,13	0,12–0,19	0,14–0,24	0,17–0,30	0,20–0,35	0,22–0,39	0,26–0,46	0,29–0,51
	4	80	120	150	mm/r	0,08–0,12	0,11–0,18	0,12–0,23	0,15–0,28	0,17–0,33	0,19–0,37	0,22–0,43	0,25–0,48
	5	60	80	90	mm/r	0,03–0,11	0,04–0,11	0,05–0,11	0,05–0,14	0,08–0,18	0,11–0,21	0,14–0,24	0,16–0,26
	6	70	120	170	mm/r	0,05–0,11	0,08–0,14	0,11–0,17	0,13–0,21	0,15–0,24	0,17–0,27	0,19–0,33	0,22–0,36
M	1	60	80	90	mm/r	0,05–0,14	0,06–0,15	0,08–0,17	0,10–0,19	0,12–0,21	0,13–0,22	0,16–0,25	0,18–0,27
	2	50	70	90	mm/r	0,05–0,14	0,06–0,15	0,08–0,17	0,10–0,19	0,12–0,21	0,13–0,22	0,16–0,25	0,18–0,27
	3	50	60	80	mm/r	0,05–0,14	0,06–0,15	0,08–0,17	0,10–0,19	0,12–0,21	0,13–0,22	0,16–0,25	0,18–0,27
S	1	10	20	30	mm/r	0,03–0,08	0,04–0,09	0,05–0,11	0,05–0,11	0,08–0,14	0,11–0,16	0,14–0,19	0,16–0,21
	2	10	20	30	mm/r	0,03–0,11	0,04–0,11	0,05–0,11	0,05–0,11	0,08–0,14	0,11–0,16	0,14–0,19	0,16–0,21
	3	20	30	40	mm/r	0,03–0,11	0,04–0,11	0,05–0,11	0,05–0,11	0,08–0,14	0,11–0,16	0,14–0,19	0,16–0,21
	4	30	40	50	mm/r	0,03–0,04	0,04–0,05	0,06–0,08	0,08–0,10	0,11–0,13	0,13–0,15	0,14–0,18	0,16–0,20
Material Group		Cutting Speed – vc			Inch								
		Range – SFM			Recommended Feed Rate per Rev								
		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
		 											
P	1	360	520	690	IPR	.002–.005	.003–.008	.004–.009	.006–.012	.006–.014	.007–.015	.008–.018	.009–.020
	2	430	560	690	IPR	.002–.005	.003–.007	.004–.008	.006–.009	.006–.011	.007–.013	.008–.015	.009–.016
	3	360	490	620	IPR	.003–.005	.005–.008	.006–.009	.007–.012	.008–.014	.009–.015	.010–.018	.011–.020
	4	260	390	490	IPR	.003–.005	.004–.007	.005–.009	.006–.011	.007–.013	.008–.015	.009–.017	.010–.019
	5	200	260	300	IPR	.001–.004	.002–.004	.002–.004	.002–.006	.003–.007	.004–.008	.006–.009	.006–.010
	6	230	390	560	IPR	.002–.004	.003–.006	.004–.007	.005–.008	.006–.009	.007–.011	.008–.013	.009–.014
M	1	200	260	300	IPR	.002–.006	.002–.006	.003–.007	.004–.008	.005–.008	.005–.009	.006–.010	.007–.011
	2	160	230	300	IPR	.002–.006	.002–.006	.003–.007	.004–.008	.005–.008	.005–.009	.006–.010	.007–.011
	3	160	200	260	IPR	.002–.006	.002–.006	.003–.007	.004–.008	.005–.008	.005–.009	.006–.010	.007–.011
S	1	30	70	100	IPR	.001–.003	.002–.004	.002–.004	.002–.004	.003–.006	.004–.006	.006–.008	.006–.008
	2	30	70	100	IPR	.001–.004	.002–.004	.002–.004	.002–.004	.003–.006	.004–.006	.006–.008	.006–.008
	3	70	100	130	IPR	.001–.004	.002–.004	.002–.004	.002–.004	.003–.006	.004–.006	.006–.008	.006–.008
	4	100	130	160	IPR	.001–.002	.002–.002	.002–.003	.003–.004	.004–.005	.005–.006	.006–.007	.006–.008

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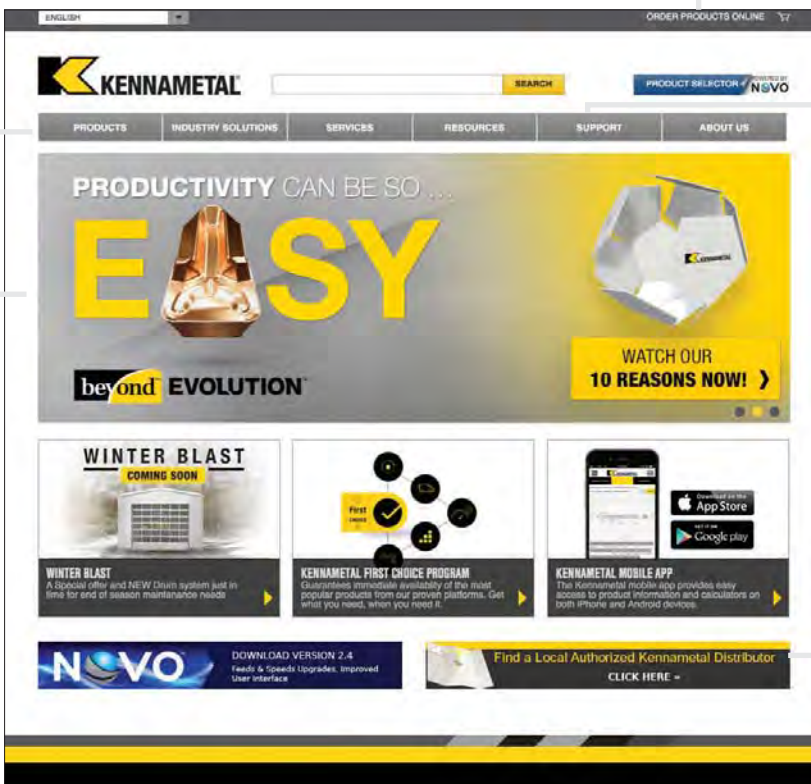
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➤ HP Beyond™ Drills for Steel



Primary Application

B221_HP series solid carbide drills offer the highest metal removal rates and longest tool life in steel and iron materials when dry cutting or using external flood coolant. Dry drilling up to 5 x D possible.

B224_HP series solid carbide drills are ideal for super high-speed drilling of unalloyed and alloyed steel. Achieve 100% higher cutting speed without compromising tool life. Operate these drills with standard through coolant or MQL.

By combining unique Kennametal technologies, such as the HP-point, flute geometry, and a new Beyond grade technology into one tool, the B22_HP Beyond is the ultimate high-volume production tool.

Features and Benefits

HP Drill-Point Design

- Low thrust prevents workpiece flexing.
- Excellent centering capabilities.

Unique Flute Design

- Improved chip evacuation in dry and mid L/D drilling operations.
- Better hole surface quality.

KCPK15™ Beyond Grade

- The grade is a multilayer, TiAlN-based coating with high hot hardness. High cutting speeds enable use in MQL applications.
- The highly polished surface ensures superior chip evacuation even when low-pressure coolant is applied.
- The average metal removal rate and tool life performance improved dramatically (10–30%).

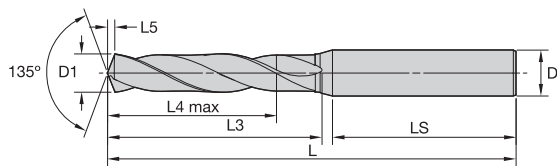
B22_HP Beyond™ drills are the ultimate high-volume production tool.



Customization

- Intermediate diameters available as semi-standards.
- Length variations and step drills available as engineered solutions.
- For holes deeper than 5 x D, internal coolant is recommended.
- Using Kennametal slim line hydraulic chucks together with standard B22_HP is recommended if workpiece contours need to be bypassed.

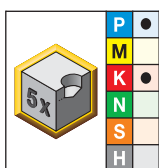
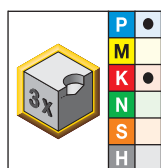




For information on L, L3, and L4 max, see the Solid Carbide Drills foldout table.



B221/B222_HP • ~3 x D/~5 x D



● first choice
○ alternate choice

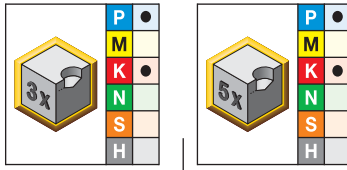
		D1 diameter				L5	LS	D
short • KCPK15	long • KCPK15	mm	in	fraction	wire size			
B221A03000HP	B222A03000HP	3,000	.1181	—	—	0,6	36	6
B221A03048HP	B222A03048HP	3,048	.1200	—	31	0,6	36	6
B221A03100HP	—	3,100	.1220	—	—	0,6	36	6
B221A03175HP	B222A03175HP	3,175	.1250	1/8	—	0,6	36	6
B221A03200HP	—	3,200	.1260	—	—	0,6	36	6
B221A03264HP	B222A03264HP	3,264	.1285	—	30	0,6	36	6
B221A03300HP	B222A03300HP	3,300	.1299	—	—	0,6	36	6
B221A03400HP	—	3,400	.1339	—	—	0,6	36	6
B221A03455HP	B222A03455HP	3,455	.1360	—	29	0,7	36	6
B221A03500HP	B222A03500HP	3,500	.1378	—	—	0,7	36	6
B221A03571HP	B222A03571HP	3,571	.1406	9/64	—	0,7	36	6
B221A03600HP	—	3,600	.1417	—	—	0,7	36	6
B221A03700HP	B222A03700HP	3,700	.1457	—	—	0,7	36	6
B221A03734HP *	—	3,734	.1470	—	26	0,7	36	6
B221A03800HP	B222A03800HP	3,800	.1496	—	—	0,7	36	6
B221A03900HP	—	3,900	.1535	—	—	0,7	36	6
B221A03970HP	B222A03970HP	3,970	.1563	5/32	—	0,7	36	6
B221A04000HP	B222A04000HP	4,000	.1575	—	—	0,8	36	6
B221A04039HP	—	4,039	.1590	—	21	0,8	36	6
B221A04090HP	—	4,090	.1610	—	20	0,8	36	6
B221A04100HP	—	4,100	.1614	—	—	0,8	36	6
B221A04200HP	B222A04200HP	4,200	.1654	—	—	0,8	36	6
B221A04217HP *	—	4,217	.1660	—	19	0,8	36	6
B221A04300HP	—	4,300	.1693	—	—	0,8	36	6
B221A04366HP	B222A04366HP	4,366	.1719	11/64	—	0,8	36	6
B221A04400HP	—	4,400	.1732	—	—	0,8	36	6
B221A04500HP	B222A04500HP	4,500	.1772	—	—	0,8	36	6
B221A04600HP	B222A04600HP	4,600	.1811	—	—	0,9	36	6
B221A04623HP *	—	4,623	.1820	—	14	0,9	36	6
B221A04700HP	—	4,700	.1850	—	13	0,9	36	6
B221A04763HP	B222A04763HP	4,763	.1875	3/16	—	0,9	36	6
B221A04800HP	B222A04800HP	4,800	.1890	—	12	0,9	36	6
B221A04852HP	—	4,852	.1910	—	11	0,9	36	6
B221A04900HP	—	4,900	.1929	—	—	0,9	36	6
B221A05000HP	B222A05000HP	5,000	.1969	—	—	0,9	36	6
B221A05100HP	B222A05100HP	5,100	.2008	—	—	1,0	36	6
B221A05106HP	B222A05106HP	5,106	.2010	—	7	1,0	36	6
B221A05159HP	B222A05159HP	5,159	.2031	13/64	—	1,0	36	6
B221A05200HP	—	5,200	.2047	—	—	1,0	36	6
B221A05300HP	—	5,300	.2087	—	—	1,0	36	6

(continued)

(B221/B222_HP • ~3 x D / ~5 x D – continued)



Solid Carbide Drills



- first choice
- alternate choice

		D1 diameter			wire size	L5	LS	D
short • CCKPK15	long • CCKPK15	mm	in	fraction				
B221A05400HP	-	5,400	.2126	-	-	1,0	36	6
B221A05410HP *	B222A05410HP *	5,410	.2130	-	3	1,0	36	6
B221A05500HP	B222A05500HP	5,500	.2165	-	-	1,0	36	6
B221A05558HP	B222A05558HP *	5,558	.2188	7/32	-	1,0	36	6
B221A05600HP	-	5,600	.2205	-	-	1,1	36	6
B221A05616HP *	-	5,616	.2211	-	2	1,1	36	6
B221A05700HP	-	5,700	.2244	-	-	1,1	36	6
B221A05800HP	B222A05800HP	5,800	.2283	-	-	1,1	36	6
B221A05900HP	-	5,900	.2323	-	-	1,1	36	6
-	B222A05954HP	5,954	.2344	15/64	-	1,1	36	6
B221A06000HP	B222A06000HP	6,000	.2362	-	-	1,1	36	6
B221A06100HP	-	6,100	.2402	-	-	1,1	36	8
B221A06200HP	-	6,200	.2441	-	-	1,2	36	8
B221A06300HP	-	6,300	.2480	-	-	1,2	36	8
B221A06350HP	B222A06350HP	6,350	.2500	1/4	-	1,2	36	8
B221A06400HP	-	6,400	.2520	-	-	1,2	36	8
B221A06500HP	B222A06500HP	6,500	.2559	-	-	1,2	36	8
B221A06528HP	B222A06528HP	6,528	.2570	-	-	1,2	36	8
B221A06600HP	-	6,600	.2598	-	-	1,2	36	8
B221A06630HP *	-	6,630	.2610	-	-	1,2	36	8
B221A06700HP	B222A06700HP	6,700	.2638	-	-	1,3	36	8
B221A06746HP	B222A06746HP	6,746	.2656	17/64	-	1,3	36	8
B221A06800HP	B222A06800HP	6,800	.2677	-	-	1,3	36	8
B221A06900HP	-	6,900	.2717	-	-	1,3	36	8
B221A07000HP	B222A07000HP	7,000	.2756	-	-	1,3	36	8
B221A07100HP	-	7,100	.2795	-	-	1,3	36	8
B221A07145HP *	B222A07145HP	7,145	.2813	9/32	-	1,3	36	8
B221A07200HP	-	7,200	.2835	-	-	1,3	36	8
B221A07300HP	-	7,300	.2874	-	-	1,4	36	8
B221A07400HP	-	7,400	.2913	-	-	1,4	36	8
B221A07500HP	B222A07500HP	7,500	.2953	-	-	1,4	36	8
B221A07541HP *	B222A07541HP	7,541	.2969	19/64	-	1,4	36	8
B221A07600HP *	-	7,600	.2992	-	-	1,4	36	8
B221A07700HP	-	7,700	.3031	-	-	1,4	36	8
B221A07800HP	B222A07800HP	7,800	.3071	-	-	1,5	36	8
B221A07900HP	-	7,900	.3110	-	-	1,5	36	8
B221A07938HP	B222A07938HP	7,938	.3125	5/16	-	1,5	36	8
B221A08000HP	B222A08000HP	8,000	.3150	-	-	1,5	36	8
B221A08100HP	-	8,100	.3189	-	-	1,5	40	10
B221A08200HP	B222A08200HP	8,200	.3228	-	-	1,5	40	10
B221A08300HP	-	8,300	.3268	-	-	1,6	40	10
B221A08334HP	B222A08334HP	8,334	.3281	21/64	-	1,6	40	10
B221A08400HP	-	8,400	.3307	-	-	1,6	40	10
B221A08433HP *	B222A08433HP	8,433	.3320	-	-	1,6	40	10
B221A08500HP	B222A08500HP	8,500	.3346	-	-	1,6	40	10
B221A08600HP	-	8,600	.3386	-	-	1,6	40	10
B221A08700HP	-	8,700	.3425	-	-	1,6	40	10
B221A08733HP *	B222A08733HP	8,733	.3438	11/32	-	1,6	40	10
B221A08800HP	B222A08800HP	8,800	.3465	-	-	1,6	40	10
B221A08900HP	-	8,900	.3504	-	-	1,7	40	10
B221A09000HP	B222A09000HP	9,000	.3543	-	-	1,7	40	10
B221A09100HP	-	9,100	.3583	-	-	1,7	40	10

(continued)

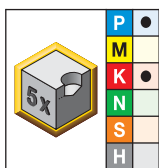
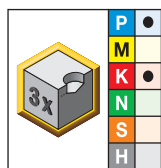
High-Performance Solid Carbide Drills

HP Beyond™ Drills • Steel • Without Coolant



(B221/B222_HP • ~3 x D / ~5 x D – continued)

Solid Carbide Drills



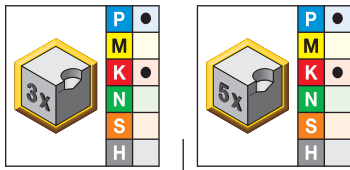
- first choice
- alternate choice

		D1 diameter			wire size	L5	LS	D
short • KCPK15	long • KCPK15	mm	in	fraction				
B221A09129HP	B222A09129HP	9,129	.3594	23/64	—	1,7	40	10
B221A09200HP	—	9,200	.3622	—	—	1,7	40	10
B221A09300HP	B222A09300HP	9,300	.3661	—	—	1,7	40	10
B221A09347HP	—	9,347	.3680	—	—	1,7	40	10
B221A09400HP	—	9,400	.3701	—	—	1,8	40	10
B221A09500HP	B222A09500HP	9,500	.3740	—	—	1,8	40	10
B221A09525HP	B222A09525HP	9,525	.3750	3/8	—	1,8	40	10
B221A09600HP	—	9,600	.3780	—	—	1,8	40	10
B221A09700HP	—	9,700	.3819	—	—	1,8	40	10
B221A09800HP	B222A09800HP	9,800	.3858	—	—	1,8	40	10
B221A09900HP	—	9,900	.3898	—	—	1,8	40	10
B221A09921HP	B222A09921HP	9,921	.3906	25/64	—	1,9	40	10
B221A10000HP	B222A10000HP	10,000	.3937	—	—	1,9	40	10
B221A10100HP	—	10,100	.3976	—	—	1,9	45	12
B221A10200HP	B222A10200HP	10,200	.4016	—	—	1,9	45	12
B221A10300HP	—	10,300	.4055	—	—	1,9	45	12
B221A10320HP	B222A10320HP	10,320	.4063	13/32	—	1,9	45	12
B221A10400HP	—	10,400	.4094	—	—	1,9	45	12
B221A10500HP	B222A10500HP	10,500	.4134	—	—	2,0	45	12
B221A10600HP	—	10,600	.4173	—	—	2,0	45	12
B221A10700HP	—	10,700	.4213	—	—	2,0	45	12
B221A10716HP	B222A10716HP	10,716	.4219	27/64	—	2,0	45	12
B221A10800HP	B222A10800HP	10,800	.4252	—	—	2,0	45	12
B221A10900HP *	—	10,900	.4291	—	—	2,0	45	12
B221A11000HP	B222A11000HP	11,000	.4331	—	—	2,1	45	12
B221A11100HP	—	11,100	.4370	—	—	2,1	45	12
B221A11113HP	B222A11113HP	11,113	.4375	7/16	—	2,1	45	12
B221A11200HP	—	11,200	.4409	—	—	2,1	45	12
B221A11300HP	—	11,300	.4449	—	—	2,1	45	12
B221A11400HP	—	11,400	.4488	—	—	2,1	45	12
B221A11500HP	B222A11500HP	11,500	.4528	—	—	2,1	45	12
B221A11509HP *	B222A11509HP	11,509	.4531	29/64	—	2,1	45	12
B221A11600HP *	—	11,600	.4567	—	—	2,2	45	12
B221A11700HP	—	11,700	.4606	—	—	2,2	45	12
B221A11800HP	—	11,800	.4646	—	—	2,2	45	12
B221A11900HP	—	11,900	.4685	—	—	2,2	45	12
B221A11908HP	B222A11908HP	11,908	.4688	15/32	—	2,2	45	12
B221A12000HP	B222A12000HP	12,000	.4724	—	—	2,2	45	12
B221A12100HP	—	12,100	.4764	—	—	2,3	45	14
B221A12200HP	—	12,200	.4803	—	—	2,3	45	14
B221A12300HP	—	12,300	.4843	—	—	2,3	45	14
—	B222A12304HP	12,304	.4844	31/64	—	2,3	45	14
B221A12400HP	—	12,400	.4882	—	—	2,3	45	14
B221A12500HP	B222A12500HP *	12,500	.4921	—	—	2,3	45	14
B221A12600HP	—	12,600	.4961	—	—	2,3	45	14
B221A12700HP	B222A12700HP	12,700	.5000	1/2	—	2,4	45	14
B221A12800HP	—	12,800	.5039	—	—	2,4	45	14
B221A12900HP	—	12,900	.5079	—	—	2,4	45	14
B221A13000HP	B222A13000HP	13,000	.5118	—	—	2,4	45	14
B221A13100HP	—	13,100	.5157	—	—	2,4	45	14
B221A13200HP	—	13,200	.5197	—	—	2,5	45	14
B221A13300HP	—	13,300	.5236	—	—	2,5	45	14

(continued)

(B221/B222_HP • ~3 x D/-5 x D – continued)

Solid Carbide Drills



● first choice
○ alternate choice

		D1 diameter			wire size	L5	LS	D
short • KCPK15	long • KCPK15	mm	in	fraction				
B221A13500HP	B222A13500HP	13,500	.5315	—	—	2,5	45	14
B221A13600HP	—	13,600	.5354	—	—	2,5	45	14
B221A13700HP	—	13,700	.5394	—	—	2,6	45	14
B221A13800HP	—	13,800	.5433	—	—	2,6	45	14
B221A13891HP	—	13,891	.5469	35/64	—	2,6	45	14
B221A14000HP	B222A14000HP	14,000	.5512	—	—	2,6	45	14
B221A14100HP	—	14,100	.5551	—	—	2,6	48	16
B221A14200HP	—	14,200	.5591	—	—	2,6	48	16
B221A14288HP	B222A14288HP	14,288	.5625	9/16	—	2,7	48	16
B221A14300HP	—	14,300	.5630	—	—	2,7	48	16
B221A14400HP	—	14,400	.5669	—	—	2,7	48	16
B221A14500HP	B222A14500HP	14,500	.5709	—	—	2,7	48	16
B221A14600HP	—	14,600	.5748	—	—	2,7	48	16
B221A14684HP *	—	14,684	.5781	37/64	—	2,7	48	16
B221A14700HP	—	14,700	.5787	—	—	2,7	48	16
B221A14800HP	—	14,800	.5827	—	—	2,8	48	16
B221A14900HP	—	14,900	.5866	—	—	2,8	48	16
B221A15000HP	B222A15000HP	15,000	.5906	—	—	2,8	48	16
B221A15083HP	—	15,083	.5938	19/32	—	2,8	48	16
B221A15100HP	—	15,100	.5945	—	—	2,8	48	16
B221A15200HP	—	15,200	.5984	—	—	2,8	48	16
B221A15300HP	—	15,300	.6024	—	—	2,8	48	16
B221A15400HP *	—	15,400	.6063	—	—	2,9	48	16
B221A15479HP	—	15,479	.6094	39/64	—	2,9	48	16
B221A15500HP	B222A15500HP	15,500	.6102	—	—	2,9	48	16
B221A15600HP	—	15,600	.6142	—	—	2,9	48	16
B221A15700HP	—	15,700	.6181	—	—	2,9	48	16
B221A15800HP	—	15,800	.6220	—	—	2,9	48	16
B221A15875HP	B222A15875HP	15,875	.6250	5/8	—	3,0	48	16
B221A15900HP *	—	15,900	.6260	—	—	3,0	48	16
B221A16000HP	B222A16000HP	16,000	.6299	—	—	3,0	48	16
B221A16500HP	B222A16500HP	16,500	.6496	—	—	3,1	48	18
B221A17000HP	B222A17000HP	17,000	.6693	—	—	3,2	48	18
B221A17463HP	B222A17463HP	17,463	.6875	11/16	—	3,2	48	18
B221A17500HP	B222A17500HP	17,500	.6890	—	—	3,3	48	18
B221A17700HP	—	17,700	.6969	—	—	3,3	48	18
B221A18000HP	B222A18000HP	18,000	.7087	—	—	3,3	48	18
B221A18500HP	B222A18500HP *	18,500	.7283	—	—	3,4	50	20
B221A19000HP	B222A19000HP	19,000	.7480	—	—	3,5	50	20
B221A19050HP	B222A19050HP	19,050	.7500	3/4	—	3,5	50	20
B221A19500HP	—	19,500	.7677	—	—	3,6	50	20
B221A20000HP	B222A20000HP	20,000	.7874	—	—	3,7	50	20
B221A20500HP	—	20,500	.8071	—	—	3,8	50	20
B221A21000HP	—	21,000	.8268	—	—	3,9	50	20

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

nominal size range	Tolerance • Metric		nominal size range	Tolerance • Inch	
	D1 tolerance m7	D tolerance h6		D1 tolerance m7	D tolerance h6
>3-6	0,004/0,016	0,000/-0,008	>.1181-.2362	.0002/.0006	.0000/-0.0003
>6-10	0,006/0,021	0,000/-0,009	>.2362-.3937	.0002/.0008	.0000/-0.0004
>10-18	0,007/0,025	0,000/-0,011	>.3937-.7087	.0003/.0010	.0000/-0.0004
>18-25,4	0,008/0,029	0,000/-0,013	>.7087-1.0000	.0003/.0011	.0000/-0.0005

■ HP Drills • B221_HP, B222_HP Series • Grade KCPK15™ • Flood Coolant • Drill Diameters 3–20mm (.1181–.7874")

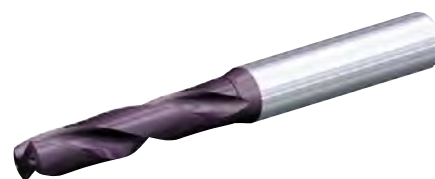
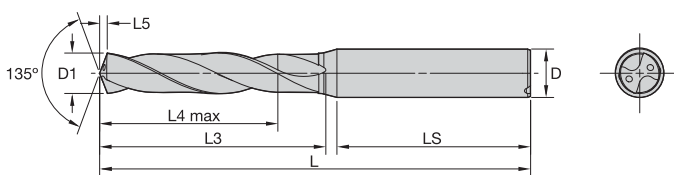
Solid Carbide Drills

		Cutting Speed – vc			Metric								
		Range – m/min			Recommended Feed Rate (fz) by Diameter								
Material Group		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
P	0	80	110	170	mm/r	0,06–0,14	0,06–0,14	0,07–0,20	0,08–0,25	0,09–0,30	0,12–0,36	0,18–0,42	0,21–0,49
	1	70	110	150	mm/r	0,07–0,16	0,07–0,17	0,08–0,24	0,09–0,29	0,09–0,35	0,12–0,42	0,25–0,50	0,33–0,58
	2	90	120	160	mm/r	0,07–0,15	0,07–0,17	0,12–0,23	0,14–0,31	0,16–0,33	0,20–0,40	0,25–0,50	0,31–0,58
	3	60	90	120	mm/r	0,09–0,16	0,09–0,17	0,14–0,24	0,15–0,33	0,19–0,35	0,24–0,44	0,27–0,50	0,34–0,60
	4	50	80	120	mm/r	0,08–0,16	0,08–0,17	0,13–0,25	0,16–0,33	0,17–0,33	0,21–0,44	0,24–0,50	0,30–0,60
	6	50	80	120	mm/r	0,06–0,11	0,07–0,13	0,09–0,17	0,13–0,24	0,15–0,24	0,18–0,30	0,23–0,40	0,28–0,49
K	1	70	100	120	mm/r	0,11–0,21	0,09–0,18	0,14–0,28	0,16–0,37	0,20–0,40	0,22–0,45	0,28–0,58	0,36–0,71
	2	70	120	120	mm/r	0,11–0,19	0,09–0,16	0,14–0,23	0,16–0,32	0,19–0,32	0,22–0,37	0,28–0,47	0,36–0,60
	3	50	90	130	mm/r	0,08–0,17	0,07–0,14	0,12–0,25	0,13–0,27	0,16–0,29	0,18–0,39	0,25–0,48	0,29–0,58
		Cutting Speed – vc			Inch								
		Range – SFM			Recommended Feed Rate (f) by Diameter								
Material Group		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
P	0	260	360	560	IPR	.002–.006	.002–.006	.003–.008	.003–.010	.004–.012	.005–.014	.007–.017	.008–.019
	1	230	360	490	IPR	.003–.006	.003–.007	.003–.009	.004–.011	.004–.014	.005–.017	.010–.020	.013–.023
	2	300	390	520	IPR	.003–.006	.003–.007	.005–.009	.006–.012	.006–.013	.008–.016	.010–.020	.012–.023
	3	200	300	390	IPR	.004–.006	.004–.007	.006–.009	.006–.013	.008–.014	.009–.017	.011–.020	.013–.024
	4	160	260	390	IPR	.003–.006	.003–.007	.005–.010	.006–.013	.007–.013	.008–.017	.009–.020	.012–.024
	6	160	260	390	IPR	.002–.004	.003–.005	.004–.007	.005–.009	.006–.009	.007–.012	.009–.016	.011–.019
K	1	230	330	390	IPR	.004–.008	.004–.007	.006–.011	.006–.015	.008–.016	.009–.018	.011–.023	.014–.028
	2	230	390	390	IPR	.004–.008	.004–.006	.006–.009	.006–.013	.008–.013	.009–.015	.011–.019	.014–.024
	3	160	300	430	IPR	.003–.007	.003–.006	.005–.010	.005–.011	.006–.011	.007–.015	.010–.019	.011–.023

■ HP Drills • B221HP, B222HP Series • Grade KCPK15™ • Dry Applications • Drill Diameters 3–20mm (.1181–.7874")

Solid Carbide Drills

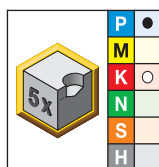
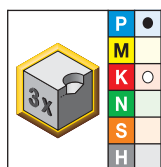
Material Group													
		Cutting Speed – vc			Metric								
		Range – m/min			Recommended Feed Rate (fz) by Diameter								
		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
P	0	70	90	140	mm/r	0,06–0,10	0,06–0,12	0,11–0,18	0,14–0,24	0,17–0,30	0,21–0,36	0,29–0,43	0,36–0,59
	1	60	90	120	mm/r	0,07–0,12	0,07–0,14	0,13–0,21	0,17–0,28	0,20–0,35	0,25–0,42	0,34–0,50	0,42–0,69
	2	60	90	120	mm/r	0,07–0,13	0,07–0,14	0,13–0,21	0,17–0,28	0,20–0,35	0,25–0,42	0,34–0,50	0,42–0,69
	3	60	80	90	mm/r	0,05–0,07	0,07–0,13	0,11–0,19	0,14–0,21	0,18–0,28	0,21–0,33	0,28–0,42	0,36–0,53
	4	60	80	90	mm/r	0,08–0,12	0,11–0,18	0,12–0,23	0,15–0,28	0,17–0,33	0,19–0,37	0,22–0,43	0,25–0,48
	6	60	80	90	mm/r	0,05–0,07	0,07–0,13	0,11–0,19	0,14–0,21	0,18–0,28	0,21–0,33	0,28–0,42	0,36–0,53
Material Group		Cutting Speed – vc			Inch								
		Range – SFM			Recommended Feed Rate (fz) by Diameter								
		min	Starting Value	max		0.118	0.157	0.236	0.315	0.394	0.472	0.630	0.787
		0	230	300	460	IPR	.002–.004	.002–.005	.004–.007	.006–.009	.007–.012	.008–.014	.011–.017
P	1	200	300	390	IPR	.003–.005	.003–.006	.005–.008	.007–.011	.008–.014	.010–.017	.013–.020	.017–.027
	2	200	300	390	IPR	.003–.005	.003–.006	.005–.008	.007–.011	.008–.014	.010–.017	.013–.020	.017–.027
	3	200	260	300	IPR	.002–.003	.003–.005	.004–.008	.006–.008	.007–.011	.008–.013	.011–.017	.014–.021
	4	200	260	300	IPR	.003–.005	.004–.007	.005–.009	.006–.011	.007–.013	.008–.015	.009–.017	.010–.019
	6	200	260	300	IPR	.002–.003	.003–.005	.004–.008	.006–.008	.007–.011	.008–.013	.011–.017	.014–.021



For information on L, L3, and L4 max, see the Solid Carbide Drills foldout table.



B224/B225_HP • ~3 x D/~5 x D

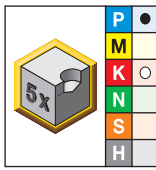
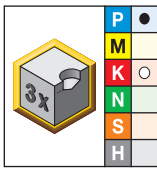


● first choice
○ alternate choice

		D1 diameter				L5	LS	D
short • KCPK15	long • KCPK15	mm	in	fraction	wire size			
B224A03000HP	B225A03000HP	3,000	.1181	—	—	0,6	36	6
B224A03048HP	B225A03048HP	3,048	.1200	—	31	0,6	36	6
B224A03100HP	B225A03100HP	3,100	.1220	—	—	0,6	36	6
B224A03175HP	B225A03175HP	3,175	.1250	1/8	—	0,6	36	6
B224A03200HP	B225A03200HP	3,200	.1260	—	—	0,6	36	6
B224A03264HP *	B225A03264HP	3,264	.1285	—	30	0,6	36	6
B224A03300HP	B225A03300HP	3,300	.1299	—	—	0,6	36	6
B224A03400HP	B225A03400HP	3,400	.1339	—	—	0,6	36	6
B224A03455HP	B225A03455HP	3,455	.1360	—	29	0,7	36	6
B224A03500HP	B225A03500HP	3,500	.1378	—	—	0,7	36	6
—	B225A03571HP	3,571	.1406	9/64	—	0,7	36	6
B224A03600HP	B225A03600HP	3,600	.1417	—	—	0,7	36	6
B224A03658HP	—	3,658	.1440	—	27	0,7	36	6
B224A03700HP *	B225A03700HP	3,700	.1457	—	—	0,7	36	6
B224A03734HP *	—	3,734	.1470	—	26	0,7	36	6
—	B225A03797HP	3,797	.1495	—	25	0,7	36	6
B224A03800HP	B225A03800HP	3,800	.1496	—	—	0,7	36	6
B224A03900HP	B225A03900HP	3,900	.1535	—	—	0,7	36	6
B224A03970HP	B225A03970HP	3,970	.1563	5/32	—	0,7	36	6
B224A04000HP	B225A04000HP	4,000	.1575	—	—	0,8	36	6
B224A04039HP *	—	4,039	.1590	—	21	0,8	36	6
B224A04090HP	—	4,090	.1610	—	20	0,8	36	6
B224A04100HP	B225A04100HP	4,100	.1614	—	—	0,8	36	6
B224A04200HP	B225A04200HP	4,200	.1654	—	—	0,8	36	6
B224A04217HP *	—	4,217	.1660	—	19	0,8	36	6
—	B225A04300HP	4,300	.1693	—	—	0,8	36	6
B224A04366HP	B225A04366HP	4,366	.1719	11/64	—	0,8	36	6
—	B225A04400HP	4,400	.1732	—	—	0,8	36	6
B224A04496HP	B225A04496HP	4,496	.1770	—	16	0,8	36	6
—	B225A04500HP	4,500	.1772	—	—	0,8	36	6
—	B225A04600HP	4,600	.1811	—	—	0,9	36	6
B224A04623HP	—	4,623	.1820	—	14	0,9	36	6
B224A04700HP *	B225A04700HP	4,700	.1850	—	13	0,9	36	6
B224A04763HP	B225A04763HP	4,763	.1875	3/16	—	0,9	36	6
—	B225A04800HP	4,800	.1890	—	12	0,9	36	6
B224A04852HP	—	4,852	.1910	—	11	0,9	36	6

(continued)

(B224/B225_HP • ~3 x D / ~5 x D – continued)



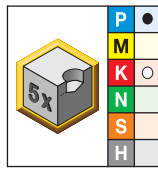
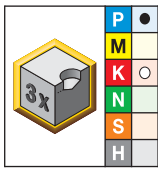
● first choice
○ alternate choice

		D1 diameter				L5	LS	D
short • KCPK15	long • KCPK15	mm	in	fraction	wire size			
-	B225A04900HP	4,900	.1929	-	-	0,9	36	6
B224A05000HP	B225A05000HP	5,000	.1969	-	-	0,9	36	6
B224A05050HP	-	5,050	.1988	-	-	0,9	36	6
B224A05100HP	B225A05100HP	5,100	.2008	-	-	1,0	36	6
B224A05106HP	B225A05106HP	5,106	.2010	-	7	1,0	36	6
B224A05159HP	B225A05159HP	5,159	.2031	13/64	-	1,0	36	6
-	B225A05200HP	5,200	.2047	-	-	1,0	36	6
-	B225A05300HP	5,300	.2087	-	-	1,0	36	6
-	B225A05400HP	5,400	.2126	-	-	1,0	36	6
B224A05410HP	B225A05410HP	5,410	.2130	-	3	1,0	36	6
B224A05500HP	B225A05500HP	5,500	.2165	-	-	1,0	36	6
B224A05558HP	B225A05558HP	5,558	.2188	7/32	-	1,0	36	6
B224A05600HP	B225A05600HP	5,600	.2205	-	-	1,1	36	6
B224A05616HP *	-	5,616	.2211	-	2	1,1	36	6
-	B225A05700HP	5,700	.2244	-	-	1,1	36	6
B224A05791HP	B225A05791HP	5,791	.2280	-	1	1,1	36	6
-	B225A05800HP	5,800	.2283	-	-	1,1	36	6
-	B225A05900HP	5,900	.2323	-	-	1,1	36	6
B224A05944HP *	B225A05944HP	5,944	.2340	-	-	1,1	36	6
B224A05954HP *	B225A05954HP	5,954	.2344	15/64	-	1,1	36	6
B224A06000HP	B225A06000HP	6,000	.2362	-	-	1,1	36	6
-	B225A06100HP	6,100	.2402	-	-	1,1	36	8
-	B225A06200HP	6,200	.2441	-	-	1,2	36	8
-	B225A06300HP	6,300	.2480	-	-	1,2	36	8
B224A06350HP	B225A06350HP	6,350	.2500	1/4	-	1,2	36	8
-	B225A06400HP	6,400	.2520	-	-	1,2	36	8
B224A06500HP	B225A06500HP	6,500	.2559	-	-	1,2	36	8
B224A06528HP *	B225A06528HP	6,528	.2570	-	-	1,2	36	8
-	B225A06600HP	6,600	.2598	-	-	1,2	36	8
B224A06630HP	-	6,630	.2610	-	-	1,2	36	8
B224A06700HP *	B225A06700HP	6,700	.2638	-	-	1,3	36	8
B224A06746HP *	B225A06746HP	6,746	.2656	17/64	-	1,3	36	8
B224A06800HP	B225A06800HP	6,800	.2677	-	-	1,3	36	8
-	B225A06900HP	6,900	.2717	-	-	1,3	36	8
B224A06909HP	B225A06909HP	6,909	.2720	-	-	1,3	36	8
B224A07000HP	B225A07000HP	7,000	.2756	-	-	1,3	36	8
-	B225A07100HP	7,100	.2795	-	-	1,3	36	8
B224A07145HP	B225A07145HP	7,145	.2813	9/32	-	1,3	36	8
-	B225A07200HP	7,200	.2835	-	-	1,3	36	8
-	B225A07300HP	7,300	.2874	-	-	1,4	36	8
B224A07366HP *	B225A07366HP	7,366	.2900	-	-	1,4	36	8
B224A07400HP	B225A07400HP	7,400	.2913	-	-	1,4	36	8
B224A07500HP	B225A07500HP	7,500	.2953	-	-	1,4	36	8
B224A07541HP	B225A07541HP	7,541	.2969	19/64	-	1,4	36	8
-	B225A07600HP	7,600	.2992	-	-	1,4	36	8
-	B225A07700HP	7,700	.3031	-	-	1,4	36	8
-	B225A07800HP	7,800	.3071	-	-	1,5	36	8
-	B225A07900HP	7,900	.3110	-	-	1,5	36	8
B224A07938HP	B225A07938HP	7,938	.3125	5/16	-	1,5	36	8
B224A08000HP	B225A08000HP	8,000	.3150	-	-	1,5	36	8
-	B225A08100HP	8,100	.3189	-	-	1,5	40	10
B224A08200HP	B225A08200HP	8,200	.3228	-	-	1,5	40	10

(continued)

(B224/B225_HP • ~3 x D/-5 x D – continued)

Solid Carbide Drills

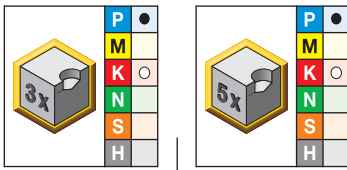


● first choice
 ○ alternate choice

		D1 diameter				L5	LS	D
short • KCPK15	long • KCPK15	mm	in	fraction	wire size			
-	B225A08300HP	8,300	.3268	-	-	1,6	40	10
B224A08334HP	B225A08334HP	8,334	.3281	21/64	-	1,6	40	10
-	B225A08400HP	8,400	.3307	-	-	1,6	40	10
B224A08433HP	B225A08433HP	8,433	.3320	-	-	1,6	40	10
B224A08500HP	B225A08500HP	8,500	.3346	-	-	1,6	40	10
-	B225A08600HP	8,600	.3386	-	-	1,6	40	10
B224A08700HP	B225A08700HP	8,700	.3425	-	-	1,6	40	10
B224A08733HP	B225A08733HP	8,733	.3438	11/32	-	1,6	40	10
B224A08800HP	B225A08800HP	8,800	.3465	-	-	1,6	40	10
B224A08839HP *	B225A08839HP	8,839	.3480	-	-	1,7	40	10
-	B225A08900HP	8,900	.3504	-	-	1,7	40	10
B224A09000HP	B225A09000HP	9,000	.3543	-	-	1,7	40	10
B224A09093HP *	B225A09093HP	9,093	.3580	-	-	1,7	40	10
-	B225A09100HP	9,100	.3583	-	-	1,7	40	10
B224A09129HP	B225A09129HP	9,129	.3594	23/64	-	1,7	40	10
-	B225A09200HP	9,200	.3622	-	-	1,7	40	10
-	B225A09300HP	9,300	.3661	-	-	1,7	40	10
-	B225A09347HP	9,347	.3680	-	-	1,7	40	10
B224A09400HP	B225A09400HP	9,400	.3701	-	-	1,8	40	10
B224A09500HP	B225A09500HP	9,500	.3740	-	-	1,8	40	10
B224A09525HP	B225A09525HP	9,525	.3750	3/8	-	1,8	40	10
-	B225A09600HP	9,600	.3780	-	-	1,8	40	10
-	B225A09700HP	9,700	.3819	-	-	1,8	40	10
-	B225A09800HP	9,800	.3858	-	-	1,8	40	10
-	B225A09900HP	9,900	.3898	-	-	1,8	40	10
B224A09921HP *	B225A09921HP	9,921	.3906	25/64	-	1,9	40	10
B224A10000HP	B225A10000HP	10,000	.3937	-	-	1,9	40	10
-	B225A10100HP	10,100	.3976	-	-	1,9	45	12
B224A10200HP	B225A10200HP	10,200	.4016	-	-	1,9	45	12
B224A10300HP	B225A10300HP	10,300	.4055	-	-	1,9	45	12
B224A10320HP	B225A10320HP	10,320	.4063	13/32	-	1,9	45	12
B224A10400HP	B225A10400HP	10,400	.4094	-	-	1,9	45	12
B224A10500HP	B225A10500HP	10,500	.4134	-	-	2,0	45	12
-	B225A10600HP	10,600	.4173	-	-	2,0	45	12
-	B225A10700HP	10,700	.4213	-	-	2,0	45	12
B224A10716HP	B225A10716HP	10,716	.4219	27/64	-	2,0	45	12
B224A10800HP	B225A10800HP	10,800	.4252	-	-	2,0	45	12
-	B225A10900HP	10,900	.4291	-	-	2,0	45	12
B224A11000HP	B225A11000HP	11,000	.4331	-	-	2,1	45	12
-	B225A11100HP	11,100	.4370	-	-	2,1	45	12
B224A11113HP	B225A11113HP	11,113	.4375	7/16	-	2,1	45	12
-	B225A11200HP	11,200	.4409	-	-	2,1	45	12
-	B225A11300HP	11,300	.4449	-	-	2,1	45	12
-	B225A11400HP	11,400	.4488	-	-	2,1	45	12
B224A11500HP	B225A11500HP	11,500	.4528	-	-	2,1	45	12
B224A11509HP	B225A11509HP	11,509	.4531	29/64	-	2,1	45	12
-	B225A11600HP	11,600	.4567	-	-	2,2	45	12
-	B225A11700HP	11,700	.4606	-	-	2,2	45	12
-	B225A11800HP	11,800	.4646	-	-	2,2	45	12
-	B225A11900HP	11,900	.4685	-	-	2,2	45	12
B224A11908HP	B225A11908HP	11,908	.4688	15/32	-	2,2	45	12
B224A12000HP	B225A12000HP	12,000	.4724	-	-	2,2	45	12

(continued)

(B224/B225_HP • ~3 x D/-5 x D – continued)



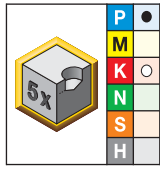
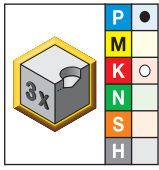
- first choice
- alternate choice

		D1 diameter						
short • KCPK15	long • KCPK15	mm	in	fraction	wire size	L5	LS	D
-	B225A12100HP	12,100	.4764	—	—	2,3	45	14
-	B225A12200HP	12,200	.4803	—	—	2,3	45	14
B224A12300HP	B225A12300HP	12,300	.4843	—	—	2,3	45	14
B224A12304HP *	B225A12304HP	12,304	.4844	31/64	—	2,3	45	14
-	B225A12400HP	12,400	.4882	—	—	2,3	45	14
B224A12500HP	B225A12500HP	12,500	.4921	—	—	2,3	45	14
-	B225A12600HP	12,600	.4961	—	—	2,3	45	14
B224A12700HP	B225A12700HP	12,700	.5000	1/2	—	2,4	45	14
B224A12800HP *	B225A12800HP	12,800	.5039	—	—	2,4	45	14
-	B225A12900HP	12,900	.5079	—	—	2,4	45	14
B224A13000HP	B225A13000HP	13,000	.5118	—	—	2,4	45	14
B224A13096HP *	-	13,096	.5156	33/64	—	2,4	45	14
B224A13100HP	B225A13100HP	13,100	.5157	—	—	2,4	45	14
-	B225A13200HP	13,200	.5197	—	—	2,5	45	14
-	B225A13300HP	13,300	.5236	—	—	2,5	45	14
-	B225A13400HP	13,400	.5276	—	—	2,5	45	14
B224A13495HP	B225A13495HP	13,495	.5313	17/32	—	2,5	45	14
B224A13500HP	B225A13500HP	13,500	.5315	—	—	2,5	45	14
-	B225A13600HP	13,600	.5354	—	—	2,5	45	14
-	B225A13700HP	13,700	.5394	—	—	2,6	45	14
-	B225A13800HP	13,800	.5433	—	—	2,6	45	14
B224A13891HP	B225A13891HP *	13,891	.5469	35/64	—	2,6	45	14
-	B225A13900HP	13,900	.5472	—	—	2,6	45	14
B224A14000HP	B225A14000HP	14,000	.5512	—	—	2,6	45	14
-	B225A14100HP	14,100	.5551	—	—	2,6	48	16
B224A14200HP *	B225A14200HP	14,200	.5591	—	—	2,6	48	16
B224A14288HP	B225A14288HP	14,288	.5625	9/16	—	2,7	48	16
-	B225A14300HP	14,300	.5630	—	—	2,7	48	16
-	B225A14400HP	14,400	.5669	—	—	2,7	48	16
B224A14500HP	B225A14500HP	14,500	.5709	—	—	2,7	48	16
-	B225A14600HP	14,600	.5748	—	—	2,7	48	16
B224A14684HP	B225A14684HP *	14,684	.5781	37/64	—	2,7	48	16
-	B225A14700HP	14,700	.5787	—	—	2,7	48	16
-	B225A14800HP	14,800	.5827	—	—	2,8	48	16
-	B225A14900HP *	14,900	.5866	—	—	2,8	48	16
-	B225A15000HP	15,000	.5906	—	—	2,8	48	16
B224A15083HP *	B225A15083HP *	15,083	.5938	19/32	—	2,8	48	16
-	B225A15100HP	15,100	.5945	—	—	2,8	48	16
-	B225A15200HP	15,200	.5984	—	—	2,8	48	16
-	B225A15300HP	15,300	.6024	—	—	2,8	48	16
-	B225A15400HP	15,400	.6063	—	—	2,9	48	16
-	B225A15479HP *	15,479	.6094	39/64	—	2,9	48	16
B224A15500HP	B225A15500HP	15,500	.6102	—	—	2,9	48	16
B224A15600HP	B225A15600HP	15,600	.6142	—	—	2,9	48	16
-	B225A15700HP	15,700	.6181	—	—	2,9	48	16
-	B225A15800HP	15,800	.6220	—	—	2,9	48	16
B224A15875HP	B225A15875HP	15,875	.6250	5/8	—	3,0	48	16
-	B225A15900HP *	15,900	.6260	—	—	3,0	48	16
B224A16000HP	B225A16000HP	16,000	.6299	—	—	3,0	48	16
-	B225A16100HP	16,100	.6339	—	—	3,0	48	18
B224A16500HP	B225A16500HP	16,500	.6496	—	—	3,1	48	18
-	B225A16670HP	16,670	.6563	21/32	—	3,1	48	18

(continued)

(B224/B225_HP • ~3 x D/-5 x D – continued)

Solid Carbide Drills



● first choice
 ○ alternate choice

		D1 diameter						
short • KCPK15	long • KCPK15	mm	in	fraction	wire size	L5	LS	D
B224A17000HP	B225A17000HP	17,000	.6693	—	—	3,2	48	18
B224A17463HP	B225A17463HP	17,463	.6875	11/16	—	3,2	48	18
B224A17500HP	B225A17500HP	17,500	.6890	—	—	3,3	48	18
—	B225A17700HP	17,700	.6969	—	—	3,3	48	18
B224A18000HP	B225A18000HP	18,000	.7087	—	—	3,3	48	18
—	B225A18500HP	18,500	.7283	—	—	3,4	50	20
B224A19000HP	B225A19000HP	19,000	.7480	—	—	3,5	50	20
B224A19050HP *	B225A19050HP	19,050	.7500	3/4	—	3,5	50	20
—	B225A19200HP	19,200	.7559	—	—	3,6	50	20
—	B225A19250HP	19,250	.7579	—	—	3,6	50	20
—	B225A19300HP	19,300	.7598	—	—	3,6	50	20
—	B225A19500HP	19,500	.7677	—	—	3,6	50	20
B224A20000HP	B225A20000HP	20,000	.7874	—	—	3,7	50	20
—	B225A20500HP	20,500	.8071	—	—	3,8	50	20
—	B225A21000HP	21,000	.8268	—	—	3,9	50	20



NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

nominal size range	Tolerance • Metric	
	D1 tolerance m7	D tolerance h6
>3–6	0,004/0,016	0,000/-0,008
>6–10	0,006/0,021	0,000/-0,009
>10–18	0,007/0,025	0,000/-0,011
>18–25,4	0,008/0,029	0,000/-0,013

nominal size range	Tolerance • Inch	
	D1 tolerance m7	D tolerance h6
>.1181–.2362	.0002/.0006	.0000/-0.0003
>.2362–.3937	.0002/.0008	.0000/-0.0004
>.3937–.7087	.0003/.0010	.0000/-0.0004
>.7087–1.0000	.0003/.0011	.0000/-0.0005

■ HP Drills • B224_HP, B225_HP Series • Grade KCPK15™ • Through Coolant or MQL (Minimum Quantity Lubricant) • Drill Diameters 3–20mm (.1181–.7874")

Solid Carbide Drills

Material Group													
		Cutting Speed – vc			Metric								
		Range – m/min			Recommended Feed Rate (f) by Diameter								
		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
P	0	140	240	290	mm/r	0,08–0,15	0,09–0,18	0,12–0,21	0,14–0,29	0,15–0,33	0,17–0,37	0,19–0,43	0,22–0,49
	1	130	240	290	mm/r	0,09–0,18	0,11–0,21	0,14–0,25	0,16–0,34	0,18–0,39	0,20–0,43	0,22–0,51	0,26–0,58
	2	190	230	270	mm/r	0,09–0,18	0,11–0,21	0,14–0,25	0,16–0,34	0,18–0,39	0,20–0,43	0,26–0,51	0,32–0,58
	3	130	160	190	mm/r	0,10–0,18	0,12–0,21	0,14–0,26	0,16–0,34	0,19–0,39	0,24–0,46	0,27–0,51	0,34–0,60
	4	110	150	170	mm/r	0,07–0,16	0,09–0,18	0,14–0,26	0,16–0,34	0,17–0,36	0,22–0,45	0,25–0,52	0,30–0,60
	5	60	80	90	mm/r	0,06–0,14	0,08–0,16	0,10–0,20	0,14–0,25	0,16–0,28	0,18–0,32	0,22–0,40	0,26–0,48
K	1	120	150	200	mm/r	0,08–0,11	0,14–0,20	0,20–0,28	0,25–0,35	0,29–0,40	0,32–0,43	0,36–0,50	0,40–0,55
	2	80	120	160	mm/r	0,08–0,11	0,13–0,17	0,19–0,26	0,23–0,30	0,25–0,36	0,30–0,40	0,34–0,46	0,37–0,50
	3	60	80	120	mm/r	0,07–0,10	0,10–0,14	0,15–0,21	0,19–0,26	0,22–0,30	0,24–0,33	0,28–0,38	0,30–0,41
Material Group		Cutting Speed – vc			Inch								
		Range – SFM			Recommended Feed Rate (f) by Diameter								
		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
		P	0	460	790	950	IPR	.003–.006	.004–.007	.005–.008	.006–.011	.006–.013	.007–.015
1	430		790	950	IPR	.004–.007	.004–.008	.006–.010	.006–.013	.007–.015	.008–.017	.009–.020	.010–.023
2	620		750	890	IPR	.004–.007	.004–.008	.006–.010	.006–.013	.007–.015	.008–.017	.010–.020	.013–.023
3	430		520	620	IPR	.004–.007	.005–.008	.006–.010	.006–.013	.008–.015	.009–.018	.011–.020	.013–.024
4	360		490	560	IPR	.003–.006	.004–.007	.006–.010	.006–.013	.007–.014	.009–.018	.010–.021	.012–.024
5	200		260	300	IPR	.002–.006	.003–.006	.004–.008	.006–.010	.006–.011	.007–.013	.009–.016	.010–.019
K	6	360	490	620	IPR	.003–.005	.004–.006	.005–.008	.006–.011	.007–.013	.008–.015	.009–.017	.010–.019
	1	390	490	660	IPR	.003–.004	.006–.008	.008–.011	.010–.014	.011–.016	.013–.017	.014–.020	.016–.022
	2	260	390	520	IPR	.003–.004	.005–.007	.008–.010	.009–.012	.010–.014	.012–.016	.013–.018	.015–.020
	3	200	260	390	IPR	.003–.004	.004–.006	.006–.008	.008–.010	.009–.012	.009–.013	.011–.015	.012–.016

➤ YPC Beyond™ Solid Carbide Drills with Through Coolant for Iron



Primary Application

The B25_YPC series solid carbide drills are specifically engineered to deliver best-in-class hole quality and longest tool life in cast iron, ductile iron, CGI, and ADI. Operate these drills with standard through coolant or MQL.

The B25_YPC Beyond solid carbide drill combines unique Kennametal technologies, such as the Y-TECH™ flute spacing, the HP-point geometry, the KCK10™ Beyond grade, and the latest, proprietary post-coat treatment technology into one tool.

Features and Benefits

Y-TECH Technology with Uneven Flute-to-Flute Angle

- Unbalanced forces by design avoid chipping on margin lands.

Three-Margin Lands

- Reduce pendulum motion by directing forces towards third margin for superior hole accuracy (cylindricity, constant diameter, hole straightness).

New HP Drill-Point Design

- Low thrust prevents workpiece flexing.
- Excellent centering capabilities.
- Highest possible feed rates.

Corner Chamfer

- Avoids breakout when drilling through holes in gray iron.
- Significantly increases tool life at elevated speeds and feeds.

KCK10 Beyond Grade

- The grade contains multiple layers of PVD coating offering outstanding wear resistance for the drilling of cast irons.
- The highly polished surface ensures superior chip evacuation even when low-pressure coolant or MQL is applied.

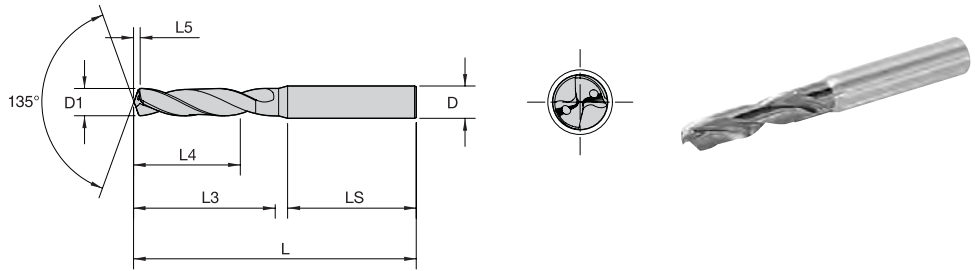
Y-TECH™ technology for superior hole quality.



Customization

- Intermediate diameters available as semi-standards.
- Length variations and step drills available as engineered solutions.
- Using Kennametal slim line hydraulic chucks together with standard B25_YPC is recommended if workpiece contours need to be bypassed.

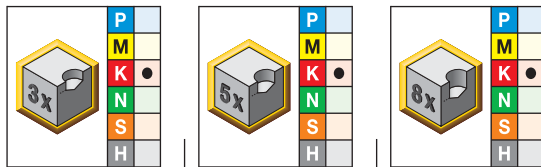




For information on L, L3, and L4 max, see the Solid Carbide Drills foldout table.



■ B254/B255/B256_YPC • ~3 x D/~5 x D/~8 x D



- first choice
- alternate choice

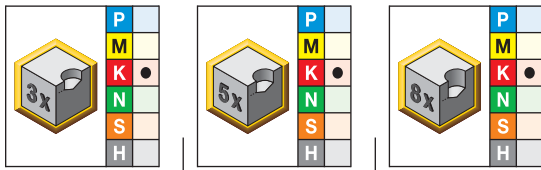
			D1 diameter				L5	LS	D
short • KCK10	long • KCK10	extra long • KCK10	mm	in	fraction	wire size			
B254A03000YPC	B255A03000YPC	B256A03000YPC	3,000	.1181	—	—	0,9	36	6
B254A03048YPC *	B255A03048YPC	—	3,048	.1200	—	31	0,9	36	6
—	B255A03175YPC *	B256A03175YPC	3,175	.1250	1/8	—	0,9	36	6
B254A03200YPC	B255A03200YPC	—	3,200	.1260	—	—	0,9	36	6
—	B255A03250YPC	—	3,250	.1280	—	—	0,9	36	6
—	—	B256A03264YPC	3,264	.1285	—	30	0,9	36	6
B254A03300YPC *	B255A03300YPC	—	3,300	.1299	—	—	0,9	36	6
—	B255A03400YPC *	—	3,400	.1339	—	—	1,0	36	6
B254A03454YPC *	—	—	3,454	.1360	—	29	1,0	36	6
B254A03500YPC	B255A03500YPC *	B256A03500YPC	3,500	.1378	—	—	1,0	36	6
B254A03600YPC *	B255A03600YPC *	—	3,600	.1417	—	—	1,0	36	6
—	B255A03700YPC	B256A03700YPC *	3,700	.1457	—	—	1,0	36	6
—	B255A03797YPC	—	3,797	.1495	—	25	1,1	36	6
B254A03800YPC *	B255A03800YPC	B256A03800YPC *	3,800	.1496	—	—	1,1	36	6
B254A03861YPC *	B255A03861YPC *	—	3,861	.1520	—	24	1,1	36	6
—	B255A03970YPC *	—	3,970	.1563	5/32	—	1,1	36	6
B254A04000YPC	B255A04000YPC	B256A04000YPC	4,000	.1575	—	—	1,1	36	6
B254A04039YPC	B255A04039YPC	—	4,039	.1590	—	21	1,1	36	6
B254A04100YPC	B255A04100YPC	B256A04100YPC	4,100	.1614	—	—	1,1	36	6
B254A04200YPC	B255A04200YPC	B256A04200YPC	4,200	.1654	—	—	1,2	36	6
—	B255A04217YPC	—	4,217	.1660	—	19	1,2	36	6
—	B255A04300YPC	B256A04300YPC *	4,300	.1693	—	—	1,2	36	6
—	B255A04366YPC *	B256A04366YPC *	4,366	.1719	11/64	—	1,2	36	6
B254A04500YPC	B255A04500YPC	B256A04500YPC	4,500	.1772	—	—	1,2	36	6
B254A04572YPC	B255A04572YPC	—	4,572	.1800	—	15	1,3	36	6
—	B255A04600YPC *	—	4,600	.1811	—	—	1,3	36	6
—	—	B256A04623YPC	4,623	.1820	—	14	1,3	36	6
—	B255A04700YPC *	B256A04700YPC	4,700	.1850	—	13	1,3	36	6
B254A04763YPC *	—	—	4,763	.1875	3/16	—	1,3	36	6
B254A04800YPC	B255A04800YPC	B256A04800YPC	4,800	.1890	—	12	1,3	36	6
—	—	B256A04852YPC *	4,852	.1910	—	11	1,3	36	6
—	B255A04900YPC *	—	4,900	.1929	—	—	1,3	36	6

(continued)

(B254/B255/B256_YPC • ~3 x D/~5 x D/~8 x D — continued)



Solid Carbide Drills



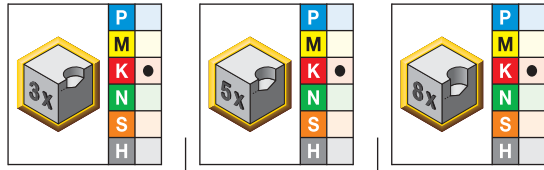
● first choice
○ alternate choice

			D1 diameter				L5	LS	D
short • KCK10	long • KCK10	extra long • KCK10	mm	in	fraction	wire size			
B254A05000YPC	B255A05000YPC	B256A05000YPC	5,000	.1969	—	—	1,4	36	6
B254A05055YPC	B255A05055YPC	—	5,055	.1990	—	8	1,4	36	6
B254A05100YPC	B255A05100YPC	B256A05100YPC	5,100	.2008	—	—	1,4	36	6
B254A05106YPC *	—	—	5,106	.2010	—	7	1,4	36	6
—	B255A05159YPC *	—	5,159	.2031	13/64	—	1,4	36	6
—	B255A05200YPC	B256A05200YPC *	5,200	.2047	—	—	1,4	36	6
—	B255A05250YPC	—	5,250	.2067	—	—	1,4	36	6
B254A05300YPC *	B255A05300YPC *	—	5,300	.2087	—	—	1,4	36	6
—	B255A05400YPC *	—	5,400	.2126	—	—	1,5	36	6
—	B255A05410YPC *	—	5,410	.2130	—	3	1,5	36	6
B254A05500YPC *	B255A05500YPC	B256A05500YPC	5,500	.2165	—	—	1,5	36	6
B254A05558YPC *	B255A05558YPC *	—	5,558	.2188	7/32	—	1,5	36	6
—	B255A05600YPC	B256A05600YPC	5,600	.2205	—	—	1,5	36	6
—	B255A05700YPC *	—	5,700	.2244	—	—	1,5	36	6
B254A05791YPC	B255A05791YPC *	—	5,791	.2280	—	1	1,6	36	6
B254A05800YPC	B255A05800YPC	B256A05800YPC	5,800	.2283	—	—	1,6	36	6
—	—	B256A05900YPC	5,900	.2323	—	—	1,6	36	6
B254A06000YPC	B255A06000YPC	B256A06000YPC	6,000	.2362	—	—	1,6	36	6
B254A06100YPC *	B255A06100YPC *	—	6,100	.2402	—	—	1,6	36	8
B254A06200YPC *	B255A06200YPC	B256A06200YPC	6,200	.2441	—	—	1,7	36	8
—	B255A06300YPC	—	6,300	.2480	—	—	1,7	36	8
—	B255A06350YPC *	B256A06350YPC	6,350	.2500	1/4	—	1,7	36	8
—	B255A06400YPC	B256A06400YPC	6,400	.2520	—	—	1,7	36	8
B254A06500YPC *	B255A06500YPC	B256A06500YPC	6,500	.2559	—	—	1,7	36	8
B254A06528YPC	—	—	6,528	.2570	—	—	1,7	36	8
B254A06600YPC *	B255A06600YPC	B256A06600YPC *	6,600	.2598	—	—	1,8	36	8
—	B255A06630YPC	—	6,630	.2610	—	—	1,8	36	8
B254A06700YPC *	B255A06700YPC *	B256A06700YPC *	6,700	.2638	—	—	1,8	36	8
B254A06746YPC *	B255A06746YPC	—	6,746	.2656	17/64	—	1,8	36	8
B254A06800YPC	B255A06800YPC	B256A06800YPC	6,800	.2677	—	—	1,8	36	8
B254A06900YPC *	B255A06900YPC	—	6,900	.2717	—	—	1,8	36	8
—	B255A06909YPC *	—	6,909	.2720	—	—	1,8	36	8
B254A07000YPC	B255A07000YPC	B256A07000YPC	7,000	.2756	—	—	1,9	36	8
B254A07100YPC *	—	—	7,100	.2795	—	—	1,9	36	8
—	B255A07145YPC *	—	7,145	.2813	9/32	—	1,9	36	8
—	B255A07200YPC	—	7,200	.2835	—	—	1,9	36	8
—	—	B256A07300YPC *	7,300	.2874	—	—	1,9	36	8
B254A07366YPC *	—	—	7,366	.2900	—	—	1,9	36	8
—	B255A07400YPC	—	7,400	.2913	—	—	2,0	36	8
B254A07493YPC *	B255A07493YPC *	—	7,493	.2950	—	—	2,0	36	8
B254A07500YPC	B255A07500YPC *	B256A07500YPC	7,500	.2953	—	—	2,0	36	8
—	B255A07541YPC	—	7,541	.2969	19/64	—	2,0	36	8
B254A07600YPC *	B255A07600YPC *	B256A07600YPC	7,600	.2992	—	—	2,0	36	8
—	B255A07700YPC	—	7,700	.3031	—	—	2,0	36	8
B254A07800YPC	B255A07800YPC	B256A07800YPC	7,800	.3071	—	—	2,1	36	8
—	B255A07900YPC	—	7,900	.3110	—	—	2,1	36	8
B254A07938YPC	B255A07938YPC	—	7,938	.3125	5/16	—	2,1	36	8
B254A08000YPC	B255A08000YPC	B256A08000YPC	8,000	.3150	—	—	2,1	36	8
B254A08100YPC	B255A08100YPC *	—	8,100	.3189	—	—	2,1	40	10
B254A08200YPC	B255A08200YPC	B256A08200YPC	8,200	.3228	—	—	2,1	40	10
—	B255A08300YPC	B256A08300YPC	8,300	.3268	—	—	2,2	40	10
B254A08334YPC *	—	—	8,334	.3281	21/64	—	2,2	40	10

(continued)

(B254/B255/B256_YPC • ~3 x D/-5 x D/-8 x D — continued)

Solid Carbide Drills



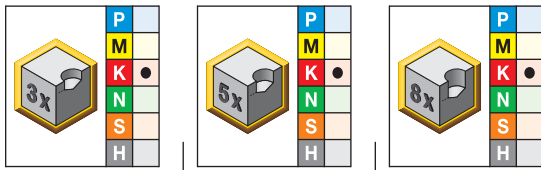
● first choice
 ○ alternate choice

			D1 diameter				L5	LS	D
short • KCK10	long • KCK10	extra long • KCK10	mm	in	fraction	wire size			
B254A08400YPC	-	-	8,400	.3307	-	-	2,2	40	10
B254A08433YPC *	B255A08433YPC	-	8,433	.3320	-	-	2,2	40	10
B254A08500YPC	B255A08500YPC	B256A08500YPC	8,500	.3346	-	-	2,2	40	10
B254A08600YPC	B255A08600YPC	B256A08600YPC	8,600	.3386	-	-	2,2	40	10
B254A08700YPC	B255A08700YPC	B256A08700YPC *	8,700	.3425	-	-	2,3	40	10
B254A08800YPC	B255A08800YPC	B256A08800YPC	8,800	.3465	-	-	2,3	40	10
B254A08839YPC *	B255A08839YPC *	-	8,839	.3480	-	-	2,3	40	10
-	B255A08900YPC *	-	8,900	.3504	-	-	2,3	40	10
B254A09000YPC	B255A09000YPC	B256A09000YPC	9,000	.3543	-	-	2,3	40	10
-	B255A09093YPC *	-	9,093	.3580	-	-	2,4	40	10
B254A09100YPC *	B255A09100YPC	B256A09100YPC	9,100	.3583	-	-	2,4	40	10
-	B255A09129YPC *	-	9,129	.3594	23/64	-	2,4	40	10
B254A09200YPC	B255A09200YPC *	-	9,200	.3622	-	-	2,4	40	10
-	B255A09300YPC	B256A09300YPC	9,300	.3661	-	-	2,4	40	10
-	-	B256A09347YPC	9,347	.3680	-	-	2,4	40	10
B254A09400YPC *	B255A09400YPC	-	9,400	.3701	-	-	2,4	40	10
B254A09500YPC	B255A09500YPC	B256A09500YPC	9,500	.3740	-	-	2,5	40	10
B254A09525YPC *	B255A09525YPC *	-	9,525	.3750	3/8	-	2,5	40	10
-	B255A09600YPC	B256A09600YPC	9,600	.3780	-	-	2,5	40	10
-	B255A09700YPC	B256A09700YPC *	9,700	.3819	-	-	2,5	40	10
B254A09800YPC	B255A09800YPC *	B256A09800YPC	9,800	.3858	-	-	2,5	40	10
B254A09921YPC *	B255A09921YPC	-	9,921	.3906	25/64	-	2,6	40	10
B254A10000YPC	B255A10000YPC	B256A10000YPC	10,000	.3937	-	-	2,6	40	10
B254A10200YPC	B255A10200YPC	B256A10200YPC	10,200	.4016	-	-	2,6	45	12
B254A10262YPC	B255A10262YPC *	-	10,262	.4040	-	-	2,6	45	12
B254A10300YPC	B255A10300YPC	B256A10300YPC	10,300	.4055	-	-	2,6	45	12
B254A10320YPC	B255A10320YPC *	-	10,320	.4063	13/32	-	2,7	45	12
-	B255A10400YPC *	B256A10400YPC	10,400	.4094	-	-	2,7	45	12
B254A10490YPC *	-	-	10,490	.4130	-	-	2,7	45	12
B254A10500YPC	B255A10500YPC	B256A10500YPC	10,500	.4134	-	-	2,7	45	12
-	B255A10600YPC	-	10,600	.4173	-	-	2,7	45	12
B254A10700YPC	-	B256A10700YPC	10,700	.4213	-	-	2,7	45	12
-	B255A10716YPC	-	10,716	.4219	27/64	-	2,7	45	12
B254A10800YPC	B255A10800YPC	B256A10800YPC	10,800	.4252	-	-	2,8	45	12
-	B255A10900YPC *	-	10,900	.4291	-	-	2,8	45	12
B254A11000YPC	B255A11000YPC	B256A11000YPC	11,000	.4331	-	-	2,8	45	12
B254A11100YPC *	B255A11100YPC	-	11,100	.4370	-	-	2,8	45	12
B254A11113YPC *	B255A11113YPC	-	11,113	.4375	7/16	-	2,8	45	12
B254A11200YPC	B255A11200YPC	B256A11200YPC	11,200	.4409	-	-	2,9	45	12
-	-	B256A11300YPC *	11,300	.4449	-	-	2,9	45	12
B254A11500YPC	B255A11500YPC	B256A11500YPC	11,500	.4528	-	-	2,9	45	12
-	-	B256A11600YPC	11,600	.4567	-	-	3,0	45	12
-	B255A11700YPC	-	11,700	.4606	-	-	3,0	45	12
B254A11800YPC	B255A11800YPC	B256A11800YPC	11,800	.4646	-	-	3,0	45	12
-	B255A11900YPC	B256A11900YPC	11,900	.4685	-	-	3,0	45	12
B254A11908YPC *	B255A11908YPC *	-	11,908	.4688	15/32	-	3,0	45	12
B254A12000YPC	B255A12000YPC	B256A12000YPC	12,000	.4724	-	-	3,1	45	12
-	B255A12100YPC	-	12,100	.4764	-	-	3,1	45	14
B254A12200YPC	B255A12200YPC	B256A12200YPC	12,200	.4803	-	-	3,1	45	14
-	B255A12251YPC	-	12,251	.4823	-	-	3,1	45	14
-	B255A12300YPC *	B256A12300YPC	12,300	.4843	-	-	3,1	45	14
B254A12304YPC *	B255A12304YPC *	-	12,304	.4844	31/64	-	3,1	45	14

(continued)

(B254/B255/B256_YPC • ~3 x D/~5 x D/~8 x D — continued)

Solid Carbide Drills



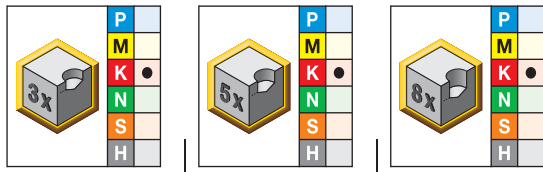
- first choice
- alternate choice

			D1 diameter				L5	LS	D
short • KCK10	long • KCK10	extra long • KCK10	mm	in	fraction	wire size			
-	-	B256A12400YPC *	12,400	.4882	-	-	3,1	45	14
B254A12500YPC	B255A12500YPC	B256A12500YPC	12,500	.4921	-	-	3,2	45	14
-	B255A12700YPC	B256A12700YPC	12,700	.5000	1/2	-	3,2	45	14
B254A12800YPC	-	B256A12800YPC	12,800	.5039	-	-	3,2	45	14
B254A13000YPC	B255A13000YPC	B256A13000YPC	13,000	.5118	-	-	3,3	45	14
-	B255A13096YPC *	B256A13096YPC	13,096	.5156	33/64	-	3,3	45	14
B254A13100YPC	-	-	13,100	.5157	-	-	3,3	45	14
B254A13200YPC	-	B256A13200YPC	13,200	.5197	-	-	3,3	45	14
-	B255A13495YPC	B256A13495YPC	13,495	.5313	17/32	-	3,4	45	14
B254A13500YPC	B255A13500YPC	B256A13500YPC	13,500	.5315	-	-	3,4	45	14
-	-	B256A13700YPC	13,700	.5394	-	-	3,5	45	14
B254A13800YPC	-	B256A13800YPC	13,800	.5433	-	-	3,5	45	14
B254A13891YPC *	-	B256A13891YPC *	13,891	.5469	35/64	-	3,5	45	14
B254A14000YPC	B255A14000YPC	B256A14000YPC	14,000	.5512	-	-	3,5	45	14
B254A14100YPC *	B255A14100YPC *	-	14,100	.5551	-	-	3,6	48	16
B254A14288YPC	B255A14288YPC	-	14,288	.5625	9/16	-	3,6	48	16
B254A14500YPC	B255A14500YPC	B256A14500YPC	14,500	.5709	-	-	3,6	48	16
-	B255A14600YPC *	-	14,600	.5748	-	-	3,7	48	16
-	B255A14684YPC	B256A14684YPC *	14,684	.5781	37/64	-	3,7	48	16
B254A14800YPC	-	B256A14800YPC	14,800	.5827	-	-	3,7	48	16
B254A15000YPC	B255A15000YPC	B256A15000YPC	15,000	.5906	-	-	3,8	48	16
-	B255A15083YPC	B256A15083YPC *	15,083	.5938	19/32	-	3,8	48	16
B254A15200YPC	-	B256A15200YPC	15,200	.5984	-	-	3,8	48	16
B254A15250YPC *	B255A15250YPC	-	15,250	.6004	-	-	3,8	48	16
-	-	B256A15300YPC	15,300	.6024	-	-	3,8	48	16
B254A15400YPC	B255A15400YPC *	-	15,400	.6063	-	-	3,9	48	16
B254A15500YPC	B255A15500YPC *	B256A15500YPC	15,500	.6102	-	-	3,9	48	16
B254A15800YPC	B255A15800YPC	B256A15800YPC *	15,800	.6220	-	-	4,0	48	16
-	B255A15875YPC *	-	15,875	.6250	5/8	-	4,0	48	16
B254A16000YPC	B255A16000YPC	B256A16000YPC	16,000	.6299	-	-	4,0	48	16
-	B255A16300YPC	B256A16300YPC	16,300	.6417	-	-	4,1	48	18
B254A16500YPC	B255A16500YPC	B256A16500YPC	16,500	.6496	-	-	4,1	48	18
B254A16670YPC *	B255A16670YPC	-	16,670	.6563	21/32	-	4,2	48	18
B254A16800YPC	B255A16800YPC	B256A16800YPC	16,800	.6614	-	-	4,2	48	18
B254A17000YPC	B255A17000YPC	B256A17000YPC	17,000	.6693	-	-	4,2	48	18
-	B255A17200YPC *	-	17,200	.6772	-	-	4,3	48	18
B254A17463YPC *	B255A17463YPC	-	17,463	.6875	11/16	-	4,3	48	18
B254A17500YPC	B255A17500YPC	B256A17500YPC	17,500	.6890	-	-	4,3	48	18
B254A17800YPC	B255A17800YPC	B256A17800YPC	17,800	.7008	-	-	4,4	48	18
B254A17859YPC *	B255A17859YPC	-	17,859	.7031	45/64	-	4,4	48	18
B254A18000YPC	B255A18000YPC	B256A18000YPC	18,000	.7087	-	-	4,5	48	18
B254A18200YPC *	-	-	18,200	.7165	-	-	4,5	50	20
B254A18258YPC *	B255A18258YPC	B256A18258YPC *	18,258	.7188	23/32	-	4,5	50	20
B254A18500YPC *	B255A18500YPC	B256A18500YPC	18,500	.7283	-	-	4,6	50	20
B254A18800YPC	B255A18800YPC	B256A18800YPC	18,800	.7402	-	-	4,7	50	20
B254A19000YPC	B255A19000YPC	B256A19000YPC	19,000	.7480	-	-	4,7	50	20
B254A19050YPC *	-	-	19,050	.7500	3/4	-	4,7	50	20
-	B255A19500YPC	B256A19500YPC	19,500	.7677	-	-	4,8	50	20
-	B255A19700YPC	-	19,700	.7756	-	-	4,9	50	20
B254A19800YPC	B255A19800YPC	B256A19800YPC	19,800	.7795	-	-	4,9	50	20
B254A20000YPC	B255A20000YPC	B256A20000YPC	20,000	.7874	-	-	4,9	50	20
-	B255A20500YPC	-	20,500	.8071	-	-	5,1	50	20

(continued)

(B254/B255/B256_YPC • ~3 x D/-5 x D/-8 x D — continued)

Solid Carbide Drills



● first choice
 ○ alternate choice

			D1 diameter				L5	LS	D
short • KCK10	long • KCK10	extra long • KCK10	mm	in	fraction	wire size			
B254A20638YPC *	B255A20638YPC	B256A20638YPC	20,638	.8125	13/16	—	5,1	50	20
B254A21000YPC *	B255A21000YPC *	—	21,000	.8268	—	—	5,2	50	20
B254A22000YPC	B255A22000YPC	B256A22000YPC	22,000	.8661	—	—	5,4	50	20
B254A22225YPC *	B255A22225YPC *	B256A22225YPC *	22,225	.8750	7/8	—	5,5	56	25
B254A23416YPC	B255A23416YPC *	—	23,416	.9219	59/64	—	5,7	56	25
—	B255A24000YPC *	—	24,000	.9449	—	—	5,9	56	25
B254A25000YPC *	B255A25000YPC *	—	25,000	.9843	—	—	6,1	56	25
—	—	B256A25004YPC *	25,004	.9844	63/64	—	6,1	56	25

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Tolerance • Metric		
nominal size range	D1 tolerance m7	D tolerance h6
>3-6	0,004/0,016	0,000/-0,008
>6-10	0,006/0,021	0,000/-0,009
>10-18	0,007/0,025	0,000/-0,011
>18-25,4	0,008/0,029	0,000/-0,013

Tolerance • Inch		
nominal size range	D1 tolerance m7	D tolerance h6
>.1181-.2362	.0002/.0006	.0000/-0.0003
>.2362-.3937	.0002/.0008	.0000/-0.0004
>.3937-.7087	.0003/.0010	.0000/-0.0004
>.7087-1.0000	.0003/.0011	.0000/-0.0005

Application Data

■ YPC Drills • B25_YPC • Grade KCK10™ • Through Coolant • Drill Diameters 3–20mm (.1181–.7874")

		Cutting Speed – vc			Recommended Feed Rate (f) by Diameter								
		Range – m/min			Metric								
Material Group		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
		K	1	130	160	210	mm/r	0,12–0,22	0,14–0,25	0,16–0,32	0,22–0,44	0,30–0,46	0,34–0,50
2	90		130	180	mm/r	0,12–0,22	0,14–0,25	0,16–0,32	0,22–0,44	0,30–0,46	0,34–0,50	0,38–0,62	0,42–0,74
3	70		90	130	mm/r	0,11–0,17	0,12–0,22	0,22–0,34	0,24–0,46	0,26–0,48	0,28–0,50	0,30–0,62	0,34–0,74
		Cutting Speed – vc			Recommended Feed Rate (f) by Diameter								
		Range – SFM			Inch								
Material Group		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
		K	1	430	520	690	IPR	.005–.009	.006–.010	.006–.013	.009–.017	.012–.018	.013–.020
2	300		430	590	IPR	.005–.009	.006–.010	.006–.013	.009–.017	.012–.018	.013–.020	.015–.024	.017–.029
3	230		300	430	IPR	.004–.007	.005–.009	.009–.013	.009–.018	.010–.019	.011–.020	.012–.024	.013–.029

➤ SE 4-Margin Drills with Through Coolant for Steel

High-performance platform for mid-L/D applications in steel.

Primary Application

B256 series solid carbide drills are the high-performance platform for mid-L/D applications in steel that require high accuracy and consistent hole straightness combined with excellent metal removal rates and long tool life.



Features and Benefits

SE Drill-Point Design

- Sculptured edge enables high feed rates.

Four-Margin Lands

- Improves hole straightness.
- Improves hole alignment when drilling through cross holes.

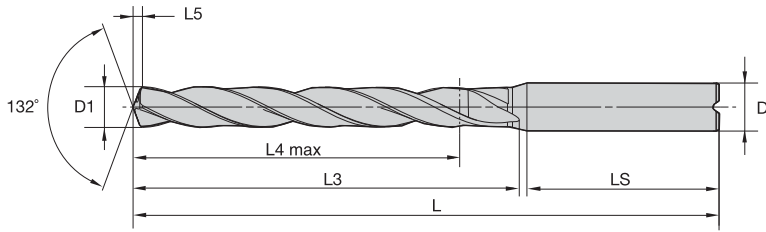
KC7315™ Grade

- Multilayer, TiAlN-based coating with high hot hardness allows 30% higher cutting speeds and constant tool life.
- Optimized tool surface finish ensures chip evacuation when drilling deeper holes.

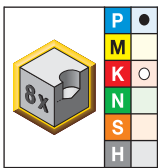


Customization

- Intermediate diameters available as semi-standards.
- Length variations and step drills available as engineered solutions.
- For follow-up operations, such as machining screw holes in connecting rods, the point angle of the step drill for the screw head should be adjusted.



■ B256 • ~8 x D



- first choice
- alternate choice

D1 diameter

extra long • KC7315	mm	in	fraction	wire size	L	L3	L4 max	L5	LS	D
B256A05000	5,000	.1969	—	—	94	56	48	1,0	36	6
B256A05100	5,100	.2008	—	—	94	56	48	1,0	36	6
B256A05500	5,500	.2165	—	—	94	56	48	1,1	36	6
B256A05800	5,800	.2283	—	—	94	56	48	1,2	36	6
B256A06000	6,000	.2362	—	—	94	56	48	1,2	36	6
B256A06500	6,500	.2559	—	—	105	67	57	1,3	36	8
B256A06800	6,800	.2677	—	—	105	67	57	1,4	36	8
B256A07000	7,000	.2756	—	—	105	67	57	1,4	36	8
B256A07800	7,800	.3071	—	—	110	72	61	1,6	36	8
B256A08000	8,000	.3150	—	—	110	72	61	1,6	36	8
B256A08400	8,400	.3307	—	—	122	80	68	1,7	40	10
B256A08500	8,500	.3346	—	—	122	80	68	1,7	40	10
B256A08800	8,800	.3465	—	—	122	80	68	1,8	40	10
B256A09000	9,000	.3543	—	—	122	80	68	1,8	40	10
B256A09500	9,500	.3740	—	—	122	80	68	1,9	40	10
B256A10000	10,000	.3937	—	—	122	80	68	2,0	40	10
B256A10200	10,200	.4016	—	—	141	94	79	2,0	45	12
B256A10500	10,500	.4134	—	—	141	94	79	2,1	45	12
B256A11000	11,000	.4331	—	—	141	94	79	2,2	45	12
B256A11800	11,800	.4646	—	—	141	94	79	2,3	45	12
B256A12000	12,000	.4724	—	—	141	94	79	2,4	45	12
B256A12500	12,500	.4921	—	—	155	108	91	2,5	45	14
B256A13000	13,000	.5118	—	—	155	108	91	2,6	45	14
B256A13500	13,500	.5315	—	—	155	108	91	2,7	45	14
B256A14000	14,000	.5512	—	—	155	108	91	2,8	45	14
B256A15000	15,000	.5906	—	—	171	121	101	3,0	48	16
B256A16000	16,000	.6299	—	—	171	121	101	3,2	48	16

Tolerance • Metric

nominal size range	D1 tolerance m7	D tolerance h6
>3-6	0,004/0,016	0,000/-0,008
>6-10	0,006/0,021	0,000/-0,009
>10-18	0,007/0,025	0,000/-0,011
>18-25,4	0,008/0,029	0,000/-0,013

Tolerance • Inch

nominal size range	D1 tolerance m7	D tolerance h6
>.1181 to .2362	.0002/.0006	.0000/-.0003
>.2362 to .3937	.0002/.0008	.0000/-.0004
>.3937 to .7087	.0003/.0010	.0000/-.0004
>.7087 to 1.0000	.0003/.0011	.0000/-.0005

SE Drills • B256 Series • Grade KC7315™ • Through Coolant • Drill Diameters 3–20mm (.1181–.7874")

Solid Carbide Drills

Material Group		Cutting Speed – vc			Metric								
		Range – m/min			Recommended Feed Rate (f) by Diameter								
		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
		mm/r											
P	0	130	145	200		0,07–0,09	0,08–0,13	0,09–0,13	0,11–0,16	0,11–0,19	0,13–0,23	0,15–0,28	0,19–0,31
	1	120	145	175		0,08–0,11	0,09–0,15	0,11–0,15	0,13–0,19	0,13–0,22	0,15–0,27	0,18–0,33	0,22–0,37
	2	80	100	120		0,08–0,11	0,08–0,13	0,09–0,17	0,15–0,21	0,16–0,25	0,18–0,33	0,22–0,42	0,26–0,50
	3	80	90	120		0,08–0,11	0,09–0,15	0,11–0,15	0,13–0,19	0,13–0,22	0,15–0,27	0,18–0,33	0,22–0,37
	4	60	70	80		0,06–0,09	0,07–0,13	0,09–0,13	0,11–0,15	0,11–0,17	0,13–0,22	0,15–0,27	0,17–0,30
K	1	120	150	200		0,08–0,11	0,14–0,20	0,20–0,28	0,25–0,35	0,29–0,40	0,32–0,43	0,36–0,50	0,40–0,55
	2	80	120	160		0,08–0,11	0,13–0,17	0,19–0,26	0,23–0,30	0,25–0,36	0,30–0,40	0,34–0,46	0,37–0,50
	3	60	80	120		0,07–0,10	0,10–0,14	0,15–0,21	0,19–0,26	0,22–0,30	0,24–0,33	0,28–0,38	0,30–0,41

Material Group		Cutting Speed – vc			Inch								
		Range – SFM			Recommended Feed Rate (f) by Diameter								
		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
		IPR											
P	0	430	480	660		.003–.004	.003–.005	.004–.005	.004–.006	.004–.008	.005–.009	.006–.011	.008–.012
	1	390	480	570		.003–.004	.004–.006	.004–.006	.005–.008	.005–.009	.006–.011	.007–.013	.009–.015
	2	260	330	390		.003–.004	.003–.005	.004–.007	.006–.008	.006–.010	.007–.013	.009–.017	.010–.020
	3	260	300	390		.003–.004	.004–.006	.004–.006	.005–.008	.005–.009	.006–.011	.007–.013	.009–.015
	4	200	230	260		.002–.004	.003–.005	.004–.005	.004–.006	.004–.007	.005–.009	.006–.011	.007–.012
K	1	390	490	660		.003–.004	.006–.008	.008–.011	.010–.014	.011–.016	.013–.017	.014–.020	.016–.022
	2	260	390	520		.003–.004	.005–.007	.008–.010	.009–.012	.010–.014	.012–.016	.013–.018	.015–.020
	3	200	260	390		.003–.004	.004–.006	.006–.008	.008–.010	.009–.012	.009–.013	.011–.015	.012–.016

➤ HP Beyond™ 4-Margin Long-Length Drills with Through Coolant



Primary Application

B269_HP series solid carbide drills are 12 x D, long-length drills, closing the gap between 8 x D drill (B256_SE) and 15 x D (B271_HP). They are designed for deep-hole applications without pilot drill in steel, cast iron, and stainless steel materials. Operate these drills with standard through coolant or MQL. The drills have a standard A-shank according to DIN 6535 HA (round cylindrical with 2mm steps).

Features and Benefits

Four-Margin Lands

- Improves hole straightness.
- Improves hole alignment when drilling through cross holes or inclined exits.

HP Drill-Point Design

- Low thrust prevents workpiece flexing.
- Excellent centering capabilities.
- Eliminates the need for pilot drilling.

Unique Flute Design

- Drastically improved chip evacuation.
- Better hole surface quality.

KCPK15™ Beyond Grade

- The grade is a multilayer, TiAlN-based coating with high hot hardness. It enables highest cutting speeds and enables the use in MQL applications.
- The highly polished surface ensures superior chip evacuation even when low-pressure coolant is applied.

**Designed for deep-hole applications
without pilot drill.**

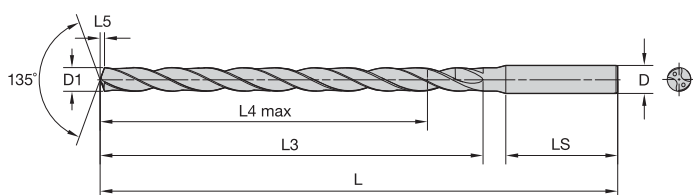
Customization

- Intermediate diameters available as engineered solutions.
- Length variations and step drills available as engineered solutions.



High-Performance Solid Carbide Drills

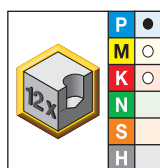
HP Beyond™ Four-Margin, Long-Length Drills • Through Coolant • 12 x D



Solid Carbide Drills



■ B269_HP • ~12 x D



D1 diameter

- first choice
- alternate choice

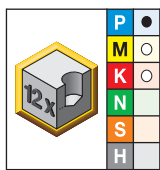
extra long • KCPK15	mm	in	fraction	wire size	L	L3	L4 max	L5	LS	D
B269A02400KMG	2,400	.0945	—	—	75	42	35	0,5	28	4
B269A02500KMG	2,500	.0984	—	—	75	42	35	0,5	28	4
B269A02600KMG	2,600	.1024	—	—	75	42	35	0,5	28	4
B269A02800KMG	2,800	.1102	—	—	75	43	36	0,6	28	4
B269A02900KMG	2,900	.1142	—	—	75	43	36	0,6	28	4
B269A03000HP	3,000	.1181	—	—	93	52	44	0,6	36	6
B269A03175HP	3,175	.1250	1/8	—	93	52	44	0,6	36	6
B269A03264HP	3,264	.1285	—	30	93	53	44	0,6	36	6
B269A03300HP	3,300	.1299	—	—	93	53	44	0,6	36	6
B269A03400HP *	3,400	.1339	—	—	93	53	44	0,6	36	6
B269A03500HP	3,500	.1378	—	—	93	53	44	0,7	36	6
B269A03600HP	3,600	.1417	—	—	93	54	45	0,7	36	6
B269A03700HP	3,700	.1457	—	—	93	54	45	0,7	36	6
B269A03800HP	3,800	.1496	—	—	107	65	55	0,7	36	6
B269A03970HP	3,970	.1563	5/32	—	107	66	56	0,7	36	6
B269A04000HP	4,000	.1575	—	—	107	66	56	0,8	36	6
B269A04100HP	4,100	.1614	—	—	107	66	55	0,8	36	6
B269A04200HP	4,200	.1654	—	—	107	67	56	0,8	36	6
B269A04300HP	4,300	.1693	—	—	107	67	56	0,8	36	6
B269A04500HP	4,500	.1772	—	—	107	67	56	0,8	36	6
B269A04550HP	4,550	.1791	—	—	107	68	57	0,9	36	6
B269A04600HP	4,600	.1811	—	—	107	68	57	0,9	36	6
B269A04700HP	4,700	.1850	—	13	107	68	57	0,9	36	6
B269A04763HP	4,763	.1875	3/16	—	125	82	69	0,9	36	6
B269A04800HP	4,800	.1890	—	12	125	82	69	0,9	36	6
B269A05000HP	5,000	.1969	—	—	125	83	70	0,9	36	6
B269A05100HP	5,100	.2008	—	—	125	83	70	1,0	36	6
B269A05200HP	5,200	.2047	—	—	125	83	70	1,0	36	6
B269A05300HP	5,300	.2087	—	—	125	84	71	1,0	36	6
B269A05410HP	5,410	.2130	—	3	125	84	71	1,0	36	6
B269A05500HP	5,500	.2165	—	—	125	84	71	1,0	36	6
B269A05558HP	5,558	.2188	7/32	—	125	84	71	1,0	36	6
B269A05600HP	5,600	.2205	—	—	125	85	72	1,1	36	6
B269A05700HP	5,700	.2244	—	—	125	85	72	1,1	36	6
B269A05800HP	5,800	.2283	—	—	125	85	71	1,1	36	6
B269A06000HP	6,000	.2362	—	—	125	86	72	1,1	36	6

(continued)

(B269_HP • ~12 x D – continued)



Solid Carbide Drills



● first choice
○ alternate choice

extra long • KCPK15	D1 diameter				L	L3	L4 max	L5	LS	D
	mm	in	fraction	wire size						
B269A06100HP	6,100	.2402	—	—	139	97	82	1,1	36	8
B269A06200HP	6,200	.2441	—	—	139	97	82	1,2	36	8
B269A06350HP	6,350	.2500	1/4	—	139	98	83	1,2	36	8
B269A06400HP	6,400	.2520	—	—	139	98	83	1,2	36	8
B269A06500HP	6,500	.2559	—	—	139	98	83	1,2	36	8
B269A06528HP	6,528	.2570	—	—	139	98	83	1,2	36	8
B269A06600HP	6,600	.2598	—	—	139	99	84	1,2	36	8
B269A06746HP	6,746	.2656	17/64	—	139	99	83	1,3	36	8
B269A06800HP	6,800	.2677	—	—	139	99	83	1,3	36	8
B269A06909HP	6,909	.2720	—	—	139	100	84	1,3	36	8
B269A07000HP	7,000	.2756	—	—	139	100	84	1,3	36	8
B269A07145HP	7,145	.2813	9/32	—	153	111	94	1,3	36	8
B269A07500HP	7,500	.2953	—	—	153	112	95	1,4	36	8
B269A07541HP	7,541	.2969	19/64	—	153	112	95	1,4	36	8
B269A07700HP	7,700	.3031	—	—	153	113	96	1,4	36	8
B269A07800HP	7,800	.3071	—	—	153	113	95	1,5	36	8
B269A07938HP	7,938	.3125	5/16	—	153	114	96	1,5	36	8
B269A08000HP	8,000	.3150	—	—	153	114	96	1,5	36	8
B269A08100HP	8,100	.3189	—	—	185	136	116	1,5	40	10
B269A08200HP	8,200	.3228	—	—	185	136	116	1,5	40	10
B269A08334HP	8,334	.3281	21/64	—	185	137	117	1,6	40	10
B269A08433HP	8,433	.3320	—	—	185	137	117	1,6	40	10
B269A08500HP	8,500	.3346	—	—	185	137	117	1,6	40	10
B269A08600HP	8,600	.3386	—	—	185	138	118	1,6	40	10
B269A08700HP	8,700	.3425	—	—	185	138	118	1,6	40	10
B269A08733HP	8,733	.3438	11/32	—	185	138	117	1,6	40	10
B269A09000HP	9,000	.3543	—	—	185	139	118	1,7	40	10
B269A09100HP	9,100	.3583	—	—	185	139	118	1,7	40	10
B269A09129HP *	9,129	.3594	23/64	—	185	139	118	1,7	40	10
B269A09500HP	9,500	.3740	—	—	185	140	119	1,8	40	10
B269A09525HP	9,525	.3750	3/8	—	185	140	119	1,8	40	10
B269A09800HP	9,800	.3858	—	—	185	141	119	1,8	40	10
B269A09921HP	9,921	.3906	25/64	—	185	142	120	1,9	40	10
B269A10000HP	10,000	.3937	—	—	185	142	120	1,9	40	10
B269A10200HP	10,200	.4016	—	—	218	164	140	1,9	45	12
B269A10300HP	10,300	.4055	—	—	218	165	141	1,9	45	12
B269A10320HP	10,320	.4063	13/32	—	218	165	141	1,9	45	12
B269A10400HP	10,400	.4094	—	—	218	165	141	1,9	45	12
B269A10500HP	10,500	.4134	—	—	218	165	141	2,0	45	12
B269A10716HP	10,716	.4219	27/64	—	218	166	142	2,0	45	12
B269A10800HP	10,800	.4252	—	—	218	166	141	2,0	45	12
B269A11000HP	11,000	.4331	—	—	218	167	142	2,1	45	12
B269A11113HP	11,113	.4375	7/16	—	218	167	142	2,1	45	12
B269A11200HP	11,200	.4409	—	—	218	167	142	2,1	45	12
B269A11500HP	11,500	.4528	—	—	218	168	143	2,1	45	12
B269A11800HP	11,800	.4646	—	—	218	169	143	2,2	45	12
B269A12000HP	12,000	.4724	—	—	218	170	144	2,2	45	12
B269A12100HP	12,100	.4764	—	—	246	192	164	2,3	45	14
B269A12200HP	12,200	.4803	—	—	246	192	164	2,3	45	14
B269A12304HP	12,304	.4844	31/64	—	246	193	165	2,3	45	14
B269A12500HP	12,500	.4921	—	—	246	193	165	2,3	45	14
B269A12700HP	12,700	.5000	1/2	—	246	194	166	2,4	45	14

(continued)

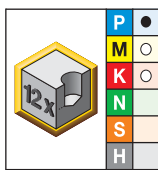
High-Performance Solid Carbide Drills

HP Beyond™ Four-Margin, Long-Length Drills • Through Coolant • 12 x D



(B269_HP • ~12 x D – continued)

Solid Carbide Drills



D1 diameter

● first choice

○ alternate choice

extra long • KCPK15	mm	in	fraction	wire size	L	L3	L4 max	L5	LS	D
B269A13000HP	13,000	.5118	—	—	246	195	166	2,4	45	14
B269A13100HP	13,100	.5157	—	—	246	195	166	2,4	45	14
B269A13500HP	13,500	.5315	—	—	246	196	167	2,5	45	14
B269A13800HP *	13,800	.5433	—	—	246	197	168	2,6	45	14
B269A14000HP	14,000	.5512	—	—	246	198	168	2,6	45	14
B269A14100HP *	14,100	.5551	—	—	277	220	188	2,6	48	16
B269A14288HP	14,288	.5625	9/16	—	277	220	188	2,7	48	16
B269A14500HP	14,500	.5709	—	—	277	221	189	2,7	48	16
B269A14600HP *	14,600	.5748	—	—	277	221	189	2,7	48	16
B269A14684HP	14,684	.5781	37/64	—	277	222	190	2,7	48	16
B269A15000HP	15,000	.5906	—	—	277	223	190	2,8	48	16
B269A15200HP *	15,200	.5984	—	—	277	223	190	2,8	48	16
B269A15500HP	15,500	.6102	—	—	277	224	191	2,9	48	16
B269A15875HP	15,875	.6250	5/8	—	277	225	192	3,0	48	16
B269A16000HP	16,000	.6299	—	—	277	226	192	3,0	48	16
B269A16500HP	16,500	.6496	—	—	305	249	213	3,1	48	18
B269A17000HP	17,000	.6693	—	—	305	250	214	3,2	48	18
B269A17100HP	17,100	.6732	—	—	305	251	214	3,2	48	18
B269A17463HP	17,463	.6875	11/16	—	305	252	215	3,2	48	18
B269A17500HP	17,500	.6890	—	—	305	252	215	3,3	48	18
B269A17600HP *	17,600	.6929	—	—	305	252	215	3,3	48	18
B269A18000HP	18,000	.7087	—	—	305	253	216	3,3	48	18
B269A18500HP	18,500	.7283	—	—	334	277	237	3,4	50	20
B269A18600HP *	18,600	.7323	—	—	334	277	237	3,5	50	20
B269A19000HP	19,000	.7480	—	—	334	278	238	3,5	50	20
B269A19050HP	19,050	.7500	3/4	—	334	279	239	3,5	50	20
B269A19500HP	19,500	.7677	—	—	334	280	239	3,6	50	20
B269A20000HP	20,000	.7874	—	—	334	281	240	3,7	50	20

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Tolerance • Metric

Tolerance • Inch

nominal size range	D1 tolerance m7	D tolerance h6
>3-6	0,004/0,016	0,000/-0,008
>6-10	0,006/0,021	0,000/-0,009
>10-18	0,007/0,025	0,000/-0,011
>18-25,4	0,008/0,029	0,000/-0,013

nominal size range	D1 tolerance m7	D tolerance h6
>.1181-.2362	.0002/.0006	.0000/-.0003
>.2362-.3937	.0002/.0008	.0000/-.0004
>.3937-.7087	.0003/.0010	.0000/-.0004
>.7087-1.0000	.0003/.0011	.0000/-.0005

■ HP Drills • B269_HP Series • Grade KCPK15™ • Through Coolant • Drill Diameters 3–20mm (.1181–.7874")



Solid Carbide Drills

Material Group		Cutting Speed – vc			Metric								
		Range – m/min			Recommended Feed Rate (f) by Diameter								
		min	Starting Value	max	3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0	
P	0	110	140	170	mm/r	0,10–0,14	0,12–0,20	0,14–0,20	0,17–0,25	0,25–0,28	0,20–0,35	0,23–0,43	0,28–0,48
	1	100	140	150	mm/r	0,12–0,17	0,14–0,23	0,17–0,23	0,20–0,29	0,29–0,33	0,23–0,41	0,27–0,50	0,33–0,56
	2	70	100	110	mm/r	0,12–0,17	0,12–0,20	0,14–0,26	0,23–0,32	0,24–0,38	0,27–0,50	0,33–0,63	0,39–0,75
	3	70	90	110	mm/r	0,12–0,17	0,14–0,23	0,17–0,23	0,20–0,29	0,29–0,33	0,23–0,41	0,27–0,50	0,33–0,56
	4	60	70	90	mm/r	0,09–0,14	0,11–0,20	0,14–0,20	0,17–0,23	0,17–0,26	0,20–0,33	0,23–0,41	0,26–0,45
	5	60	80	90	mm/r	0,03–0,11	0,04–0,11	0,05–0,11	0,05–0,14	0,08–0,18	0,11–0,21	0,14–0,24	0,16–0,26
M	1	50	60	80	mm/r	0,04–0,08	0,06–0,13	0,08–0,16	0,10–0,18	0,12–0,20	0,13–0,22	0,15–0,24	0,18–0,28
	2	40	50	80	mm/r	0,04–0,08	0,06–0,13	0,08–0,16	0,10–0,18	0,12–0,20	0,13–0,22	0,15–0,24	0,18–0,28
	3	40	50	70	mm/r	0,03–0,07	0,05–0,10	0,06–0,14	0,08–0,16	0,10–0,18	0,12–0,20	0,14–0,22	0,16–0,26
K	1	90	150	150	mm/r	0,10–0,15	0,14–0,20	0,20–0,30	0,22–0,36	0,26–0,42	0,30–0,45	0,36–0,59	0,40–0,72
	2	80	120	120	mm/r	0,10–0,15	0,14–0,20	0,20–0,30	0,22–0,36	0,26–0,42	0,30–0,45	0,36–0,59	0,40–0,72
	3	80	80	140	mm/r	0,11–0,15	0,15–0,21	0,22–0,32	0,22–0,39	0,26–0,45	0,28–0,50	0,30–0,60	0,34–0,72
Material Group		Cutting Speed – vc			Inch								
		Range – SFM			Recommended Feed Rate (f) by Diameter								
		min	Starting Value	max	1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750	
P	0	360	460	560	IPR	.004–.006	.005–.008	.006–.008	.007–.010	.010–.011	.008–.014	.009–.017	.011–.019
	1	330	470	490	IPR	.005–.007	.006–.009	.007–.009	.008–.011	.011–.013	.009–.016	.011–.020	.013–.022
	2	230	330	360	IPR	.005–.007	.005–.008	.006–.010	.009–.013	.009–.015	.011–.020	.013–.025	.015–.030
	3	230	300	360	IPR	.005–.007	.006–.009	.007–.009	.008–.011	.011–.013	.009–.016	.011–.020	.013–.022
	4	200	230	300	IPR	.004–.006	.004–.008	.006–.008	.007–.009	.007–.010	.008–.013	.009–.016	.010–.018
	5	200	260	300	IPR	.001–.004	.002–.004	.002–.004	.002–.006	.003–.007	.004–.008	.006–.009	.006–.010
M	1	160	200	260	IPR	.002–.003	.002–.005	.003–.006	.004–.007	.005–.008	.005–.009	.006–.009	.007–.011
	2	130	160	260	IPR	.002–.003	.002–.005	.003–.006	.004–.007	.005–.008	.005–.009	.006–.009	.007–.011
	3	130	160	230	IPR	.001–.003	.002–.004	.002–.006	.003–.006	.004–.007	.005–.008	.006–.009	.006–.010
K	1	300	490	490	IPR	.004–.006	.006–.008	.008–.012	.009–.014	.010–.017	.012–.018	.014–.023	.016–.028
	2	260	400	400	IPR	.004–.006	.006–.008	.008–.012	.009–.014	.010–.017	.012–.018	.014–.023	.016–.028
	3	260	260	460	IPR	.004–.006	.006–.008	.009–.013	.009–.015	.010–.018	.011–.020	.012–.024	.013–.028

➤ Beyond™ HP Solid Carbide Deep-Hole Drills



Primary Application

B27_HPG series solid carbide drills, made of the KCPK20™ grade, are the optimum platform for drilling holes up to 40 x D deep in steel and cast iron. The B27_HPG series drills deep holes up to 4x faster than conventional HSS and gun drills. The application of MQL is possible.

The B27_HPS in the new uncoated KN25™ grade offers the same advantages for drilling in non-ferrous materials, such as aluminum, copper, and brass.

The all new B27_SGL series is designed specifically for applications in stainless steel and high-temperature alloys.

The standard series is available from 2,383–16mm (.0938–.6299") diameter and in lengths from 15–40 x D. KMH-point geometry is available as a semi-standard, especially for crankshaft applications and interrupted cuts. Longer drills up to 550mm (21.65") are available as custom solution.

Features and Benefits

HP Drill-Point Design

- Low thrust.
- Excellent centering capabilities.
- Highest possible feed rates.

Four-Margin Lands

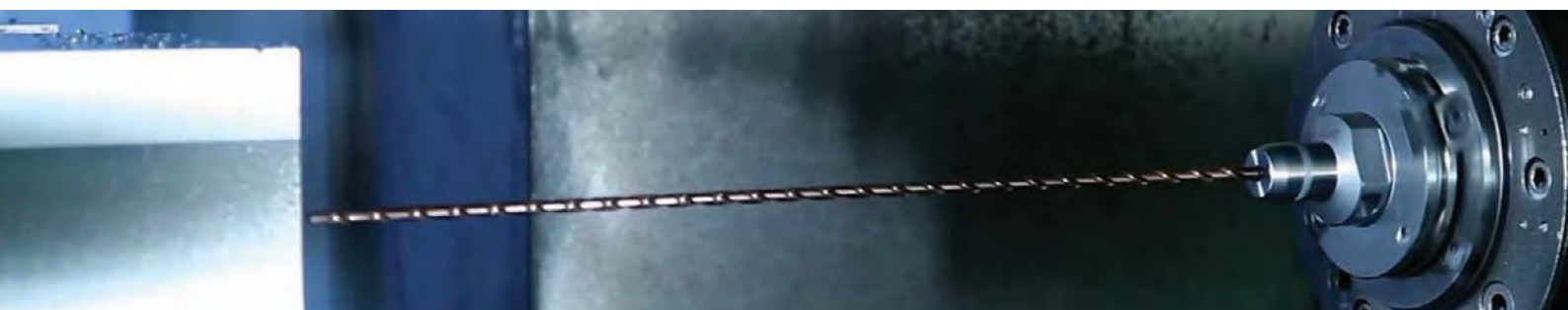
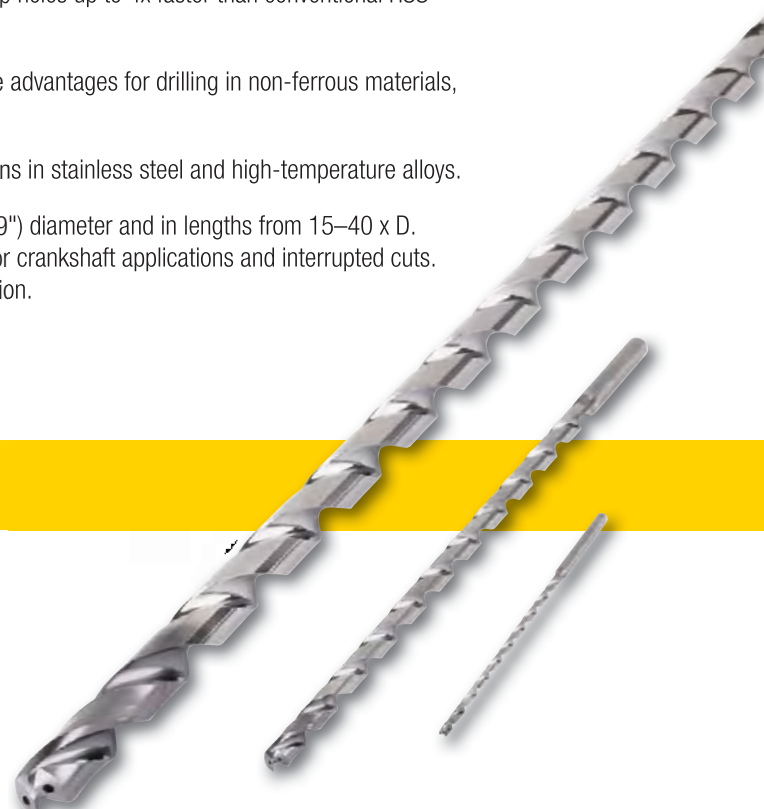
- Improves hole straightness.
- Improves hole alignment when drilling through cross holes.

Unique Flute Design

- The highly polished surface ensures superior chip evacuation even when low-pressure coolant or MQL is applied.
- Drastically improved chip evacuation.
- Better hole surface quality.

KCPK20 Grade (B27_HPG)

- An AlCrN-TiAlN based coating on the head of the drill provides outstanding wear resistance.
- New ultra-fine-grain carbide ensures process reliability at high feed rates.



Solid carbide deep-hole drills run up to 4x faster than conventional HSS and gun drills.

KN25™ Grade (B27_HPS)

- Sharp cutting edge enables higher tool life in aluminum and other non-ferrous materials.
- The uncoated grade helps to prevent built-up edge in drilling aluminum and high-temp alloys.

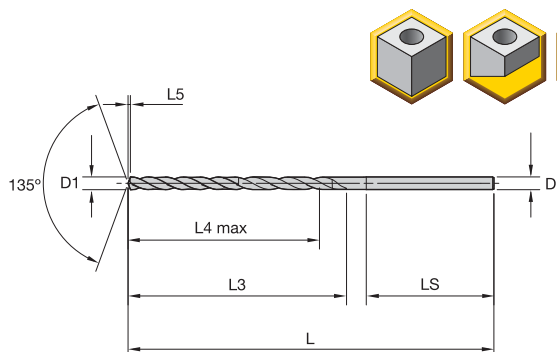
New KCMS20 Grade (B27_SGL)

- Monolayer PVD AlTiN coated ultrafine grain carbide with superior surface finish.
- First choice for deep hole drilling of stainless steel and high-temperature resistant materials. Due to the coatings enhanced high temperature properties, this grade can also be applied for MQL applications in steel.

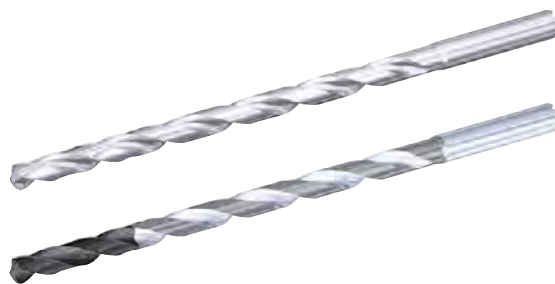
Customization

- Intermediate diameters available as semi-standards.
- Length variations, including even longer versions up to 550mm (21.65"), available as custom solutions.
- One-shot drilling of deep holes with a small step is possible.
- Maximum 2mm (.08") step range. Consult the custom solutions department for specific applications.
- Excellent surface finish and concentricity.

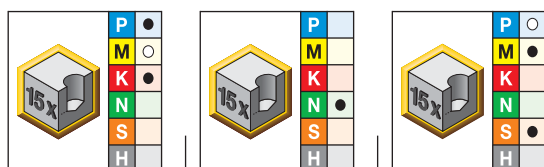




For information on L5, see B224_HP drills or B210_SGL drills.



■ B271Z_HPG/HPS/SGL • 15 x D



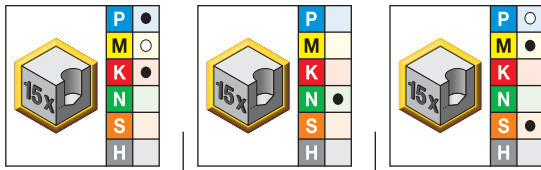
● first choice
○ alternate choice

			D1 diameter				L	L3	L4 max	LS	D
KCPK20	KN25	KCMS20	mm	in	fraction	wire size					
B271Z02383KMG	B271Z02383KMS	—	2,383	.0938	3/32	—	86	51	44	30	3
—	B271Z02400KMS	—	2,400	.0945	—	—	86	51	44	30	3
—	B271Z02439KMS	—	2,439	.0960	—	41	86	51	44	30	3
—	B271Z02489KMS	—	2,489	.0980	—	40	86	51	44	30	3
B271Z02500KMG	B271Z02500KMS	B271Z02500SGL	2,500	.0984	—	—	86	51	44	30	3
—	B271Z02578KMS	—	2,578	.1015	—	38	86	51	44	30	3
—	B271Z02600KMS	—	2,600	.1024	—	—	86	51	44	30	3
B271Z02642KMG	—	—	2,642	.1040	—	37	86	51	44	30	3
B271Z02705KMG	—	—	2,705	.1065	—	36	86	52	45	30	3
B271Z02779KMG	B271Z02779KMS *	—	2,779	.1094	7/64	—	86	52	45	30	3
—	B271Z02800KMS	—	2,800	.1102	—	—	86	52	45	30	3
B271Z02820KMG *	B271Z02820KMS *	—	2,820	.1110	—	34	86	52	45	30	3
—	B271Z02870KMS *	—	2,870	.1130	—	33	86	52	45	30	3
—	B271Z02900KMS	—	2,900	.1142	—	—	86	52	45	30	3
—	B271Z02947KMS *	—	2,947	.1160	—	32	86	52	45	30	3
B271Z03000HPG	B271Z03000HPS	B271Z03000SGL	3,000	.1181	—	—	86	52	45	30	3
B271Z03175HPG	B271Z03175HPS	B271Z03175SGL	3,175	.1250	1/8	—	105	67	58	32	4
B271Z03200HPG	B271Z03200HPS	—	3,200	.1260	—	—	105	67	58	32	4
B271Z03500HPG	B271Z03500HPS	B271Z03500SGL	3,500	.1378	—	—	105	68	59	32	4
B271Z03600HPG	—	—	3,600	.1417	—	—	105	68	59	32	4
B271Z03700HPG	—	—	3,700	.1457	—	—	105	69	60	32	4
B271Z03970HPG	B271Z03970HPS *	B271Z03970SGL	3,970	.1563	5/32	—	105	70	60	32	4
B271Z04000HPG	B271Z04000HPS	B271Z04000SGL	4,000	.1575	—	—	105	70	60	32	4
B271Z04500HPG	B271Z04500HPS	B271Z04500SGL	4,500	.1772	—	—	124	85	74	34	5
B271Z04623HPG	—	—	4,623	.1820	—	14	124	86	75	34	5
B271Z04763HPG	B271Z04763HPS	B271Z04763SGL	4,763	.1875	3/16	—	124	86	75	34	5
B271Z04800HPG	—	—	4,800	.1890	—	12	124	86	75	34	5
—	—	B271Z04800SGL	4,800	.1890	—	—	124	86	75	34	5
B271Z05000HPG	B271Z05000HPS	B271Z05000SGL	5,000	.1969	—	—	124	87	75	34	5
B271Z05060HPG	—	—	5,060	.1992	—	—	143	101	88	36	6
B271Z05260HPG	—	—	5,260	.2071	—	—	143	102	89	36	6
B271Z05410HPG	—	—	5,410	.2130	—	3	143	102	89	36	6
B271Z05500HPG	B271Z05500HPS	B271Z05500SGL	5,500	.2165	—	—	143	102	89	36	6
B271Z05558HPG	—	—	5,558	.2188	7/32	—	143	102	89	36	6
—	—	B271Z05558SGL	5,558	.2188	—	—	143	102	89	36	6
B271Z05800HPG	—	—	5,800	.2283	—	—	143	103	89	36	6
B271Z05900HPG	—	—	5,900	.2323	—	—	143	103	89	36	6
B271Z06000HPG	B271Z06000HPS	B271Z06000SGL	6,000	.2362	—	—	143	104	90	36	6
B271Z06200HPG	B271Z06200HPS	—	6,200	.2441	—	—	162	118	103	38	7
B271Z06350HPG	B271Z06350HPS	B271Z06350SGL	6,350	.2500	1/4	E	162	119	104	38	7

(continued)

(B271Z_HPG/HPS/SGL • 15 x D – continued)

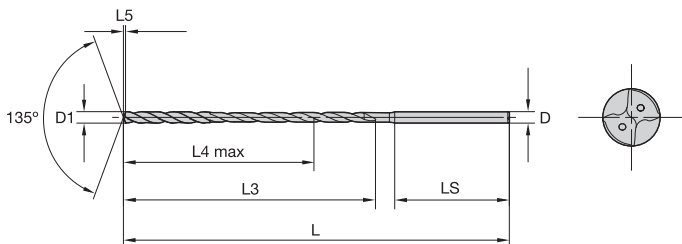
Solid Carbide Drills



● first choice
○ alternate choice

			D1 diameter				L	L3	L4 max	LS	D
KCPK20	KN25	KCMS20	mm	in	fraction	wire size					
B271Z06500HPG	B271Z06500HPS	B271Z06500SGL	6,500	.2559	—	—	162	119	104	38	7
B271Z06528HPG	—	—	6,528	.2570	—	F	162	119	104	38	7
B271Z06746HPG	B271Z06746HPS	B271Z06746SGL	6,746	.2656	17/64	—	162	120	104	38	7
B271Z06909HPG	—	—	6,909	.2720	—	I	162	121	105	38	7
B271Z07000HPG	B271Z07000HPS	B271Z07000SGL	7,000	.2756	—	—	162	121	105	38	7
B271Z07145HPG	B271Z07145HPS	B271Z07145SGL	7,145	.2813	9/32	—	181	135	118	40	8
B271Z07500HPG	B271Z07500HPS	B271Z07500SGL	7,500	.2953	—	—	181	136	119	40	8
B271Z07541HPG *	—	—	7,541	.2969	19/64	—	181	136	119	40	8
B271Z07938HPG	—	B271Z07938SGL	7,938	.3125	5/16	—	181	138	120	40	8
B271Z08000HPG	B271Z08000HPS	B271Z08000SGL	8,000	.3150	—	—	181	138	120	40	8
B271Z08200HPG	—	—	8,200	.3228	—	—	200	152	133	42	9
B271Z08334HPG	—	—	8,334	.3281	21/64	—	200	153	134	42	9
B271Z08500HPG	B271Z08500HPS	B271Z08500SGL	8,500	.3346	—	—	200	153	134	42	9
B271Z08733HPG	B271Z08733HPS	—	8,733	.3438	11/32	—	200	154	134	42	9
—	—	B271Z08733SGL	8,733	.3438	—	—	200	154	134	42	9
B271Z09000HPG	B271Z09000HPS	B271Z09000SGL	9,000	.3543	—	—	200	155	135	42	9
B271Z09100HPG	—	—	9,100	.3583	—	—	219	169	148	44	10
B271Z09200HPG *	—	—	9,200	.3622	—	—	219	169	148	44	10
B271Z09500HPG	B271Z09500HPS	—	9,500	.3740	—	—	219	170	149	44	10
B271Z09525HPG	B271Z09525HPS	B271Z09525SGL	9,525	.3750	3/8	—	219	170	149	44	10
B271Z09750HPG	—	—	9,750	.3839	—	—	219	171	149	44	10
B271Z10000HPG	B271Z10000HPS	B271Z10000SGL	10,000	.3937	—	—	219	172	150	44	10
B271Z10200HPG	B271Z10200HPS	—	10,200	.4016	—	—	238	186	163	46	11
—	—	B271Z10320SGL	10,320	.4063	13/32	—	238	187	164	46	11
B271Z10500HPG	B271Z10500HPS	B271Z10500SGL	10,500	.4134	—	—	238	187	164	46	11
B271Z10716HPG	—	—	10,716	.4219	27/64	—	238	188	165	46	11
—	B271Z10720HPS	—	10,720	.4220	—	—	238	188	165	46	11
B271Z10800HPG	—	—	10,800	.4252	—	—	238	188	164	46	11
B271Z11000HPG	B271Z11000HPS	B271Z11000SGL	11,000	.4331	—	—	238	189	165	46	11
—	—	B271Z11113SGL	11,113	.4375	7/16	—	257	203	178	48	12
B271Z11500HPG	B271Z11500HPS	B271Z11500SGL	11,500	.4528	—	—	257	204	179	48	12
B271Z12000HPG	B271Z12000HPS	B271Z12000SGL	12,000	.4724	—	—	257	206	180	48	12
B271Z12500HPG	B271Z12500HPS	—	12,500	.4921	—	—	276	221	194	50	13
B271Z12700HPG	B271Z12700HPS	B271Z12700SGL	12,700	.5000	1/2	—	276	222	195	50	13
B271Z13000HPG	B271Z13000HPS	—	13,000	.5118	—	—	276	223	195	50	13
B271Z13500HPG	B271Z13500HPS	—	13,500	.5315	—	—	295	238	209	52	14
B271Z14000HPG	B271Z14000HPS	B271Z14000SGL	14,000	.5512	—	—	295	240	210	52	14
B271Z14288HPG	—	—	14,288	.5625	9/16	—	314	255	224	54	15
—	B271Z14290HPS	—	14,290	.5626	—	—	314	255	224	54	15
B271Z14500HPG	—	B271Z14500SGL	14,500	.5709	—	—	314	255	224	54	15
B271Z15000HPG	—	B271Z15000SGL	15,000	.5906	—	—	314	257	225	54	15
B271Z15300HPG	—	—	15,300	.6024	—	—	333	272	239	56	16
—	B271Z15500HPS	—	15,500	.6102	—	—	333	272	239	56	16
—	B271Z15870HPS	—	15,870	.6248	—	—	333	273	240	56	16
B271Z15875HPG	—	—	15,875	.6250	5/8	—	333	273	240	56	16
B271Z16000HPG	B271Z16000HPS	B271Z16000SGL	16,000	.6299	—	—	333	274	240	56	16

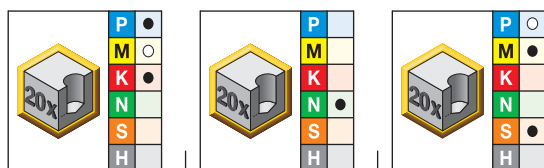
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.



For information on L5, see B224_HP drills or B210_SGL drills.



■ B272Z_HPG/HPS/SGL • 20 x D



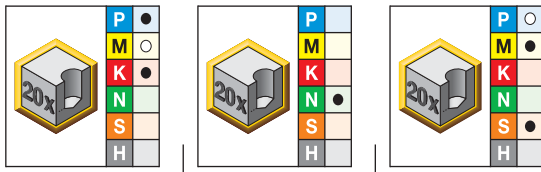
● first choice
○ alternate choice

			D1 diameter				L	L3	L4 max	LS	D
KCPK20	KN25	KCMS20	mm	in	fraction	wire size					
B272Z02383KMG	B272Z02383KMS	—	2,383	.0938	3/32	—	101	63	56	30	3
B272Z02400KMG	B272Z02400KMS *	—	2,400	.0945	—	—	101	63	56	30	3
—	B272Z02439KMS	—	2,439	.0960	—	41	101	63	56	30	3
B272Z02489KMG	B272Z02489KMS *	—	2,489	.0980	—	40	101	63	56	30	3
B272Z02500KMG	B272Z02500KMS	B272Z02500SGL	2,500	.0984	—	—	101	63	56	30	3
B272Z02779KMG	—	—	2,779	.1094	7/64	—	101	66	59	30	3
—	B272Z02800KMS	—	2,800	.1102	—	—	101	66	59	30	3
—	B272Z02947KMS *	—	2,947	.1160	—	32	101	67	60	30	3
B272Z03000HPG	B272Z03000HPS	B272Z03000SGL	3,000	.1181	—	—	101	67	60	30	3
B272Z03175HPG	B272Z03175HPS	B272Z03175SGL	3,175	.1250	1/8	—	125	83	74	32	4
B272Z03300HPG	B272Z03300HPS	—	3,300	.1299	—	—	125	84	75	32	4
B272Z03500HPG	B272Z03500HPS	B272Z03500SGL	3,500	.1378	—	—	125	86	77	32	4
B272Z03850HPG	—	—	3,850	.1516	—	—	125	88	79	32	4
B272Z03970HPG	B272Z03970HPS	B272Z03970SGL	3,970	.1563	5/32	—	125	89	79	32	4
B272Z04000HPG	B272Z04000HPS	B272Z04000SGL	4,000	.1575	—	—	125	90	80	32	4
B272Z04500HPG	B272Z04500HPS	B272Z04500SGL	4,500	.1772	—	—	149	108	97	34	5
B272Z04623HPG	—	—	4,623	.1820	—	14	149	109	98	34	5
B272Z04763HPG	B272Z04763HPS	B272Z04763SGL	4,763	.1875	3/16	—	149	110	99	34	5
—	—	B272Z04800SGL	4,800	.1890	—	—	149	110	99	34	5
B272Z05000HPG	B272Z05000HPS	B272Z05000SGL	5,000	.1969	—	—	149	112	100	34	5
B272Z05200HPG	—	—	5,200	.2047	—	—	173	127	114	36	6
B272Z05260HPG	—	—	5,260	.2071	—	—	173	128	115	36	6
B272Z05410HPG	—	—	5,410	.2130	—	3	173	129	116	36	6
B272Z05500HPG	B272Z05500HPS	B272Z05500SGL	5,500	.2165	—	—	173	130	117	36	6
B272Z05558HPG	—	—	5,558	.2188	7/32	—	173	130	117	36	6
—	—	B272Z05558SGL	5,558	.2188	—	—	173	130	117	36	6
B272Z05800HPG	—	B272Z05800SGL	5,800	.2283	—	—	173	132	118	36	6
B272Z06000HPG	B272Z06000HPS	B272Z06000SGL	6,000	.2362	—	—	173	134	120	36	6
B272Z06200HPG	B272Z06200HPS	—	6,200	.2441	—	—	197	149	134	38	7
B272Z06350HPG	B272Z06350HPS	B272Z06350SGL	6,350	.2500	1/4	E	197	151	136	38	7
—	B272Z06400HPS *	—	6,400	.2520	—	—	197	151	136	38	7
B272Z06500HPG	B272Z06500HPS	B272Z06500SGL	6,500	.2559	—	—	197	152	137	38	7
B272Z06528HPG	—	—	6,528	.2570	—	F	197	152	137	38	7
B272Z06746HPG	B272Z06746HPS	B272Z06746SGL	6,746	.2656	17/64	—	197	154	138	38	7
B272Z06800HPG	—	—	6,800	.2677	—	—	197	154	138	38	7
B272Z06909HPG	—	—	6,909	.2720	—	I	197	155	139	38	7

(continued)

(B272Z_HPG/HPS/SGL • 20 x D — continued)

Solid Carbide Drills



● first choice
○ alternate choice

			D1 diameter								
KCPK20	KN25	KCMS20	mm	in	fraction	wire size	L	L3	L4 max	LS	D
B272Z07000HPG	B272Z07000HPS	B272Z07000SGL	7,000	.2756	—	—	197	156	140	38	7
B272Z07145HPG	B272Z07145HPS	B272Z07145SGL	7,145	.2813	9/32	—	221	171	154	40	8
B272Z07200HPG *	—	—	7,200	.2835	—	—	221	171	154	40	8
B272Z07500HPG	B272Z07500HPS	B272Z07500SGL	7,500	.2953	—	—	221	174	157	40	8
B272Z07541HPG *	—	—	7,541	.2969	19/64	—	221	174	157	40	8
B272Z07938HPG	—	B272Z07938SGL	7,938	.3125	5/16	—	221	177	159	40	8
B272Z08000HPG	B272Z08000HPS	B272Z08000SGL	8,000	.3150	—	—	221	178	160	40	8
B272Z08334HPG *	—	—	8,334	.3281	21/64	—	245	194	175	42	9
B272Z08433HPG	—	—	8,433	.3320	—	Q	245	195	176	42	9
B272Z08500HPG	B272Z08500HPS	B272Z08500SGL	8,500	.3346	—	—	245	196	177	42	9
B272Z08733HPG	B272Z08733HPS	—	8,733	.3438	11/32	—	245	198	178	42	9
—	—	B272Z08733SGL	8,733	.3438	—	—	245	198	178	42	9
B272Z09000HPG	B272Z09000HPS	B272Z09000SGL	9,000	.3543	—	—	245	200	180	42	9
B272Z09100HPG *	—	—	9,100	.3583	—	—	269	215	194	44	10
B272Z09500HPG	—	—	9,500	.3740	—	—	269	218	197	44	10
B272Z09525HPG	B272Z09525HPS	B272Z09525SGL	9,525	.3750	3/8	—	269	218	197	44	10
B272Z09750HPG	B272Z09750HPS	—	9,750	.3839	—	—	269	220	198	44	10
B272Z10000HPG	B272Z10000HPS	B272Z10000SGL	10,000	.3937	—	—	269	222	200	44	10
B272Z10200HPG	B272Z10200HPS	—	10,200	.4016	—	—	293	237	214	46	11
—	—	B272Z10320SGL	10,320	.4063	13/32	—	293	238	215	46	11
B272Z10500HPG	B272Z10500HPS	B272Z10500SGL	10,500	.4134	—	—	293	240	217	46	11
B272Z10716HPG	—	—	10,716	.4219	27/64	—	293	242	219	46	11
—	—	B272Z10716SGL	10,716	.4219	—	—	293	242	219	46	11
—	B272Z10720HPS	—	10,720	.4220	—	—	293	242	219	46	11
B272Z11000HPG	B272Z11000HPS	B272Z11000SGL	11,000	.4331	—	—	293	244	220	46	11
—	—	B272Z11113SGL	11,113	.4375	7/16	—	317	259	234	48	12
B272Z11500HPG	B272Z11500HPS	B272Z11500SGL	11,500	.4528	—	—	317	262	237	48	12
B272Z11800HPG	—	—	11,800	.4646	—	—	317	264	238	48	12
B272Z12000HPG	B272Z12000HPS	B272Z12000SGL	12,000	.4724	—	—	317	266	240	48	12
B272Z12500HPG	B272Z12500HPS	B272Z12500SGL	12,500	.4921	—	—	341	284	257	50	13
B272Z12700HPG	B272Z12700HPS	B272Z12700SGL	12,700	.5000	1/2	—	341	285	258	50	13
B272Z13000HPG	B272Z13000HPS	B272Z13000SGL	13,000	.5118	—	—	341	288	260	50	13
B272Z13100HPG	—	—	13,100	.5157	—	—	365	302	273	52	14
B272Z13500HPG	B272Z13500HPS	—	13,500	.5315	—	—	365	306	277	52	14
B272Z14000HPG	B272Z14000HPS	B272Z14000SGL	14,000	.5512	—	—	365	310	280	52	14
B272Z14500HPG	B272Z14500HPS	B272Z14500SGL	14,500	.5709	—	—	389	328	297	54	15
B272Z15000HPG	B272Z15000HPS	B272Z15000SGL	15,000	.5906	—	—	389	332	300	54	15
B272Z15500HPG	B272Z15500HPS	B272Z15500SGL	15,500	.6102	—	—	413	350	317	56	16
—	B272Z15870HPS	—	15,870	.6248	—	—	413	353	320	56	16
B272Z15875HPG	—	—	15,875	.6250	5/8	—	413	353	320	56	16
B272Z16000HPG	B272Z16000HPS	B272Z16000SGL	16,000	.6299	—	—	413	354	320	56	16

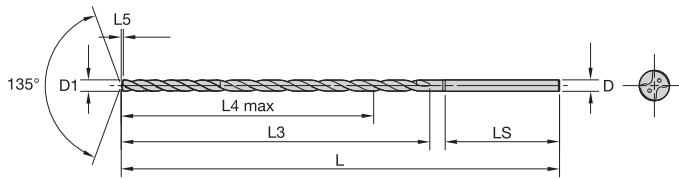
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

High-Performance Solid Carbide Drills

Beyond™ SC Deep-Hole Drills • Multiple Materials • Through Coolant



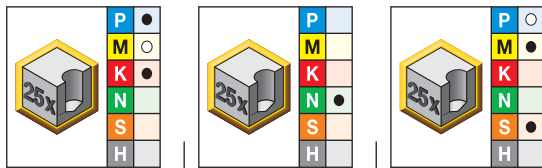
Solid Carbide Drills



For information on L5, see B224_HP drills or B210_SGL drills.



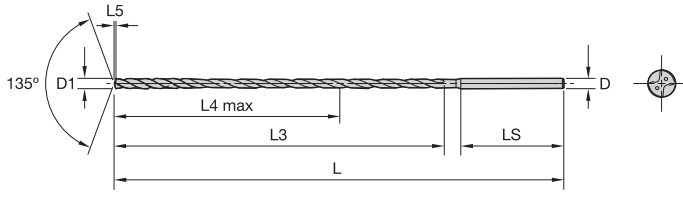
■ B273Z_HPG/HPS/SGL • 25 x D



- first choice
- alternate choice

			D1 diameter								
KCPK20	KN25	KCMS20	mm	in	fraction	wire size	L	L3	L4 max	LS	D
B273Z02383KMG	B273Z02383KMS	—	2,383	.0938	3/32	—	116	74	67	30	3
—	B273Z02439KMS *	—	2,439	.0960	—	41	116	75	68	30	3
B273Z02500KMG	—	B273Z02500SGL	2,500	.0984	—	—	116	76	69	30	3
B273Z02600KMG *	—	—	2,600	.1024	—	—	116	77	70	30	3
—	B273Z02779KMS *	—	2,779	.1094	7/64	—	116	80	73	30	3
—	B273Z02800KMS *	—	2,800	.1102	—	—	116	80	73	30	3
—	B273Z02820KMS *	—	2,820	.1110	—	34	116	80	73	30	3
—	B273Z02870KMS *	—	2,870	.1130	—	33	116	81	74	30	3
—	B273Z02947KMS *	—	2,947	.1160	—	32	116	82	75	30	3
B273Z03000HPG	B273Z03000HPS	B273Z03000SGL	3,000	.1181	—	—	116	82	75	30	3
B273Z03175HPG	B273Z03175HPS	B273Z03175SGL	3,175	.1250	1/8	—	145	99	90	32	4
B273Z03500HPG *	B273Z03500HPS	B273Z03500SGL	3,500	.1378	—	—	145	103	94	32	4
B273Z04000HPG	B273Z04000HPS	B273Z04000SGL	4,000	.1575	—	—	145	110	100	32	4
B273Z04500HPG *	B273Z04500HPS *	B273Z04500SGL	4,500	.1772	—	—	174	130	119	34	5
B273Z05000HPG	B273Z05000HPS	B273Z05000SGL	5,000	.1969	—	—	174	137	125	34	5
B273Z05100HPG *	—	—	5,100	.2008	—	—	203	152	139	36	6
B273Z05500HPG	B273Z05500HPS	B273Z05500SGL	5,500	.2165	—	—	203	157	144	36	6
B273Z05800HPG *	—	—	5,800	.2283	—	—	203	161	147	36	6
B273Z06000HPG	B273Z06000HPS	B273Z06000SGL	6,000	.2362	—	—	203	164	150	36	6
B273Z06350HPG	B273Z06350HPS	—	6,350	.2500	1/4	E	232	182	167	38	7
B273Z06500HPG *	B273Z06500HPS	B273Z06500SGL	6,500	.2559	—	—	232	184	169	38	7
B273Z06746HPG	B273Z06746HPS *	—	6,746	.2656	17/64	—	232	187	171	38	7
B273Z07000HPG	B273Z07000HPS *	B273Z07000SGL	7,000	.2756	—	—	232	191	175	38	7
B273Z07500HPG	—	—	7,500	.2953	—	—	261	211	194	40	8
B273Z08000HPG	B273Z08000HPS	B273Z08000SGL	8,000	.3150	—	—	261	218	200	40	8
B273Z08500HPG	B273Z08500HPS *	B273Z08500SGL	8,500	.3346	—	—	290	238	219	42	9
B273Z08733HPG	B273Z08733HPS *	—	8,733	.3438	11/32	—	290	241	221	42	9
B273Z09000HPG	—	B273Z09000SGL	9,000	.3543	—	—	290	245	225	42	9
—	B273Z09525HPS *	—	9,525	.3750	3/8	—	319	266	245	44	10
B273Z10000HPG	B273Z10000HPS	B273Z10000SGL	10,000	.3937	—	—	319	272	250	44	10
B273Z10200HPG	—	—	10,200	.4016	—	—	348	288	265	46	11
B273Z10500HPG	B273Z10500HPS	—	10,500	.4134	—	—	348	292	269	46	11
B273Z11000HPG	B273Z11000HPS	B273Z11000SGL	11,000	.4331	—	—	348	299	275	46	11
B273Z11500HPG	B273Z11500HPS	—	11,500	.4528	—	—	377	319	294	48	12
B273Z12000HPG	B273Z12000HPS	B273Z12000SGL	12,000	.4724	—	—	377	326	300	48	12
B273Z12500HPG	B273Z12500HPS	—	12,500	.4921	—	—	406	346	319	50	13
B273Z12700HPG	—	—	12,700	.5000	1/2	—	406	349	322	50	13
B273Z13000HPG	B273Z13000HPS	B273Z13000SGL	13,000	.5118	—	—	406	353	325	50	13
—	B273Z13100HPS	—	13,100	.5157	—	—	435	368	339	52	14
B273Z13500HPG	—	B273Z13500SGL	13,500	.5315	—	—	435	373	344	52	14
B273Z14000HPG	B273Z14000HPS	B273Z14000SGL	14,000	.5512	—	—	435	380	350	52	14
B273Z14288HPG	—	—	14,288	.5625	9/16	—	464	397	366	54	15
—	B273Z14290HPS	—	14,290	.5626	—	—	464	397	366	54	15
B273Z14500HPG	B273Z14500HPS	—	14,500	.5709	—	—	464	400	369	54	15
B273Z15000HPG	—	B273Z15000SGL	15,000	.5906	—	—	464	407	375	54	15
B273Z16000HPG	B273Z16000HPS	B273Z16000SGL	16,000	.6299	—	—	493	434	400	56	16

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

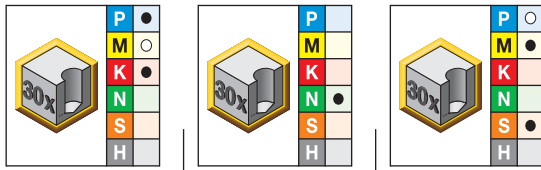


For information on L5, see B224_HP drills or B210_SGL drills.



Solid Carbide Drills

■ B274Z_HPG/HPS/SGL • 30 x D



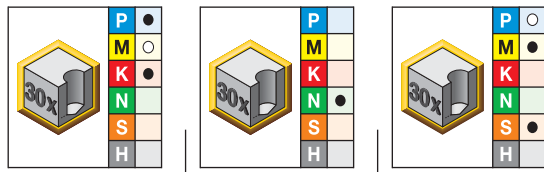
● first choice
○ alternate choice

			D1 diameter								
			mm	in	fraction	wire size	L	L3	L4 max	LS	D
KCPK20	KN25	KCMS20									
B274Z02383KMG	B274Z02383KMS	—	2,383	.0938	3/32	—	131	86	79	30	3
—	B274Z02400KMS	—	2,400	.0945	—	—	131	87	80	30	3
—	B274Z02439KMS *	—	2,439	.0960	—	41	131	87	80	30	3
B274Z02500KMG	B274Z02500KMS	B274Z02500SGL	2,500	.0984	—	—	131	88	81	30	3
B274Z02600KMG	B274Z02600KMS	—	2,600	.1024	—	—	131	90	83	30	3
—	B274Z02642KMS *	—	2,642	.1040	—	37	131	91	84	30	3
—	B274Z02779KMS *	—	2,779	.1094	7/64	—	131	94	87	30	3
B274Z02800KMG	B274Z02800KMS *	—	2,800	.1102	—	—	131	94	87	30	3
—	B274Z02870KMS *	—	2,870	.1130	—	33	131	95	88	30	3
—	B274Z02900KMS *	—	2,900	.1142	—	—	131	96	89	30	3
—	B274Z02947KMS *	—	2,947	.1160	—	32	131	97	90	30	3
B274Z03000HPG	B274Z03000HPS	B274Z03000SGL	3,000	.1181	—	—	131	97	90	30	3
B274Z03175HPG	B274Z03175HPS	B274Z03175SGL	3,175	.1250	1/8	—	165	115	106	32	4
B274Z03500HPG	B274Z03500HPS	B274Z03500SGL	3,500	.1378	—	—	165	121	112	32	4
B274Z03970HPG	—	B274Z03970SGL	3,970	.1563	5/32	—	165	129	119	32	4
B274Z04000HPG	B274Z04000HPS	B274Z04000SGL	4,000	.1575	—	—	165	130	120	32	4
B274Z04300HPG	—	—	4,300	.1693	—	—	199	149	138	34	5
B274Z04500HPG	B274Z04500HPS	B274Z04500SGL	4,500	.1772	—	—	199	153	142	34	5
B274Z04763HPG	—	B274Z04763SGL	4,763	.1875	3/16	—	199	157	146	34	5
B274Z05000HPG	B274Z05000HPS	B274Z05000SGL	5,000	.1969	—	—	199	162	150	34	5
B274Z05100HPG *	—	B274Z05100SGL	5,100	.2008	—	—	233	178	165	36	6
B274Z05500HPG	B274Z05500HPS *	B274Z05500SGL	5,500	.2165	—	—	233	185	172	36	6
—	—	B274Z05558SGL	5,558	.2188	—	—	233	186	173	36	6
B274Z05700HPG *	—	—	5,700	.2244	—	—	233	188	175	36	6
B274Z06000HPG	B274Z06000HPS	B274Z06000SGL	6,000	.2362	—	—	233	194	180	36	6
B274Z06350HPG	B274Z06350HPS	B274Z06350SGL	6,350	.2500	1/4	E	267	214	199	38	7
B274Z06500HPG	B274Z06500HPS	B274Z06500SGL	6,500	.2559	—	—	267	217	202	38	7
—	B274Z06746HPS *	B274Z06746SGL	6,746	.2656	17/64	—	267	221	205	38	7
B274Z06800HPG	—	—	6,800	.2677	—	—	267	222	206	38	7
B274Z07000HPG	B274Z07000HPS	B274Z07000SGL	7,000	.2756	—	—	267	226	210	38	7
—	—	B274Z07145SGL	7,145	.2813	9/32	—	301	242	225	40	8
—	—	B274Z07500SGL	7,500	.2953	—	—	301	249	232	40	8

(continued)

(B274Z_HPG/HPS/SGL • 30 x D – continued)

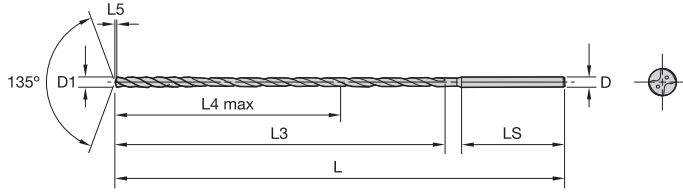
Solid Carbide Drills



● first choice
○ alternate choice

	KCPK20	KN25	KCMS20	D1 diameter				L	L3	L4 max	LS	D
				mm	in	fraction	wire size					
B274Z07700HPG *	—	—	—	7,700	.3031	—	—	301	252	235	40	8
B274Z07938HPG	—	—	B274Z07938SGL	7,938	.3125	5/16	—	301	257	239	40	8
B274Z08000HPG	B274Z08000HPS	B274Z08000SGL	8,000	.3150	—	—	301	258	240	40	8	
B274Z08334HPG	—	—	8,334	.3281	21/64	—	335	278	259	42	9	
B274Z08500HPG	B274Z08500HPS	B274Z08500SGL	8,500	.3346	—	—	335	281	262	42	9	
B274Z08700HPG	—	—	8,700	.3425	—	—	335	284	264	42	9	
—	B274Z08733HPS *	—	8,733	.3438	11/32	—	335	285	265	42	9	
—	—	B274Z08733SGL	8,733	.3438	—	—	335	285	265	42	9	
B274Z09000HPG	B274Z09000HPS *	B274Z09000SGL	9,000	.3543	—	—	335	290	270	42	9	
—	—	B274Z09129SGL	9,129	.3594	23/64	—	369	306	285	44	10	
B274Z09525HPG	B274Z09525HPS *	B274Z09525SGL	9,525	.3750	3/8	—	369	313	292	44	10	
B274Z10000HPG	B274Z10000HPS	B274Z10000SGL	10,000	.3937	—	—	369	322	300	44	10	
B274Z10200HPG	B274Z10200HPS	—	10,200	.4016	—	—	403	339	316	46	11	
B274Z10500HPG *	—	B274Z10500SGL	10,500	.4134	—	—	403	345	322	46	11	
B274Z10716HPG	—	—	10,716	.4219	27/64	—	403	349	326	46	11	
B274Z11000HPG	B274Z11000HPS	B274Z11000SGL	11,000	.4331	—	—	403	354	330	46	11	
B274Z11500HPG	B274Z11500HPS	B274Z11500SGL	11,500	.4528	—	—	437	377	352	48	12	
B274Z11800HPG	—	—	11,800	.4646	—	—	437	382	356	48	12	
B274Z12000HPG	B274Z12000HPS	B274Z12000SGL	12,000	.4724	—	—	437	386	360	48	12	
B274Z12500HPG	B274Z12500HPS	—	12,500	.4921	—	—	471	409	382	50	13	
B274Z12700HPG	—	B274Z12700SGL	12,700	.5000	1/2	—	471	412	385	50	13	
B274Z13000HPG	B274Z13000HPS	B274Z13000SGL	13,000	.5118	—	—	471	418	390	50	13	
B274Z13500HPG	B274Z13500HPS	B274Z13500SGL	13,500	.5315	—	—	505	441	412	52	14	
B274Z14000HPG	B274Z14000HPS	B274Z14000SGL	14,000	.5512	—	—	505	450	420	52	14	
B274Z15000HPG	B274Z15000HPS	B274Z15000SGL	15,000	.5906	—	—	539	482	450	54	15	

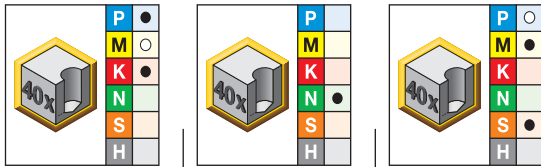
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.



For information on L5, see B224_HP drills or B210_SGL drills.



■ B275Z_HPG/HPS/SGL • 40 x D



● first choice
○ alternate choice

			D1 diameter								
			mm	in	fraction	wire size	L	L3	L4 max	LS	D
KCPK20	KN25	KCMS20									
B275Z02500KMG	B275Z02500KMS	B275Z02500SGL	2,500	.0984	—	—	161	113	106	30	3
B275Z03000KMG	B275Z03000HPS	B275Z03000SGL	3,000	.1181	—	—	161	127	120	30	3
B275Z03175HPG	B275Z03175HPS	B275Z03175SGL	3,175	.1250	1/8	—	205	146	137	32	4
B275Z03500HPG	B275Z03500HPS	B275Z03500SGL	3,500	.1378	—	—	205	156	147	32	4
B275Z03571HPG	B275Z03571HPS	B275Z03571SGL	3,571	.1406	9/64	—	205	158	149	32	4
B275Z03970HPG	B275Z03970HPS	B275Z03970SGL	3,970	.1563	5/32	—	205	169	159	32	4
B275Z04000HPG	B275Z04000HPS	B275Z04000SGL	4,000	.1575	—	—	205	170	160	32	4
B275Z04200HPG	B275Z04200HPS	B275Z04200SGL	4,200	.1654	—	—	249	189	178	34	5
—	B275Z04500HPS	B275Z04500SGL	4,500	.1772	—	—	249	198	187	34	5
B275Z04763HPG	B275Z04763HPS	B275Z04763SGL	4,763	.1875	3/16	—	249	205	194	34	5
B275Z05000HPG	B275Z05000HPS	B275Z05000SGL	5,000	.1969	—	—	249	212	200	34	5
B275Z05500HPG	B275Z05500HPS	B275Z05500SGL	5,500	.2165	—	—	293	240	227	36	6
B275Z05558HPG	B275Z05558HPS	B275Z05558SGL	5,558	.2188	—	—	293	241	228	36	6
B275Z06000HPG	B275Z06000HPS	B275Z06000SGL	6,000	.2362	—	—	293	254	240	36	6
B275Z06350HPG	B275Z06350HPS	B275Z06350SGL	6,350	.2500	1/4	E	337	278	263	38	7
B275Z06500HPG	B275Z06500HPS	B275Z06500SGL	6,500	.2559	—	—	337	282	267	38	7
B275Z06800HPG	B275Z06800HPS	B275Z06800SGL	6,800	.2677	—	—	337	290	274	38	7
B275Z07000HPG	B275Z07000HPS	B275Z07000SGL	7,000	.2756	—	—	337	296	280	38	7
B275Z07145HPG	B275Z07145HPS	B275Z07145SGL	7,145	.2813	9/32	—	381	314	297	40	8
B275Z07500HPG	B275Z07500HPS	B275Z07500SGL	7,500	.2953	—	—	381	324	307	40	8
B275Z07938HPG	B275Z07938HPS	B275Z07938SGL	7,938	.3125	5/16	—	381	336	318	40	8
B275Z08000HPG	B275Z08000HPS	B275Z08000SGL	8,000	.3150	—	—	381	338	320	40	8
—	B275Z08500HPS	B275Z08500SGL	8,500	.3346	—	—	425	366	347	42	9
B275Z08733HPG	B275Z08733HPS	B275Z08733SGL	8,733	.3438	—	—	425	372	352	42	9
B275Z09000HPG	B275Z09000HPS	B275Z09000SGL	9,000	.3543	—	—	425	380	360	42	9
B275Z09525HPG	B275Z09525HPS	B275Z09525SGL	9,525	.3750	3/8	—	469	408	387	44	10
B275Z10000HPG	B275Z10000HPS	B275Z10000SGL	10,000	.3937	—	—	469	422	400	44	10
B275Z10200HPG	B275Z10200HPS	B275Z10200SGL	10,200	.4016	—	—	513	441	418	46	11
B275Z10320HPG	B275Z10320HPS	B275Z10320SGL	10,320	.4063	13/32	—	513	445	422	46	11
B275Z11000HPG	B275Z11000HPS	B275Z11000SGL	11,000	.4331	—	—	513	464	440	46	11

Tolerance • Metric

nominal size range	D1 HPG/SGL tolerance h7	D1 HPS tolerance h8	D tolerance h6
1-3	0,000/-0,010	0,000/-0,014	0,000/-0,006
>3-6	0,000/-0,012	0,000/-0,018	0,000/-0,008
>6-10	0,000/-0,015	0,000/-0,022	0,000/-0,009
>10-18	0,000/-0,018	0,000/-0,027	0,000/-0,011

Tolerance • Inch

nominal size range	D1 HPG/SGL tolerance h7	D1 HPS tolerance h8	D tolerance h6
.0394-.1181	.0000/-0.0004	.0000/-0.0006	.0000/-0.0002
>.1181-.2362	.0000/-0.0005	.0000/-0.0007	.0000/-0.0003
>.2362-.3937	.0000/-0.0006	.0000/-0.0009	.0000/-0.0004
>.3937-.7087	.0000/-0.0007	.0000/-0.0011	.0000/-0.0004

■ Deep-Hole Drills • B27_HPG Series • Grade KCPK20™ • Through Coolant • Drill Diameters 3–16mm (.1181–.6300")

Material Group		Cutting Speed – vc			Metric								
		Range – m/min			Recommended Feed Rate (f) by Diameter								
		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	14,0	16,0
P	0	100	100	125	mm/r	0,13–0,15	0,14–0,16	0,15–0,21	0,19–0,26	0,21–0,31	0,26–0,36	0,30–0,41	0,34–0,46
	1	90	100	110	mm/r	0,15–0,18	0,16–0,19	0,18–0,25	0,22–0,30	0,25–0,37	0,30–0,42	0,35–0,48	0,40–0,54
	2	90	100	110	mm/r	0,15–0,18	0,16–0,19	0,18–0,25	0,22–0,30	0,25–0,37	0,30–0,42	0,35–0,48	0,40–0,54
	3	80	95	110	mm/r	0,15–0,18	0,16–0,19	0,18–0,25	0,22–0,30	0,25–0,37	0,30–0,42	0,35–0,48	0,40–0,54
	4	80	90	110	mm/r	0,15–0,18	0,16–0,19	0,18–0,25	0,22–0,30	0,25–0,37	0,30–0,42	0,35–0,48	0,40–0,54
	5	60	80	90	mm/r	0,03–0,11	0,04–0,11	0,05–0,11	0,05–0,14	0,08–0,18	0,11–0,21	0,12–0,22	0,14–0,24
M	1	40	50	60	mm/r	0,04–0,08	0,06–0,12	0,08–0,14	0,10–0,15	0,11–0,16	0,12–0,17	0,13–0,18	0,14–0,19
	2	30	40	50	mm/r	0,04–0,08	0,06–0,10	0,08–0,13	0,09–0,14	0,10–0,15	0,11–0,16	0,12–0,17	0,13–0,18
	3	30	40	50	mm/r	0,04–0,07	0,06–0,10	0,08–0,13	0,09–0,14	0,10–0,15	0,11–0,16	0,12–0,17	0,13–0,18
K	1	80	100	120	mm/r	0,15–0,19	0,17–0,20	0,19–0,26	0,24–0,32	0,27–0,40	0,32–0,45	0,38–0,52	0,45–0,59
	2	80	90	100	mm/r	0,15–0,18	0,16–0,19	0,18–0,25	0,22–0,30	0,25–0,37	0,30–0,42	0,35–0,48	0,40–0,54
	3	60	90	120	mm/r	0,15–0,18	0,16–0,19	0,18–0,25	0,22–0,30	0,25–0,37	0,30–0,42	0,35–0,48	0,40–0,54

Material Group		Cutting Speed – vc			Inch								
		Range – SFM			Recommended Feed Rate (f) by Diameter								
		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	0.551	5/8 .625
P	0	330	330	410	IPR	.005–.006	.006–.006	.006–.008	.008–.010	.008–.012	.010–.014	.012–.016	.013–.018
	1	300	330	360	IPR	.006–.007	.006–.008	.007–.010	.009–.012	.010–.015	.012–.017	.014–.019	.016–.021
	2	300	330	360	IPR	.006–.007	.006–.008	.007–.010	.009–.012	.010–.015	.012–.017	.014–.019	.016–.021
	3	260	310	360	IPR	.006–.007	.006–.008	.007–.010	.009–.012	.010–.015	.012–.017	.014–.019	.016–.021
	4	260	300	360	IPR	.006–.007	.006–.008	.007–.010	.009–.012	.010–.015	.012–.017	.014–.019	.016–.021
	5	200	260	300	IPR	.001–.004	.002–.004	.002–.004	.002–.006	.003–.007	.004–.008	.005–.009	.006–.009
M	1	130	160	200	IPR	.002–.003	.002–.005	.003–.006	.004–.006	.004–.006	.005–.007	.005–.007	.006–.008
	2	100	130	160	IPR	.002–.003	.002–.004	.003–.005	.004–.006	.004–.006	.004–.006	.005–.007	.005–.007
	3	100	130	160	IPR	.002–.003	.002–.004	.003–.005	.004–.006	.004–.006	.004–.006	.005–.007	.005–.007
K	1	260	330	390	IPR	.006–.008	.007–.008	.008–.010	.009–.013	.011–.016	.013–.018	.015–.021	.018–.023
	2	260	300	330	IPR	.006–.007	.006–.008	.007–.010	.009–.012	.010–.015	.012–.017	.014–.019	.016–.021
	3	200	300	390	IPR	.006–.007	.006–.008	.007–.010	.009–.012	.010–.015	.012–.017	.014–.019	.016–.021

■ Deep-Hole Drills • B27_HPS Series • Grade KN25™ • Through Coolant • Drill Diameters 3–16mm (.1181–.6300")

Material Group		Cutting Speed – vc			Metric								
		Range – m/min			Recommended Feed Rate (f) by Diameter								
		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	14,0	16,0
N	1	120	200	300	mm/r	0,12–0,17	0,13–0,18	0,15–0,24	0,19–0,29	0,26–0,35	0,31–0,40	0,35–0,45	0,41–0,51
	2	120	170	300	mm/r	0,13–0,18	0,14–0,19	0,16–0,25	0,20–0,30	0,28–0,37	0,33–0,42	0,38–0,48	0,44–0,54
	3	100	150	300	mm/r	0,13–0,18	0,14–0,19	0,16–0,25	0,20–0,30	0,28–0,37	0,33–0,42	0,38–0,48	0,44–0,54
	4	80	200	300	mm/r	0,03–0,05	0,03–0,06	0,03–0,06	0,04–0,06	0,05–0,07	0,05–0,08	0,05–0,08	0,06–0,09

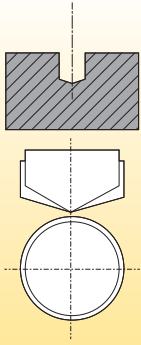
Material Group		Cutting Speed – vc			Inch								
		Range – SFM			Recommended Feed Rate (f) by Diameter								
		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	0.551	5/8 .625
N	1	390	660	980	IPR	.005–.007	.005–.007	.006–.009	.008–.011	.010–.014	.012–.016	.014–.018	.016–.020
	2	390	560	980	IPR	.005–.007	.006–.008	.006–.010	.008–.012	.011–.015	.013–.017	.015–.019	.017–.021
	3	330	490	980	IPR	.005–.007	.006–.008	.006–.010	.008–.012	.011–.015	.013–.017	.015–.019	.017–.021
	4	260	660	980	IPR	.001–.002	.001–.002	.001–.002	.002–.002	.002–.003	.002–.003	.002–.003	.002–.004

■ Deep Hole Drills • B27_SGL Series • Grade KCMS20 • Through Coolant

Solid Carbide Drills

Material Group		Cutting Speed – vc			Metric									
		Range – m/min			Recommended Feed Rate per Rev									
		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	14,0	16,0	
		mm/r												
P	5	60	80	90		0,03–0,06	0,04–0,06	0,05–0,06	0,05–0,09	0,08–0,13	0,11–0,16	0,12–0,17	0,14–0,18	
	6	70	120	170		0,06–0,10	0,08–0,12	0,10–0,14	0,12–0,16	0,14–0,18	0,16–0,20	0,18–0,22	0,20–0,24	
M	1	40	50	60		0,05–0,08	0,06–0,09	0,07–0,10	0,08–0,11	0,09–0,12	0,10–0,13	0,11–0,14	0,12–0,15	
	2	30	40	50		0,05–0,08	0,06–0,09	0,07–0,10	0,08–0,11	0,09–0,12	0,10–0,13	0,11–0,14	0,12–0,15	
	3	30	40	50		0,05–0,08	0,06–0,09	0,07–0,10	0,08–0,11	0,09–0,12	0,10–0,13	0,11–0,14	0,12–0,15	
S	1	20	30	40		0,09–0,12	0,10–0,13	0,11–0,14	0,12–0,15	0,13–0,16	0,14–0,17	0,15–0,18	0,16–0,19	
	2	20	30	40		0,09–0,12	0,10–0,13	0,11–0,14	0,12–0,15	0,13–0,16	0,14–0,17	0,15–0,18	0,16–0,19	
	3	20	30	40		0,09–0,12	0,10–0,13	0,11–0,14	0,12–0,15	0,13–0,16	0,14–0,17	0,15–0,18	0,16–0,19	
	4	20	30	40		0,09–0,14	0,10–0,15	0,11–0,16	0,12–0,17	0,13–0,18	0,14–0,19	0,15–0,20	0,16–0,21	

Material Group		Cutting Speed – vc			Inch									
		Range – SFM			Recommended Feed Rate per Rev									
		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	.551	5/8 .625	
		IPR												
P	1	200	260	300		.001-.002	.002-.002	.002-.002	.002-.004	.003-.005	.004-.006	.005-.007	.006-.007	
	2	230	390	560		.002-.004	.003-.005	.004-.006	.005-.006	.006-.007	.006-.008	.007-.009	.008-.009	
M	1	130	160	200		.002-.003	.002-.004	.003-.004	.003-.004	.004-.005	.004-.005	.004-.006	.005-.006	
	2	100	130	160		.002-.003	.002-.004	.003-.004	.003-.004	.004-.005	.004-.005	.004-.006	.005-.006	
	3	100	130	160		.002-.003	.002-.004	.003-.004	.003-.004	.004-.005	.004-.005	.004-.006	.005-.006	
S	1	70	100	130		.004-.005	.004-.005	.004-.006	.005-.006	.005-.006	.006-.007	.006-.007	.006-.008	
	2	70	100	130		.004-.005	.004-.005	.004-.006	.005-.006	.005-.006	.006-.007	.006-.007	.006-.008	
	3	70	100	130		.004-.005	.004-.005	.004-.006	.005-.006	.005-.006	.006-.007	.006-.007	.006-.008	
	4	70	100	130		.004-.006	.004-.006	.004-.006	.005-.007	.005-.007	.006-.008	.006-.008	.006-.008	

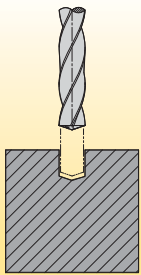


1) Pilot Drill Hole — IMPORTANT!

- The point angle of the pilot drill must be greater than the one of the following deep-hole drill to protect its cutting corners.
- The diameter size of the pilot drill must be greater than the one of the deep-hole drill to enable easy fit and protect margin lands. The required difference in diameter is covered by design with the different position of tolerance.
- Drill \varnothing = nominal \varnothing up to nominal $+0.0004''$ ($+0,010\text{mm}$).
- Depth of pilot hole: minimum $2 \times D$.
- Deeper pilot holes are preferable.

Recommendations:

- Use a conical (B976_) or split-point drill to pilot (do not use a HP, TX, GOdrill™ or any competitive drill).
- Check the pilot drill for wear, which can lead to premature wear on the B27_ cutting edge and possibly catastrophic failure.
- B976_ and B977_KC7315 drills with a 140° point angle are recommended. B978_ is not recommended as the point angle is 135° .
- B70_ Flat Bottom Drill with a point angle of 180° is the alternate choice, especially on inclined entries, such as on crankshafts.

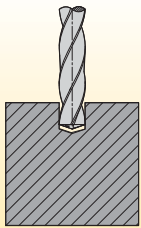


2) Feed B27_ into Pilot Hole

- Max 500 RPM and recommended feed rate; no rapid traverse.
- Run counter-clockwise, especially in horizontal applications to protect the cutting edge, when entering the pilot hole.
- Depth: $.039''$ (1 mm) above the bottom of pilot hole.

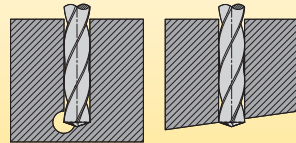
Recommendations:

- Reduce cutting speed to minimize imbalances in machine spindle/adaptor!



3) Drill Hole

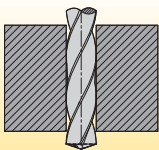
Cutting Parameters: Start recommended speed and feed rate at $.039''$ (1 mm) from the bottom of the pilot hole, clockwise.



Recommendations:

- DO NOT PECK OR DWELL up to $30 \times D$!
- With long-chipping steel materials, it may be necessary to increase feed rate by 10–20% to provide optimal chip control.
- For long-chipping aluminum materials, it may be necessary to decrease feed rate and increase speed.
- Reduce feed rate on angled exits and crossholes by 50–60%.

HP feed recommendations are usually higher than with competitive SC drills!



4) Drill Retraction

Cutting Parameters: 50–500 RPM and feed rate 2–6 m/min.

Recommendations:

To achieve the best tool performance, we recommend using the deep-hole drill with a hydraulic chuck.

Reduce cutting speed to minimize imbalances in machine spindle/adaptor!



5) Vertical Applications

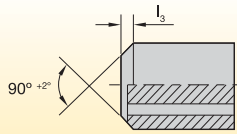
- If the pilot holes are close to each other, chips can fall into the neighboring hole.
- Do not enter a pilot hole that might contain chips with a deep hole drill to avoid chip jamming, wear, or breakage.
- If required holes are close to each other, use smart drilling strategies, make sure the pilot holes are getting properly cleaned, or switch to horizontal drilling.

Horizontal drilling process preferred for optimum chip evacuation



6) Coolant

- For increased stability, the coolant channels of the B27_ are smaller than on typical Kennametal drills.
- Steady supply of coolant delivered to the cutting edges necessary. If coolant supply is not steady or is unequal through both channels, check:
 - Coolant filtering system.
 - Sealing of adapter/spindle.
 - Chips blocking the coolant hole on the drill shank.
- Make sure that the coolant supply reaches the cutting edge before drilling begins.
- Pressure by diameter: <5mm 40–50 bar maximum; >5mm 25 bar minimum.



MQL back end according to DIN 69090-3

7) Minimal Quantity Lubrication

- On MQL applications, make sure that the coolant is directly supplied from the chuck into the back end of the drill shank (without gap) to avoid leakage.
- Pressure should be between 1–10 bar depending on coolant hole size.
- Spray contains an amount of oil less than 50 ml/h.
- If required, the shank can be even optimized for MQL applications with enlarged 90° chamfer instead of 40°.



8) Shanks

- Other than normal SC drills, B27_ series have a “Z” shank, increasing with 1mm steps.
- For drills with uneven shank size, use reduction sleeves to adapt the shank to the customer’s toolholder.
- The clamping force is better with increasing diameter.
- If required, DIN-shanks (even, 2mm steps) are available as custom solutions.

Achieve the best tool performance with hydraulic chucks.

D1	12mm hydraulic reducer sleeve		20mm hydraulic reducer sleeve		25mm hydraulic reducer sleeve		32mm hydraulic reducer sleeve		.500" hydraulic reducer sleeve		.750" hydraulic reducer sleeve	
	order number	catalog number	order number	catalog number	order number	catalog number	order number	catalog number	order number	catalog number	order number	catalog number
3	3026450	12MHC030M	3026648	20MHC030M	3026662	25MHC030M	–	–	2248993	50HC030M	2248995	75HC030M
4	3026451	12MHC040M	3026649	20MHC040M	3026663	25MHC040M	–	–	1606050	50HC040M	2248996	75HC040M
5	3026452	12MHC050M	3026650	20MHC050M	3026664	25MHC050M	–	–	2248994	50HC050M	2248997	75HC050M
6	3026643	12MHC060M	3026651	20MHC060M	3026665	25MHC060M	3026675	32MHC060M	1606061	50HC060M	1093271	75HC060M
7	3026644	12MHC070M	3026652	20MHC070M	3026666	25MHC070M	3026676	32MHC070M	–	–	–	–
8	3026645	12MHC080M	3026653	20MHC080M	3026667	25MHC080M	3026677	32MHC080M	1606062	50HC080M	1093272	75HC080M
9	3026646	12MHC090M	3026654	20MHC090M	3026668	25MHC090M	3026678	32MHC090M	–	–	–	–
10	3026647	12MHC100M	3026655	20MHC100M	3026669	25MHC100M	3026679	32MHC100M	1606064	50HC100M	1093273	75HC100M
11	–	–	3026656	20MHC110M	–	–	3026680	32MHC110M	–	–	–	–
12	–	–	3026657	20MHC120M	3026669	25MHC120M	3026681	32MHC120M	–	–	1093524	75HC120M
13	–	–	3026658	20MHC130M	–	–	3026682	32MHC130M	–	–	–	–
14	–	–	3026659	20MHC140M	3026671	25MHC140M	3026683	32MHC140M	–	–	1093525	75HC140M
15	–	–	3026660	20MHC150M	–	–	3026684	32MHC150M	–	–	–	–
16	–	–	3026661	20MHC160M	3026672	25MHC160M	3026685	32MHC160M	–	–	1093526	75HC160M

➤ HPS Beyond™ Drills for Aluminum Machining with MQL



Primary Application

B284/B285_HPS series solid carbide drills offer the highest metal removal rates and longest tool life in aluminum and other non-ferrous materials when MQL is applied. These drills can also be used with standard through coolant.

By combining the HP-Point geometry and the new KN15™ Beyond grade with the new Kennametal polishing technology and unique flute design into one tool, the B28_HPS is the ultimate production tool for aluminum workpiece applications — even when compared to PCD solutions. This drill family is a differentiated high-end and high-performance alternative to commoditized conventional carbide or PCD straight-fluted drills.

Features and Benefits

HPS Drill-Point Design

- Sharp cutting edge enables higher tool life in aluminum and other non-ferrous materials.
- Low cutting forces and less built-up edge.
- HP-point enables high feed rates by progressive rake angle and excellent centering capabilities.

Enlarged Flute Design

- Enables fast chip evacuation and high metal removal rates.

KN15 Beyond Grade

- The highly polished surface ensures superior chip evacuation, even when MQL coolant is applied.
- Specified, uncoated 9% Co fine-grain carbide.

“D” Shank Optimized for MQL Applications

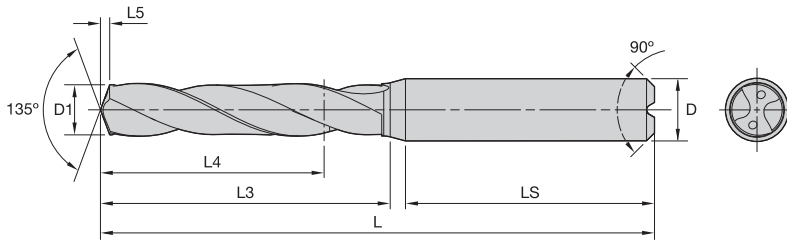
- Enlarged chamfer on back end according to DIN 69090-3 (round cylindrical for MQL) to ensure optimum coolant flow without leakage.

Much more cost-effective compared to PCD-tipped drills.



Customization

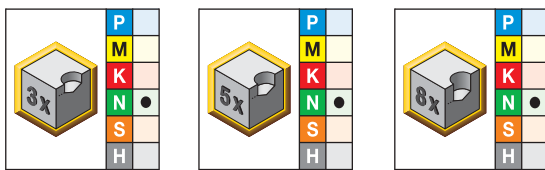
- Intermediate diameters available as semi-standards.
- Length variations and step drills available as custom solutions.
- Using Kennametal MQL chucks together with standard B28_HPS is recommended.
- Optional coatings available for applications in aluminum with Si>9%, based on TiB₂ and DLC.



For information on L, L3, and L4 max, see the Solid Carbide Drills foldout table.



■ B284/B285/B286_HPS • ~3 x D/~5 x D/~8 x D



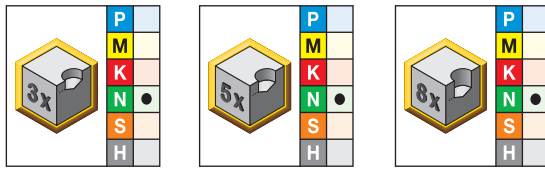
- first choice
- alternate choice

			D1 diameter						
short • KN15	long • KN15	extra long • KN15	mm	in	fraction	wire size	L5	LS	D
B284D03000HPS	B285D03000HPS	B286D03000HPS	3,000	.1181	—	—	0,6	36	6
B284D03100HPS	B285D03100HPS	B286D03100HPS	3,100	.1220	—	—	0,6	36	6
B284D03175HPS	B285D03175HPS	B286D03175HPS	3,175	.1250	1/8	—	0,6	36	6
B284D03200HPS	B285D03200HPS	B286D03200HPS	3,200	.1260	—	—	0,6	36	6
B284D03264HPS	B285D03264HPS	B286D03264HPS	3,264	.1285	—	30	0,6	36	6
B284D03300HPS	B285D03300HPS	B286D03300HPS	3,300	.1299	—	—	0,6	36	6
B284D03455HPS	B285D03455HPS	B286D03455HPS	3,455	.1360	—	29	0,6	36	6
B284D03500HPS	B285D03500HPS	B286D03500HPS	3,500	.1378	—	—	0,6	36	6
B284D03571HPS	B285D03571HPS	B286D03571HPS	3,571	.1406	9/64	—	0,7	36	6
B284D03700HPS	B285D03700HPS	B286D03700HPS	3,700	.1457	—	—	0,7	36	6
B284D03734HPS	B285D03734HPS	B286D03734HPS	3,734	.1470	—	26	0,7	36	6
B284D03900HPS	B285D03900HPS	B286D03900HPS	3,900	.1535	—	—	0,7	36	6
B284D03970HPS	B285D03970HPS	B286D03970HPS	3,970	.1563	5/32	—	0,7	36	6
B284D04000HPS	B285D04000HPS	B286D04000HPS	4,000	.1575	—	—	0,7	36	6
B284D04039HPS	B285D04039HPS	B286D04039HPS	4,039	.1590	—	21	0,7	36	6
B284D04100HPS	B285D04100HPS	B286D04100HPS	4,100	.1614	—	—	0,8	36	6
B284D04200HPS	B285D04200HPS	B286D04200HPS	4,200	.1654	—	—	0,8	36	6
B284D04305HPS	B285D04305HPS	B286D04305HPS	4,305	.1695	—	18	0,8	36	6
B284D04366HPS	—	—	4,366	.1719	11/64	—	0,8	36	6
B284D04400HPS	B285D04400HPS	B286D04400HPS	4,400	.1732	—	—	0,8	36	6
B284D04500HPS	B285D04500HPS	B286D04500HPS	4,500	.1772	—	—	0,8	36	6
B284D04600HPS	B285D04600HPS	B286D04600HPS	4,600	.1811	—	—	0,8	36	6
B284D04700HPS	B285D04700HPS	B286D04700HPS	4,700	.1850	—	13	0,9	36	6
B284D04763HPS	B285D04763HPS	B286D04763HPS	4,763	.1875	3/16	—	0,9	36	6
B284D04800HPS	B285D04800HPS	B286D04800HPS	4,800	.1890	—	12	0,9	36	6
B284D04900HPS	B285D04900HPS	B286D04900HPS	4,900	.1929	—	—	0,9	36	6
B284D05000HPS	B285D05000HPS	B286D05000HPS	5,000	.1969	—	—	0,9	36	6
B284D05100HPS	B285D05100HPS	B286D05100HPS	5,100	.2008	—	—	0,9	36	6
B284D05106HPS	B285D05106HPS	B286D05106HPS	5,106	.2010	—	7	0,9	36	6
B284D05159HPS	B285D05159HPS	B286D05159HPS	5,159	.2031	13/64	—	1,0	36	6
B284D05200HPS	B285D05200HPS	B286D05200HPS	5,200	.2047	—	—	1,0	36	6
B284D05300HPS	B285D05300HPS	B286D05300HPS	5,300	.2087	—	—	1,0	36	6
B284D05400HPS	B285D05400HPS	B286D05400HPS	5,400	.2126	—	—	1,0	36	6
B284D05410HPS	B285D05410HPS	B286D05410HPS	5,410	.2130	—	3	1,0	36	6
B284D05500HPS	B285D05500HPS	B286D05500HPS	5,500	.2165	—	—	1,0	36	6
B284D05558HPS	B285D05558HPS	B286D05558HPS	5,558	.2188	7/32	—	1,0	36	6

(continued)

(B284/B285/B286_HPS • ~3 x D / ~5 x D / ~8 x D — continued)

Solid Carbide Drills



- first choice
- alternate choice

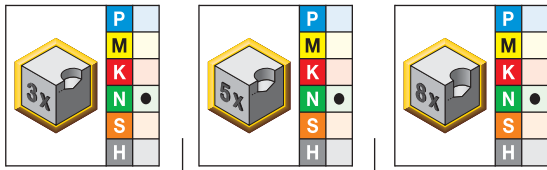
D1 diameter

short • KN15	long • KN15	extra long • KN15	mm	in	fraction	wire size	L5	LS	D
B284D05600HPS	B285D05600HPS	B286D05600HPS	5,600	.2205	—	—	1,0	36	6
B284D05791HPS	B285D05791HPS	B286D05791HPS	5,791	.2280	—	1	1,1	36	6
B284D05800HPS	—	—	5,800	.2283	—	—	1,1	36	6
B284D05954HPS	—	—	5,954	.2344	15/64	—	1,1	36	6
B284D06000HPS	B285D06000HPS	B286D06000HPS	6,000	.2362	—	—	1,1	36	6
B284D06200HPS	B285D06200HPS	B286D06200HPS	6,200	.2441	—	—	1,1	36	8
B284D06300HPS	B285D06300HPS	B286D06300HPS	6,300	.2480	—	—	1,2	36	8
B284D06350HPS	B285D06350HPS	B286D06350HPS	6,350	.2500	1/4	—	1,2	36	8
B284D06400HPS	B285D06400HPS	B286D06400HPS	6,400	.2520	—	—	1,2	36	8
B284D06500HPS	B285D06500HPS	B286D06500HPS	6,500	.2559	—	—	1,2	36	8
B284D06528HPS	B285D06528HPS	B286D06528HPS	6,528	.2570	—	—	1,2	36	8
B284D06600HPS	B285D06600HPS	B286D06600HPS	6,600	.2598	—	—	1,2	36	8
B284D06630HPS	B285D06630HPS	B286D06630HPS	6,630	.2610	—	—	1,2	36	8
B284D06700HPS	B285D06700HPS	B286D06700HPS	6,700	.2638	—	—	1,2	36	8
B284D06746HPS	B285D06746HPS	B286D06746HPS	6,746	.2656	17/64	—	1,2	36	8
B284D06800HPS	B285D06800HPS	B286D06800HPS	6,800	.2677	—	—	1,3	36	8
B284D06900HPS	B285D06900HPS	B286D06900HPS	6,900	.2717	—	—	1,3	36	8
B284D07000HPS	B285D07000HPS	B286D07000HPS	7,000	.2756	—	—	1,3	36	8
B284D07145HPS	B285D07145HPS	B286D07145HPS	7,145	.2813	9/32	—	1,3	36	8
B284D07300HPS	B285D07300HPS	B286D07300HPS	7,300	.2874	—	—	1,3	36	8
B284D07400HPS	B285D07400HPS	B286D07400HPS	7,400	.2913	—	—	1,4	36	8
B284D07500HPS	—	—	7,500	.2953	—	—	1,4	36	8
B284D07541HPS	B285D07541HPS	B286D07541HPS	7,541	.2969	19/64	—	1,4	36	8
B284D07600HPS	B285D07600HPS	B286D07600HPS	7,600	.2992	—	—	1,4	36	8
B284D07700HPS	B285D07700HPS	B286D07700HPS	7,700	.3031	—	—	1,4	36	8
—	B285D07800HPS	—	7,800	.3071	—	—	1,4	36	8
B284D07938HPS	B285D07938HPS	B286D07938HPS	7,938	.3125	5/16	—	1,5	36	8
B284D08000HPS	B285D08000HPS	B286D08000HPS	8,000	.3150	—	—	1,5	36	8
B284D08334HPS	B285D08334HPS	B286D08334HPS	8,334	.3281	21/64	—	1,5	40	10
B284D08400HPS	B285D08400HPS	B286D08400HPS	8,400	.3307	—	—	1,6	40	10
B284D08433HPS	B285D08433HPS	B286D08433HPS	8,433	.3320	—	—	1,6	40	10
B284D08500HPS	B285D08500HPS	B286D08500HPS	8,500	.3346	—	—	1,6	40	10
B284D08700HPS	B285D08700HPS	B286D08700HPS	8,700	.3425	—	—	1,6	40	10
B284D08733HPS	B285D08733HPS	B286D08733HPS	8,733	.3438	11/32	—	1,6	40	10
B284D08800HPS	B285D08800HPS	B286D08800HPS	8,800	.3465	—	—	1,6	40	10
B284D08900HPS	B285D08900HPS	B286D08900HPS	8,900	.3504	—	—	1,6	40	10
B284D09000HPS	B285D09000HPS	B286D09000HPS	9,000	.3543	—	—	1,7	40	10
B284D09100HPS	B285D09100HPS	B286D09100HPS	9,100	.3583	—	—	1,7	40	10
B284D09129HPS	B285D09129HPS	B286D09129HPS	9,129	.3594	23/64	—	1,7	40	10
B284D09300HPS	B285D09300HPS	B286D09300HPS	9,300	.3661	—	—	1,7	40	10
B284D09400HPS	B285D09400HPS	B286D09400HPS	9,400	.3701	—	—	1,7	40	10
B284D09500HPS	B285D09500HPS	B286D09500HPS	9,500	.3740	—	—	1,8	40	10
B284D09525HPS	B285D09525HPS	B286D09525HPS	9,525	.3750	3/8	—	1,8	40	10
B284D09900HPS	B285D09900HPS	B286D09900HPS	9,900	.3898	—	—	1,8	40	10
B284D09921HPS	B285D09921HPS	B286D09921HPS	9,921	.3906	25/64	—	1,8	40	10
B284D10000HPS	B285D10000HPS	B286D10000HPS	10,000	.3937	—	—	1,8	40	10
B284D10100HPS	B285D10100HPS	B286D10100HPS	10,100	.3976	—	—	1,9	45	12
B284D10200HPS	B285D10200HPS	B286D10200HPS	10,200	.4016	—	—	1,9	45	12
B284D10300HPS	B285D10300HPS	B286D10300HPS	10,300	.4055	—	—	1,9	45	12
B284D10320HPS	B285D10320HPS	B286D10320HPS	10,320	.4063	13/32	—	1,9	45	12
B284D10500HPS	B285D10500HPS	B286D10500HPS	10,500	.4134	—	—	1,9	45	12
B284D10600HPS	B285D10600HPS	B286D10600HPS	10,600	.4173	—	—	2,0	45	12

(continued)

(B284/B285/B286_HPS • ~3 x D/~5 x D/~8 x D — continued)

Solid Carbide Drills



- first choice
- alternate choice

			D1 diameter						
short • KN15	long • KN15	extra long • KN15	mm	in	fraction	wire size	L5	LS	D
B284D10716HPS	B285D10716HPS	B286D10716HPS	10,716	.4219	27/64	—	2,0	45	12
B284D10800HPS	B285D10800HPS	B286D10800HPS	10,800	.4252	—	—	2,0	45	12
B284D11000HPS	B285D11000HPS	B286D11000HPS	11,000	.4331	—	—	2,0	45	12
B284D11100HPS	B285D11100HPS	B286D11100HPS	11,100	.4370	—	—	2,0	45	12
B284D11113HPS	B285D11113HPS	B286D11113HPS	11,113	.4375	7/16	—	2,1	45	12
B284D11200HPS	B285D11200HPS	B286D11200HPS	11,200	.4409	—	—	2,1	45	12
B284D11300HPS	B285D11300HPS	B286D11300HPS	11,300	.4449	—	—	2,1	45	12
B284D11400HPS	B285D11400HPS	B286D11400HPS	11,400	.4488	—	—	2,1	45	12
B284D11500HPS	B285D11500HPS	B286D11500HPS	11,500	.4528	—	—	2,1	45	12
B284D11509HPS	B285D11509HPS	B286D11509HPS	11,509	.4531	29/64	—	2,1	45	12
B284D11800HPS	B285D11800HPS	B286D11800HPS	11,800	.4646	—	—	2,2	45	12
B284D11908HPS	B285D11908HPS	B286D11908HPS	11,908	.4688	15/32	—	2,2	45	12
B284D12000HPS	B285D12000HPS	B286D12000HPS	12,000	.4724	—	—	2,2	45	12
B284D12304HPS	B285D12304HPS	B286D12304HPS	12,304	.4844	31/64	—	2,3	45	14
B284D12500HPS	B285D12500HPS	B286D12500HPS	12,500	.4921	—	—	2,3	45	14
B284D12600HPS	B285D12600HPS	B286D12600HPS	12,600	.4961	—	—	2,3	45	14
B284D12700HPS	B285D12700HPS	B286D12700HPS	12,700	.5000	1/2	—	2,3	45	14
B284D13000HPS	B285D13000HPS	B286D13000HPS	13,000	.5118	—	—	2,4	45	14
B284D13096HPS	B285D13096HPS	B286D13096HPS	13,096	.5156	33/64	—	2,4	45	14
B284D13100HPS	B285D13100HPS	B286D13100HPS	13,100	.5157	—	—	2,4	45	14
B284D13300HPS	B285D13300HPS	B286D13300HPS	13,300	.5236	—	—	2,5	45	14
B284D13400HPS	B285D13400HPS	B286D13400HPS	13,400	.5276	—	—	2,5	45	14
B284D13500HPS	B285D13500HPS	B286D13500HPS	13,500	.5315	—	—	2,5	45	14
B284D14000HPS	B285D14000HPS	B286D14000HPS	14,000	.5512	—	—	2,6	45	14
B284D14200HPS	B285D14200HPS	B286D14200HPS	14,200	.5591	—	—	2,6	48	16
B284D14288HPS	B285D14288HPS	B286D14288HPS	14,288	.5625	9/16	—	2,6	48	16
B284D14500HPS	B285D14500HPS	B286D14500HPS	14,500	.5709	—	—	2,7	48	16
B284D14684HPS	B285D14684HPS	B286D14684HPS	14,684	.5781	37/64	—	2,7	48	16
B284D15000HPS	B285D15000HPS	B286D15000HPS	15,000	.5906	—	—	2,8	48	16
B284D15083HPS	B285D15083HPS	B286D15083HPS	15,083	.5938	19/32	—	2,8	48	16
B284D15100HPS	B285D15100HPS	B286D15100HPS	15,100	.5945	—	—	2,8	48	16
B284D15300HPS	B285D15300HPS	B286D15300HPS	15,300	.6024	—	—	2,8	48	16
B284D15400HPS	B285D15400HPS	B286D15400HPS	15,400	.6063	—	—	2,8	48	16
B284D15875HPS	B285D15875HPS	B286D15875HPS	15,875	.6250	5/8	—	2,9	48	16
B284D16000HPS	B285D16000HPS	B286D16000HPS	16,000	.6299	—	—	3,0	48	16
B284D16500HPS	B285D16500HPS	B286D16500HPS	16,500	.6496	—	—	3,0	48	18
B284D16670HPS	B285D16670HPS	B286D16670HPS	16,670	.6563	21/32	—	3,1	48	18
B284D16800HPS	B285D16800HPS	B286D16800HPS	16,800	.6614	—	—	3,1	48	18
B284D16900HPS	B285D16900HPS	B286D16900HPS	16,900	.6654	—	—	3,1	48	18
B284D17000HPS	B285D17000HPS	B286D17000HPS	17,000	.6693	—	—	3,1	48	18
B284D17300HPS	B285D17300HPS	B286D17300HPS	17,300	.6811	—	—	3,2	48	18
B284D17463HPS	B285D17463HPS	B286D17463HPS	17,463	.6875	11/16	—	3,2	48	18
B284D17500HPS	B285D17500HPS	B286D17500HPS	17,500	.6890	—	—	3,2	48	18
B284D17859HPS	B285D17859HPS	B286D17859HPS	17,859	.7031	45/64	—	3,3	48	18
B284D18000HPS	B285D18000HPS	B286D18000HPS	18,000	.7087	—	—	3,3	48	18
B284D19000HPS	B285D19000HPS	B286D19000HPS	19,000	.7480	—	—	3,5	50	20
B284D19050HPS	B285D19050HPS	B286D19050HPS	19,050	.7500	3/4	—	3,5	50	20
B284D20000HPS	B285D20000HPS	B286D20000HPS	20,000	.7874	—	—	3,7	50	20

nominal size range	Tolerance • Metric	
	D1 tolerance m7	D tolerance h6
>3-6	0,004/0,016	0,000/-0,008
>6-10	0,006/0,021	0,000/-0,009
>10-18	0,007/0,025	0,000/-0,011
>18-25,4	0,008/0,029	0,000/-0,013

nominal size range	Tolerance • Inch	
	D1 tolerance m7	D tolerance h6
>.1181-.2362	.0002/.0006	.0000/-.0003
>.2362-.3937	.0002/.0008	.0000/-.0004
>.3937-.7087	.0003/.0010	.0000/-.0004
>.7087-1.0000	.0003/.0011	.0000/-.0005

**■ HP Drills • B28_HPS Series • Grade KN15™ • MQL and Through Coolant •
 Drill Diameters 3-20mm (.1181-.7874")**

Solid Carbide Drills

		Cutting Speed – vc			Metric									
		Range – m/min			Recommended Feed Rate (f) by Diameter									
Material Group		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0	
N	1	120	230	450	mm/r	0,13–0,25	0,14–0,29	0,17–0,35	0,21–0,42	0,27–0,50	0,33–0,57	0,37–0,69	0,43–0,82	
	2	120	220	350	mm/r	0,14–0,23	0,15–0,28	0,17–0,34	0,22–0,39	0,29–0,46	0,34–0,54	0,39–0,67	0,45–0,80	
	3	100	180	400	mm/r	0,13–0,20	0,14–0,21	0,16–0,27	0,20–0,33	0,28–0,40	0,33–0,45	0,38–0,60	0,44–0,68	
	4	100	130	300	mm/r	0,10–0,18	0,12–0,20	0,14–0,26	0,16–0,30	0,18–0,34	0,20–0,38	0,24–0,42	0,28–0,46	
		Cutting Speed – vc			Inch									
		Range – SFM			Recommended Feed Rate (f) by Diameter									
Material Group		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750	
N	1	390	750	1480	IPR	.005–.010	.006–.011	.007–.014	.008–.017	.011–.020	.013–.022	.015–.027	.017–.032	
	2	390	720	1150	IPR	.006–.009	.006–.011	.007–.013	.009–.015	.011–.018	.013–.021	.015–.026	.018–.032	
	3	330	590	1310	IPR	.005–.008	.006–.008	.006–.011	.008–.013	.011–.016	.013–.018	.015–.024	.017–.027	
	4	330	430	980	IPR	.004–.007	.005–.008	.006–.010	.006–.012	.007–.013	.008–.015	.009–.017	.011–.018	

➤ **Y-TECH™ Drills** with **Through Coolant** for **Difficult-to-Machine Materials**

Primary Application

The B29_YPL series solid carbide drills are specifically engineered to drill stainless steel, high-temp alloys, and difficult-to-machine materials.

Y-TECH drills deliver best-in-class hole quality and longest tool life in these difficult-to-machine workpiece materials. Operate these drills with standard through coolant.

Features and Benefits

YPL Drill-Point Design

- Ensures good centering and chip formation.
- No jamming of chips and enables easy reconditioning.

Uneven Flute-to-Flute Angle

- Unbalanced forces by design eliminate chipping on margin lands.

Three-Margin Lands

- Reduce pendulum motion by directing forces towards third margin, which results in superior hole accuracy (cylindricity, constant diameter, hole straightness).

KC7315™ Grade

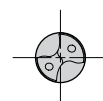
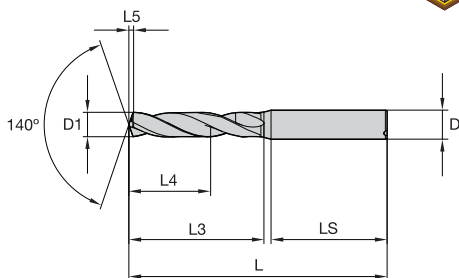
- A multilayer, TiAlN-based coating with high hot hardness enables higher cutting speeds and outstanding wear resistance.
- Optimized surface finish of the tool ensures chip evacuation in high-speed drilling applications.

Y-TECH™ drills deliver best-in-class hole quality.



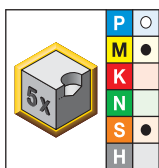
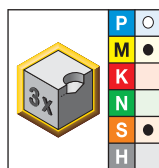
Customization

- Intermediate diameters available as semi-standards.
- Length variations and step drills available as engineered solutions.
- Using Kennametal slim line hydraulic chucks together with standard B29_YPL is recommended if workpiece contours need to be bypassed.



For information on L, L3, and L4 max, see the Solid Carbide Drills foldout table.

■ B291/B292_YPL • ~3 x D/~5 x D



● first choice
○ alternate choice

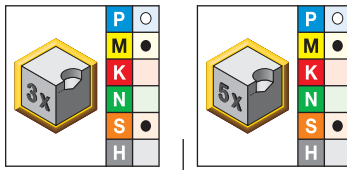
		D1 diameter				L5	LS	D
short • KC7315	long • KC7315	mm	in	fraction	wire size			
B291A03000YPL	B292A03000YPL	3,000	.1181	—	—	0,6	36	6
B291A03100YPL	B292A03100YPL	3,100	.1220	—	—	0,6	36	6
B291A03175YPL	B292A03175YPL	3,175	.1250	1/8	—	0,6	36	6
B291A03200YPL	B292A03200YPL	3,200	.1260	—	—	0,6	36	6
B291A03300YPL	B292A03300YPL	3,300	.1299	—	—	0,7	36	6
B291A03400YPL	B292A03400YPL	3,400	.1339	—	—	0,7	36	6
B291A03454YPL	—	3,454	.1360	—	29	0,7	36	6
B291A03500YPL	B292A03500YPL	3,500	.1378	—	—	0,7	36	6
B291A03600YPL	B292A03600YPL	3,600	.1417	—	—	0,7	36	6
B291A03700YPL	B292A03700YPL	3,700	.1457	—	—	0,7	36	6
B291A03800YPL	B292A03800YPL	3,800	.1496	—	—	0,8	36	6
B291A03900YPL	B292A03900YPL *	3,900	.1535	—	—	0,8	36	6
B291A03970YPL	B292A03970YPL	3,970	.1563	5/32	—	0,8	36	6
B291A04000YPL	B292A04000YPL	4,000	.1575	—	—	0,8	36	6
B291A04100YPL	B292A04100YPL	4,100	.1614	—	—	0,8	36	6
—	B292A04200YPL	4,200	.1654	—	—	0,8	36	6
B291A04300YPL	B292A04300YPL	4,300	.1693	—	—	0,8	36	6
B291A04400YPL	—	4,400	.1732	—	—	0,9	36	6
B291A04500YPL	B292A04500YPL	4,500	.1772	—	—	0,9	36	6
—	B292A04700YPL	4,700	.1850	—	13	0,9	36	6
B291A04763YPL	B292A04763YPL	4,763	.1875	3/16	—	0,9	36	6
B291A04800YPL	B292A04800YPL	4,800	.1890	—	12	0,9	36	6
B291A04851YPL	B292A04851YPL	4,851	.1910	—	11	0,9	36	6
B291A04900YPL	—	4,900	.1929	—	—	0,9	36	6
B291A04915YPL	B292A04915YPL	4,915	.1935	—	10	1,0	36	6
B291A05000YPL	B292A05000YPL	5,000	.1969	—	—	1,0	36	6
B291A05100YPL	B292A05100YPL	5,100	.2008	—	—	1,0	36	6
B291A05200YPL	B292A05200YPL	5,200	.2047	—	—	1,0	36	6
B291A05410YPL	B292A05410YPL	5,410	.2130	—	3	1,1	36	6
B291A05500YPL	B292A05500YPL	5,500	.2165	—	—	1,1	36	6
—	B292A05558YPL	5,558	.2188	7/32	—	1,1	36	6
B291A05600YPL	B292A05600YPL	5,600	.2205	—	—	1,1	36	6
—	B292A05800YPL	5,800	.2283	—	—	1,1	36	6
B291A05900YPL	—	5,900	.2323	—	—	1,1	36	6
B291A06000YPL	B292A06000YPL	6,000	.2362	—	—	1,2	36	6
B291A06200YPL	B292A06200YPL	6,200	.2441	—	—	1,2	36	8

(continued)

(B291/B292_YPL • ~3 x D/~5 x D — continued)



Solid Carbide Drills



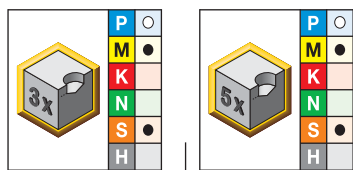
● first choice
○ alternate choice

		D1 diameter						
short • KC7315	long • KC7315	mm	in	fraction	wire size	L5	LS	D
B291A06350YPL	B292A06350YPL	6,350	.2500	1/4	—	1,2	36	8
B291A06500YPL	B292A06500YPL	6,500	.2559	—	—	1,3	36	8
—	B292A06528YPL	6,528	.2570	—	—	1,3	36	8
—	B292A06600YPL	6,600	.2598	—	—	1,3	36	8
—	B292A06746YPL	6,746	.2656	17/64	—	1,3	36	8
B291A06747YPL	—	6,747	.2656	17/64	—	1,3	36	8
B291A06800YPL	B292A06800YPL	6,800	.2677	—	—	1,3	36	8
—	B292A06900YPL	6,900	.2717	—	—	1,3	36	8
B291A07000YPL	B292A07000YPL	7,000	.2756	—	—	1,4	36	8
—	B292A07100YPL	7,100	.2795	—	—	1,4	36	8
B291A07144YPL	—	7,144	.2813	9/32	—	1,4	36	8
—	B292A07145YPL	7,145	.2813	9/32	—	1,4	36	8
B291A07200YPL	B292A07200YPL	7,200	.2835	—	—	1,4	36	8
—	B292A07400YPL	7,400	.2913	—	—	1,4	36	8
B291A07500YPL	B292A07500YPL *	7,500	.2953	—	—	1,4	36	8
—	B292A07600YPL	7,600	.2992	—	—	1,5	36	8
—	B292A07900YPL	7,900	.3110	—	—	1,5	36	8
B291A07938YPL	B292A07938YPL	7,938	.3125	5/16	—	1,5	36	8
B291A08000YPL	B292A08000YPL	8,000	.3150	—	—	1,5	36	8
—	B292A08100YPL	8,100	.3189	—	—	1,6	40	10
—	B292A08200YPL	8,200	.3228	—	—	1,6	40	10
B291A08334YPL	B292A08334YPL *	8,334	.3281	21/64	—	1,6	40	10
—	B292A08433YPL	8,433	.3320	—	—	1,6	40	10
B291A08500YPL	B292A08500YPL	8,500	.3346	—	—	1,6	40	10
B291A08600YPL	B292A08600YPL	8,600	.3386	—	—	1,7	40	10
B291A08733YPL	B292A08733YPL	8,733	.3438	11/32	—	1,7	40	10
B291A08800YPL	B292A08800YPL	8,800	.3465	—	—	1,7	40	10
B291A08900YPL *	B292A08900YPL	8,900	.3504	—	—	1,7	40	10
B291A09000YPL	B292A09000YPL	9,000	.3543	—	—	1,7	40	10
B291A09129YPL	—	9,129	.3594	23/64	—	1,8	40	10
—	B292A09130YPL	9,130	.3594	23/64	—	1,8	40	10
—	B292A09200YPL	9,200	.3622	—	—	1,8	40	10
B291A09300YPL	—	9,300	.3661	—	—	1,8	40	10
—	B292A09347YPL	9,347	.3680	—	—	1,8	40	10
B291A09500YPL	B292A09500YPL	9,500	.3740	—	—	1,8	40	10
B291A09525YPL	B292A09525YPL	9,525	.3750	3/8	—	1,8	40	10
—	B292A09600YPL	9,600	.3780	—	—	1,8	40	10
B291A09700YPL	B292A09700YPL	9,700	.3819	—	—	1,9	40	10
B291A09800YPL	B292A09800YPL	9,800	.3858	—	—	1,9	40	10
B291A10000YPL	B292A10000YPL	10,000	.3937	—	—	1,9	40	10
—	B292A10100YPL	10,100	.3976	—	—	1,9	45	12
B291A10200YPL	B292A10200YPL	10,200	.4016	—	—	2,0	45	12
B291A10320YPL	B292A10320YPL	10,320	.4063	13/32	—	2,0	45	12
B291A10500YPL	B292A10500YPL	10,500	.4134	—	—	2,0	45	12
B291A10716YPL	B292A10716YPL	10,716	.4219	27/64	—	2,0	45	12
B291A11000YPL	B292A11000YPL	11,000	.4331	—	—	2,1	45	12
—	B292A11112YPL	11,112	.4375	7/16	—	2,1	45	12
B291A11113YPL	—	11,113	.4375	7/16	—	2,1	45	12
B291A11500YPL	B292A11500YPL *	11,500	.4528	—	—	2,2	45	12
B291A11509YPL	B292A11509YPL	11,509	.4531	29/64	—	2,2	45	12
B291A11800YPL	—	11,800	.4646	—	—	2,2	45	12
B291A11908YPL	B292A11908YPL	11,908	.4688	15/32	—	2,3	45	12

(continued)

(B291/B292_YPL • ~3 x D/~5 x D — continued)

Solid Carbide Drills



● first choice
○ alternate choice

		D1 diameter				L5	LS	D
short • KC7315	long • KC7315	mm	in	fraction	wire size			
B291A12000YPL	B292A12000YPL	12,000	.4724	—	—	2,3	45	12
B291A12300YPL	—	12,300	.4843	—	—	2,3	45	14
—	B292A12304YPL	12,304	.4844	31/64	—	2,3	45	14
B291A12500YPL	B292A12500YPL	12,500	.4921	—	—	2,4	45	14
B291A12700YPL	B292A12700YPL	12,700	.5000	1/2	—	2,4	45	14
B291A12900YPL	—	12,900	.5079	—	—	2,5	45	14
B291A13000YPL	B292A13000YPL	13,000	.5118	—	—	2,5	45	14
—	B292A13500YPL	13,500	.5315	—	—	2,6	45	14
B291A13800YPL	—	13,800	.5433	—	—	2,6	45	14
—	B292A13900YPL *	13,900	.5472	—	—	2,6	45	14
B291A14000YPL	B292A14000YPL	14,000	.5512	—	—	2,7	45	14
—	B292A14200YPL *	14,200	.5591	—	—	2,7	48	16
B291A14288YPL	B292A14288YPL	14,288	.5625	9/16	—	2,7	48	16
B291A14500YPL	B292A14500YPL	14,500	.5709	—	—	2,8	48	16
B291A15000YPL	B292A15000YPL	15,000	.5906	—	—	2,8	48	16
—	B292A15500YPL	15,500	.6102	—	—	2,9	48	16
—	B292A15600YPL	15,600	.6142	—	—	3,0	48	16
B291A15800YPL	—	15,800	.6220	—	—	3,0	48	16
B291A15875YPL	B292A15875YPL	15,875	.6250	5/8	—	3,0	48	16
B291A16000YPL	B292A16000YPL *	16,000	.6299	—	—	3,0	48	16
B291A16100YPL *	—	16,100	.6339	—	—	3,1	48	18
—	B292A16500YPL *	16,500	.6496	—	—	3,1	48	18
B291A17000YPL	B292A17000YPL *	17,000	.6693	—	—	3,2	48	18
B291A17463YPL	B292A17463YPL	17,463	.6875	11/16	—	3,3	48	18
B291A17500YPL *	B292A17500YPL *	17,500	.6890	—	—	3,3	48	18
B291A17900YPL *	—	17,900	.7047	—	—	3,4	48	18
B291A18000YPL	B292A18000YPL *	18,000	.7087	—	—	3,4	48	18
—	B292A18500YPL *	18,500	.7283	—	—	3,5	50	20
—	B292A19000YPL *	19,000	.7480	—	—	3,6	50	20
B291A19050YPL *	B292A19050YPL	19,050	.7500	3/4	—	3,6	50	20
B291A19800YPL	—	19,800	.7795	—	—	3,7	50	20
—	B292A20000YPL	20,000	.7874	—	—	3,8	50	20
—	B292A20500YPL *	20,500	.8071	—	—	3,9	50	20
—	B292A21000YPL *	21,000	.8268	—	—	4,0	50	20

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Tolerance • Metric			Tolerance • Inch		
nominal size range	D1 tolerance m7	D tolerance h6	nominal size range	D1 tolerance m7	D tolerance h6
>3-6	0,004/0,016	0,000/-0,008	>.1181-.2362	.0002/.0006	.0000/-0.0003
>6-10	0,006/0,021	0,000/-0,009	>.2362-.3937	.0002/.0008	.0000/-0.0004
>10-18	0,007/0,025	0,000/-0,011	>.3937-.7087	.0003/.0010	.0000/-0.0004
>18-25,4	0,008/0,029	0,000/-0,013	>.7087-1.0000	.0003/.0011	.0000/-0.0005

Y-TECH™ Drill • B29_YPL Series • Grade KC7315™ • Through Coolant • Drill Diameters 3–20mm (.1181–.7874")

Solid Carbide Drills

Material Group		Cutting Speed – vc			Metric									
		Range – m/min			Recommended Feed Rate (f) by Diameter									
		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0	
					mm/r									
P	5	45	65	80	mm/r	0,04–0,08	0,06–0,09	0,07–0,12	0,09–0,16	0,11–0,19	0,13–0,21	0,15–0,26	0,18–0,30	
	6	50	60	90	mm/r	0,04–0,06	0,04–0,07	0,06–0,10	0,10–0,15	0,09–0,16	0,11–0,20	0,13–0,24	0,16–0,28	
M	1	40	50	60	mm/r	0,07–0,11	0,08–0,12	0,13–0,17	0,14–0,21	0,14–0,21	0,17–0,23	0,19–0,25	0,22–0,27	
	2	40	50	80	mm/r	0,07–0,11	0,07–0,12	0,08–0,17	0,13–0,21	0,14–0,22	0,17–0,23	0,19–0,25	0,22–0,27	
	3	40	50	70	mm/r	0,04–0,06	0,04–0,07	0,04–0,07	0,05–0,08	0,06–0,09	0,06–0,10	0,06–0,10	0,07–0,11	
S	1	15	20	30	mm/r	0,06–0,08	0,06–0,08	0,07–0,10	0,10–0,13	0,11–0,14	0,12–0,16	0,14–0,19	0,17–0,22	
	2	20	20	30	mm/r	0,05–0,07	0,05–0,07	0,06–0,08	0,08–0,11	0,09–0,12	0,10–0,13	0,12–0,16	0,14–0,18	
	3	25	30	50	mm/r	0,03–0,05	0,03–0,05	0,04–0,08	0,05–0,10	0,05–0,10	0,05–0,10	0,07–0,11	0,08–0,12	
	4	30	30	50	mm/r	0,03–0,05	0,03–0,05	0,04–0,08	0,05–0,10	0,05–0,10	0,05–0,10	0,07–0,11	0,08–0,12	
H	1	10	20	30	mm/r	0,01–0,03	0,02–0,03	0,02–0,04	0,02–0,05	0,04–0,07	0,06–0,09	0,07–0,10	0,08–0,11	
Material Group		Cutting Speed – vc			Inch									
		Range – SFM			Recommended Feed Rate (f) by Diameter									
		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750	
					IPR									
P	5	150	210	260	IPR	.002–.003	.002–.004	.003–.005	.004–.006	.004–.008	.005–.008	.006–.010	.007–.012	
	6	160	200	300	IPR	.002–.002	.002–.003	.002–.004	.004–.006	.004–.006	.004–.008	.005–.009	.006–.011	
M	1	130	160	200	IPR	.003–.004	.003–.005	.005–.007	.006–.008	.006–.008	.007–.009	.008–.010	.009–.011	
	2	130	160	260	IPR	.003–.004	.003–.005	.003–.007	.005–.008	.006–.009	.007–.009	.008–.010	.009–.011	
	3	130	160	230	IPR	.002–.002	.002–.003	.002–.003	.002–.003	.002–.004	.002–.004	.002–.004	.003–.004	
S	1	50	70	100	IPR	.002–.003	.002–.003	.003–.004	.004–.005	.004–.006	.005–.006	.006–.008	.007–.009	
	2	70	70	100	IPR	.002–.003	.002–.003	.002–.003	.003–.004	.004–.005	.004–.005	.005–.006	.006–.007	
	3	80	100	160	IPR	.001–.002	.001–.002	.002–.003	.002–.004	.002–.004	.002–.004	.003–.004	.003–.005	
	4	100	100	160	IPR	.001–.002	.001–.002	.002–.003	.002–.004	.002–.004	.002–.004	.003–.004	.003–.005	
H	1	30	70	100	IPR	.000–.001	.001–.001	.001–.002	.001–.002	.002–.003	.002–.004	.003–.004	.003–.004	

➤ TX Drills with Through Coolant for Close Tolerance Holes

Primary Application

B411 solid carbide drills have an X-shaped, free-cutting 130° point design and are designed for gray cast iron, nodular iron, and non-ferrous and aluminum alloy materials. Best suited for high-quality, close tolerance holes that require a very good surface finish.

Features and Benefits

Two Cutting Edges with Straight Flutes

- Precise shape of the hole even if used as platform for complex step drills.
- Can run into cored holes.

X-Shaped Drill Point

- Excellent centering capabilities.

Four-Margin Land Design

- Second set of cutting margin lands improves the surface quality.
- Achieve tight diameter tolerances.
- Can run through cross holes and exit on inclined surfaces.

Wear-Resistant Carbide KF1 Grade

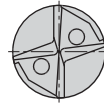
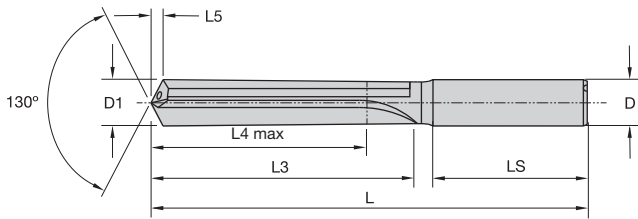
- Long tool life in abrasive materials, such as cast iron and aluminum die cast alloys.
- The uncoated grade KF1 helps to prevent built-up edge in drilling aluminum.

Best suited for high-quality, close tolerance holes that require a very good surface finish.

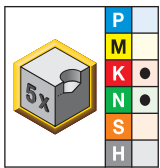


Customization

- Intermediate diameters available as semi-standards.
- Length variations and step drills available as engineered solutions.
- Coated grades available for other material applications, such as cast iron.



■ B411 • ~5 x D



D1 diameter

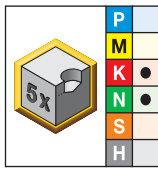
- first choice
- alternate choice

KF1	mm	in	fraction	wire size	L	L3	L4 max	L5	LS	D
B411A03200	3,200	.1260	—	—	66	28	23	0,7	36	6
B411A03300	3,300	.1299	—	—	66	28	23	0,8	36	6
B411A03800	3,800	.1496	—	—	74	36	29	0,9	36	6
B411A04000	4,000	.1575	—	—	74	36	29	0,9	36	6
B411A04200	4,200	.1654	—	—	74	36	29	1,0	36	6
B411A04500	4,500	.1772	—	—	74	36	29	1,0	36	6
B411A04600	4,600	.1811	—	—	74	36	29	1,1	36	6
B411A04650	4,650	.1831	—	—	74	36	29	1,1	36	6
B411A04800	4,800	.1890	—	12	82	44	35	1,1	36	6
B411A04900	4,900	.1929	—	—	82	44	35	1,1	36	6
B411A05000	5,000	.1969	—	—	82	44	35	1,2	36	6
B411A05100	5,100	.2008	—	—	82	44	35	1,2	36	6
B411A05200	5,200	.2047	—	—	82	44	35	1,2	36	6
B411A05500	5,500	.2165	—	—	82	44	35	1,3	36	6
B411A05550	5,550	.2185	—	—	82	44	35	1,3	36	6
B411A05600	5,600	.2205	—	—	82	44	35	1,2	36	6
B411A05800	5,800	.2283	—	—	82	44	35	1,4	36	6
B411A06000	6,000	.2362	—	—	82	44	35	1,4	36	6
B411A06100	6,100	.2402	—	—	91	53	43	1,3	36	8
B411A06300	6,300	.2480	—	—	91	53	43	1,5	36	8
B411A06400	6,400	.2520	—	—	91	53	43	1,5	36	8
B411A06500	6,500	.2559	—	—	91	53	43	1,5	36	8
B411A06600	6,600	.2598	—	—	91	53	43	1,5	36	8
B411A06800	6,800	.2677	—	—	91	53	43	1,6	36	8
B411A07000	7,000	.2756	—	—	91	53	43	1,6	36	8
B411A07400	7,400	.2913	—	—	91	53	43	1,7	36	8
B411A07500	7,500	.2953	—	—	91	53	43	1,7	36	8
B411A07700 *	7,700	.3031	—	—	91	53	43	1,7	36	8
B411A07800	7,800	.3071	—	—	91	53	43	1,8	36	8
B411A08000	8,000	.3150	—	—	91	53	43	1,9	36	8
B411A08400	8,400	.3307	—	—	103	61	49	2,0	40	10
B411A08500	8,500	.3346	—	—	103	61	49	2,0	40	10

(continued)

(B411 • ~5 x D — continued)

Solid Carbide Drills



- first choice
- alternate choice

KF1	D1 diameter				L	L3	L4 max	L5	LS	D
	mm	in	fraction	wire size						
B411A08700	8,700	.3425	—	—	103	61	49	1,9	40	10
B411A08800	8,800	.3465	—	—	103	61	49	1,9	40	10
B411A09000	9,000	.3543	—	—	103	61	49	2,1	40	10
B411A09300	9,300	.3661	—	—	103	61	49	2,2	40	10
B411A09500	9,500	.3740	—	—	103	61	49	2,2	40	10
B411A09800	9,800	.3858	—	—	103	61	49	2,3	40	10
B411A10000	10,000	.3937	—	—	103	61	49	2,3	40	10
B411A10200	10,200	.4016	—	—	118	71	56	2,4	45	12
B411A10500	10,500	.4134	—	—	118	71	56	2,4	45	12
B411A11000	11,000	.4331	—	—	118	71	56	2,6	45	12
B411A11200	11,200	.4409	—	—	118	71	56	2,6	45	12
B411A11500	11,500	.4528	—	—	118	71	56	2,7	45	12
B411A11800	11,800	.4646	—	—	118	71	56	2,8	45	12
B411A12000	12,000	.4724	—	—	118	71	56	2,8	45	12
B411A12500	12,500	.4921	—	—	124	77	60	2,9	45	14
B411A13000	13,000	.5118	—	—	124	77	60	3,0	45	14
B411A13500	13,500	.5315	—	—	124	77	60	3,1	45	14
B411A13800	13,800	.5433	—	—	124	77	60	3,2	45	14
B411A14000	14,000	.5512	—	—	124	77	60	3,3	45	14
B411A14500	14,500	.5709	—	—	133	83	63	3,4	48	16
B411A15000	15,000	.5906	—	—	133	83	63	3,5	48	16
B411A15500	15,500	.6102	—	—	133	83	63	3,6	48	16
B411A16000	16,000	.6299	—	—	133	83	63	3,7	48	16
B411A16500	16,500	.6496	—	—	143	93	71	3,8	48	18
B411A17000	17,000	.6693	—	—	143	93	71	4,0	48	18
B411A17500	17,500	.6890	—	—	143	93	71	4,1	48	18
B411A18000	18,000	.7087	—	—	143	93	71	4,2	48	18
B411A19000	19,000	.7480	—	—	153	101	77	4,4	50	20
B411A19500	19,500	.7677	—	—	153	101	77	4,5	50	20
B411A20000	20,000	.7874	—	—	153	101	77	4,7	50	20
B411A21000	21,000	.8268	—	—	167	114	85	4,9	50	20
B411A22000	22,000	.8661	—	—	167	114	85	5,1	50	20
B411A23000	23,000	.9055	—	—	184	126	98	5,4	56	25
B411A24000	24,000	.9449	—	—	184	126	98	5,6	56	25
B411A25000	25,000	.9843	—	—	184	126	98	5,8	56	25

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

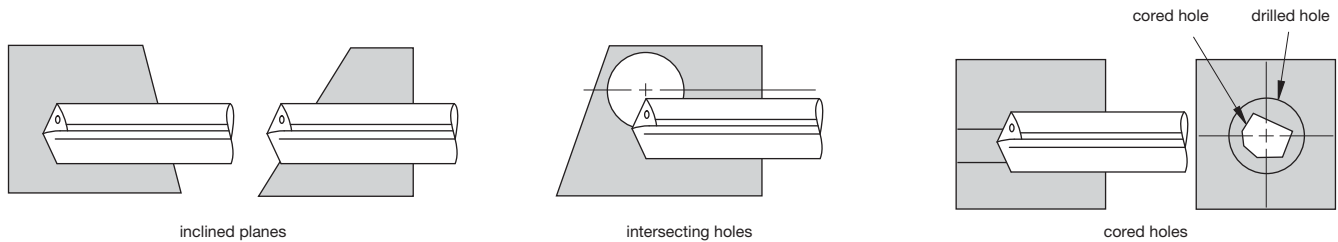
Tolerance • Metric			Tolerance • Inch		
nominal size range	D1 tolerance k6	D tolerance h6	nominal size range	D1 tolerance k6	D tolerance h6
>3-6	0,001/0,009	0,000/-0,008	>.1181-.2362	.0000/0004	.0000/-0.0003
>6-10	0,001/0,010	0,000/-0,009	>.2362-.3937	.0000/0004	.0000/-0.0004
>10-18	0,001/0,012	0,000/-0,011	>.3937-.7087	.0000/0005	.0000/-0.0004
>18-25,4	0,002/0,015	0,000/-0,013	>.7087-1.0000	.0000/0006	.0000/-0.0005

■ TX Drills • B411 Series • Grade KF1 • Through Coolant • Drill Diameters 3–25mm (.1181–.9843")

		Cutting Speed — vc			Metric									
		Range — m/min			Recommended Feed Rate (f) by Diameter									
Material Group		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0	25,4
K	1	115	120	140	mm/r	0,11–0,20	0,12–0,24	0,15–0,28	0,18–0,33	0,20–0,38	0,23–0,44	0,30–0,53	0,34–0,65	0,40–0,76
N	1	100	250	450	mm/r	0,12–0,25	0,13–0,29	0,16–0,35	0,20–0,42	0,26–0,50	0,32–0,57	0,36–0,69	0,42–0,82	0,59–0,96
	2	200	250	300	mm/r	0,13–0,21	0,14–0,26	0,16–0,32	0,20–0,37	0,27–0,44	0,32–0,52	0,38–0,64	0,44–0,78	0,60–0,96
	3	100	150	300	mm/r	0,11–0,18	0,12–0,20	0,15–0,24	0,18–0,30	0,20–0,38	0,23–0,44	0,30–0,53	0,34–0,65	0,40–0,76
	4	100	170	250	mm/r	0,10–0,16	0,12–0,20	0,14–0,26	0,16–0,28	0,18–0,32	0,20–0,36	0,22–0,40	0,24–0,44	0,28–0,50
		Cutting Speed — vc			Inch									
		Range — SFM			Recommended Feed Rate (f) by Diameter									
Material Group		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750	1/1 1.000
K	1	380	390	460	IPR	.004–.008	.005–.009	.006–.011	.007–.013	.008–.015	.009–.017	.012–.021	.013–.026	.016–.030
N	1	330	820	1480	IPR	.005–.010	.005–.011	.006–.014	.008–.017	.010–.020	.013–.022	.014–.027	.017–.032	.023–.038
	2	660	820	980	IPR	.005–.008	.006–.010	.006–.013	.008–.015	.011–.017	.013–.021	.015–.025	.017–.031	.024–.038
	3	330	490	980	IPR	.004–.007	.005–.008	.006–.009	.007–.012	.008–.015	.009–.017	.012–.021	.013–.026	.016–.030
	4	330	560	820	IPR	.004–.006	.005–.008	.006–.010	.006–.011	.007–.013	.008–.014	.009–.016	.009–.017	.011–.020

TX Drill Applications

The excellent stability of the TX drill enables it to be used for drilling through inclined planes, intersecting holes, and cored holes:



Mobile App

The Kennametal mobile app makes it easy to access product information, calculators, and much more from iPhone® and Android™ devices.



FEATURES

Scan a Kennametal tool package barcode or search a product catalog number to access complete product information.

Product information includes tool image, dimensions, grades, and product highlights.

View product availability at global locations.

Get speed and feed information in inch and metric values for all metalcutting products.

View tech tips for helpful solutions to common machining questions.

Contact Customer Support directly from the app.

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View data for milling and drilling applications.

Inch and metric values calculated.

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Download the free app today from iTunes® or the Google Play™ store.



➤ SPF Drills for CFRP Composite Materials

Primary Application

B53_SPF series solid carbide drills offer a material-specific design and grade to machine carbon fiber-reinforced polymer (CFRP) composite materials by minimizing delamination and increasing tool life.

Features and Benefits

SPF Drill-Point Design

- Special 90° point angle increases centering capability.
- Low thrust and improved hole quality.

Unique Geometry

- Combination of point design, substrate, and coating provides longer tool life and requires substantially less cutting force.

KDF400™ Grade

- CVD multilayer diamond coating provides more wear resistance and reduced friction, increasing tool life and improving chip flow.

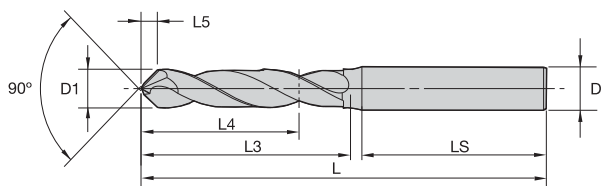


Designed to machine carbon
fiber-reinforced polymers.

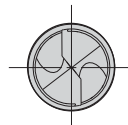


Customization

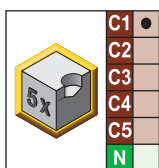
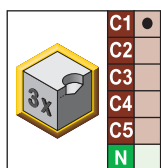
- Intermediate diameters available as semi-standards.
- Length variations and step drills available as engineered solutions.



For information on L, L3, and L4 max, see the Solid Carbide Drills foldout table.



■ B531/B532_SPF • ~3 x D/~5 x D



● first choice
○ alternate choice

		D1 diameter				L5	LS	D
short • KDF400	long • KDF400	mm	in	fraction	wire size			
B531A03200SPF	B532A03200SPF *	3,200	.1260	—	—	1,5	36	6
B531A03300SPF	B532A03300SPF *	3,300	.1299	—	—	1,5	36	6
B531A03600SPF	B532A03600SPF *	3,600	.1417	—	—	1,6	36	6
B531A04000SPF	—	4,000	.1575	—	—	1,8	36	6
B531A04366SPF *	B532A04366SPF *	4,366	.1719	11/64	—	2,0	36	6
B531A04851SPF	B532A04851SPF *	4,851	.1910	—	11	2,2	36	6
B531A04864SPF	—	4,864	.1915	—	—	2,2	36	6
B531A05100SPF *	B532A05100SPF	5,100	.2008	—	—	2,3	36	6
B531A05200SPF *	B532A05200SPF *	5,200	.2047	—	—	2,4	36	6
B531A06000SPF	B532A06000SPF	6,000	.2362	—	—	2,7	36	6
B531A06375SPF	B532A06375SPF *	6,375	.2510	—	—	2,9	36	8
B531A06400SPF	B532A06400SPF *	6,400	.2520	—	—	2,9	36	8
B531A06500SPF	B532A06500SPF *	6,500	.2559	—	—	3,0	36	8
—	B532A06700SPF *	6,700	.2638	—	—	3,0	36	8
—	B532A07200SPF	7,200	.2835	—	—	3,3	36	8
B531A07938SPF	B532A07938SPF *	7,938	.3125	5/16	—	3,6	36	8
B531A09550SPF	—	9,550	.3760	—	—	4,3	40	10
B531A09563SPF	B532A09563SPF *	9,563	.3765	—	—	4,3	40	10
B531A11125SPF *	—	11,125	.4380	—	—	5,1	45	12
B531A12725SPF	B532A12725SPF *	12,725	.5010	—	—	5,8	45	14

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

nominal size range	Tolerance • Metric	
	D1 tolerance m7	D tolerance h6
>3-6	0,004/0,016	0,000/-0,008
>6-10	0,006/0,021	0,000/-0,009
>10-18	0,007/0,025	0,000/-0,011
>18-25,4	0,008/0,029	0,000/-0,013

nominal size range	Tolerance • Inch	
	D1 tolerance m7	D tolerance h6
>.1181-.2362	.0002/.0006	.0000/-.0003
>.2362-.3937	.0002/.0008	.0000/-.0004
>.3937-.7087	.0003/.0010	.0000/-.0004
>.7087-1.0000	.0003/.0011	.0000/-.0005

C1	CFRP, CFRP/CFRP
C2	CFRP/Aluminum
C3	CFRP/Titanium
C4	CFRP/Stainless Steel
C5	CFRP/Aluminum/Titanium

■ SPF Drills • B53_ Series • Grade KDF400™ • Dry Applications • Drill Diameters 3–12mm (.1181-.4724")

Solid Carbide Drills

Material Group		Cutting Speed – vc			Metric						
		Range – m/min			Recommended Feed Rate (f) by Diameter						
		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0
C	1	90	120	150	mm/r	0,03–0,20	0,03–0,20	0,03–0,20	0,03–0,20	0,03–0,20	0,03–0,20
Material Group		Cutting Speed – vc			Inch						
		Range – SFM			Recommended Feed Rate (f) by Diameter						
		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500
C	1	300	390	490	IPR	.001–.008	.001–.008	.001–.008	.001–.008	.001–.008	.001–.008

➤ Drills for Machining of CFRP-Metal Stack Materials

Primary Application

The all new stack drill tackles CFRP-metal stack material drilling operations in diameter ranges of 4,763–15,875mm (3/16–5/8"). The drill can be applied in all combinations of stacks: CFRP-Ti-Al as well as CFRP-Ti, CFRP-Al, and also straight Ti or Al. Operate these drills with standard through coolant, MQL, or even dry.

The new Kennametal B55_DAL solid carbide drill provides excellent hole quality in combination with extended tool life, especially for customers in the aerospace industry who require the best hole quality and cost savings in an increasing number of applications with CFRP-Ti-stack materials.

The new Kennametal PDC251_ drill provides outstanding wear resistance and tool life. Thanks to the PCD tip, the PDC251_ drill withstands the most abrasive CFRP materials with high-fiber content. It is available in diameter ranges of 4,763–12,7mm (3/16–1/2"). Best performance is achieved with automated rigid machining devices. Additionally, multiple regrinds are possible.

Features and Benefits

Double-Angle Point Design

- Sharp cutting edge to cleanly cut CFRPs as top layer in CFRP-metal stacks.
- Bur-free when exiting metal side of stack.
- Excellent centering capabilities.

KN15™ Beyond™ Grade

- The highly polished surface ensures superior chip evacuation, even when MQL coolant is applied.
- The grade is a specified, uncoated 9% Co fine-grain carbide.

KD1415™ Grade

- Polycrystalline diamond grade for high wear resistance.
- Sufficient toughness for Ti- or Al-metal layers.

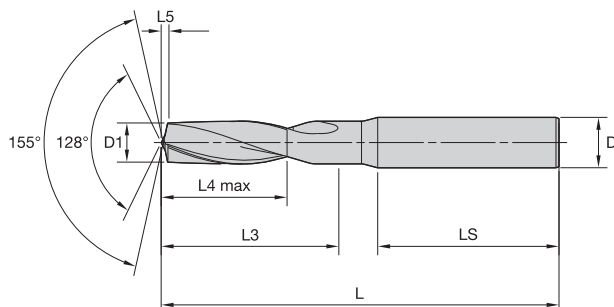


k6 Tolerance

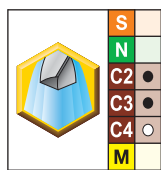
- The drill diameter is ground to a k6 tolerance and can achieve hole tolerances of H8.

Customization

- Intermediate diameters available as semi-standards.
- Length variations and step drills, as well as shank variations, available as custom solutions for carbide and PCD versions.
- A four-margin land design for increased stability is available as semi-standard B54_DAL.



■ B551A_DAL • ~3 x D



● first choice
○ alternate choice

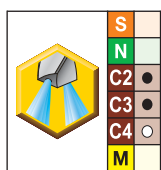
short • KN15	D1 diameter			L	L3	L4 max	L5	LS	D
	mm	in	fraction						
B551A04763DAL *	4,763	.1875	3/16	66	28	20	0,8	36	6
B551A06350DAL	6,350	.2500	1/4	79	34	24	1,1	36	8
B551A07938DAL	7,938	.3125	5/16	79	41	29	1,4	36	8
B551A09525DAL	9,525	.3750	3/8	89	47	35	1,7	40	10
B551A11113DAL *	11,113	.4375	7/16	102	55	40	2,0	45	12
B551A12700DAL *	12,700	.5000	1/2	107	60	43	2,3	45	14
B551A14288DAL *	14,288	.5625	9/16	115	65	45	2,5	48	16
B551A15875DAL *	15,875	.6250	5/8	115	65	45	2,8	48	16

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

DAL Drills • CFRP-Ti-Stacks • Through Coolant



■ B556A_DAL • ~3 x D



● first choice
○ alternate choice

short • KN15	D1 diameter			L	L3	L4 max	L5	LS	D
	mm	in	fraction						
B556A04763DAL *	4,763	.1875	3/16	66	28	20	0,8	36	6
B556A04826DAL	4,826	.1900	—	66	28	20	0,9	36	6
B556A06350DAL	6,350	.2500	1/4	79	34	24	1,1	36	8
B556A06375DAL *	6,375	.2510	—	79	34	24	1,1	36	8
B556A07938DAL	7,938	.3125	5/16	79	41	29	1,4	36	8
B556A09525DAL *	9,525	.3750	3/8	89	47	35	1,7	40	10
B556A11113DAL *	11,113	.4375	7/16	102	55	40	2,0	45	12
B556A12700DAL *	12,700	.5000	1/2	107	60	43	2,3	45	14
B556A14288DAL *	14,288	.5625	9/16	115	65	45	2,5	48	16
B556A15875DAL *	15,875	.6250	5/8	115	65	45	2,8	48	16

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

■ Stack Drill • B551/B541 Series • Grade KN15™ • Dry • Drill Diameters 3–20mm (.1181–.7874")

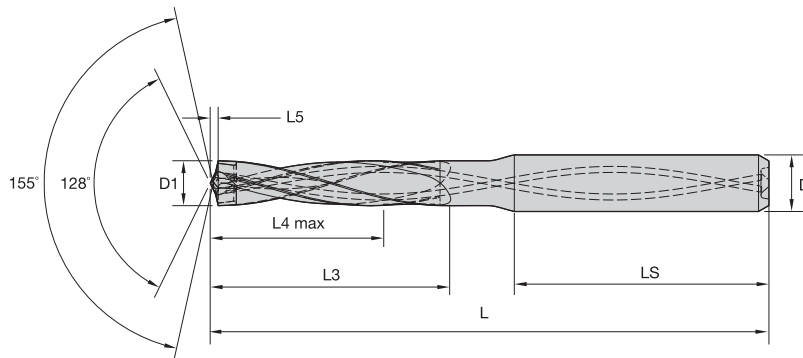
		Cutting Speed – vc			Metric								
		Range – m/min			Recommended Feed Rate (f) by Diameter								
Material Group		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
C	2	15	80	120	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23
	3	10	10	15	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23
	4	10	15	25	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23
		Cutting Speed – vc			Inch								
		Range – SFM			Recommended Feed Rate (f) by Diameter								
Material Group		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
C	2	50	260	390	IPR	.000–.002	.001–.003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009
	3	30	30	50	IPR	.001–.002	.001–.003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009
	4	30	50	80	IPR	.001–.002	.001–.003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009

■ Stack Drill • B556/B546 Series • Grade KN15 • Through Coolant • Drill Diameters 3–20mm (.1181–.7874")

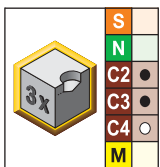
		Cutting Speed – vc			Metric								
		Range – m/min			Recommended Feed Rate (f) by Diameter								
Material Group		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
C	2	15	120	150	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23
	3	10	15	25	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23
	4	10	25	50	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23
		Cutting Speed – vc			Inch								
		Range – SFM			Recommended Feed Rate (f) by Diameter								
Material Group		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
C	2	50	390	490	IPR	.000–.002	.001–.003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009
	3	30	50	80	IPR	.001–.002	.001–.003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009
	4	30	80	160	IPR	.001–.002	.001–.003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009



Solid Carbide Drills



■ PCD Twist Drill • PDC251 Series • ~3 x D



● first choice
○ alternate choice

Material	D1 diameter			L	L3	L4 max	L5	LS	D
	mm	in	fraction						
KD1415									
PDC251A04763DA	4,7630	0.188	3/16	66	28	20	0,8	36	6
PDC251A06350DA	6,3500	0.250	1/4	79	34	24	1,1	36	8
PDC251A07938DA *	7,9380	0.313	5/16	79	41	29	1,4	36	8
PDC251A09525DA *	9,5250	0.375	3/8	89	47	35	1,7	40	10
PDC251A11113DA *	11,1130	0.438	7/16	102	55	40	2,0	45	12
PDC251A12700DA *	12,7000	0.500	1/2	107	60	43	2,3	45	14

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

nominal size range	Tolerance • Metric	
	D1 tolerance k6	D tolerance h6
>3-6	0,001/0,009	0,000/-0,008
>6-10	0,001/0,010	0,000/-0,009
>10-18	0,001/0,012	0,000/-0,011
>18-25,4	0,002/0,015	0,000/-0,013

nominal size range	Tolerance • Inch	
	D1 tolerance k6	D tolerance h6
>.1181-2362	.0000/.0004	.0000/-0.0003
>.2362-3937	.0000/.0004	.0000/-0.0004
>.3937-7087	.0000/.0005	.0000/-0.0004
>.7087-1.0000	.0000/.0006	.0000/-0.0005

C2	CFRP/Aluminum
C3	CFRP/Titanium
C4	CFRP/Stainless Steel

■ Stack Drill • PDC25 Series • Grade KD1415™ • Dry • Drill Diameters 3–20mm (.1181–.7874")

		Cutting Speed – vc			Metric								
		Range – m/min			Recommended Feed Rate (f) by Diameter								
Material Group		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
C	2	15	80	120	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23
	3	10	10	15	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23
	4	10	15	25	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23
		Cutting Speed – vc			Inch								
		Range – SFM			Recommended Feed Rate (f) by Diameter								
Material Group		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
C	2	50	260	390	IPR	.000–.002	.001–.003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009
	3	30	30	50	IPR	.001–.002	.001–.003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009
	4	30	50	80	IPR	.001–.002	.001–.003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009

■ Stack Drill • PDC251 Series • Grade KD1415 • Through Coolant • Drill Diameters 3–20mm (.1181–.7874")

		Cutting Speed – vc			Metric								
		Range – m/min			Recommended Feed Rate (f) by Diameter								
Material Group		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
C	2	15	120	150	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23
	3	10	15	25	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23
	4	10	25	50	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23
		Cutting Speed – vc			Inch								
		Range – SFM			Recommended Feed Rate (f) by Diameter								
Material Group		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
C	2	50	390	490	IPR	.000–.002	.001–.003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009
	3	30	50	80	IPR	.001–.002	.001–.003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009
	4	30	80	160	IPR	.001–.002	.001–.003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009

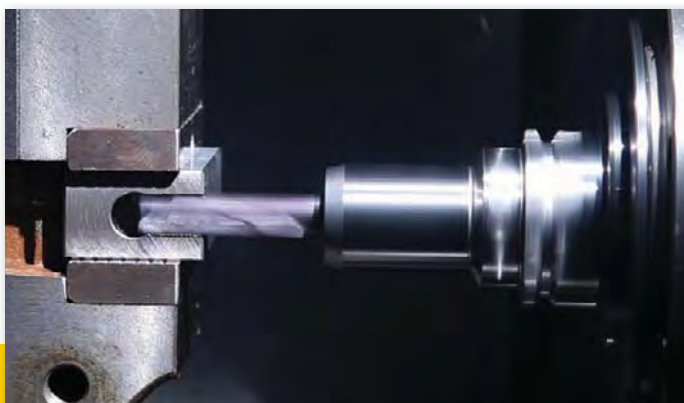
➤ FB Drills with Through Coolant for Flat-Bottom Applications

Primary Application

B707_FB series solid carbide drills are productivity tools that combine two operations in one:

- 1) Eliminate the 180° end mill in flat-bottom drilling or when preparing an inclined or curved surface for drilling.
- 2) After full cylindrical engagement, the drill runs at normal solid carbide drilling parameters.

The B707_FBS series with the uncoated KN15™ grade offers the same advantages for drilling in non-ferrous materials, such as aluminum, copper, and brass. The B707_FBL series with the new KCMS15™ grade was optimized for applications in stainless steel and high-temperature alloys.



Features and Benefits

Unique FB Drill-Point Design

- Two effective cutting edges over center enable high feed rates.
- Creates a true flat-bottom hole from O.D. to center.
- Four-margin land design improves hole straightness and roundness and provides good alignment, even when drilling cross holes.

Straight Cutting Edge

- Guarantees a true 180° hole ground.
- Rake angle correction improves chip control.

KC7315™ Grade on B707_FBG

- Enables high drill-like penetration rates and superior tool life in steel and iron materials.

KN15 Grade on B707_FBS

- The uncoated grade prevents built-up edge reducing the risk of fracture.
- The highly polished surfaces ensure superior chip evacuation even when low-pressure coolant or MQL is applied.

KCMS15™ Grade on B707_FBL

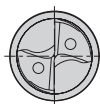
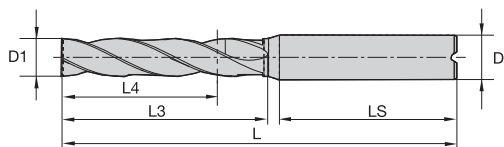
- AlTiN-based PVD coating for the demands of stainless steels.
- Edge preparation with a light hone.

Productivity tools that combine two operations in one.

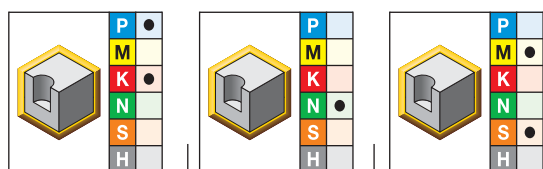


Customization

- Intermediate diameters available as semi-standards.
- Length variations available as semi-standard:
 - B706_ 1.5 x D
 - B708_ 5 x D
 - B709_ 8 x D
- Other length variations and step drills are available as engineered solutions.



■ B707_FBG/FBS/FBL • ~3 x D



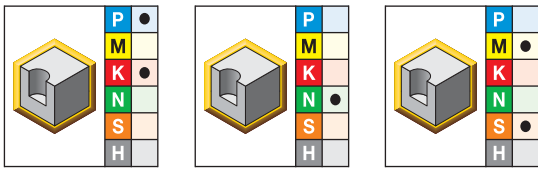
● first choice
○ alternate choice

			D1 diameter								
B707A-FBG • KC7315	B707A-FBS • KN15	B707A-FBL • KCMS15	mm	in	fraction	wire size	L	L3	L4 max	LS	D
B707A03000FBG	B707A03000FBS	B707A03000FBL	3,000	.1181	—	—	62	20	14	36	6
B707A03175FBG	B707A03175FBS	B707A03175FBL	3,175	.1250	1/8	—	62	20	14	36	6
B707A03500FBG	B707A03500FBS	B707A03500FBL	3,500	.1378	—	—	62	20	14	36	6
B707A03700FBG	—	—	3,700	.1457	—	—	62	20	14	36	6
—	—	B707A03800FBL	3,800	.1496	—	—	66	24	17	36	6
B707A03970FBG	—	—	3,970	.1563	5/32	—	66	24	17	36	6
B707A04000FBG	B707A04000FBS	B707A04000FBL	4,000	.1575	—	—	66	24	17	36	6
B707A04200FBG	B707A04200FBS	—	4,200	.1654	—	—	66	24	17	36	6
B707A04400FBG	B707A04400FBS	B707A04400FBL	4,400	.1732	—	—	66	24	17	36	6
B707A04500FBG	B707A04500FBS	B707A04500FBL	4,500	.1772	—	—	66	24	17	36	6
B707A04763FBG	—	—	4,763	.1875	3/16	—	66	28	20	36	6
B707A04800FBG	B707A04800FBS	B707A04800FBL	4,800	.1890	—	12	66	28	20	36	6
B707A04900FBG	B707A04900FBS *	—	4,900	.1929	—	—	66	28	20	36	6
B707A05000FBG	B707A05000FBS	B707A05000FBL	5,000	.1969	—	—	66	28	20	36	6
B707A05200FBG	—	—	5,200	.2047	—	—	66	28	20	36	6
B707A05560FBG	B707A05560FBS	B707A05560FBL	5,560	.2189	—	—	66	28	20	36	6
B707A05800FBG	—	—	5,800	.2283	—	—	66	28	20	36	6
B707A05900FBG	B707A05900FBS	B707A05900FBL	5,900	.2323	—	—	66	28	20	36	6
B707A06000FBG	B707A06000FBS	B707A06000FBL	6,000	.2362	—	—	66	28	20	36	6
B707A06100FBG	—	—	6,100	.2402	—	—	79	34	24	36	8
B707A06350FBG	B707A06350FBS	B707A06350FBL	6,350	.2500	1/4	—	79	34	24	36	8
B707A06500FBG	B707A06500FBS	B707A06500FBL	6,500	.2559	—	—	79	34	24	36	8
B707A06800FBG	B707A06800FBS	B707A06800FBL	6,800	.2677	—	—	79	34	24	36	8
B707A07000FBG	B707A07000FBS	B707A07000FBL	7,000	.2756	—	—	79	34	24	36	8

(continued)

(B707_FBG/FBS/FBL • ~3 x D – continued)

Solid Carbide Drills



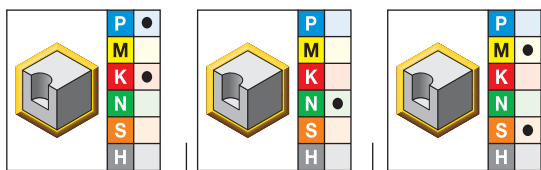
- first choice
- alternate choice

			D1 diameter								
B707A-FBG • KC7315	B707A-FBS • KN15	B707A-FBL • KCMS15	mm	in	fraction	wire size	L	L3	L4 max	LS	D
B707A07145FBG	-	-	7,145	.2813	9/32	-	79	41	29	36	8
-	B707A07400FBS	-	7,400	.2913	-	-	79	41	29	36	8
B707A07500FBG	B707A07500FBS	B707A07500FBL	7,500	.2953	-	-	79	41	29	36	8
B707A07800FBG	-	-	7,800	.3071	-	-	79	41	29	36	8
B707A07938FBG	B707A07938FBS	B707A07938FBL	7,938	.3125	5/16	-	79	41	29	36	8
B707A08000FBG	B707A08000FBS	B707A08000FBL	8,000	.3150	-	-	79	41	29	36	8
B707A08334FBG	-	-	8,334	.3281	21/64	-	89	47	35	40	10
B707A08500FBG	B707A08500FBS	B707A08500FBL	8,500	.3346	-	-	89	47	35	40	10
B707A08800FBG	B707A08800FBS	B707A08800FBL	8,800	.3465	-	-	89	47	35	40	10
B707A09000FBG	B707A09000FBS	B707A09000FBL	9,000	.3543	-	-	89	47	35	40	10
B707A09129FBG	-	-	9,129	.3594	23/64	-	89	47	35	40	10
B707A09500FBG	B707A09500FBS	B707A09500FBL	9,500	.3740	-	-	89	47	35	40	10
B707A09525FBG	B707A09525FBS	B707A09525FBL	9,525	.3750	3/8	-	89	47	35	40	10
B707A09800FBG	-	-	9,800	.3858	-	-	89	47	35	40	10
B707A10000FBG	B707A10000FBS	B707A10000FBL	10,000	.3937	-	-	89	47	35	40	10
B707A10200FBG	-	-	10,200	.4016	-	-	102	55	40	45	12
B707A10320FBG	B707A10320FBS	B707A10320FBL	10,320	.4063	13/32	-	102	55	40	45	12
B707A10500FBG	B707A10500FBS	B707A10500FBL	10,500	.4134	-	-	102	55	40	45	12
B707A10600FBG	-	-	10,600	.4173	-	-	102	55	40	45	12
B707A10800FBG	-	-	10,800	.4252	-	-	102	55	40	45	12
B707A11000FBG	B707A11000FBS	B707A11000FBL	11,000	.4331	-	-	102	55	40	45	12
B707A11111FBG	B707A11111FBS	B707A11111FBL	11,111	.4374	-	-	102	55	40	45	12
B707A11350FBG	-	-	11,350	.4469	-	-	102	55	40	45	12
B707A11509FBG	B707A11509FBS	B707A11509FBL	11,509	.4531	29/64	-	102	55	40	45	12
B707A11570FBG	B707A11570FBS *	B707A11570FBL	11,570	.4555	-	-	102	55	40	45	12
B707A11700FBG	B707A11700FBS	B707A11700FBL	11,700	.4606	-	-	102	55	40	45	12
B707A11800FBG	B707A11800FBS	B707A11800FBL	11,800	.4646	-	-	102	55	40	45	12
B707A11908FBG	-	-	11,908	.4688	15/32	-	102	55	40	45	12
B707A12000FBG	B707A12000FBS	B707A12000FBL	12,000	.4724	-	-	102	55	40	45	12
B707A12100FBG	B707A12100FBS	B707A12100FBL	12,100	.4764	-	-	107	60	43	45	14
B707A12500FBG	B707A12500FBS	B707A12500FBL *	12,500	.4921	-	-	107	60	43	45	14
B707A12600FBG *	-	-	12,600	.4961	-	-	107	60	43	45	14
B707A12700FBG	B707A12700FBS	B707A12700FBL	12,700	.5000	1/2	-	107	60	43	45	14
B707A12800FBG	B707A12800FBS	B707A12800FBL	12,800	.5039	-	-	107	60	43	45	14
B707A13000FBG	B707A13000FBS	B707A13000FBL	13,000	.5118	-	-	107	60	43	45	14
B707A13500FBG	B707A13500FBS	B707A13500FBL	13,500	.5315	-	-	107	60	43	45	14
B707A14000FBG	B707A14000FBS	B707A14000FBL	14,000	.5512	-	-	107	60	43	45	14
B707A14288FBG	B707A14288FBS	B707A14288FBL	14,288	.5625	9/16	-	115	65	45	48	16
B707A14500FBG	B707A14500FBS	B707A14500FBL	14,500	.5709	-	-	115	65	45	48	16
B707A15000FBG	B707A15000FBS	B707A15000FBL	15,000	.5906	-	-	115	65	45	48	16

(continued)

(B707_FBG/FBS/FBL • ~3 x D – continued)

Solid Carbide Drills



● first choice
○ alternate choice

			D1 diameter								
			mm	in	fraction	wire size	L	L3	L4 max	LS	D
B707A-FBG • KC7315	B707A-FBS • KN15	B707A-FBL • KCMS15									
B707A15250FBG	B707A15250FBS	B707A15250FBL *	15,250	.6004	—	—	115	65	45	48	16
B707A15500FBG	B707A15500FBS	B707A15500FBL	15,500	.6102	—	—	115	65	45	48	16
B707A15875FBG	B707A15875FBS	B707A15875FBL	15,875	.6250	5/8	—	115	65	45	48	16
B707A16000FBG	B707A16000FBS	B707A16000FBL	16,000	.6299	—	—	115	65	45	48	16
B707A16500FBG	B707A16500FBS	B707A16500FBL	16,500	.6496	—	—	123	73	51	48	18
B707A17000FBG	B707A17000FBS	B707A17000FBL	17,000	.6693	—	—	123	73	51	48	18
B707A17463FBG	—	—	17,463	.6875	11/16	—	123	73	51	48	18
B707A17500FBG	B707A17500FBS	B707A17500FBL	17,500	.6890	—	—	123	73	51	48	18
—	—	B707A17900FBL	17,900	.7047	—	—	123	73	51	48	18
B707A18000FBG	B707A18000FBS	B707A18000FBL	18,000	.7087	—	—	123	73	51	48	18
B707A18500FBG	—	—	18,500	.7283	—	—	131	79	55	50	20
B707A19000FBG	B707A19000FBS	B707A19000FBL *	19,000	.7480	—	—	131	79	55	50	20
B707A19050FBG	B707A19050FBS	B707A19050FBL *	19,050	.7500	3/4	—	131	79	55	50	20
B707A20000FBG	B707A20000FBS	B707A20000FBL	20,000	.7874	—	—	131	79	55	50	20
B707A21000FBG	B707A21000FBS	B707A21000FBL	21,000	.8268	—	—	141	86	60	50	20

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Tolerance • Metric		
nominal size range	D1 tolerance m7	D tolerance h6
>3–6	0,004/0,016	0,000/-0,008
>6–10	0,006/0,021	0,000/-0,009
>10–18	0,007/0,025	0,000/-0,011
>18–25,4	0,008/0,029	0,000/-0,013

Tolerance • Inch		
nominal size range	D1 tolerance m7	D tolerance h6
>.1181–.2362	.0002/.0006	.0000/-0.0003
>.2362–.3937	.0002/.0008	.0000/-0.0004
>.3937–.7087	.0003/.0010	.0000/-0.0004
>.7087–1.0000	.0003/.0011	.0000/-0.0005

Flat-Bottom Drills • B707_FBG Series • Grade KC7315™ • Through Coolant • Drill Diameters 3–20mm (.1181–.7874")

		Cutting Speed – vc			Metric								
		Range – m/min			Recommended Feed Rate (f) by Diameter								
Material Group		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
P	0	100	133	170	mm/r	0,06–0,14	0,10–0,17	0,09–0,20	0,11–0,25	0,18–0,28	0,14–0,31	0,16–0,37	0,19–0,42
	1	100	133	170	mm/r	0,07–0,16	0,12–0,20	0,10–0,23	0,13–0,29	0,21–0,33	0,17–0,37	0,19–0,44	0,22–0,49
	2	130	150	180	mm/r	0,07–0,13	0,10–0,16	0,16–0,19	0,13–0,23	0,18–0,27	0,17–0,30	0,19–0,35	0,22–0,39
	3	80	106	130	mm/r	0,09–0,16	0,13–0,20	0,13–0,23	0,16–0,24	0,20–0,31	0,21–0,37	0,25–0,44	0,28–0,46
	4	70	98	130	mm/r	0,08–0,16	0,12–0,19	0,11–0,22	0,14–0,27	0,21–0,31	0,18–0,35	0,21–0,41	0,24–0,46
	6	70	98	130	mm/r	0,07–0,12	0,10–0,14	0,10–0,16	0,12–0,20	0,16–0,23	0,16–0,26	0,18–0,31	0,21–0,34
K	1	70	85	100	mm/r	0,09–0,17	0,13–0,21	0,12–0,25	0,15–0,31	0,23–0,35	0,20–0,39	0,23–0,46	0,26–0,52
	2	100	113	130	mm/r	0,09–0,15	0,12–0,18	0,12–0,21	0,15–0,26	0,21–0,30	0,20–0,33	0,23–0,39	0,26–0,44
	3	70	105	140	mm/r	0,07–0,13	0,10–0,16	0,11–0,19	0,13–0,23	0,18–0,27	0,17–0,30	0,20–0,35	0,22–0,37
		Cutting Speed – vc			Inch								
		Range – SFM			Recommended Feed Rate (f) by Diameter								
Material Group		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
P	0	330	440	560	IPR	.002–.006	.004–.007	.004–.008	.004–.010	.007–.011	.006–.012	.006–.015	.008–.017
	1	330	440	560	IPR	.003–.006	.005–.008	.004–.009	.005–.011	.008–.013	.007–.015	.008–.017	.009–.019
	2	430	490	590	IPR	.003–.005	.004–.006	.006–.008	.005–.009	.007–.011	.007–.012	.008–.014	.009–.015
	3	260	350	430	IPR	.004–.006	.005–.008	.005–.009	.006–.009	.008–.012	.008–.015	.010–.017	.011–.018
	4	230	320	430	IPR	.003–.006	.005–.008	.004–.009	.006–.011	.008–.012	.007–.014	.008–.016	.009–.018
	6	230	320	430	IPR	.003–.005	.004–.006	.004–.006	.005–.008	.006–.009	.006–.010	.007–.012	.008–.013
K	1	230	280	330	IPR	.004–.007	.005–.008	.005–.010	.006–.012	.009–.014	.008–.015	.009–.018	.010–.021
	2	330	370	430	IPR	.004–.006	.005–.007	.005–.008	.006–.010	.008–.012	.008–.013	.009–.015	.010–.017
	3	230	340	460	IPR	.003–.005	.004–.006	.004–.008	.005–.009	.007–.011	.007–.012	.008–.014	.009–.015

Flat-Bottom Drills • B707_FBS Series • Grade KN15™ • Through Coolant • Drill Diameters 3–20mm (.1181–.7874")

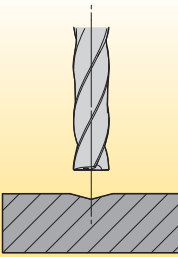
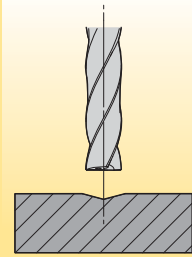
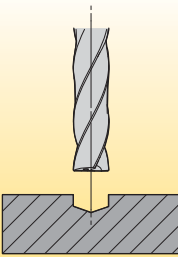
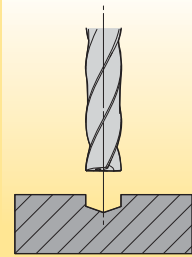
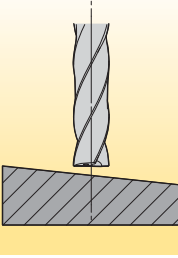
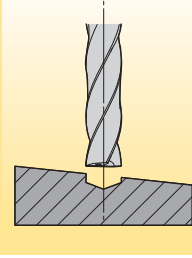
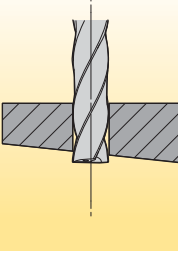
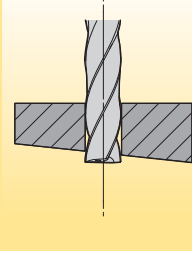
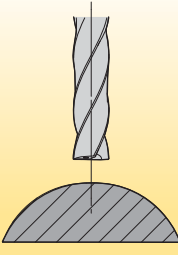
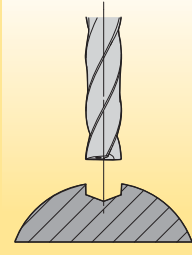
		Cutting Speed – vc			Metric								
		Range – m/min			Recommended Feed Rate (f) by Diameter								
Material Group		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
N	1	120	260	400	mm/r	0,07–0,20	0,08–0,22	0,13–0,34	0,14–0,40	0,15–0,44	0,17–0,46	0,19–0,50	0,22–0,58
	2	120	250	280	mm/r	0,08–0,20	0,08–0,22	0,09–0,34	0,14–0,40	0,15–0,44	0,19–0,46	0,21–0,50	0,24–0,58
	3	100	200	260	mm/r	0,08–0,15	0,08–0,16	0,09–0,22	0,15–0,26	0,16–0,30	0,20–0,37	0,22–0,42	0,26–0,46
	4	60	150	200	mm/r	0,03–0,05	0,03–0,06	0,03–0,06	0,04–0,06	0,05–0,07	0,05–0,08	0,05–0,08	0,06–0,09
		Cutting Speed – vc			Inch								
		Range – SFM			Recommended Feed Rate (f) by Diameter								
Material Group		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
N	1	390	850	1310	IPR	.003–.008	.003–.009	.005–.013	.006–.016	.006–.017	.007–.018	.008–.020	.009–.023
	2	390	820	920	IPR	.003–.008	.003–.009	.004–.013	.006–.016	.006–.017	.008–.018	.008–.020	.009–.023
	3	330	660	850	IPR	.003–.006	.003–.006	.004–.009	.006–.010	.006–.012	.008–.015	.009–.017	.010–.018
	4	200	490	660	IPR	.001–.002	.001–.002	.001–.002	.002–.002	.002–.003	.002–.003	.002–.003	.002–.004

Flat-Bottom Drills • B707_FBL Series • Grade KCMS15™ • Through Coolant • Drill Diameters 3–20mm (.1181–.7874")

Solid Carbide Drills

		Cutting Speed – vc			Metric								
		Range – m/min			Recommended Feed Rate (f) by Diameter								
Material Group		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
P	5	45	50	60	mm/r	0,04–0,08	0,05–0,09	0,06–0,12	0,09–0,15	0,10–0,16	0,12–0,20	0,14–0,23	0,16–0,24
	6	40	50	60	mm/r	0,03–0,06	0,04–0,07	0,04–0,10	0,08–0,12	0,09–0,14	0,10–0,16	0,12–0,18	0,14–0,20
M	1	40	50	60	mm/r	0,04–0,08	0,05–0,09	0,06–0,12	0,09–0,15	0,10–0,16	0,12–0,20	0,14–0,23	0,16–0,24
	2	40	50	80	mm/r	0,06–0,11	0,07–0,11	0,08–0,16	0,12–0,20	0,13–0,21	0,16–0,22	0,18–0,24	0,21–0,26
	3	40	55	70	mm/r	0,03–0,04	0,03–0,05	0,04–0,06	0,04–0,07	0,05–0,08	0,06–0,10	0,07–0,11	0,08–0,12
S	1	20	25	30	mm/r	0,06–0,08	0,06–0,08	0,07–0,10	0,10–0,13	0,10–0,14	0,12–0,16	0,14–0,19	0,17–0,22
	2	10	20	30	mm/r	0,05–0,07	0,05–0,07	0,06–0,08	0,08–0,11	0,09–0,12	0,10–0,13	0,12–0,16	0,14–0,18
	3	30	35	50	mm/r	0,03–0,05	0,03–0,05	0,04–0,08	0,05–0,10	0,05–0,10	0,05–0,10	0,07–0,11	0,08–0,12
	4	30	35	50	mm/r	0,03–0,05	0,03–0,05	0,04–0,08	0,05–0,10	0,05–0,10	0,05–0,10	0,07–0,11	0,08–0,12
		Cutting Speed – vc			Inch								
		Range – SFM			Recommended Feed Rate (f) by Diameter								
Material Group		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
P	5	150	160	200	IPR	.002–.003	.002–.004	.002–.005	.004–.006	.004–.006	.005–.008	.006–.009	.006–.009
	6	130	160	200	IPR	.001–.002	.002–.003	.002–.004	.003–.005	.004–.006	.004–.006	.005–.007	.006–.008
M	1	130	160	200	IPR	.002–.003	.002–.004	.002–.005	.004–.006	.004–.006	.005–.008	.006–.009	.006–.009
	2	130	160	260	IPR	.002–.004	.003–.004	.003–.006	.005–.008	.005–.008	.006–.009	.007–.009	.008–.010
	3	130	180	230	IPR	.001–.002	.001–.002	.002–.002	.002–.003	.002–.003	.002–.004	.003–.004	.003–.005
S	1	70	80	100	IPR	.002–.003	.002–.003	.003–.004	.004–.005	.004–.006	.005–.006	.006–.008	.007–.009
	2	30	70	100	IPR	.002–.003	.002–.003	.002–.003	.003–.004	.004–.005	.004–.005	.005–.006	.006–.007
	3	100	110	160	IPR	.001–.002	.001–.002	.002–.003	.002–.004	.002–.004	.002–.004	.003–.004	.003–.005
	4	100	110	160	IPR	.001–.002	.001–.002	.002–.003	.002–.004	.002–.004	.002–.004	.003–.004	.003–.005

The B707_FBG drill eliminates the traditional two-step process to create a flat-bottom hole using a drill and an end mill and can perform the operation 25–40% faster. It also eliminates the two-step process of using an end mill to pre-machine a flat on the workpiece material for inclined surfaces.

Workpiece Application	B707A..FBG Standard Length	B708/B709A..FBG Custom Long Length
<ul style="list-style-type: none"> Tapped hole with lead chamfer larger than FBG diameter. 	 <p>No feed reduction.</p>	 <p>50% feed reduction.</p>
<ul style="list-style-type: none"> Nominal diameter pilot required. 	 <p>Rough or hardened surfaces. No feed reduction.</p>	 <p>Pilot on all surfaces. No feed reduction.</p>
<ul style="list-style-type: none"> >6° angled entrances. 	 <p>Reduce feed by 30% until full diameter, or use pilot.</p>	 <p>Pilot with short FBG on all surfaces. No feed reduction.</p>
<ul style="list-style-type: none"> Angled exits. 	 <p>30% feed reduction.</p>	 <p>30% feed reduction.</p>
<ul style="list-style-type: none"> Round surfaces. 	 <p>Reduce feed by 30% until full diameter, or use pilot.</p>	 <p>Pilot with short FBG on all surfaces. No feed reduction.</p>

➤ HP Beyond™ Step Drills with Through Coolant for Steel and Iron



Primary Application

Most tapped holes require a chamfer. The B731_HP and B732_HP step drills offer a one-pass solution in steels and irons in traditional tap sizes to reduce cycle time and increase productivity. An extensive range of step drills are available to cover taps products by Kennametal.

Features and Benefits

HP Drill-Point Design

- Low thrust prevents workpiece flexing.
- Excellent centering capabilities.

Unique Flute Design

- Drastically improved chip evacuation.
- Better hole surface quality.

KCPK15™ Beyond Grade

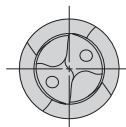
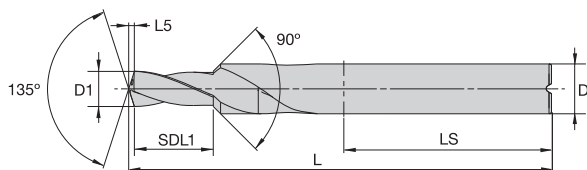
- The grade is a multilayer, TiAlN-based coating with high hot hardness. High cutting speeds enable usage in MQL applications.
- The highly polished surface ensures superior chip evacuation even when low-pressure coolant is applied.
- Improves average metal removal rate and tool life by 10–20%.

Drill and chamfer in one shot before tapping.

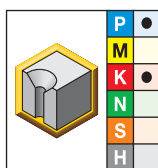


Customization

- Intermediate diameters available as semi-standards.
- Using Kennametal slim line hydraulic chucks together is recommended if workpiece contours need to be bypassed.



■ B731_HP • Short

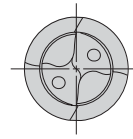
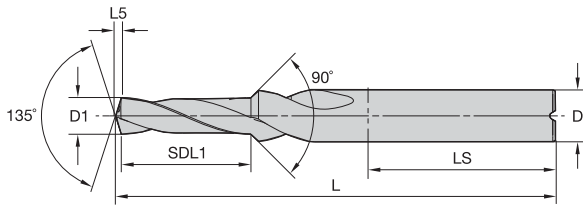


- first choice
- alternate choice

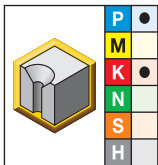
short • KCPK15	D1 diameter			L	SDL1	L5	LS	D
	mm	in	fraction					
B731A03734HP	3,734	.1470	—	66	10	0,7	36	6
B731A04200HP	4,200	.1654	—	66	12	0,8	36	6
B731A04496HP	4,496	.1770	—	79	13	0,9	36	8
B731A05000HP	5,000	.1969	—	79	13	0,9	36	8
B731A05106HP	5,106	.2010	—	79	15	1,0	36	8
B731A05410HP	5,410	.2130	—	79	16	1,0	36	8
B731A06528HP	6,528	.2570	—	89	17	1,2	40	10
B731A06800HP	6,800	.2677	—	89	16	1,3	40	10
B731A06909HP	6,909	.2720	—	89	18	1,3	40	10
B731A07938HP	7,938	.3125	5/16	89	19	1,5	45	12
B731A08433HP	8,433	.3320	—	102	21	1,6	45	12
B731A08500HP	8,500	.3346	—	102	19	1,6	45	12
B731A09921HP	9,921	.3906	25/64	107	23	1,9	45	14
B731A10200HP	10,200	.4016	—	107	22	1,9	45	14
B731A10500HP	10,500	.4134	—	107	22	2,0	45	14
B731A10716HP	10,716	.4219	27/64	107	27	2,0	45	14
B731A12000HP	12,000	.4724	—	115	27	2,2	48	16
B731A12304HP *	12,304	.4844	31/64	115	28	2,3	48	16
B731A12500HP	12,500	.4921	—	115	27	2,3	48	16
B731A13096HP	13,096	.5156	33/64	115	31	2,4	48	16
B731A13495HP	13,495	.5313	17/32	123	32	2,5	48	18
B731A14000HP	14,000	.5512	—	123	29	2,6	48	18
B731A16670HP *	16,670	.6563	21/32	131	38	3,1	50	20
B731A17463HP	17,463	.6875	11/16	131	40	3,2	50	20
B731A19446HP *	19,446	.7656	49/64	153	43	3,6	56	25

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

nominal size range	Tolerance • Metric		nominal size range	Tolerance • Inch	
	D1 tolerance m7	D tolerance h6		D1 tolerance m7	D tolerance h6
>3-6	0,004/0,016	0,000/-0,008	>.1181-.2362	.0002/.0006	.0000/-0.0003
>6-10	0,006/0,021	0,000/-0,009	>.2362-.3937	.0002/.0008	.0000/-0.0004
>10-18	0,007/0,025	0,000/-0,011	>.3937-.7087	.0003/.0010	.0000/-0.0004
>18-25,4	0,008/0,029	0,000/-0,013	>.7087-1.0000	.0003/.0011	.0000/-0.0005



■ B732_HP • Long



● first choice
○ alternate choice

long • KCPK15	D1 diameter			L	SDL1	L5	LS	D
	mm	in	fraction					
B732A03734HP	3,734	.1470	—	66	16	0,7	36	6
B732A04200HP	4,200	.1654	—	66	17	0,8	36	6
B732A04496HP	4,496	.1770	—	79	17	0,9	36	8
B732A05000HP	5,000	.1969	—	79	20	0,9	36	8
B732A05106HP	5,106	.2010	—	79	20	1,0	36	8
B732A05410HP *	5,410	.2130	—	79	21	1,0	36	8
B732A06528HP	6,528	.2570	—	89	24	1,2	40	10
B732A06800HP	6,800	.2677	—	89	25	1,3	40	10
B732A06909HP	6,909	.2720	—	89	25	1,3	40	10
B732A07938HP	7,938	.3125	5/16	102	27	1,5	45	12
B732A08433HP	8,433	.3320	—	102	29	1,6	45	12
B732A08500HP	8,500	.3346	—	102	30	1,6	45	12
B732A09921HP *	9,921	.3906	25/64	107	33	1,9	45	14
B732A10200HP	10,200	.4016	—	107	35	1,9	45	14
B732A10500HP	10,500	.4134	—	107	35	2,0	45	14
B732A10716HP	10,716	.4219	27/64	107	37	2,0	45	14
B732A12000HP	12,000	.4724	—	115	40	2,2	48	16
B732A12500HP *	12,500	.4921	—	115	40	2,3	48	16
B732A13096HP *	13,096	.5156	33/64	123	44	2,4	48	16
B732A13495HP *	13,495	.5313	17/32	123	45	2,5	48	18
B732A14000HP	14,000	.5512	—	123	43	2,6	48	18
B732A16670HP	16,670	.6563	21/32	141	55	3,1	50	20
B732A17463HP	17,463	.6875	11/16	141	58	3,2	50	20

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

nominal size range	Tolerance • Metric	
	D1 tolerance m7	D tolerance h6
>3-6	0,004/0,016	0,000/-0,008
>6-10	0,006/0,021	0,000/-0,009
>10-18	0,007/0,025	0,000/-0,011
>18-25,4	0,008/0,029	0,000/-0,013

nominal size range	Tolerance • Inch	
	D1 tolerance m7	D tolerance h6
>.1181-.2362	.0002/.0006	.0000/-.0003
>.2362-.3937	.0002/.0008	.0000/-.0004
>.3937-.7087	.0003/.0010	.0000/-.0004
>.7087-1.0000	.0003/.0011	.0000/-.0005

■ HP Step Drills • B73_HP Series • Grade KCPK15™ • Through Coolant • Drill Diameters 3–20mm (.1181–.7874")

Solid Carbide Drills

		Cutting Speed – vc			Metric								
		Range – m/min			Recommended Feed Rate (f) by Diameter								
Material Group		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
P	0	150	240	270	mm/r	0,06–0,14	0,08–0,18	0,09–0,20	0,12–0,26	0,14–0,30	0,15–0,33	0,17–0,39	0,20–0,43
	1	140	220	240	mm/r	0,07–0,17	0,09–0,21	0,11–0,24	0,14–0,30	0,16–0,35	0,18–0,39	0,20–0,46	0,24–0,50
	2	180	210	240	mm/r	0,07–0,14	0,09–0,17	0,11–0,20	0,14–0,24	0,16–0,28	0,18–0,32	0,20–0,37	0,24–0,43
	3	120	150	180	mm/r	0,09–0,17	0,12–0,21	0,14–0,24	0,17–0,30	0,20–0,35	0,22–0,39	0,26–0,46	0,29–0,50
	4	100	140	180	mm/r	0,08–0,17	0,11–0,20	0,12–0,23	0,15–0,28	0,17–0,33	0,19–0,37	0,22–0,43	0,25–0,45
	6	140	150	180	mm/r	0,07–0,13	0,09–0,15	0,11–0,17	0,13–0,21	0,15–0,24	0,17–0,27	0,19–0,33	0,21–0,36
K	1	140	160	180	mm/r	0,09–0,18	0,12–0,22	0,13–0,26	0,16–0,33	0,19–0,37	0,21–0,41	0,24–0,48	0,27–0,51
	2	100	150	200	mm/r	0,09–0,16	0,12–0,19	0,13–0,22	0,16–0,27	0,19–0,32	0,21–0,35	0,24–0,41	0,27–0,45
	3	100	140	180	mm/r	0,07–0,14	0,09–0,17	0,12–0,20	0,14–0,24	0,16–0,28	0,18–0,32	0,21–0,37	0,24–0,39
		Cutting Speed – vc			Inch								
		Range – SFM			Recommended Feed Rate (f) by Diameter								
Material Group		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
P	0	490	790	890	IPR	.002–.006	.003–.007	.004–.008	.005–.010	.006–.012	.006–.013	.007–.015	.008–.017
	1	460	720	790	IPR	.003–.007	.004–.008	.004–.009	.006–.012	.006–.014	.007–.015	.008–.018	.009–.020
	2	590	690	790	IPR	.003–.006	.004–.007	.004–.008	.006–.009	.006–.011	.007–.013	.008–.015	.009–.017
	3	390	490	590	IPR	.004–.007	.005–.008	.006–.009	.007–.012	.008–.014	.009–.015	.010–.018	.011–.020
	4	330	460	590	IPR	.003–.007	.004–.008	.005–.009	.006–.011	.007–.013	.008–.015	.009–.017	.010–.018
	6	460	490	590	IPR	.003–.005	.004–.006	.004–.007	.005–.008	.006–.009	.007–.011	.008–.013	.008–.014
K	1	460	520	590	IPR	.004–.007	.005–.009	.005–.010	.006–.013	.008–.015	.008–.016	.009–.019	.011–.020
	2	330	490	660	IPR	.004–.006	.005–.008	.005–.009	.006–.011	.008–.013	.008–.014	.009–.016	.011–.018
	3	330	460	590	IPR	.003–.006	.004–.007	.005–.008	.006–.009	.006–.011	.007–.013	.008–.015	.009–.015

Engineered Solutions

You Won't Find These Solutions in a Catalog

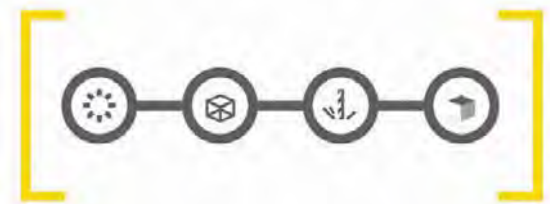
Kennametal engineered solutions pinpoint and address specific needs of customers, workpiece materials, or workpiece configurations. Solutions include standard products, custom designs, and old-fashioned process know-how that can only come from many decades of tooling expertise. They are the result of coordinated global resources and are available anywhere in the world, no matter how small or large the project.



MANUFACTURING PROCESS

We Look at the Entire Production Process, Not Just Portions of It

From the machine tool to the last stop in production, we can optimize the manufacturing process throughout every step. The result is low implementation time and costs, and rapid return on investment.



➤ New KMH Drills for Hard Materials

Primary Application

The all-new KMH solid carbide drills are engineered for hard material applications up to 65 HRC. The B94_drill series without through coolant is specifically designed to machine hardened and surface-hardened materials using flood coolant. With its 145° point angle, it is also perfectly suited as a pilot drill for the B95_drill series with through coolant and 140° point for deeper applications.

Both series come with an increased core to strengthen the drill, feature a curved cutting edge with corner chamfer to avoid chipping on the margin lands and increased tool life in these challenging materials.

Features and Benefits

New KMH Point Design

- Curved cutting edge with corner chamfer for maximum corner stability in hard materials.
- Avoids chipping on cutting edge and pre-mature wear.
- Also works well in applications with heavily-interrupted cuts using the make-to-order four-margin version.

Special Flute Design

- Strong web to increase the strength of the drill in tough applications with short chips.
- B94_ series with 15° helix angle to maximize stability in applications above 54 HRC.
- B95_ series with 30° helix angle to improve chip evacuation in higher length-to-diameter ratios.

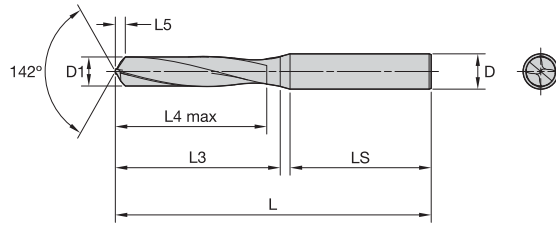
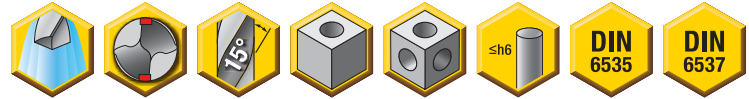
New KCH10 and KCH15 Grades

- KCH10 on B94_ series consists of a special fine-grain carbide substrate with higher hardness.
- KCH15 on B95_ series, with its higher toughness, supports edge strength at increased rake angles, which are applied to improve chip evacuation in higher L/D ratios.
- Both series carry a high temperature and shock resistance AlTiN coating for machining hardened materials to increase tool life.

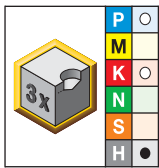


Customization

- Intermediate diameters available as semi-standards.
- Four margin land designs also available as semi-standards.
- Length variations and step drills available as custom solutions.
- High step diameter ratios and very complex step drill geometries are not recommended for hard materials.



B941A • ~3 x D



● first choice
 ○ alternate choice

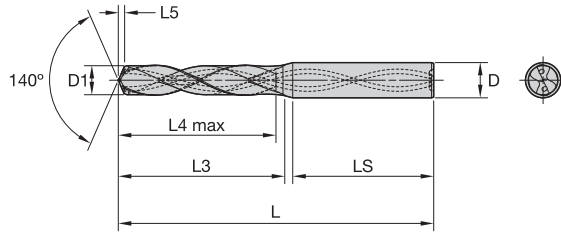
short • KCH10	D1 diameter		L	L3	L4 max	L5	LS	D
	mm	in						
B941Z02500	2,500	.0984	50	16	11	0,5	28	3
B941A03000	3,000	.1181	62	20	14	0,6	36	6
B941A03300	3,300	.1299	62	20	14	0,6	36	6
B941A03400	3,400	.1339	62	20	14	0,6	36	6
B941A03500	3,500	.1378	62	20	14	0,6	36	6
B941A04000	4,000	.1575	66	24	17	0,7	36	6
B941A04200	4,200	.1654	66	24	17	0,8	36	6
B941A04300	4,300	.1693	66	24	17	0,8	36	6
B941A04500	4,500	.1772	66	24	17	0,8	36	6
B941A05000	5,000	.1969	66	28	20	0,9	36	6
B941A05100	5,100	.2008	66	28	20	0,9	36	6
B941A05200	5,200	.2047	66	28	20	0,9	36	6
B941A05500	5,500	.2165	66	28	20	1,0	36	6
B941A05600	5,600	.2205	66	28	20	1,0	36	6
B941A06000	6,000	.2362	66	28	20	1,1	36	6
B941A06900	6,900	.2717	79	34	24	1,3	36	8
B941A07000	7,000	.2756	79	34	24	1,3	36	8
B941A07100	7,100	.2795	79	41	29	1,3	36	8
B941A08000	8,000	.3150	79	41	29	1,4	36	8
B941A08500	8,500	.3346	89	47	35	1,5	40	10
B941A08600	8,600	.3386	89	47	35	1,6	40	10
B941A09000	9,000	.3543	89	47	35	1,6	40	10
B941A10000	10,000	.3937	89	47	35	1,8	40	10
B941A10200	10,200	.4016	102	55	40	1,8	45	12
B941A10400	10,400	.4094	102	55	40	1,9	45	12
B941A10500	10,500	.4134	102	55	40	1,9	45	12
B941A11100	11,100	.4370	102	55	40	2,0	45	12
B941A12000	12,000	.4724	102	55	40	2,1	45	12
B941A14000	14,000	.5512	107	60	43	2,5	45	14

Tolerance • Metric

nominal size range	D1 tolerance m7	D tolerance h6
>3-6	0,004/0,016	0,000/-0,008
>6-10	0,006/0,021	0,000/-0,009
>10-18	0,007/0,025	0,000/-0,011
>18-25,4	0,008/0,029	0,000/-0,013

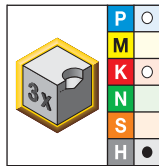
Tolerance • Inch

nominal size range	D1 tolerance m7	D tolerance h6
>.1181-.2362	.0002/.0006	.0000/-0.0003
>.2362-.3937	.0002/.0008	.0000/-0.0004
>.3937-.7087	.0003/.0010	.0000/-0.0004
>.7087-1.0000	.0003/.0011	.0000/-0.0005



Solid Carbide Drills

■ B951A • ~3 x D

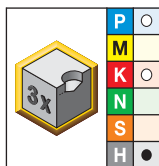


● first choice
○ alternate choice

short • KCH15	D1 diameter			L	L3	L4 max	L5	LS	D
	mm	in	fraction						
B951A03000	3,000	.1181	—	62	20	14	0,6	36	6
B951A03175	3,175	.1250	1/8	62	20	14	0,6	36	6
B951A03454	3,454	.1360	—	62	20	14	0,7	36	6
B951A03500	3,500	.1378	—	62	20	14	0,7	36	6
B951A03800	3,800	.1496	—	66	24	17	0,8	36	6
B951A04000	4,000	.1575	—	66	24	17	0,8	36	6
B951A04100	4,100	.1614	—	66	24	17	0,8	36	6
B951A04200	4,200	.1654	—	66	24	17	0,9	36	6
B951A04300	4,300	.1693	—	66	24	17	0,9	36	6
B951A04500	4,500	.1772	—	66	24	17	0,9	36	6
B951A04800	4,800	.1890	—	66	28	20	1,0	36	6
B951A04900	4,900	.1929	—	66	28	20	1,0	36	6
B951A05000	5,000	.1969	—	66	28	20	1,0	36	6
B951A05500	5,500	.2165	—	66	28	20	1,1	36	6
B951A05800	5,800	.2283	—	66	28	20	1,2	36	6
B951A06000	6,000	.2362	—	66	28	20	1,2	36	6
B951A06350	6,350	.2500	1/4	79	34	24	1,3	36	8
B951A06500	6,500	.2559	—	79	34	24	1,3	36	8
B951A06800	6,800	.2677	—	79	34	24	1,4	36	8
B951A07000	7,000	.2756	—	79	34	24	1,4	36	8
B951A08000	8,000	.3150	—	79	41	29	1,6	36	8
B951A08500	8,500	.3346	—	89	47	35	1,7	40	10
B951A09000	9,000	.3543	—	89	47	35	1,8	40	10
B951A09500	9,500	.3740	—	89	47	35	1,9	40	10
B951A09800	9,800	.3858	—	89	47	35	1,9	40	10
B951A10000	10,000	.3937	—	89	47	35	2,0	40	10
B951A10200	10,200	.4016	—	102	55	40	2,0	45	12
B951A10500	10,500	.4134	—	102	55	40	2,1	45	12
B951A10800	10,800	.4252	—	118	71	56	2,1	45	12
B951A11000	11,000	.4331	—	118	71	56	2,2	45	12
B951A11500	11,500	.4528	—	118	71	56	2,3	45	12
B951A11800	11,800	.4646	—	102	55	40	2,3	45	12
B951A12000	12,000	.4724	—	102	55	40	2,4	45	12
B951A12500	12,500	.4921	—	107	60	43	2,5	45	14
B951A12700	12,700	.5000	1/2	107	60	43	2,5	45	14
B951A12800	12,800	.5039	—	107	60	43	2,5	45	14

(continued)

(B951A • ~3 x D – continued)



● first choice
 ○ alternate choice

	D1 diameter			L	L3	L4 max	L5	LS	D
	mm	in	fraction						
short • KCH15									
B951A13000	13,000	.5118	—	107	60	43	2,6	45	14
B951A13500	13,500	.5315	—	107	60	43	2,7	45	14
B951A14000	14,000	.5512	—	107	60	43	2,8	45	14
B951A14500	14,500	.5709	—	115	65	45	2,9	48	16
B951A15500	15,500	.6102	—	115	65	45	3,1	48	16
B951A16000	16,000	.6299	—	133	83	63	3,2	48	16

Application Data

■ **KMH Drill • B94_Series • Grade KCH10 • Flood Coolant**

Material Group	Cutting Speed — vc				Metric								
	Range — m/min				Recommended Feed Rate per Rev								
	min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0	
P	4	50	70	100	mm/r	0,06–0,15	0,08–0,17	0,12–0,23	0,14–0,28	0,17–0,33	0,19–0,38	0,23–0,47	0,29–0,59
	5	40	50	70	mm/r	0,08–0,16	0,10–0,20	0,12–0,24	0,16–0,28	0,20–0,32	0,24–0,36	0,28–0,44	0,32–0,52
	6	30	40	60	mm/r	0,05–0,07	0,06–0,10	0,08–0,14	0,10–0,18	0,12–0,22	0,14–0,24	0,18–0,32	0,23–0,41
K	1	80	130	150	mm/r	0,11–0,22	0,12–0,24	0,16–0,31	0,20–0,38	0,23–0,44	0,25–0,49	0,31–0,06	0,38–0,47
	2	70	110	100	mm/r	0,10–0,17	0,12–0,19	0,16–0,25	0,20–0,31	0,23–0,36	0,25–0,40	0,31–0,48	0,38–0,60
	3	80	110	120	mm/r	0,07–0,15	0,09–0,19	0,12–0,25	0,14–0,30	0,17–0,35	0,19–0,40	0,25–0,48	0,30–0,60
H	1	20	30	40	mm/r	0,03–0,06	0,04–0,08	0,06–0,10	0,08–0,12	0,09–0,13	0,10–0,14	0,12–0,16	0,14–0,18
	2	15	30	40	mm/r	0,02–0,04	0,03–0,06	0,05–0,08	0,07–0,10	0,08–0,11	0,09–0,12	0,10–0,14	0,11–0,16
	3	15	25	35	mm/r	0,02–0,04	0,02–0,05	0,04–0,07	0,06–0,09	0,07–0,10	0,08–0,11	0,09–0,13	0,10–0,15
	4	15	20	30	mm/r	0,02–0,04	0,03–0,06	0,05–0,08	0,07–0,10	0,08–0,11	0,09–0,12	0,10–0,14	0,11–0,16
Material Group	Cutting Speed — vc				Inch								
	Range — SFM				Recommended Feed Rate per Rev								
	min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750	
P	4	160	230	330	IPR	.0024-.0059	.0031-.0067	.0047-.0091	.0055-.0110	.0067-.0130	.0075-.0150	.0091-.0185	.0114-.0232
	5	130	160	230	IPR	.0031-.0063	.0039-.0079	.0047-.0094	.0063-.0110	.0079-.0126	.0094-.0142	.0110-.0173	.0126-.0205
	6	100	130	200	IPR	.0020-.0028	.0024-.0039	.0031-.0055	.0039-.0071	.0047-.0087	.0055-.0094	.0071-.0126	.0091-.0161
K	1	260	430	490	IPR	.0043-.0087	.0047-.0094	.0063-.0122	.0079-.0150	.0091-.0173	.0098-.0193	.0122-.0024	.0150-.0185
	2	230	360	330	IPR	.0039-.0067	.0047-.0075	.0063-.0098	.0079-.0122	.0091-.0142	.0098-.0157	.0122-.0189	.0150-.0236
	3	260	360	390	IPR	.0028-.0059	.0035-.0075	.0047-.0098	.0055-.0118	.0067-.0138	.0075-.0157	.0098-.0189	.0118-.0236
H	1	70	100	130	IPR	.0012-.0024	.0016-.0031	.0024-.0039	.0031-.0047	.0035-.0051	.0039-.0055	.0047-.0063	.0055-.0071
	2	50	100	130	IPR	.0008-.0016	.0012-.0024	.0020-.0031	.0028-.0039	.0031-.0043	.0035-.0047	.0039-.0055	.0043-.0063
	3	50	80	110	IPR	.0008-.0016	.0008-.0020	.0016-.0028	.0024-.0035	.0028-.0039	.0031-.0043	.0035-.0051	.0039-.0059
	4	50	70	100	IPR	.0008-.0016	.0012-.0024	.0020-.0031	.0028-.0039	.0031-.0043	.0035-.0047	.0039-.0055	.0043-.0063

■ KMH Drill • B95_Series • Grade KCH15 • Through Coolant

Solid Carbide Drills

Material Group		Cutting Speed – vc			Metric								
		Range – m/min			Recommended Feed Rate per Rev								
		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
P	4	50	70	100	mm/r	0,06–0,15	0,08–0,17	0,12–0,23	0,14–0,28	0,17–0,33	0,19–0,38	0,23–0,47	0,29–0,59
	5	50	60	80	mm/r	0,08–0,14	0,10–0,16	0,12–0,20	0,16–0,24	0,20–0,28	0,24–0,32	0,28–0,40	0,32–0,48
	6	40	50	70	mm/r	0,05–0,08	0,06–0,10	0,08–0,14	0,10–0,18	0,13–0,22	0,14–0,24	0,18–0,32	0,23–0,41
K	1	80	130	170	mm/r	0,11–0,22	0,12–0,24	0,16–0,31	0,20–0,38	0,23–0,44	0,25–0,49	0,31–0,06	0,38–0,47
	2	90	110	120	mm/r	0,10–0,17	0,12–0,19	0,16–0,25	0,20–0,31	0,23–0,36	0,25–0,40	0,31–0,48	0,38–0,60
	3	80	110	130	mm/r	0,07–0,15	0,09–0,19	0,12–0,25	0,14–0,30	0,17–0,35	0,19–0,40	0,25–0,48	0,30–0,60
H	1	20	35	45	mm/r	0,03–0,06	0,04–0,08	0,06–0,10	0,08–0,12	0,09–0,13	0,10–0,14	0,12–0,16	0,14–0,18
	2	15	30	45	mm/r	0,02–0,04	0,03–0,06	0,05–0,08	0,07–0,10	0,08–0,11	0,09–0,12	0,10–0,14	0,11–0,16
	3	15	25	40	mm/r	0,02–0,04	0,02–0,05	0,04–0,07	0,06–0,09	0,07–0,10	0,08–0,11	0,09–0,13	0,10–0,15
	4	15	20	35	mm/r	0,02–0,04	0,03–0,06	0,05–0,08	0,07–0,10	0,08–0,11	0,09–0,12	0,10–0,14	0,11–0,16
Material Group		Cutting Speed – vc			Inch								
		Range – SFM			Recommended Feed Rate per Rev								
		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
P	4	160	230	330	IPR	.0024-.0059	.0031-.0067	.0047-.0091	.0055-.0110	.0067-.0130	.0075-.0150	.0091-.0185	.0114-.0232
	5	160	200	260	IPR	.0031-.0055	.0039-.0079	.0047-.0079	.0063-.0094	.0079-.0110	.0094-.0126	.0110-.0157	.0126-.0189
	6	130	160	230	IPR	.0020-.0031	.0024-.0039	.0031-.0055	.0039-.0071	.0051-.0087	.0055-.0094	.0071-.0126	.0091-.0161
K	1	260	430	560	IPR	.0043-.0087	.0047-.0094	.0063-.0122	.0079-.0150	.0091-.0173	.0098-.0193	.0122-.0024	.0150-.0185
	2	300	360	390	IPR	.0039-.0067	.0047-.0075	.0063-.0098	.0079-.0122	.0091-.0142	.0098-.0157	.0122-.0189	.0150-.0236
	3	260	360	430	IPR	.0028-.0059	.0035-.0075	.0047-.0098	.0055-.0118	.0067-.0138	.0075-.0157	.0098-.0189	.0118-.0236
H	1	70	110	150	IPR	.0012-.0024	.0016-.0031	.0024-.0039	.0031-.0047	.0035-.0051	.0039-.0055	.0047-.0063	.0055-.0071
	2	50	100	150	IPR	.0008-.0016	.0012-.0024	.0020-.0031	.0028-.0039	.0031-.0043	.0035-.0047	.0039-.0055	.0043-.0063
	3	50	80	130	IPR	.0008-.0016	.0008-.0020	.0016-.0028	.0024-.0035	.0028-.0039	.0031-.0043	.0035-.0051	.0039-.0059
	4	50	70	110	IPR	.0008-.0016	.0012-.0024	.0020-.0031	.0028-.0039	.0031-.0043	.0035-.0047	.0039-.0055	.0043-.0063

Kenna Universal™ Drills

Primary Application

Kenna Universal Drills (B96/B97_ Series) are engineered to deliver superior performance in steel, cast iron, and stainless steel applications making it ideal for small- and medium-sized shops. The universal application profile reduces tool change times and the number of drills in inventory. Covering a large spectrum of off-the-shelf diameters and a broad range of applications makes Kenna Universal Drills an excellent alternative to other high-performance products.

The B976Z series is available from 2,383–3mm (.0938–.1181") making it the first standard offering in less than 3mm. This extended diameter offering covers all common tap drill sizes, including an expanded selection of wire, fractional, and letter sizes.

The new B967 series satisfies the demand for non-coolant drills up to 5 x D for applications with flood coolant or dry.

Use as Pilot Drill

- Ideal point angle and tolerance make the Kenna Universal drill the preferred pilot drill for B27_ series solid carbide deep-hole drills.

Features and Benefits

Kenna Universal Drill-Point Design

- Low thrust. Works well on a variety of machines.
- Excellent centering capabilities.
- Easy to regrind.

Four-Margin Land Design

- Improves hole straightness and roundness.
- Provides good alignment and stability in tough drilling applications — even when drilling through cross holes.

KC7315™ Grade

- A multilayer, TiAlN-based coating with high hot hardness enables 30% higher cutting speeds and constant tool life.
- Surface finish ensures chip evacuation when drilling deep holes.

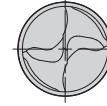
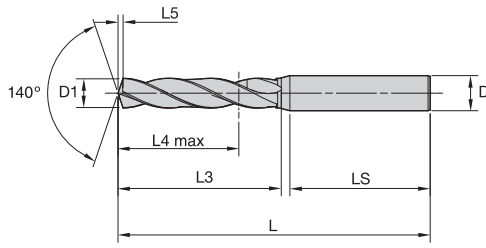
Universal application profile, problem solver, and pilot drill.



Customization

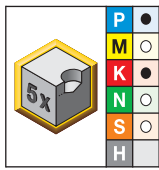
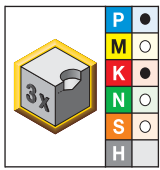
- Intermediate diameters available as semi-standards.
- Length variations and step drills available as engineered solutions.





For information on L, L3, and L4 max, see the Solid Carbide Drills foldout table.

■ B966A/B967A • ~3 x D/~5 x D



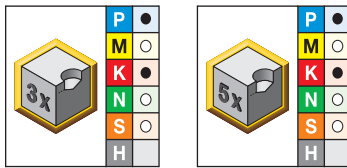
- first choice
- alternate choice

D1 diameter

short • KC7315	long • KC7315	mm	in	fraction	wire size	L5	LS	D
B966A03000	B967A03000	3,000	.1181	—	—	0,5	36	6
B966A03100	B967A03100	3,100	.1220	—	—	0,5	36	6
B966A03200	B967A03200	3,200	.1260	—	—	0,5	36	6
B966A03300	B967A03300	3,300	.1299	—	—	0,5	36	6
B966A03400	—	3,400	.1339	—	—	0,6	36	6
B966A03500	B967A03500	3,500	.1378	—	—	0,6	36	6
B966A03600	—	3,600	.1417	—	—	0,6	36	6
B966A03700	—	3,700	.1457	—	—	0,6	36	6
B966A03800	B967A03800	3,800	.1496	—	—	0,6	36	6
B966A03900	—	3,900	.1535	—	—	0,6	36	6
B966A03960	—	3,960	.1559	—	—	0,7	36	6
B966A04000	B967A04000	4,000	.1575	—	—	0,7	36	6
B966A04100	—	4,100	.1614	—	—	0,7	36	6
B966A04200	B967A04200	4,200	.1654	—	—	0,7	36	6
B966A04300	B967A04300	4,300	.1693	—	—	0,7	36	6
B966A04400	—	4,400	.1732	—	—	0,7	36	6
B966A04500	B967A04500	4,500	.1772	—	—	0,7	36	6
B966A04600	—	4,600	.1811	—	—	0,8	36	6
B966A04700	—	4,700	.1850	—	13	0,8	36	6
B966A04800	B967A04800	4,800	.1890	—	12	0,8	36	6
B966A04900	—	4,900	.1929	—	—	0,8	36	6
B966A05000	B967A05000	5,000	.1969	—	—	0,8	36	6
B966A05040	—	5,040	.1984	—	—	0,8	36	6
B966A05100	B967A05100	5,100	.2008	—	—	0,8	36	6
B966A05200	B967A05200	5,200	.2047	—	—	0,9	36	6
B966A05300	—	5,300	.2087	—	—	0,9	36	6
B966A05400	—	5,400	.2126	—	—	0,9	36	6
B966A05500	B967A05500	5,500	.2165	—	—	0,9	36	6
B966A05600	—	5,600	.2205	—	—	0,9	36	6
B966A05700	—	5,700	.2244	—	—	1,0	36	6
B966A05800	B967A05800	5,800	.2283	—	—	1,0	36	6
B966A05900	—	5,900	.2323	—	—	1,0	36	6
B966A06000	B967A06000	6,000	.2362	—	—	1,0	36	6
B966A06050	—	6,050	.2382	—	—	1,0	36	8
B966A06100	B967A06100	6,100	.2402	—	—	1,0	36	8
B966A06200	—	6,200	.2441	—	—	1,0	36	8

(continued)

(B966A/B967A • ~3 x D/~5 x D — continued)



● first choice
○ alternate choice

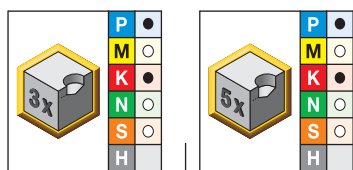
D1 diameter

short • KC7315	long • KC7315	mm	in	fraction	wire size	L5	LS	D
B966A06300	-	6,300	.2480	-	-	1,1	36	8
B966A06350	-	6,350	.2500	1/4	-	1,1	36	8
B966A06400	-	6,400	.2520	-	-	1,1	36	8
B966A06500	B967A06500	6,500	.2559	-	-	1,1	36	8
B966A06600	B967A06600	6,600	.2598	-	-	1,1	36	8
B966A06700	B967A06700	6,700	.2638	-	-	1,1	36	8
B966A06800	B967A06800	6,800	.2677	-	-	1,1	36	8
B966A06900	-	6,900	.2717	-	-	1,2	36	8
B966A07000	B967A07000	7,000	.2756	-	-	1,2	36	8
B966A07100	-	7,100	.2795	-	-	1,2	36	8
B966A07200	-	7,200	.2835	-	-	1,2	36	8
B966A07300	-	7,300	.2874	-	-	1,2	36	8
B966A07400	B967A07400	7,400	.2913	-	-	1,3	36	8
B966A07500	B967A07500	7,500	.2953	-	-	1,3	36	8
B966A07600	-	7,600	.2992	-	-	1,3	36	8
B966A07700	-	7,700	.3031	-	-	1,3	36	8
B966A07800	B967A07800	7,800	.3071	-	-	1,3	36	8
B966A07900	-	7,900	.3110	-	-	1,3	36	8
B966A08000	B967A08000	8,000	.3150	-	-	1,4	36	8
B966A08100	B967A08100	8,100	.3189	-	-	1,4	40	10
B966A08200	-	8,200	.3228	-	-	1,4	40	10
B966A08300	-	8,300	.3268	-	-	1,4	40	10
B966A08400	-	8,400	.3307	-	-	1,4	40	10
B966A08500	B967A08500	8,500	.3346	-	-	1,4	40	10
B966A08600	B967A08600	8,600	.3386	-	-	1,5	40	10
B966A08700	B967A08700	8,700	.3425	-	-	1,5	40	10
B966A08800	B967A08800	8,800	.3465	-	-	1,5	40	10
B966A08900	-	8,900	.3504	-	-	1,5	40	10
B966A09000	B967A09000	9,000	.3543	-	-	1,5	40	10
B966A09100	-	9,100	.3583	-	-	1,5	40	10
B966A09200	-	9,200	.3622	-	-	1,6	40	10
B966A09300	B967A09300	9,300	.3661	-	-	1,6	40	10
B966A09400	-	9,400	.3701	-	-	1,6	40	10
B966A09500	B967A09500	9,500	.3740	-	-	1,6	40	10
B966A09600	-	9,600	.3780	-	-	1,6	40	10
B966A09700	-	9,700	.3819	-	-	1,7	40	10
B966A09800	B967A09800	9,800	.3858	-	-	1,7	40	10
B966A09900	-	9,900	.3898	-	-	1,7	40	10
B966A10000	B967A10000	10,000	.3937	-	-	1,7	40	10
B966A10100	-	10,100	.3976	-	-	1,7	45	12
B966A10200	B967A10200	10,200	.4016	-	-	1,7	45	12
B966A10300	-	10,300	.4055	-	-	1,8	45	12
B966A10400	-	10,400	.4094	-	-	1,8	45	12
B966A10500	B967A10500	10,500	.4134	-	-	1,8	45	12
B966A10600	-	10,600	.4173	-	-	1,8	45	12
B966A10700	B967A10700	10,700	.4213	-	-	1,8	45	12
B966A10800	B967A10800	10,800	.4252	-	-	1,8	45	12
B966A10900	-	10,900	.4291	-	-	1,9	45	12
B966A11000	B967A11000	11,000	.4331	-	-	1,9	45	12
B966A11100	-	11,100	.4370	-	-	1,9	45	12
B966A11200	-	11,200	.4409	-	-	1,9	45	12
B966A11300	B967A11300	11,300	.4449	-	-	1,9	45	12

(continued)

(B966A/B967A • ~3 x D/~5 x D — continued)

Solid Carbide Drills



● first choice

○ alternate choice

		D1 diameter			Wire size	L5	LS	D
short • KC7315	long • KC7315	mm	in	fraction				
B966A11400	-	11,400	.4488	-	-	2,0	45	12
B966A11500	B967A11500	11,500	.4528	-	-	2,0	45	12
B966A11600	-	11,600	.4567	-	-	2,0	45	12
B966A11700	-	11,700	.4606	-	-	2,0	45	12
B966A11800	B967A11800	11,800	.4646	-	-	2,0	45	12
B966A11900	-	11,900	.4685	-	-	2,0	45	12
B966A12000	B967A12000	12,000	.4724	-	-	2,1	45	12
B966A12100	-	12,100	.4764	-	-	2,1	45	14
B966A12200	-	12,200	.4803	-	-	2,1	45	14
B966A12300	-	12,300	.4843	-	-	2,1	45	14
B966A12400	-	12,400	.4882	-	-	2,1	45	14
B966A12500	B967A12500	12,500	.4921	-	-	2,1	45	14
B966A12600	-	12,600	.4961	-	-	2,2	45	14
B966A12700	B967A12700	12,700	.5000	1/2	-	2,2	45	14
B966A12800	B967A12800	12,800	.5039	-	-	2,2	45	14
B966A12900	-	12,900	.5079	-	-	2,2	45	14
B966A13000	B967A13000	13,000	.5118	-	-	2,2	45	14
B966A13100	-	13,100	.5157	-	-	2,3	45	14
B966A13200	-	13,200	.5197	-	-	2,3	45	14
B966A13300	-	13,300	.5236	-	-	2,3	45	14
B966A13400	-	13,400	.5276	-	-	2,3	45	14
B966A13500	B967A13500	13,500	.5315	-	-	2,3	45	14
B966A13700	-	13,700	.5394	-	-	2,4	45	14
B966A14000	B967A14000	14,000	.5512	-	-	2,4	45	14
B966A14200	-	14,200	.5591	-	-	2,5	48	16
B966A14300	-	14,300	.5630	-	-	2,5	48	16
B966A14500	B967A14500	14,500	.5709	-	-	2,5	48	16
B966A14700	-	14,700	.5787	-	-	2,5	48	16
B966A14800	-	14,800	.5827	-	-	2,6	48	16
B966A15000	B967A15000	15,000	.5906	-	-	2,6	48	16
-	B967A15300	15,300	.6024	-	-	2,6	48	16
B966A15500	B967A15500	15,500	.6102	-	-	2,7	48	16
B966A15700	-	15,700	.6181	-	-	2,7	48	16
B966A16000	B967A16000	16,000	.6299	-	-	2,8	48	16
B966A16500	B967A16500	16,500	.6496	-	-	2,9	48	18
B966A17000	-	17,000	.6693	-	-	2,9	48	18
B966A17500	-	17,500	.6890	-	-	3,0	48	18
B966A18000	-	18,000	.7087	-	-	3,1	48	18
B966A20000	-	20,000	.7874	-	-	3,5	50	20

Tolerance • Metric

nominal size range	D1 tolerance m7	D tolerance h6
>3-6	0,004/0,016	0,000/-0,008
>6-10	0,006/0,021	0,000/-0,009
>10-18	0,007/0,025	0,000/-0,011
>18-25,4	0,008/0,029	0,000/-0,013

Tolerance • Inch

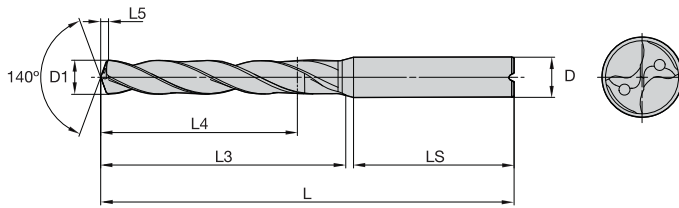
nominal size range	D1 tolerance m7	D tolerance h6
>.1181-.2362	.0002/.0006	.0000/-.0003
>.2362-.3937	.0002/.0008	.0000/-.0004
>.3937-.7087	.0003/.0010	.0000/-.0004
>.7087-1.0000	.0003/.0011	.0000/-.0005

■ Kenna Universal™ Drills • B966, B967 Series • Grade KC7315™ • Flood Coolant • Drill Diameters 3–20mm (.1181–.7874")

Solid Carbide Drills

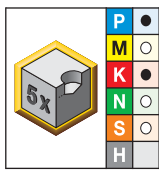
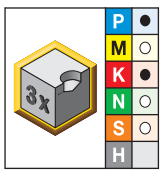
Material Group		Cutting Speed – vc			Metric								
		Range – m/min			Recommended Feed Rate (f) by Diameter								
		min	Starting Value	max	3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0	
		mm/r											
P	0	70	90	115	mm/r	0,05–0,11	0,08–0,14	0,09–0,19	0,11–0,22	0,13–0,26	0,15–0,30	0,19–0,36	0,24–0,46
	1	60	70	100	mm/r	0,06–0,13	0,09–0,16	0,11–0,22	0,13–0,26	0,15–0,31	0,18–0,35	0,22–0,42	0,28–0,54
	2	80	90	100	mm/r	0,06–0,13	0,08–0,16	0,12–0,22	0,14–0,26	0,17–0,31	0,20–0,35	0,24–0,42	0,31–0,53
	3	50	70	90	mm/r	0,07–0,15	0,09–0,17	0,13–0,23	0,15–0,28	0,19–0,33	0,22–0,38	0,26–0,47	0,34–0,59
	4	50	70	100	mm/r	0,06–0,15	0,08–0,17	0,12–0,23	0,14–0,28	0,17–0,33	0,19–0,38	0,23–0,47	0,29–0,59
	5	40	50	70	mm/r	0,06–0,12	0,08–0,14	0,10–0,18	0,12–0,22	0,16–0,26	0,18–0,28	0,22–0,36	0,26–0,42
M	6	30	40	60	mm/r	0,05–0,07	0,06–0,10	0,08–0,14	0,10–0,18	0,12–0,22	0,14–0,24	0,18–0,32	0,23–0,41
	1	30	40	50	mm/r	0,04–0,07	0,05–0,09	0,08–0,11	0,09–0,12	0,10–0,14	0,12–0,16	0,14–0,18	0,16–0,20
	2	40	50	60	mm/r	0,04–0,08	0,06–0,10	0,08–0,12	0,09–0,14	0,10–0,16	0,12–0,18	0,14–0,20	0,16–0,22
K	3	30	40	50	mm/r	0,04–0,07	0,06–0,09	0,08–0,11	0,09–0,12	0,10–0,14	0,12–0,16	0,14–0,18	0,16–0,20
	1	80	130	170	mm/r	0,11–0,22	0,12–0,24	0,16–0,31	0,20–0,38	0,23–0,44	0,25–0,49	0,31–0,06	0,38–0,47
	2	90	110	120	mm/r	0,10–0,17	0,12–0,19	0,16–0,25	0,20–0,31	0,23–0,36	0,25–0,40	0,31–0,48	0,38–0,60
N	3	80	110	130	mm/r	0,07–0,15	0,09–0,19	0,12–0,25	0,14–0,30	0,17–0,35	0,19–0,40	0,25–0,48	0,30–0,60
	1	90	230	270	mm/r	0,08–0,14	0,10–0,16	0,12–0,20	0,16–0,24	0,20–0,28	0,24–0,32	0,28–0,40	0,32–0,48
	2	90	220	270	mm/r	0,08–0,16	0,10–0,20	0,12–0,24	0,16–0,28	0,20–0,32	0,24–0,36	0,28–0,44	0,32–0,52
	3	90	180	225	mm/r	0,12–0,14	0,13–0,16	0,14–0,20	0,16–0,24	0,20–0,28	0,24–0,32	0,28–0,40	0,32–0,44
S	4	90	130	270	mm/r	0,08–0,16	0,10–0,20	0,12–0,24	0,16–0,28	0,20–0,32	0,24–0,36	0,28–0,40	0,32–0,48
	1	20	25	30	mm/r	0,03–0,06	0,04–0,08	0,06–0,10	0,08–0,12	0,09–0,13	0,10–0,14	0,12–0,16	0,14–0,18
	2	10	20	30	mm/r	0,02–0,04	0,03–0,06	0,05–0,08	0,07–0,10	0,08–0,11	0,09–0,12	0,10–0,14	0,11–0,16
	3	20	25	40	mm/r	0,02–0,04	0,02–0,05	0,04–0,07	0,06–0,09	0,07–0,10	0,08–0,11	0,09–0,13	0,10–0,15
S	4	20	25	50	mm/r	0,02–0,04	0,03–0,06	0,05–0,08	0,07–0,10	0,08–0,11	0,09–0,12	0,10–0,14	0,11–0,16

Material Group		Cutting Speed – vc			Inch								
		Range – SFM			Recommended Feed Rate (fz) by Diameter								
		min	Starting Value	max	1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750	
		IPR											
P	0	230	300	380	IPR	.002–.004	.003–.005	.004–.007	.004–.009	.005–.010	.006–.012	.007–.014	.009–.018
	1	200	230	330	IPR	.002–.005	.004–.006	.004–.009	.005–.010	.006–.012	.007–.014	.009–.017	.011–.021
	2	260	300	330	IPR	.002–.005	.003–.006	.005–.009	.006–.010	.007–.012	.008–.014	.009–.017	.012–.021
	3	160	230	300	IPR	.003–.006	.004–.007	.005–.009	.006–.011	.008–.013	.009–.015	.010–.019	.013–.023
	4	160	230	330	IPR	.002–.006	.003–.007	.005–.009	.006–.011	.007–.013	.008–.015	.009–.019	.011–.023
	5	130	160	230	IPR	.002–.005	.003–.006	.004–.007	.005–.009	.006–.010	.007–.011	.009–.014	.010–.017
M	6	100	130	200	IPR	.002–.003	.002–.004	.003–.006	.004–.007	.005–.009	.006–.009	.007–.013	.009–.016
	1	100	130	160	IPR	.002–.003	.002–.004	.003–.004	.004–.005	.004–.006	.005–.006	.006–.007	.006–.008
	2	130	160	200	IPR	.002–.003	.002–.004	.003–.005	.004–.006	.004–.006	.005–.007	.006–.008	.006–.009
K	3	100	130	160	IPR	.002–.003	.002–.004	.003–.004	.004–.005	.004–.006	.005–.006	.006–.007	.006–.008
	1	260	430	560	IPR	.004–.009	.005–.009	.006–.012	.008–.015	.009–.017	.010–.019	.012–.022	.015–.019
	2	300	360	390	IPR	.004–.007	.005–.008	.006–.010	.008–.012	.009–.014	.010–.016	.012–.019	.015–.024
N	3	260	360	430	IPR	.003–.006	.004–.008	.005–.010	.006–.012	.007–.014	.008–.016	.010–.019	.012–.024
	1	300	750	890	IPR	.003–.006	.004–.006	.005–.008	.006–.009	.008–.011	.009–.013	.011–.016	.013–.019
	2	300	720	890	IPR	.003–.006	.004–.008	.005–.009	.006–.011	.008–.013	.009–.014	.011–.017	.013–.021
	3	300	590	740	IPR	.005–.006	.005–.006	.006–.008	.006–.009	.008–.011	.009–.013	.011–.016	.013–.017
S	4	300	430	890	IPR	.003–.006	.004–.008	.005–.009	.006–.011	.008–.013	.009–.014	.011–.016	.013–.019
	1	70	80	100	IPR	.001–.002	.002–.003	.002–.004	.003–.005	.004–.005	.004–.006	.005–.006	.006–.007
	2	30	70	100	IPR	.001–.002	.001–.002	.002–.003	.003–.004	.003–.004	.004–.005	.004–.006	.004–.006
	3	70	80	130	IPR	.001–.002	.001–.002	.002–.003	.002–.004	.003–.004	.003–.004	.004–.005	.004–.006
S	4	70	80	160	IPR	.001–.002	.001–.002	.002–.003	.003–.004	.003–.004	.004–.005	.004–.006	.004–.006



For information on L, L3, and L4 max, see the Solid Carbide Drills foldout table.

■ B976A/B977A • ~3 x D/~5 x D



● first choice
○ alternate choice

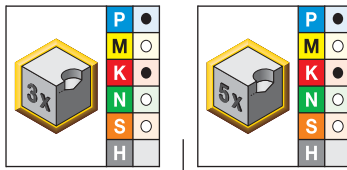
		D1 diameter				L5	LS	D
short • KC7315	long • KC7315	mm	in	fraction	wire size			
B976Z02383	-	2,383	.0938	3/32	-	0,4	28	3
B976Z02400	-	2,400	.0945	-	-	0,4	28	3
B976Z02439	-	2,439	.0960	-	41	0,4	28	3
B976Z02489	-	2,489	.0980	-	40	0,4	28	3
B976Z02500	-	2,500	.0984	-	-	0,4	28	3
B976Z02578	-	2,578	.1015	-	38	0,4	28	3
B976Z02600	-	2,600	.1024	-	-	0,4	28	3
B976Z02642	-	2,642	.1040	-	37	0,4	28	3
B976Z02705	-	2,705	.1065	-	36	0,4	28	3
B976Z02779	-	2,779	.1094	7/64	-	0,4	28	3
B976Z02800	-	2,800	.1102	-	-	0,5	28	3
B976Z02820	-	2,820	.1110	-	34	0,5	28	3
B976Z02870	-	2,870	.1130	-	33	0,5	28	3
B976Z02900	-	2,900	.1142	-	-	0,5	28	3
B976Z02947 *	-	2,947	.1160	-	32	0,5	28	3
B976A03000	B977A03000	3,000	.1181	-	-	0,5	36	6
B976A03100	B977A03100	3,100	.1220	-	-	0,5	36	6
B976A03175	B977A03175	3,175	.1250	1/8	-	0,5	36	6
B976A03180	-	3,180	.1252	-	-	0,5	36	6
B976A03200	B977A03200	3,200	.1260	-	-	0,5	36	6
-	B977A03250	3,250	.1280	-	-	0,5	36	6
B976A03300	B977A03300	3,300	.1299	-	-	0,5	36	6
-	B977A03400	3,400	.1339	-	-	0,6	36	6
B976A03454	B977A03454	3,454	.1360	-	29	0,6	36	6
B976A03500	B977A03500	3,500	.1378	-	-	0,6	36	6
B976A03600	B977A03600	3,600	.1417	-	-	0,6	36	6
B976A03700	B977A03700	3,700	.1457	-	-	0,6	36	6
B976A03734	B977A03734	3,734	.1470	-	26	0,6	36	6
B976A03797	B977A03797	3,797	.1495	-	25	0,6	36	6
B976A03800	B977A03800	3,800	.1496	-	-	0,6	36	6
B976A03900	B977A03900	3,900	.1535	-	-	0,6	36	6
B976A03970	B977A03970	3,970	.1563	5/32	-	0,7	36	6
B976A04000	B977A04000	4,000	.1575	-	-	0,7	36	6
B976A04039	B977A04039	4,039	.1590	-	21	0,7	36	6
B976A04100	B977A04100	4,100	.1614	-	-	0,7	36	6
B976A04200	B977A04200	4,200	.1654	-	-	0,7	36	6

(continued)

(B976A/B977A • ~3 x D/~5 x D — continued)



Solid Carbide Drills



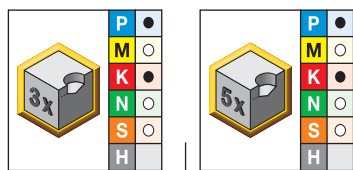
● first choice
○ alternate choice

		D1 diameter						
short • KC7315	long • KC7315	mm	in	fraction	wire size	L5	LS	D
B976A04300	B977A04300	4,300	.1693	—	—	0,7	36	6
B976A04366	B977A04366	4,366	.1719	11/64	—	0,7	36	6
—	B977A04400	4,400	.1732	—	—	0,7	36	6
B976A04496	B977A04496	4,496	.1770	—	16	0,7	36	6
B976A04500	B977A04500	4,500	.1772	—	—	0,7	36	6
—	B977A04580	4,580	.1803	—	15	0,8	36	6
B976A04600	B977A04600	4,600	.1811	—	—	0,8	36	6
B976A04620	—	4,620	.1819	—	—	0,8	36	6
—	B977A04623	4,623	.1820	—	14	0,8	36	6
—	B977A04650	4,650	.1831	—	—	0,8	36	6
B976A04700	B977A04700	4,700	.1850	—	13	0,8	36	6
B976A04763	B977A04763	4,763	.1875	3/16	—	0,8	36	6
B976A04800	B977A04800	4,800	.1890	—	12	0,8	36	6
B976A04900	B977A04900	4,900	.1929	—	—	0,8	36	6
B976A05000	B977A05000	5,000	.1969	—	—	0,8	36	6
B976A05100	B977A05100	5,100	.2008	—	—	0,8	36	6
B976A05106	B977A05106	5,106	.2010	—	7	0,8	36	6
B976A05200	B977A05200	5,200	.2047	—	—	0,9	36	6
B976A05250	—	5,250	.2067	—	—	0,9	36	6
B976A05300	B977A05300	5,300	.2087	—	—	0,9	36	6
B976A05400	B977A05400	5,400	.2126	—	—	0,9	36	6
B976A05410	B977A05410	5,410	.2130	—	3	0,9	36	6
B976A05500	B977A05500	5,500	.2165	—	—	0,9	36	6
B976A05530	—	5,530	.2177	—	—	0,9	36	6
B976A05558	B977A05558	5,558	.2188	7/32	—	0,9	36	6
B976A05575	—	5,575	.2195	—	—	0,9	36	6
B976A05600	B977A05600	5,600	.2205	—	—	0,9	36	6
B976A05700	B977A05700	5,700	.2244	—	—	1,0	36	6
B976A05791	B977A05791	5,791	.2280	—	1	1,0	36	6
B976A05800	B977A05800	5,800	.2283	—	—	1,0	36	6
—	B977A05900	5,900	.2323	—	—	1,0	36	6
B976A05944	B977A05944	5,944	.2340	—	—	1,0	36	6
B976A06000	B977A06000	6,000	.2362	—	—	1,0	36	6
B976A06100	B977A06100	6,100	.2402	—	—	1,0	36	8
—	B977A06150	6,150	.2421	—	—	1,0	36	8
B976A06200	B977A06200	6,200	.2441	—	—	1,0	36	8
—	B977A06300	6,300	.2480	—	—	1,1	36	8
B976A06350	B977A06350	6,350	.2500	1/4	—	1,1	36	8
—	B977A06400	6,400	.2520	—	—	1,1	36	8
B976A06500	B977A06500	6,500	.2559	—	—	1,1	36	8
B976A06528	B977A06528	6,528	.2570	—	—	1,1	36	8
B976A06530	—	6,530	.2571	—	—	1,1	36	8
B976A06600	B977A06600	6,600	.2598	—	—	1,1	36	8
B976A06700	B977A06700	6,700	.2638	—	—	1,1	36	8
B976A06746	—	6,746	.2656	17/64	—	1,1	36	8
B976A06750	—	6,750	.2657	—	—	1,1	36	8
B976A06800	B977A06800	6,800	.2677	—	—	1,1	36	8
B976A06900	B977A06900	6,900	.2717	—	—	1,2	36	8
B976A06909	B977A06909	6,909	.2720	—	—	1,2	36	8
B976A07000	B977A07000	7,000	.2756	—	—	1,2	36	8
B976A07100	B977A07100	7,100	.2795	—	—	1,2	36	8
B976A07145	B977A07145	7,145	.2813	9/32	—	1,2	36	8

(continued)

(B976A/B977A • -3 x D/~5 x D — continued)

Solid Carbide Drills



● first choice
○ alternate choice

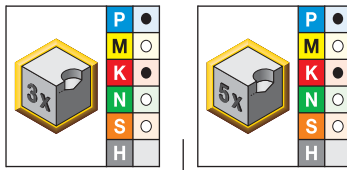
		D1 diameter				L5	LS	D
short • KC7315	long • KC7315	mm	in	fraction	wire size			
B976A07200	B977A07200	7,200	.2835	—	—	1,2	36	8
B976A07300	B977A07300	7,300	.2874	—	—	1,2	36	8
B976A07366	B977A07366	7,366	.2900	—	—	1,2	36	8
B976A07400	B977A07400	7,400	.2913	—	—	1,3	36	8
B976A07500	B977A07500	7,500	.2953	—	—	1,3	36	8
B976A07541	B977A07541	7,541	.2969	19/64	—	1,3	36	8
B976A07600	B977A07600	7,600	.2992	—	—	1,3	36	8
B976A07700	B977A07700	7,700	.3031	—	—	1,3	36	8
B976A07800	B977A07800	7,800	.3071	—	—	1,3	36	8
B976A07900	B977A07900	7,900	.3110	—	—	1,3	36	8
B976A07938	B977A07938	7,938	.3125	5/16	—	1,3	36	8
B976A08000	B977A08000	8,000	.3150	—	—	1,4	36	8
B976A08020	B977A08020	8,020	.3157	—	—	1,4	40	10
B976A08100	B977A08100	8,100	.3189	—	—	1,4	40	10
B976A08200	B977A08200	8,200	.3228	—	—	1,4	40	10
B976A08300	B977A08300	8,300	.3268	—	—	1,4	40	10
B976A08334	B977A08334	8,334	.3281	21/64	—	1,4	40	10
—	B977A08400	8,400	.3307	—	—	1,4	40	10
B976A08430	—	8,430	.3319	—	—	1,4	40	10
B976A08433	B977A08433	8,433	.3320	—	—	1,4	40	10
B976A08500	B977A08500	8,500	.3346	—	—	1,4	40	10
B976A08600	B977A08600	8,600	.3386	—	—	1,5	40	10
B976A08700	B977A08700	8,700	.3425	—	—	1,5	40	10
B976A08733	B977A08733	8,733	.3438	11/32	—	1,5	40	10
B976A08800	B977A08800	8,800	.3465	—	—	1,5	40	10
B976A08839	B977A08839	8,839	.3480	—	—	1,5	40	10
—	B977A08900	8,900	.3504	—	—	1,5	40	10
B976A09000	B977A09000	9,000	.3543	—	—	1,5	40	10
B976A09093	B977A09093	9,093	.3580	—	—	1,5	40	10
B976A09100	B977A09100	9,100	.3583	—	—	1,5	40	10
B976A09129	B977A09129	9,129	.3594	23/64	—	1,6	40	10
B976A09200	B977A09200	9,200	.3622	—	—	1,6	40	10
B976A09300	B977A09300	9,300	.3661	—	—	1,6	40	10
—	B977A09347	9,347	.3680	—	—	1,6	40	10
B976A09400	B977A09400	9,400	.3701	—	—	1,6	40	10
B976A09500	B977A09500	9,500	.3740	—	—	1,6	40	10
B976A09525	B977A09525	9,525	.3750	3/8	—	1,6	40	10
B976A09600	B977A09600	9,600	.3780	—	—	1,6	40	10
B976A09700	B977A09700	9,700	.3819	—	—	1,7	40	10
—	B977A09746	9,746	.3837	—	—	1,7	40	10
B976A09750	—	9,750	.3839	—	—	1,7	40	10
B976A09800	B977A09800	9,800	.3858	—	—	1,7	40	10
—	B977A09900	9,900	.3898	—	—	1,7	40	10
B976A09921	B977A09921	9,921	.3906	25/64	—	1,7	40	10
B976A10000	B977A10000	10,000	.3937	—	—	1,7	40	10
—	B977A10100	10,100	.3976	—	—	1,7	45	12
B976A10200	B977A10200	10,200	.4016	—	—	1,7	45	12
B976A10262	B977A10262	10,262	.4040	—	—	1,8	45	12
B976A10300	B977A10300	10,300	.4055	—	—	1,8	45	12
B976A10320	B977A10320	10,320	.4063	13/32	—	1,8	45	12
B976A10400	B977A10400	10,400	.4094	—	—	1,8	45	12
B976A10500	B977A10500	10,500	.4134	—	—	1,8	45	12

(continued)

(B976A/B977A • ~3 x D/~5 x D — continued)



Solid Carbide Drills



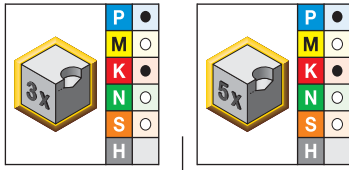
● first choice
○ alternate choice

		D1 diameter						
short • KC7315	long • KC7315	mm	in	fraction	wire size	L5	LS	D
B976A10600	B977A10600	10,600	.4173	—	—	1,8	45	12
B976A10700	B977A10700	10,700	.4213	—	—	1,8	45	12
B976A10716	B977A10716	10,716	.4219	27/64	—	1,8	45	12
B976A10800	B977A10800	10,800	.4252	—	—	1,8	45	12
—	B977A10900	10,900	.4291	—	—	1,9	45	12
B976A11000	B977A11000	11,000	.4331	—	—	1,9	45	12
—	B977A11100	11,100	.4370	—	—	1,9	45	12
B976A11113	B977A11113	11,113	.4375	7/16	—	1,9	45	12
B976A11200	B977A11200	11,200	.4409	—	—	1,9	45	12
B976A11300	B977A11300	11,300	.4449	—	—	1,9	45	12
—	B977A11400	11,400	.4488	—	—	2,0	45	12
B976A11500	B977A11500	11,500	.4528	—	—	2,0	45	12
B976A11509	B977A11509	11,509	.4531	29/64	—	2,0	45	12
B976A11600	B977A11600	11,600	.4567	—	—	2,0	45	12
B976A11700	B977A11700	11,700	.4606	—	—	2,0	45	12
B976A11800	B977A11800	11,800	.4646	—	—	2,0	45	12
—	B977A11900	11,900	.4685	—	—	2,0	45	12
B976A11908	B977A11908	11,908	.4688	15/32	—	2,0	45	12
B976A12000	B977A12000	12,000	.4724	—	—	2,1	45	12
—	B977A12100	12,100	.4764	—	—	2,1	45	14
—	B977A12200	12,200	.4803	—	—	2,1	45	14
B976A12300	B977A12300	12,300	.4843	—	—	2,1	45	14
B976A12304	B977A12304	12,304	.4844	31/64	—	2,1	45	14
—	B977A12400	12,400	.4882	—	—	2,1	45	14
B976A12500	B977A12500	12,500	.4921	—	—	2,1	45	14
—	B977A12600	12,600	.4961	—	—	2,2	45	14
B976A12700	B977A12700	12,700	.5000	1/2	—	2,2	45	14
B976A12800	B977A12800	12,800	.5039	—	—	2,2	45	14
—	B977A12900	12,900	.5079	—	—	2,2	45	14
B976A13000	B977A13000	13,000	.5118	—	—	2,2	45	14
—	B977A13096	13,096	.5156	33/64	—	2,3	45	14
—	B977A13100	13,100	.5157	—	—	2,3	45	14
—	B977A13200	13,200	.5197	—	—	2,3	45	14
B976A13300	B977A13300	13,300	.5236	—	—	2,3	45	14
B976A13495	B977A13495	13,495	.5313	17/32	—	2,3	45	14
B976A13500	B977A13500	13,500	.5315	—	—	2,3	45	14
B976A13700	B977A13700	13,700	.5394	—	—	2,4	45	14
—	B977A13800	13,800	.5433	—	—	2,4	45	14
B976A14000	B977A14000	14,000	.5512	—	—	2,4	45	14
B976A14100	B977A14100	14,100	.5551	—	—	2,4	48	16
B976A14200	B977A14200	14,200	.5591	—	—	2,5	48	16
B976A14288	B977A14288	14,288	.5625	9/16	—	2,5	48	16
B976A14500	B977A14500	14,500	.5709	—	—	2,5	48	16
—	B977A14600	14,600	.5748	—	—	2,5	48	16
B976A14700	B977A14700	14,700	.5787	—	—	2,5	48	16
—	B977A14900	14,900	.5866	—	—	2,6	48	16
B976A15000	B977A15000	15,000	.5906	—	—	2,6	48	16
—	B977A15100	15,100	.5945	—	—	2,6	48	16
—	B977A15200	15,200	.5984	—	—	2,6	48	16
—	B977A15300	15,300	.6024	—	—	2,6	48	16
B976A15500	B977A15500	15,500	.6102	—	—	2,7	48	16
—	B977A15700	15,700	.6181	—	—	2,7	48	16

(continued)

(B976A/B977A • ~3 x D/~5 x D — continued)

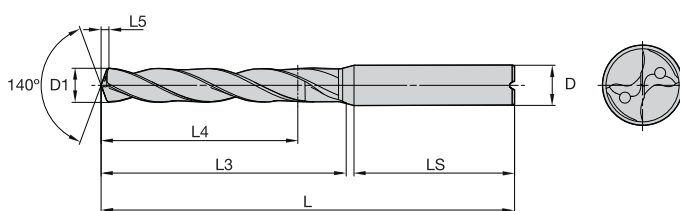
Solid Carbide Drills



● first choice
○ alternate choice

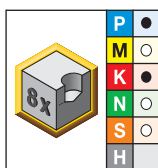
		D1 diameter						
short • KC7315	long • KC7315	mm	in	fraction	wire size	L5	LS	D
-	B977A15800	15,800	.6220	-	-	2,7	48	16
B976A15875	B977A15875	15,875	.6250	5/8	-	2,7	48	16
-	B977A15900	15,900	.6260	-	-	2,8	48	16
B976A16000	B977A16000	16,000	.6299	-	-	2,8	48	16
-	B977A16078	16,078	.6330	-	-	2,8	48	18
B976A16200	B977A16200	16,200	.6378	-	-	2,8	48	18
-	B977A16300	16,300	.6417	-	-	2,8	48	18
-	B977A16400	16,400	.6457	-	-	2,8	48	18
B976A16500	B977A16500	16,500	.6496	-	-	2,9	48	18
-	B977A16600	16,600	.6535	-	-	2,9	48	18
B976A16670	B977A16670	16,670	.6563	21/32	-	2,9	48	18
-	B977A16700	16,700	.6575	-	-	2,9	48	18
B976A16800	-	16,800	.6614	-	-	2,9	48	18
B976A17000	B977A17000	17,000	.6693	-	-	2,9	48	18
B976A17100	-	17,100	.6732	-	-	3,0	48	18
B976A17463	B977A17463	17,463	.6875	11/16	-	3,0	48	18
B976A17500	B977A17500	17,500	.6890	-	-	3,0	48	18
-	B977A17700	17,700	.6969	-	-	3,1	48	18
B976A18000	B977A18000	18,000	.7087	-	-	3,1	48	18
-	B977A18400	18,400	.7244	-	-	3,2	50	20
B976A18500	B977A18500	18,500	.7283	-	-	3,2	50	20
-	B977A18600	18,600	.7323	-	-	3,2	50	20
-	B977A18800	18,800	.7402	-	-	3,3	50	20
B976A19000	B977A19000	19,000	.7480	-	-	3,3	50	20
B976A19050	B977A19050	19,050	.7500	3/4	-	3,3	50	20
-	B977A19200	19,200	.7559	-	-	3,3	50	20
-	B977A19253	19,253	.7580	-	-	3,3	50	20
-	B977A19446	19,446	.7656	49/64	-	3,4	50	20
B976A19500	B977A19500	19,500	.7677	-	-	3,4	50	20
B976A19700	B977A19700	19,700	.7756	-	-	3,4	50	20
B976A19840 *	B977A19840	19,840	.7811	-	-	3,5	50	20
B976A20000	B977A20000	20,000	.7874	-	-	3,5	50	20
-	B977A21000	21,000	.8268	-	-	3,7	50	20

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.



Solid Carbide Drills

B978A • ~8 x D



D1 diameter

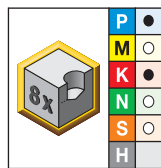
- first choice
- alternate choice

extra long • KC7315	mm	in	fraction	wire size	L	L3	L4 max	L5	LS	D
B978A03000	3,000	.1181	—	—	78	40	33	0,6	36	6
B978A03300	3,300	.1299	—	—	78	40	33	0,7	36	6
B978A03400	3,400	.1339	—	—	78	40	33	0,7	36	6
B978A03600	3,600	.1417	—	—	78	40	33	0,7	36	6
B978A03700	3,700	.1457	—	—	78	40	33	0,8	36	6
B978A03800	3,800	.1496	—	—	87	49	41	0,8	36	6
B978A03970	3,970	.1563	5/32	—	87	49	41	0,8	36	6
B978A04000	4,000	.1575	—	—	87	49	41	0,8	36	6
B978A04200	4,200	.1654	—	—	87	49	41	0,9	36	6
B978A04500	4,500	.1772	—	—	87	49	41	0,9	36	6
B978A04600	4,600	.1811	—	—	87	49	41	0,9	36	6
B978A04763	4,763	.1875	3/16	—	94	56	48	1,0	36	6
B978A04800	4,800	.1890	—	12	94	56	48	1,0	36	6
B978A05000	5,000	.1969	—	—	94	56	48	1,0	36	6
B978A05100	5,100	.2008	—	—	94	56	48	1,1	36	6
B978A05200	5,200	.2047	—	—	94	56	48	1,1	36	6
B978A05300	5,300	.2087	—	—	94	56	48	1,1	36	6
B978A05500	5,500	.2165	—	—	94	56	48	1,1	36	6
B978A05558	5,558	.2188	7/32	—	94	56	48	1,2	36	6
B978A05600	5,600	.2205	—	—	94	56	48	1,2	36	6
B978A05700	5,700	.2244	—	—	94	56	48	1,2	36	6
B978A05800	5,800	.2283	—	—	94	56	48	1,2	36	6
B978A05900	5,900	.2323	—	—	94	56	48	1,2	36	6
B978A06000	6,000	.2362	—	—	94	56	48	1,2	36	6
B978A06100	6,100	.2402	—	—	105	67	57	1,3	36	8
B978A06200	6,200	.2441	—	—	105	67	57	1,3	36	8
B978A06300	6,300	.2480	—	—	105	67	57	1,3	36	8
B978A06350	6,350	.2500	1/4	—	105	67	57	1,3	36	8
B978A06400	6,400	.2520	—	—	105	67	57	1,3	36	8
B978A06500	6,500	.2559	—	—	105	67	57	1,4	36	8
B978A06600	6,600	.2598	—	—	105	67	57	1,4	36	8
B978A06700	6,700	.2638	—	—	105	67	57	1,4	36	8
B978A06746	6,746	.2656	17/64	—	105	67	57	1,4	36	8
B978A06800	6,800	.2677	—	—	105	67	57	1,4	36	8
B978A07000	7,000	.2756	—	—	105	67	57	1,5	36	8
B978A07145	7,145	.2813	9/32	—	110	72	61	1,5	36	8

(continued)

(B978A • ~8 x D — continued)

Solid Carbide Drills



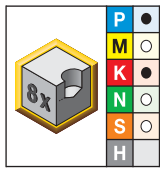
● first choice
○ alternate choice

extra long • KC7315	D1 diameter				L	L3	L4 max	L5	LS	D
	mm	in	fraction	wire size						
B978A07400	7,400	.2913	—	—	110	72	61	1,6	36	8
B978A07500	7,500	.2953	—	—	110	72	61	1,6	36	8
B978A07541	7,541	.2969	19/64	—	110	72	61	1,6	36	8
B978A07700	7,700	.3031	—	—	110	72	61	1,6	36	8
B978A07800	7,800	.3071	—	—	110	72	61	1,6	36	8
B978A07938	7,938	.3125	5/16	—	110	72	61	1,7	36	8
B978A08000	8,000	.3150	—	—	110	72	61	1,7	36	8
B978A08100	8,100	.3189	—	—	122	80	68	1,7	40	10
B978A08200	8,200	.3228	—	—	122	80	68	1,7	40	10
B978A08334	8,334	.3281	21/64	—	122	80	68	1,8	40	10
B978A08500	8,500	.3346	—	—	122	80	68	1,8	40	10
B978A08600	8,600	.3386	—	—	122	80	68	1,8	40	10
B978A08700	8,700	.3425	—	—	122	80	68	1,8	40	10
B978A08733	8,733	.3438	11/32	—	122	80	68	1,8	40	10
B978A08800	8,800	.3465	—	—	122	80	68	1,9	40	10
B978A09000	9,000	.3543	—	—	122	80	68	1,9	40	10
B978A09100	9,100	.3583	—	—	122	80	68	1,9	40	10
B978A09129	9,129	.3594	23/64	—	122	80	68	1,9	40	10
B978A09300	9,300	.3661	—	—	122	80	68	2,0	40	10
B978A09500	9,500	.3740	—	—	122	80	68	2,0	40	10
B978A09525	9,525	.3750	3/8	—	122	80	68	2,0	40	10
B978A09700	9,700	.3819	—	—	122	80	68	2,0	40	10
B978A09750	9,750	.3839	—	—	122	80	68	2,1	40	10
B978A09800	9,800	.3858	—	—	122	80	68	2,1	40	10
B978A09900	9,900	.3898	—	—	122	80	68	2,1	40	10
B978A09921	9,921	.3906	25/64	—	122	80	68	2,1	40	10
B978A10000	10,000	.3937	—	—	122	80	68	2,1	40	10
B978A10100	10,100	.3976	—	—	141	94	79	2,1	45	12
B978A10200	10,200	.4016	—	—	141	94	79	2,2	45	12
B978A10300	10,300	.4055	—	—	141	94	79	2,2	45	12
B978A10320	10,320	.4063	13/32	—	141	94	79	2,2	45	12
B978A10500	10,500	.4134	—	—	141	94	79	2,2	45	12
B978A10716	10,716	.4219	27/64	—	141	94	79	2,3	45	12
B978A10800	10,800	.4252	—	—	141	94	79	2,3	45	12
B978A11000	11,000	.4331	—	—	141	94	79	2,3	45	12
B978A11113	11,113	.4375	7/16	—	141	94	79	2,4	45	12
B978A11200	11,200	.4409	—	—	141	94	79	2,4	45	12
B978A11300	11,300	.4449	—	—	141	94	79	2,4	45	12
B978A11400	11,400	.4488	—	—	141	94	79	2,4	45	12
B978A11500	11,500	.4528	—	—	141	94	79	2,4	45	12
B978A11509	11,509	.4531	29/64	—	141	94	79	2,4	45	12
B978A11700	11,700	.4606	—	—	141	94	79	2,5	45	12
B978A11800	11,800	.4646	—	—	141	94	79	2,5	45	12
B978A11908	11,908	.4688	15/32	—	141	94	79	2,5	45	12
B978A12000	12,000	.4724	—	—	141	94	79	2,5	45	12
B978A12304 *	12,304	.4844	31/64	—	155	108	91	2,6	45	14
B978A12500	12,500	.4921	—	—	155	108	91	2,7	45	14
B978A12700	12,700	.5000	1/2	—	155	108	91	2,7	45	14
B978A12800	12,800	.5039	—	—	155	108	91	2,7	45	14
B978A13000	13,000	.5118	—	—	155	108	91	2,8	45	14
B978A13100	13,100	.5157	—	—	155	108	91	2,8	45	14
B978A13500	13,500	.5315	—	—	155	108	91	2,9	45	14

(continued)

(B978A • ~8 x D — continued)

Solid Carbide Drills



● first choice
○ alternate choice

extra long • KC7315	D1 diameter				L	L3	L4 max	L5	LS	D
	mm	in	fraction	wire size						
B978A14000	14,000	.5512	—	—	155	108	91	3,0	45	14
B978A14288	14,288	.5625	9/16	—	171	121	101	3,0	48	16
B978A14500	14,500	.5709	—	—	171	121	101	3,1	48	16
B978A15000	15,000	.5906	—	—	171	121	101	3,2	48	16
B978A15100	15,100	.5945	—	—	171	121	101	3,2	48	16
B978A15200	15,200	.5984	—	—	171	121	101	3,2	48	16
B978A15300	15,300	.6024	—	—	171	121	101	3,3	48	16
B978A15500	15,500	.6102	—	—	171	121	101	3,3	48	16
B978A15800	15,800	.6220	—	—	171	121	101	3,4	48	16
B978A15875	15,875	.6250	5/8	—	171	121	101	3,4	48	16
B978A16000	16,000	.6299	—	—	171	121	101	3,4	48	16
B978A16078	16,078	.6330	—	—	185	135	113	3,4	48	18
B978A16200	16,200	.6378	—	—	185	135	113	3,5	48	18
B978A16500	16,500	.6496	—	—	185	135	113	3,5	48	18
B978A17000	17,000	.6693	—	—	185	135	113	3,6	48	18
B978A17463	17,463	.6875	11/16	—	185	135	113	3,7	48	18
B978A17500	17,500	.6890	—	—	185	135	113	3,7	48	18
B978A18000	18,000	.7087	—	—	185	135	113	3,9	48	18
B978A18500	18,500	.7283	—	—	200	148	124	4,0	50	20
B978A19000	19,000	.7480	—	—	200	148	124	4,1	50	20
B978A19050 *	19,050	.7500	3/4	—	200	148	124	4,1	50	20
B978A19253 *	19,253	.7580	—	—	200	148	124	4,1	50	20
B978A19500 *	19,500	.7677	—	—	200	148	124	4,2	50	20
B978A19800	19,800	.7795	—	—	200	148	124	4,2	50	20
B978A19840	19,840	.7811	—	—	200	148	124	4,3	50	20
B978A20000	20,000	.7874	—	—	200	148	124	4,3	50	20

NOTE: The point angle on B978 series is 132°.
*Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Tolerance • Metric			Tolerance • Inch		
nominal size range	D1 tolerance m7	D tolerance h6	nominal size range	D1 tolerance m7	D tolerance h6
>3-6	0,004/0,016	0,000/-0,008	>.1181-.2362	.0002/.0006	.0000/-0.0003
>6-10	0,006/0,021	0,000/-0,009	>.2362-.3937	.0002/.0008	.0000/-0.0004
>10-18	0,007/0,025	0,000/-0,011	>.3937-.7087	.0003/.0010	.0000/-0.0004
>18-25,4	0,008/0,029	0,000/-0,013	>.7087-1.0000	.0003/.0011	.0000/-0.0005

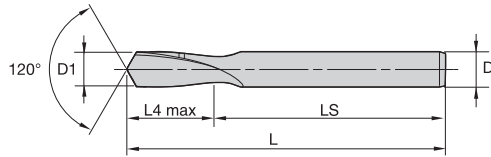
Kenna Universal™ Drills • B97_Series • Grade KC7315™ • Through Coolant • Drill Diameters 2–20mm (.0787–.7874")

Solid Carbide Drills

		Cutting Speed – vc			Metric									
		Range – m/min			Recommended Feed Rate (f) by Diameter									
Material Group		min	Starting Value	max		2,0	3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
P	0	80	120	160	mm/r	0,04–0,10	0,06–0,12	0,07–0,14	0,09–0,19	0,11–0,22	0,13–0,26	0,15–0,30	0,19–0,36	0,24–0,46
	1	70	100	140	mm/r	0,05–0,12	0,07–0,14	0,08–0,16	0,11–0,22	0,13–0,26	0,15–0,31	0,18–0,35	0,22–0,42	0,28–0,54
	2	90	120	140	mm/r	0,05–0,12	0,07–0,14	0,08–0,16	0,12–0,22	0,14–0,26	0,17–0,31	0,20–0,35	0,24–0,42	0,31–0,53
	3	60	80	100	mm/r	0,06–0,13	0,08–0,15	0,09–0,17	0,13–0,23	0,15–0,28	0,19–0,33	0,22–0,38	0,26–0,47	0,34–0,59
	4	50	80	100	mm/r	0,06–0,13	0,07–0,15	0,08–0,17	0,12–0,23	0,14–0,28	0,17–0,33	0,19–0,38	0,23–0,47	0,29–0,59
	5	50	60	80	mm/r	0,06–0,12	0,08–0,13	0,10–0,15	0,12–0,19	0,16–0,24	0,20–0,27	0,24–0,30	0,28–0,38	0,32–0,44
M	6	40	50	70	mm/r	0,04–0,06	0,05–0,08	0,06–0,10	0,08–0,14	0,10–0,18	0,13–0,22	0,14–0,24	0,18–0,32	0,23–0,41
	1	30	40	50	mm/r	0,03–0,06	0,04–0,07	0,05–0,09	0,08–0,11	0,09–0,12	0,10–0,14	0,12–0,16	0,14–0,18	0,16–0,20
	2	40	50	60	mm/r	0,03–0,07	0,04–0,08	0,06–0,10	0,08–0,12	0,09–0,14	0,10–0,16	0,12–0,18	0,14–0,20	0,16–0,22
K	3	30	40	50	mm/r	0,03–0,06	0,04–0,07	0,05–0,09	0,08–0,11	0,09–0,12	0,10–0,14	0,12–0,16	0,14–0,18	0,16–0,20
	1	80	120	170	mm/r	0,09–0,17	0,11–0,22	0,12–0,24	0,16–0,31	0,20–0,38	0,23–0,44	0,25–0,49	0,31–0,60	0,38–0,74
	2	80	110	140	mm/r	0,11–0,15	0,12–0,16	0,13–0,19	0,16–0,25	0,20–0,31	0,23–0,36	0,25–0,40	0,31–0,48	0,38–0,60
N	3	80	100	130	mm/r	0,07–0,15	0,08–0,17	0,09–0,19	0,12–0,25	0,14–0,30	0,17–0,35	0,19–0,40	0,24–0,48	0,30–0,60
	1	90	230	315	mm/r	0,06–0,13	0,08–0,14	0,10–0,16	0,12–0,20	0,16–0,24	0,20–0,28	0,24–0,32	0,28–0,40	0,32–0,48
	2	90	225	270	mm/r	0,06–0,12	0,08–0,16	0,10–0,20	0,12–0,24	0,16–0,28	0,20–0,32	0,24–0,36	0,28–0,44	0,32–0,52
	3	90	180	270	mm/r	0,11–0,14	0,12–0,14	0,13–0,16	0,14–0,20	0,16–0,24	0,20–0,28	0,24–0,32	0,28–0,40	0,32–0,44
S	4	90	135	180	mm/r	0,06–0,12	0,08–0,16	0,01–0,20	0,12–0,24	0,16–0,28	0,20–0,32	0,24–0,36	0,28–0,40	0,32–0,48
	1	10	25	30	mm/r	0,02–0,05	0,03–0,06	0,04–0,08	0,06–0,10	0,08–0,12	0,09–0,13	0,10–0,14	0,12–0,16	0,14–0,18
	2	10	20	25	mm/r	0,02–0,03	0,02–0,04	0,03–0,06	0,05–0,08	0,07–0,10	0,08–0,11	0,09–0,12	0,10–0,14	0,11–0,16
	3	10	25	30	mm/r	0,02–0,03	0,02–0,04	0,02–0,05	0,04–0,07	0,06–0,09	0,07–0,10	0,08–0,11	0,09–0,13	0,10–0,15
4	10	25	40	mm/r	0,02–0,03	0,02–0,04	0,03–0,06	0,05–0,08	0,07–0,10	0,08–0,11	0,09–0,12	0,10–0,14	0,11–0,16	

		Cutting Speed – vc			Inch									
		Range – SFM			Recommended Feed Rate (f) by Diameter									
Material Group		min	Starting Value	max		5/64 .078	1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
P	0	260	390	520	IPR	.002-.004	.002-.005	.003-.005	.004-.007	.004-.009	.005-.010	.006-.012	.007-.014	.009-.018
	1	230	330	460	IPR	.002-.005	.003-.006	.003-.006	.004-.009	.005-.010	.006-.012	.007-.014	.009-.017	.011-.022
	2	300	390	460	IPR	.002-.005	.003-.006	.003-.006	.005-.009	.006-.010	.007-.012	.008-.014	.009-.017	.012-.021
	3	200	260	330	IPR	.002-.005	.003-.006	.004-.007	.005-.009	.006-.011	.008-.013	.009-.015	.010-.019	.013-.023
	4	160	260	330	IPR	.002-.005	.003-.006	.003-.007	.005-.009	.006-.011	.007-.013	.008-.015	.009-.019	.011-.023
	5	160	200	260	IPR	.002-.005	.003-.005	.004-.006	.005-.008	.006-.009	.008-.011	.009-.012	.011-.015	.013-.017
M	6	130	160	230	IPR	.002-.002	.002-.003	.002-.004	.003-.006	.004-.007	.005-.009	.006-.009	.007-.013	.009-.016
	1	100	130	160	IPR	.001-.002	.002-.003	.002-.004	.003-.004	.004-.005	.004-.006	.005-.006	.006-.007	.006-.008
	2	130	160	200	IPR	.001-.003	.002-.003	.002-.004	.003-.005	.004-.006	.004-.006	.005-.007	.006-.008	.006-.009
K	3	100	130	160	IPR	.001-.002	.002-.003	.002-.004	.003-.004	.004-.005	.004-.006	.005-.006	.006-.007	.006-.008
	1	260	390	560	IPR	.004-.007	.004-.009	.005-.009	.006-.012	.008-.015	.009-.017	.010-.019	.012-.024	.015-.029
	2	260	360	460	IPR	.004-.006	.005-.006	.005-.008	.006-.010	.008-.012	.009-.014	.010-.016	.012-.019	.015-.024
N	3	260	330	430	IPR	.003-.006	.003-.007	.004-.008	.005-.010	.006-.012	.007-.014	.008-.016	.009-.019	.012-.024
	1	300	750	1030	IPR	.002-.005	.003-.006	.004-.006	.005-.008	.006-.009	.008-.011	.009-.013	.011-.016	.013-.019
	2	300	740	890	IPR	.002-.005	.003-.006	.004-.008	.005-.009	.006-.011	.008-.013	.009-.014	.011-.017	.013-.021
	3	300	590	890	IPR	.004-.006	.005-.006	.005-.006	.006-.008	.006-.009	.008-.011	.009-.013	.011-.016	.013-.017
S	4	300	440	590	IPR	.002-.005	.003-.006	.000-.008	.005-.009	.006-.011	.008-.013	.009-.014	.011-.016	.013-.019
	1	30	80	100	IPR	.001-.002	.001-.002	.002-.003	.002-.004	.003-.005	.004-.005	.004-.006	.005-.006	.006-.007
	2	30	70	80	IPR	.001-.002	.001-.002	.001-.002	.002-.003	.003-.004	.003-.004	.004-.005	.004-.006	.004-.006
	3	30	80	100	IPR	.001-.001	.001-.002	.001-.002	.002-.003	.002-.004	.003-.004	.003-.004	.004-.005	.004-.006
4	30	80	130	IPR	.001-.001	.001-.002	.001-.002	.002-.003	.003-.004	.003-.004	.004-.005	.004-.006	.004-.006	



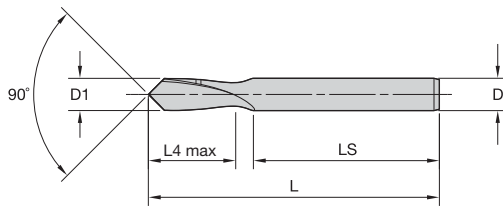


B501 • 120°



- first choice
- alternate choice

B501 • K10	D1 diameter				L	L4 max	LS	D
	mm	in	fraction	wire size				
B501Z04000	4,000	.1575	—	—	54	7	33	6
B501Z06000	6,000	.2362	—	—	54	9	33	6
B501Z10000	10,000	.3937	—	—	66	12	45	10
B501Z12000	12,000	.4724	—	—	73	14	52	12



B505 • 90°



- first choice
- alternate choice

B505 • K10	D1 diameter				L	L4 max	LS	D
	mm	in	fraction	wire size				
B505Z04000	4,000	.1575	—	—	54	7	33	4
B505Z06000	6,000	.2362	—	—	54	9	33	6
B505Z08000	8,000	.3150	—	—	58	11	37	8
B505Z10000	10,000	.3937	—	—	66	12	40	10
B505Z12000	12,000	.4724	—	—	73	14	52	12
B505Z16000	16,000	.6299	—	—	82	16	61	16
B505Z20000	20,000	.7874	—	—	92	18	71	20

Tolerance • Metric

D1	tolerance h8	tolerance h6
>3-6	0,000/-0,018	0,000/-0,008
>6-10	0,000/-0,022	0,000/-0,009
>10-18	0,000/-0,027	0,000/-0,011

Tolerance • Inch

D1	tolerance h8	tolerance h6
>.1181-.2362	.0000/-0.0007	.0000/-0.0003
>.2362-.3937	.0000/-0.0009	.0000/-0.0004
>.3937-.7087	.0000/-0.0011	.0000/-0.0004

**■ Non-Coolant Spot Drills • B50_Series • Grade K10 • Dry and Flood Coolant Drill •
 Diameters 3–20mm (.1181–.7874")**

Material Group		Cutting Speed – vc			Metric									
		Range – m/min			Recommended Feed Rate (f) by Diameter									
		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0	
		mm/r												
P	0	50	65	100		0,05–0,10	0,06–0,12	0,08–0,14	0,10–0,16	0,12–0,18	0,14–0,20	0,16–0,24	0,18–0,28	
	1	40	55	80		0,05–0,10	0,06–0,12	0,08–0,14	0,10–0,16	0,12–0,18	0,14–0,20	0,16–0,24	0,18–0,28	
	2	40	55	80		0,05–0,10	0,06–0,12	0,08–0,14	0,10–0,16	0,12–0,18	0,14–0,20	0,16–0,24	0,18–0,28	
	3	40	55	80		0,05–0,10	0,06–0,12	0,08–0,14	0,10–0,16	0,12–0,18	0,14–0,20	0,16–0,24	0,18–0,28	
	4	40	55	80		0,05–0,08	0,05–0,10	0,06–0,12	0,08–0,14	0,10–0,16	0,12–0,18	0,14–0,22	0,16–0,24	
	5	30	40	60		0,03–0,05	0,03–0,06	0,04–0,08	0,06–0,10	0,08–0,12	0,10–0,14	0,12–0,18	0,14–0,20	
M	1	30	35	50		0,04–0,07	0,05–0,09	0,06–0,11	0,08–0,13	0,09–0,15	0,10–0,17	0,11–0,20	0,12–0,23	
	2	30	40	50		0,03–0,05	0,04–0,08	0,05–0,09	0,06–0,10	0,07–0,12	0,08–0,14	0,09–0,17	0,10–0,20	
	3	25	30	40		0,03–0,05	0,04–0,08	0,05–0,09	0,06–0,10	0,07–0,12	0,08–0,14	0,09–0,17	0,10–0,20	
K	1	60	90	120		0,06–0,12	0,08–0,14	0,10–0,16	0,12–0,18	0,14–0,20	0,16–0,22	0,18–0,26	0,20–0,30	
	2	60	80	100		0,06–0,12	0,08–0,14	0,10–0,16	0,12–0,18	0,14–0,20	0,16–0,22	0,18–0,26	0,20–0,30	
	3	60	90	120		0,06–0,12	0,08–0,14	0,10–0,16	0,12–0,18	0,14–0,20	0,16–0,22	0,18–0,26	0,20–0,30	
N	1	90	230	270		0,06–0,13	0,08–0,15	0,10–0,18	0,12–0,25	0,15–0,28	0,18–0,32	0,20–0,34	0,22–0,38	
	2	90	220	270		0,06–0,13	0,08–0,15	0,10–0,18	0,12–0,25	0,15–0,28	0,18–0,32	0,20–0,34	0,22–0,38	
	3	90	180	225		0,06–0,13	0,08–0,15	0,10–0,18	0,12–0,25	0,15–0,28	0,18–0,32	0,20–0,34	0,22–0,38	
	4	90	130	270		0,06–0,13	0,08–0,15	0,10–0,18	0,12–0,25	0,15–0,28	0,18–0,32	0,20–0,34	0,22–0,38	
S	1	20	25	30		0,03–0,05	0,04–0,07	0,05–0,09	0,06–0,10	0,07–0,11	0,08–0,13	0,09–0,16	0,10–0,20	
	2	10	20	30		0,03–0,05	0,04–0,07	0,05–0,09	0,06–0,10	0,07–0,11	0,08–0,13	0,09–0,16	0,10–0,20	
	3	20	25	40		0,03–0,05	0,04–0,07	0,05–0,09	0,06–0,10	0,07–0,11	0,08–0,13	0,09–0,16	0,10–0,20	
	4	20	25	50		0,03–0,05	0,04–0,07	0,05–0,09	0,06–0,10	0,07–0,11	0,08–0,13	0,09–0,16	0,10–0,20	
Material Group		Cutting Speed – vc			Inch									
		Range – SFM			Recommended Feed Rate (f) by Diameter									
		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750	
		IPR												
P	0	160	210	330		.002–.004	.002–.005	.003–.006	.004–.006	.005–.007	.006–.008	.006–.009	.007–.011	
	1	130	180	260		.002–.004	.002–.005	.003–.006	.004–.006	.005–.007	.006–.008	.006–.009	.007–.011	
	2	130	180	260		.002–.004	.002–.005	.003–.006	.004–.006	.005–.007	.006–.008	.006–.009	.007–.011	
	3	130	180	260		.002–.004	.002–.005	.003–.006	.004–.006	.005–.007	.006–.008	.006–.009	.007–.011	
	4	130	180	260		.002–.003	.002–.004	.002–.005	.003–.006	.004–.006	.005–.007	.006–.009	.006–.009	
	5	100	130	200		.001–.002	.001–.002	.002–.003	.002–.004	.003–.005	.004–.006	.005–.007	.006–.008	
M	1	100	110	160		.002–.003	.002–.004	.002–.004	.003–.005	.004–.006	.004–.007	.004–.008	.005–.009	
	2	100	130	160		.001–.002	.002–.003	.002–.004	.002–.004	.003–.005	.003–.006	.004–.007	.004–.008	
	3	80	100	130		.001–.002	.002–.003	.002–.004	.002–.004	.003–.005	.003–.006	.004–.007	.004–.008	
K	1	200	300	390		.002–.005	.003–.006	.004–.006	.005–.007	.006–.008	.006–.009	.007–.010	.008–.012	
	2	200	260	330		.002–.005	.003–.006	.004–.006	.005–.007	.006–.008	.006–.009	.007–.010	.008–.012	
	3	200	300	390		.002–.005	.003–.006	.004–.006	.005–.007	.006–.008	.006–.009	.007–.010	.008–.012	
N	1	300	750	890		.002–.005	.003–.006	.004–.007	.005–.010	.006–.011	.007–.013	.008–.013	.009–.015	
	2	300	720	890		.002–.005	.003–.006	.004–.007	.005–.010	.006–.011	.007–.013	.008–.013	.009–.015	
	3	300	590	740		.002–.005	.003–.006	.004–.007	.005–.010	.006–.011	.007–.013	.008–.013	.009–.015	
	4	300	430	890		.002–.005	.003–.006	.004–.007	.005–.010	.006–.011	.007–.013	.008–.013	.009–.015	
S	1	70	80	100		.001–.002	.002–.003	.002–.004	.002–.004	.003–.004	.003–.005	.004–.006	.004–.008	
	2	30	70	100		.001–.002	.002–.003	.002–.004	.002–.004	.003–.004	.003–.005	.004–.006	.004–.008	
	3	70	80	130		.001–.002	.002–.003	.002–.004	.002–.004	.003–.004	.003–.005	.004–.006	.004–.008	
	4	70	80	160		.001–.002	.002–.003	.002–.004	.002–.004	.003–.004	.003–.005	.004–.006	.004–.008	



Modular Drills

Introduction	H2–H5
KenTIP FS	H6–H28
KenTIP	H30–H48
KSEM	H50–H101
Tube Sheet Grooving Tool	H98–H101
KSEM PLUS	H102–H133

modular drills with internal coolant channel		grade/series	standard*						hole tolerance	standard range		
			● first choice ○ alternate choice							diameter range		
			P	M	K	N	S	H		D1 mm min-max	D1 inch min-max	drilling depth L/D1
KenTIP™ FS For smaller diameters. Easy front clamping and disposable inserts.												
	KenTIP FS inserts	KCP15A HPG	●		○				IT9-IT11	6,00-26,00	.2362-1.0236	—
		KC7410 HPC			●							
		KCMS15 HPL		●								
	KenTIP FS bodies	SS SF SCF	—						—	6,00≤Ø<9,50	.2362≤Ø<.3740	1.5-12 x D
									9,50≤Ø<11,00	.3740≤Ø<.4331		
									11,00≤Ø<12,50	.4331≤Ø<.4921		
									12,50≤Ø<14,00	.4921≤Ø<.5512		
									14,00≤Ø<15,50	.5512≤Ø<.6102		
									15,50≤Ø<16,50	.6102≤Ø<.6496		
									16,50≤Ø<20,00	.6496≤Ø<.7874		
									20,00≤Ø<21,00	.7874≤Ø<.8268		
									21,00≤Ø<26,00	.8268≤Ø<1.0236	SCF shank only	
KenTIP™												
	KenTIP inserts	KCP15 HP	●		○				IT9-IT11	7,94-27,99	.3125-1.1020	—
		KCPM45™ FEG	●	○	○					7,94-27,99	.3125-.7874	
	FAS chamfering inserts	KC7014 FAS-GD	○	○	○	●	○		IT9-IT11	Made-to-order toolholders required. Also available for KenTIP FS.		
		KC7215 FAS-GD	●	○	●	○	●					
	CFM tangential chamfering and counterboring	KCU40 CFM-HP	●	○	○	●	●					
	KenTIP bodies	SS SCF	—						—	7,94≤Ø<9,50	.3125≤Ø<.3740	1.5-12 x D
									9,50≤Ø<11,00	.3740≤Ø<.4331		
									11,00≤Ø<12,50	.4331≤Ø<.4921		
									12,50≤Ø<14,00	.4921≤Ø<.5512		
									14,00≤Ø<15,50	.5512≤Ø<.6102		
									15,50≤Ø<16,50	.6102≤Ø<.6496		
									16,50≤Ø<20,50	.6496≤Ø<.8071		
									20,50≤Ø<21,00	.8071≤Ø<.8268		
									21,00≤Ø<27,99	.8268≤Ø<1.1020		

* Apart from our standard drills, we can offer you a wide variety of special coating solutions and edge preparations to fulfill all your needs. If a specific drill is not suitable for your workpiece material, please contact our **Engineered Solutions Department**.

Standard Product
 Engineered Solutions

engineered solution range			coolant	drilling	inclined exit	stacked plates	flat bottom	countersinking	counterboring	cross hole	2 flute 2 margin cooled	2 flute 4 margin cooled	corner chamfer	plain shank sH6	Whistle Notch 2°	WD shank	flat shank	SSF shank	KMI™ shank	HSK shank	page(s)	
diameter range																						
D1 mm min-max	D1 inch min-max	max drilling depth																				
KenTIP™ FS For smaller diameters. Easy front clamping and disposable inserts. <i>(continued)</i>																						
6,00–26,00	.2362–1.0236	—	■	■	■	■		□	□	■	■	□	□								H8	
6,00≤Ø<9,50	.2362≤Ø<.3740	12 x D	■					□	□					■	□	□	■	□	□	□	H18	
9,50≤Ø<11,00	.3740≤Ø<.4331	13 x D	■					□	□					■	□	□	■	□	□	□		
11,00≤Ø<12,50	.4331≤Ø<.4921	14 x D	■					□	□					■	□	□	■	□	□	□		
12,50≤Ø<14,00	.4921≤Ø<.5512	15 x D	■					□	□					■	□	□	■	□	□	□		
14,00≤Ø<15,50	.5512≤Ø<.6102	16 x D	■					□	□					■	□	□	■	□	□	□		
15,50≤Ø<16,50	.6102≤Ø<.6496	17 x D	■					□	□					■	□	□	■	□	□	□		
16,50≤Ø<20,00	.6496≤Ø<.7874	18 x D	■					□	□					■	□	□	■	□	□	□		
20,00≤Ø<21,00	.7874≤Ø<.8268	20 x D	■					□	□					■	□	□	■	□	□	□		
21,00≤Ø<26,00	.8268≤Ø<1.0236	550mm	■					□	□					■	□	□	■	□	□	□		
KenTIP™ (continued)																						
7,94–27,99	.3125–1.1020	—		■	□						■	□	□								H32	
12,50–36,01	.4921–1.4177				■	■			■	■	■	□	■	■								H42
10,00–31,20	.3937–1.2283								■	■												H43
7,94≤Ø<9,50	.3125≤Ø<.3740	12 x D	■					□**	□					■	□	□	■	□	□	□	H38	
9,50≤Ø<11,00	.3740≤Ø<.4331	13 x D	■					□**	□					■	□	□	■	□	□	□		
11,00≤Ø<12,50	.5424≤Ø<.4921	14 x D	■					□**	□					■	□	□	■	□	□	□		
12,50≤Ø<14,00	.4921≤Ø<.5512	15 x D	■					□**	□					■	□	□	■	□	□	□		
14,00≤Ø<15,50	.5512≤Ø<.6102	16 x D	■					□**	□					■	□	□	■	□	□	□		
15,50≤Ø<16,50	.6102≤Ø<.6496	17 x D	■					□**	□					■	□	□	■	□	□	□		
16,50≤Ø<20,50	.6496≤Ø<.8070	18 x D	■					□**	□					■	□	□	■	□	□	□		
20,50≤Ø<21,00	.8070≤Ø<.8267	20 x D	■					□**	□					■	□	□	■	□	□	□		
21,00≤Ø<28,00	.8267≤Ø<1.1024	550mm	■					□**	□					■	□	□	■	□	□	□		

** Alternative chamfering solutions are available in combination with SEFAS™ or BF; see page I1.
 Please use this table for orientation purposes only. Detailed information on available products (inserts, toolholders, etc.) can be found on the indicated pages of this catalog.

(continued)

modular drills with internal coolant channel		grade/series	standard*						standard range				
			● first choice ○ alternate choice						diameter range				
			P	M	K	N	S	H				hole tolerance	D1 mm min-max
KSEM™ For larger diameters. Very robust pocket and regrindable inserts.													
	KSEM inserts	KC7315 HP/HPG	●	○					IT9-IT11	12,50-40,00	.4921-1.5748	—	
		KCPM45 HPG	●	○						12,50-40,00	.4921-1.5748		
		KC7410 HPCCL			●						12,70-40,00		.5000-1.5748
		KC7320 HPL		●							12,50-40,00		.4921-1.5748
		KCMS35 SPL	○	●		○	●				12,50-40,00		.4921-1.5748
		KCPM45 FEG	●	○	○		○				16,00-40,00		.6230-1.5748
		KC7135 PC	●		●						12,50-40,00		.4921-1.5748
	chamfering inserts	KC7015 TPGX-GD		●		○			IT9-IT11	12,50-40,00	.4921-1.5748	—	
		KC7140 TPGX-GD	●	○	○	●	○						
		KC7315™ TPGX-GD	○	○	●	○	●						
	KSEM bodies	WN (Metric), SS (inch), SSF (inch)	—						—	12,50≤Ø<16,50	.4921≤Ø<.6496	1-10 x D (SSF only up to 8 x D) (WN only up to Ø32mm)	
		WD (Metric)	—						—	16,50≤Ø<20,00	.6496≤Ø<.7874		
		20,00≤Ø≤32,00	—						—	.7874<Ø≤1.2598	1.2598<Ø≤1.5748		1-5 x D
		WN, SSF with chamfer	—						—	12,50≤Ø<16,50	.4921≤Ø<.6496	1 x D	
		20,00≤Ø≤32,00	—						—	.6496≤Ø<.7874	.7874<Ø≤1.2598		
WD, SSF with chamfer	—						—	32,00<Ø≤40,00	1.2598<Ø<1.5748	1 x D			
KSEM PLUS™ High-performance drilling for the largest diameters.													
	KSEM PLUS heads	A1 style							IT9-IT11	28,00<Ø≤101,40	1.1020<Ø≤4.0000	—	
		B1 style											
	KSEM PLUS center inserts	KSEMP KC7315 HPG	●	●	○	○	○		IT9-IT11	13,00-40,00 mm PDD reference only	—		
		KSEM KC7410 HPCCL			●								
		KSEM KC7135 PC	●										
	DFR™ inserts	KCU25 DFR-GD	●	○	●	○	○		IT9-IT11	DFR inserts for A1 Heads with FDS28	28,00-31,00	1.1024-1.2204	
		KCU40 DFR-GD	●	○	○	○	●						
		KC7140 DFR-MD	●	●	○	○	○						
		KC7225 DFR-LD	○	○	●	●	○						
	DFT™ inserts	KCU25 DFT-HP	●	○	●	○	○		IT9-IT11	DFT inserts for A1 Heads FDS32 and above	31,75-101,40	1.2500-4.0000	
		KCU40 DFT-HP	●	○	○	○	●						
		KCU40 DFC-DS	●	○		○	○						
		KC7140 DFT-MD	●	●	○	○	○						
	DFC™ inserts (B1 Heads)	KCU25 DFC-HP	●	○	●	○	○		IT9-IT11	DFC inserts for B1 Heads, all FDS sizes	28,00-101,40	1.1024-4.0000	
		KCU40 DFC-HP	●	○	○	○	●						
		KCU40 DFC-DS	●	○		○	○						
		KC7140 DFC-MD	●	●	○	○	○						
	DPA guide pads (B1 Heads)	KCU40 DPA	—						—	Available for all standard B1 Head Diameters			
			—						—				
	KSEM PLUS bodies	WD (Metric)	—						—	28,00≤Ø≤70,00	1.1024≤Ø≤2.7560	1.5-10 x D	
		SSF (Inch)	—						—	70,00≤Ø≤101,40	2.7560≤Ø≤4.0000	1.5-5 x D	

* Apart from our standard drills, we can offer you a wide variety of special coating solutions and edge preparations to fulfill all your needs. If a specific drill is not suitable for your workpiece material, please contact our **Engineered Solutions Department**.

Standard Product
 Engineered Solutions

engineered solution range			coolant	drilling	inclined exit	stacked plates	flat bottom	countersinking	counterboring	cross hole	2 flute 2 margin cooled	2 flute 4 margin cooled	corner chamfer	plain shank $\leq H6$	Whistle Notch 2°	WD shank	flat shank	SSF shank	KM™ shank	HSK shank	page(s)		
D1 mm min-max	D1 inch min-max	max drilling depth																				diameter range	
KSEM™																							
For larger diameters. Very robust pocket and regrindable inserts. (continued)																							
12,50-40,00	.4921-1.5748	—	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	H52	
12,50-40,00	.4921-1.5748	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	H85	
12,50 \leq \varnothing <16,50	.4921 \leq \varnothing <.6496	15 x D	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H72	
16,50 \leq \varnothing <20,00	.6496 \leq \varnothing <.7874	18 x D	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
20,00 \leq \varnothing \leq 40,00	.7874 \leq \varnothing \leq 1.5748	20 x D	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
32,00< \varnothing \leq 40,00	1.2598< \varnothing \leq 1.5748	20 x D (max 800mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
12,50 \leq \varnothing <16,50	.4921 \leq \varnothing <.6496	chamfer step drills available as custom solutions in various lengths	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
16,50 \leq \varnothing <20,00	.6496 \leq \varnothing <.7874		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
20,00 \leq \varnothing \leq 32,00	.7874 \leq \varnothing \leq 1.2598		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
32,00< \varnothing \leq 40,00	1.2598< \varnothing \leq 1.5748		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
KSEM PLUS™																							
High-performance drilling for the largest diameters. (continued)																							
28,00< \varnothing \leq 127,00	1.1020< \varnothing \leq 5.0000	—	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H115	
13,00-40,00 mm PDD reference only			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H111	
DFR inserts for A1 Heads with FDS28																							
28,00 \leq \varnothing <31,75	1.1024 \leq \varnothing <1.2500	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H113	
DFT inserts for A1 Heads FDS32 and above																							
31,75 \leq \varnothing \leq 127,00	1.2500 \leq \varnothing \leq 5.0000	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H112	
DFC inserts for B1 Heads, all FDS sizes																							
28,00 \leq \varnothing \leq 127,00	1.1024 \leq \varnothing \leq 5.0000	—	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H114	
DPA are supporting various solutions																							
28,00 \leq \varnothing \leq 127,00	1.1020 \leq \varnothing \leq 5.0000	3-20 x D (max 1250mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H126	

** Alternative chamfering solutions are available in combination with SEFAS™ or BF; see page 11. Please use this table for orientation purposes only. Detailed information on available products (inserts, toolholders, etc.) can be found on the indicated pages of this catalog.





> KenTIP™ FS

The Perfect Fusion of a Solid Carbide and an Indexable Drill

The new modular drill KenTIP FS covers more applications and provides better performance than any other modular system, delivering substantial cost savings and process simplifications on your shop floor.

3-point geometries, 3 high-performance grades, 3 different shank styles.
 This modular drilling system covers a 6–26mm (.2363–1.0236") diameter range.
 Up to 12 x D drilling depths.
 Applicable in steel, stainless steel, and cast iron.

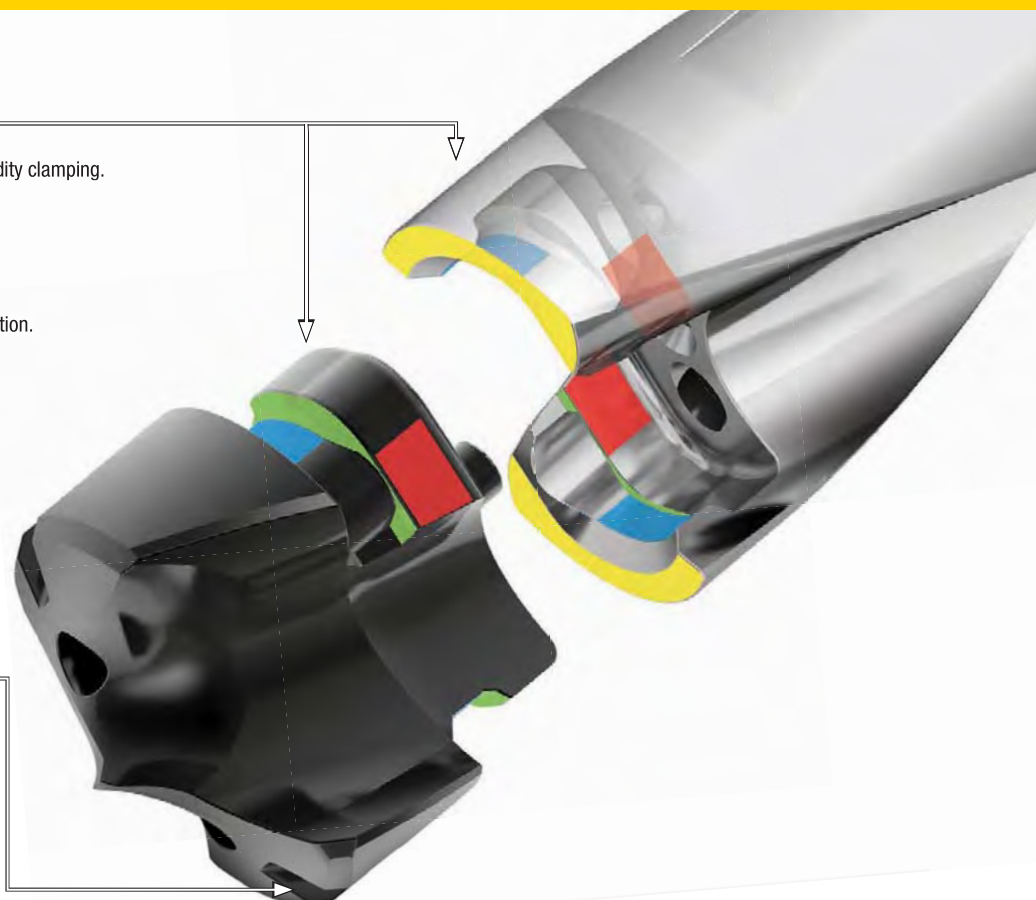
Intelligent Interface

-  Taper interface uniquely designed for highest rigidity clamping.
-  Retention lock prevents insert pullout.
-  Large bearing surface positioned for transmission of highest torsional loads without pocket deformation.
-  Large face contact surface.

Maximum performance and long tool life, even in unstable conditions.

Quick Release

Every drill body comes with a KenTIP smart wrench. Insert exchange in the machine becomes easy and saves idle time. And that saves money.





Recycling Instead of Reconditioning
KenTIP™ FS provides the same stable and repeatable performance with every new insert. Lower your operational expenses with less tooling inventory and simplified processes. Recoup cost by providing your used carbide inserts to our recycling service.

Fast Flow
Large, ultra-high polished chip flutes guarantee hassle-free chip evacuation, enhancing tool life and performance.

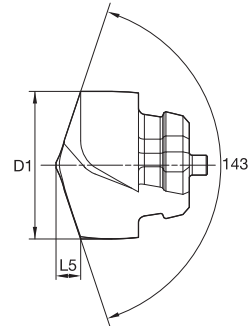
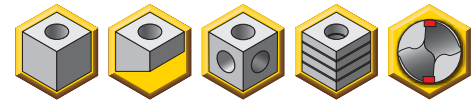
Multi-Coolant
Coolant delivery to the drill point and to the rake face for guaranteed coolant delivery where it is needed.

Unique Point Geometries
3 material-specific, self-centering point designs enable excellent hole quality and optimum tool performance.

Full Solid Carbide Front
KenTIP FS inserts cover the entire front part of the drill. The coupling is completely protected from chip flow and contact with workpiece.



- HPG-point geometry for steels.
- Great positioning and centering capabilities for drilling without precentering, even in deeper holes.
- KCP15A™ is an AlTiN PVD monolayer coating.
- Enhanced thermal stability.
- Excellent balance between toughness and wear resistance.
- Without internal coolant.



Modular Drills

■ KenTIP FS Inserts • HPG KCP15A • No Internal Coolant Channels



KCP15A	D1		L5		seat size
	mm	in	mm	in	
KTFSS06000HPGM	6,000	.2362	1,370	.0539	A
KTFSS06100HPGM	6,100	.2402	1,380	.0543	A
KTFSS06200HPGM	6,200	.2441	1,400	.0551	A
KTFSS06300HPGM	6,300	.2480	1,440	.0567	B
KTFSS06350HPGM	6,350	.2500	1,450	.0571	B
KTFSS06400HPGM *	6,400	.2520	1,450	.0571	B
KTFSS06500HPGM	6,500	.2559	1,470	.0579	B
KTFSS06530HPGM	6,530	.2571	1,480	.0583	B
KTFSS06600HPGM	6,600	.2598	1,490	.0587	C
KTFSS06629HPGM *	6,629	.2610	1,500	.0591	C
KTFSS06700HPGM	6,700	.2638	1,510	.0594	C
KTFSS06746HPGM	6,746	.2656	1,520	.0598	C
KTFSS06800HPGM	6,800	.2677	1,530	.0602	C
KTFSS06900HPGM *	6,900	.2717	1,540	.0606	C
KTFSS06909HPGM	6,909	.2720	1,540	.0606	C
KTFSS07000HPGM	7,000	.2756	1,590	.0626	D
KTFSS07100HPGM *	7,100	.2795	1,610	.0634	D
KTFSS07145HPGM	7,145	.2813	1,610	.0634	D
KTFSS07200HPGM *	7,200	.2835	1,620	.0638	D
KTFSS07366HPGM	7,366	.2900	1,650	.0650	D
KTFSS07400HPGM	7,400	.2913	1,660	.0654	D
KTFSS07500HPGM	7,500	.2953	1,680	.0661	E
KTFSS07541HPGM	7,541	.2969	1,690	.0665	E
KTFSS07600HPGM *	7,600	.2992	1,700	.0669	E
KTFSS07700HPGM *	7,700	.3031	1,710	.0673	E
KTFSS07800HPGM *	7,800	.3071	1,730	.0681	E
KTFSS07900HPGM *	7,900	.3110	1,750	.0689	E
KTFSS07938HPGM	7,938	.3125	1,750	.0689	E
KTFSS08000HPGM	8,000	.3150	1,800	.0709	F
KTFSS08100HPGM	8,100	.3189	1,820	.0717	F
KTFSS08164HPGM	8,164	.3214	1,830	.0720	F
KTFSS08204HPGM	8,204	.3230	1,840	.0724	F
KTFSS08300HPGM	8,300	.3268	1,850	.0728	F
KTFSS08334HPGM	8,334	.3281	1,860	.0732	F
KTFSS08400HPGM	8,400	.3307	1,870	.0736	F
KTFSS08433HPGM	8,433	.3320	1,870	.0736	F
KTFSS08500HPGM	8,500	.3346	1,890	.0744	G
KTFSS08600HPGM	8,600	.3386	1,910	.0752	G
KTFSS08611HPGM *	8,611	.3390	1,910	.0752	G
KTFSS08700HPGM	8,700	.3425	1,920	.0756	G



KCP15A	D1		L5		seat size
	mm	in	mm	in	
KTFSS08733HPGM	8,732	.3438	1,930	.0760	G
KTFSS08800HPGM	8,800	.3465	1,940	.0764	G
KTFSS08839HPGM *	8,839	.3480	1,950	.0768	G
KTFSS08900HPGM *	8,900	.3504	1,960	.0772	G
KTFSS09000HPGM	9,000	.3543	2,010	.0791	H
KTFSS09093HPGM *	9,093	.3580	2,030	.0799	H
KTFSS09100HPGM	9,100	.3583	2,030	.0799	H
KTFSS09129HPGM *	9,129	.3594	2,030	.0799	H
KTFSS09200HPGM	9,200	.3622	2,040	.0803	H
KTFSS09300HPGM	9,300	.3661	2,060	.0811	H
KTFSS09347HPGM	9,347	.3680	2,070	.0815	H
KTFSS09400HPGM	9,400	.3701	2,080	.0819	H
KTFSS09500HPGM	9,500	.3740	2,100	.0827	I
KTFSS09525HPGM	9,525	.3750	2,110	.0831	I
KTFSS09558HPGM	9,558	.3763	2,110	.0831	I
KTFSS09600HPGM	9,600	.3780	2,120	.0835	I
KTFSS09700HPGM	9,700	.3819	2,130	.0839	I
KTFSS09800HPGM	9,800	.3858	2,150	.0846	I
KTFSS09900HPGM	9,900	.3898	2,170	.0854	I
KTFSS09921HPGM	9,921	.3906	2,170	.0854	I
KTFSS10000HPGM	10,000	.3937	2,220	.0874	J
KTFSS10023HPGM *	10,023	.3946	2,220	.0874	J
KTFSS10084HPGM *	10,084	.3970	2,230	.0878	J
KTFSS10100HPGM	10,100	.3976	2,240	.0882	J
KTFSS10200HPGM	10,200	.4016	2,250	.0886	J
KTFSS10262HPGM *	10,262	.4040	2,260	.0890	J
KTFSS10300HPGM	10,300	.4055	2,270	.0894	J
KTFSS10320HPGM	10,320	.4063	2,270	.0894	J
KTFSS10400HPGM	10,400	.4094	2,290	.0902	J
KTFSS10490HPGM	10,490	.4130	2,300	.0906	J
KTFSS10500HPGM	10,500	.4134	2,310	.0909	K
KTFSS10600HPGM	10,600	.4173	2,330	.0917	K
KTFSS10700HPGM	10,700	.4213	2,340	.0921	K
KTFSS10716HPGM	10,716	.4219	2,350	.0925	K
KTFSS10800HPGM	10,800	.4252	2,360	.0929	K
KTFSS10900HPGM	10,900	.4291	2,380	.0937	K
KTFSS11000HPGM	11,000	.4331	2,430	.0957	L
KTFSS11100HPGM	11,100	.4370	2,450	.0965	L
KTFSS11113HPGM	11,112	.4375	2,450	.0965	L
KTFSS11200HPGM	11,200	.4409	2,460	.0969	L

- first choice
- alternate choice

(continued)

(KenTIP FS Inserts • HPG KCP15A™ • No Internal Coolant Channels — continued)



● first choice
○ alternate choice

KCP15A	D1		L5		seat size	KCP15A	D1		L5		seat size
	mm	in	mm	in			mm	in	mm	in	
KTFSS11300HPGM	11,300	.4449	2,480	.0976	L	KTFSS15500HPGM	15,500	.6102	3,340	.1315	T
KTFSS11400HPGM	11,400	.4488	2,500	.0984	L	KTFSS15600HPGM	15,600	.6142	3,360	.1323	T
KTFSS11500HPGM	11,500	.4528	2,520	.0992	M	KTFSS15700HPGM	15,700	.6181	3,380	.1331	T
KTFSS11509HPGM	11,509	.4531	2,520	.0992	M	KTFSS15800HPGM	15,800	.6220	3,390	.1335	T
KTFSS11600HPGM	11,600	.4567	2,540	.1000	M	KTFSS15875HPGM	15,875	.6250	3,410	.1343	T
KTFSS11700HPGM	11,700	.4606	2,550	.1004	M	KTFSS15900HPGM *	15,900	.6260	3,410	.1343	T
KTFSS11800HPGM	11,800	.4646	2,570	.1012	M	KTFSS16000HPGM	16,000	.6299	3,480	.1370	U
KTFSS11900HPGM	11,900	.4685	2,590	.1020	M	KTFSS16027HPGM *	16,027	.6310	3,490	.1374	U
KTFSS11908HPGM	11,908	.4688	2,590	.1020	M	KTFSS16080HPGM *	16,080	.6331	3,490	.1374	U
KTFSS12000HPGM	12,000	.4724	2,640	.1039	N	KTFSS16100HPGM	16,100	.6339	3,500	.1378	U
KTFSS12100HPGM	12,100	.4764	2,650	.1043	N	KTFSS16104HPGM	16,104	.6340	3,500	.1378	U
KTFSS12200HPGM	12,200	.4803	2,670	.1051	N	KTFSS16200HPGM	16,200	.6378	3,510	.1382	U
KTFSS12304HPGM	12,304	.4844	2,690	.1059	N	KTFSS16271HPGM	16,271	.6406	3,530	.1390	U
KTFSS12400HPGM	12,400	.4882	2,700	.1063	N	KTFSS16300HPGM	16,300	.6417	3,530	.1390	U
KTFSS12474HPGM	12,474	.4911	2,720	.1071	N	KTFSS16400HPGM	16,400	.6457	3,550	.1398	U
KTFSS12500HPGM	12,500	.4921	2,730	.1075	O	KTFSS16500HPGM	16,500	.6496	3,570	.1406	U
KTFSS12600HPGM	12,600	.4961	2,740	.1079	O	KTFSS16600HPGM	16,600	.6535	3,580	.1409	U
KTFSS12700HPGM	12,700	.5000	2,760	.1087	O	KTFSS16670HPGM	16,670	.6563	3,590	.1413	U
KTFSS12800HPGM	12,800	.5039	2,780	.1094	O	KTFSS16700HPGM	16,700	.6575	3,600	.1417	U
KTFSS12900HPGM	12,900	.5079	2,790	.1098	O	KTFSS16800HPGM	16,800	.6614	3,620	.1425	U
KTFSS13000HPGM	13,000	.5118	2,850	.1122	P	KTFSS16900HPGM	16,900	.6654	3,630	.1429	U
KTFSS13096HPGM	13,096	.5156	2,860	.1126	P	KTFSS17000HPGM	17,000	.6693	3,660	.1441	V
KTFSS13200HPGM	13,200	.5197	2,880	.1134	P	KTFSS17066HPGM	17,066	.6719	3,670	.1445	V
KTFSS13280HPGM	13,280	.5228	2,890	.1138	P	KTFSS17100HPGM	17,100	.6732	3,670	.1445	V
KTFSS13300HPGM	13,300	.5236	2,900	.1142	P	KTFSS17200HPGM	17,200	.6772	3,690	.1453	V
KTFSS13380HPGM	13,380	.5268	2,910	.1146	P	KTFSS17300HPGM *	17,300	.6811	3,710	.1461	V
KTFSS13400HPGM	13,400	.5276	2,910	.1146	P	KTFSS17400HPGM	17,400	.6850	3,720	.1465	V
KTFSS13492HPGM	13,492	.5312	2,930	.1154	P	KTFSS17463HPGM	17,462	.6875	3,740	.1472	V
KTFSS13500HPGM	13,500	.5315	2,930	.1154	Q	KTFSS17480HPGM	17,480	.6882	3,740	.1472	V
KTFSS13600HPGM	13,600	.5354	2,950	.1161	Q	KTFSS17500HPGM	17,500	.6890	3,740	.1472	V
KTFSS13700HPGM	13,700	.5394	2,970	.1169	Q	KTFSS17600HPGM	17,600	.6929	3,760	.1480	V
KTFSS13800HPGM	13,800	.5433	2,980	.1173	Q	KTFSS17700HPGM	17,700	.6969	3,770	.1484	V
KTFSS13891HPGM	13,891	.5469	3,000	.1181	Q	KTFSS17800HPGM	17,800	.7008	3,790	.1492	V
KTFSS13896HPGM *	13,896	.5471	3,000	.1181	Q	KTFSS17859HPGM	17,859	.7031	3,800	.1496	V
KTFSS13940HPGM	13,940	.5488	3,010	.1185	Q	KTFSS17900HPGM	17,900	.7047	3,810	.1500	V
KTFSS14000HPGM	14,000	.5512	3,050	.1201	R	KTFSS18000HPGM	18,000	.7087	3,890	.1531	W
KTFSS14100HPGM	14,100	.5551	3,070	.1209	R	KTFSS18100HPGM	18,100	.7126	3,910	.1539	W
KTFSS14200HPGM	14,200	.5591	3,090	.1217	R	KTFSS18200HPGM	18,200	.7165	3,930	.1547	W
KTFSS14288HPGM	14,288	.5625	3,100	.1220	R	KTFSS18258HPGM	18,258	.7188	3,940	.1551	W
KTFSS14300HPGM	14,300	.5630	3,100	.1220	R	KTFSS18300HPGM	18,300	.7205	3,940	.1551	W
KTFSS14400HPGM	14,400	.5669	3,120	.1228	R	KTFSS18400HPGM	18,400	.7244	3,960	.1559	W
KTFSS14500HPGM	14,500	.5709	3,140	.1236	S	KTFSS18500HPGM	18,500	.7283	3,980	.1567	W
KTFSS14600HPGM	14,600	.5748	3,160	.1244	S	KTFSS18600HPGM	18,600	.7323	3,990	.1571	W
KTFSS14666HPGM *	14,666	.5774	3,170	.1248	S	KTFSS18654HPGM	18,654	.7344	4,000	.1575	W
KTFSS14684HPGM	14,684	.5781	3,170	.1248	S	KTFSS18700HPGM	18,700	.7362	4,010	.1579	W
KTFSS14700HPGM	14,700	.5787	3,170	.1248	S	KTFSS18800HPGM	18,800	.7402	4,030	.1587	W
KTFSS14800HPGM	14,800	.5827	3,190	.1256	S	KTFSS18900HPGM	18,900	.7441	4,040	.1591	W
KTFSS14900HPGM *	14,900	.5866	3,210	.1264	S	KTFSS19000HPGM	19,000	.7480	4,070	.1602	X
KTFSS15000HPGM	15,000	.5906	3,260	.1283	T	KTFSS19050HPGM	19,050	.7500	4,080	.1606	X
KTFSS15083HPGM	15,082	.5938	3,270	.1287	T	KTFSS19100HPGM	19,100	.7520	4,090	.1610	X
KTFSS15100HPGM	15,100	.5945	3,280	.1291	T	KTFSS19200HPGM	19,200	.7559	4,100	.1614	X
KTFSS15200HPGM	15,200	.5984	3,290	.1295	T	KTFSS19228HPGM	19,228	.7570	4,110	.1618	X
KTFSS15300HPGM	15,300	.6024	3,310	.1303	T	KTFSS19253HPGM *	19,253	.7580	4,110	.1618	X
KTFSS15380HPGM	15,380	.6055	3,320	.1307	T	KTFSS19279HPGM	19,279	.7590	4,120	.1622	X
KTFSS15400HPGM	15,400	.6063	3,330	.1311	T	KTFSS19300HPGM	19,300	.7598	4,120	.1622	X
KTFSS15479HPGM	15,479	.6094	3,340	.1315	T	KTFSS19355HPGM *	19,355	.7620	4,130	.1626	X

(continued)

(KenTIP FS Inserts • HPG KCP15A™ • No Internal Coolant Channels — continued)



● first choice
○ alternate choice

Modular Drills

KCP15A	D1		L5		seat size
	mm	in	mm	in	
KTFSS19400HPGM	19,400	.7638	4,140	.1630	X
KTFSS19446HPGM	19,446	.7656	4,140	.1630	X
KTFSS19460HPGM	19,460	.7661	4,150	.1634	X
KTFSS19500HPGM	19,500	.7677	4,150	.1634	X
KTFSS19600HPGM	19,600	.7717	4,170	.1642	X
KTFSS19700HPGM	19,700	.7756	4,190	.1650	X
KTFSS19800HPGM	19,800	.7795	4,200	.1654	X
KTFSS19845HPGM	19,845	.7813	4,210	.1657	X
KTFSS19900HPGM	19,900	.7835	4,220	.1661	X
KTFSS20000HPGM	20,000	.7874	4,310	.1697	Y
KTFSS20100HPGM	20,100	.7913	4,320	.1701	Y
KTFSS20200HPGM	20,200	.7953	4,340	.1709	Y
KTFSS20241HPGM *	20,241	.7969	4,350	.1713	Y
KTFSS20300HPGM	20,300	.7992	4,360	.1717	Y
KTFSS20500HPGM	20,500	.8071	4,390	.1728	Y
KTFSS20600HPGM	20,600	.8110	4,410	.1736	Y
KTFSS20638HPGM	20,638	.8125	4,410	.1736	Y
KTFSS20700HPGM *	20,700	.8150	4,420	.1740	Y
KTFSS20800HPGM	20,800	.8189	4,440	.1748	Y
KTFSS20900HPGM *	20,900	.8228	4,460	.1756	Y
KTFSS20990HPGM *	20,990	.8264	4,470	.1760	Y
KTFSS21000HPGM	21,000	.8268	4,480	.1764	Z
KTFSS21100HPGM *	21,100	.8307	4,500	.1772	Z
KTFSS21200HPGM	21,200	.8346	4,510	.1776	Z
KTFSS21300HPGM *	21,300	.8386	4,530	.1783	Z
KTFSS21400HPGM *	21,400	.8425	4,550	.1791	Z
KTFSS21433HPGM	21,432	.8438	4,550	.1791	Z
KTFSS21500HPGM	21,500	.8465	4,560	.1795	Z
KTFSS21700HPGM	21,700	.8543	4,600	.1811	Z
KTFSS21800HPGM *	21,800	.8583	4,610	.1815	Z
KTFSS21829HPGM	21,829	.8594	4,620	.1819	Z
KTFSS21900HPGM *	21,900	.8622	4,630	.1823	Z
KTFSS22000HPGM	22,000	.8661	4,720	.1858	ZA
KTFSS22100HPGM *	22,100	.8701	4,730	.1862	ZA
KTFSS22200HPGM *	22,200	.8740	4,750	.1870	ZA
KTFSS22225HPGM	22,225	.8750	4,750	.1870	ZA
KTFSS22400HPGM *	22,400	.8819	4,780	.1882	ZA
KTFSS22500HPGM	22,500	.8858	4,800	.1890	ZA
KTFSS22600HPGM *	22,600	.8898	4,820	.1898	ZA
KTFSS22700HPGM *	22,700	.8937	4,830	.1902	ZA

KTFSS	D1		L5		seat size
	mm	in	mm	in	
KTFSS22800HPGM	22,800	.8976	4,850	.1909	ZA
KTFSS22900HPGM *	22,900	.9016	4,870	.1917	ZA
KTFSS23000HPGM	23,000	.9055	4,890	.1925	ZB
KTFSS23100HPGM	23,100	.9094	4,910	.1933	ZB
KTFSS23200HPGM *	23,200	.9134	4,920	.1937	ZB
KTFSS23300HPGM	23,300	.9173	4,940	.1945	ZB
KTFSS23400HPGM *	23,400	.9213	4,960	.1953	ZB
KTFSS23416HPGM	23,416	.9219	4,960	.1953	ZB
KTFSS23500HPGM	23,500	.9252	4,980	.1961	ZB
KTFSS23600HPGM *	23,600	.9291	4,990	.1965	ZB
KTFSS23700HPGM *	23,700	.9331	5,010	.1972	ZB
KTFSS23800HPGM *	23,800	.9370	5,030	.1980	ZB
KTFSS23813HPGM	23,812	.9375	5,030	.1980	ZB
KTFSS23900HPGM *	23,900	.9409	5,040	.1984	ZB
KTFSS24000HPGM	24,000	.9449	5,130	.2020	ZC
KTFSS24100HPGM *	24,100	.9488	5,140	.2024	ZC
KTFSS24200HPGM *	24,200	.9528	5,160	.2031	ZC
KTFSS24300HPGM	24,300	.9567	5,180	.2039	ZC
KTFSS24400HPGM *	24,400	.9606	5,190	.2043	ZC
KTFSS24500HPGM	24,500	.9646	5,210	.2051	ZC
KTFSS24600HPGM *	24,600	.9685	5,230	.2059	ZC
KTFSS24608HPGM	24,608	.9688	5,230	.2059	ZC
KTFSS24700HPGM *	24,700	.9724	5,240	.2063	ZC
KTFSS24800HPGM *	24,800	.9764	5,260	.2071	ZC
KTFSS24900HPGM *	24,900	.9803	5,280	.2079	ZC
KTFSS25000HPGM	25,000	.9843	5,300	.2087	ZD
KTFSS25100HPGM *	25,100	.9882	5,320	.2094	ZD
KTFSS25200HPGM *	25,200	.9921	5,330	.2098	ZD
KTFSS25250HPGM *	25,250	.9941	5,340	.2102	ZD
KTFSS25300HPGM *	25,300	.9961	5,350	.2106	ZD
KTFSS25400HPGM	25,400	1.0000	5,370	.2114	ZD
KTFSS25500HPGM *	25,500	1.0039	5,380	.2118	ZD
KTFSS25540HPGM	25,540	1.0055	5,390	.2122	ZD
KTFSS25600HPGM	25,600	1.0079	5,400	.2126	ZD
KTFSS25679HPGM	25,679	1.0110	5,410	.2130	ZD
KTFSS25700HPGM *	25,700	1.0118	5,420	.2134	ZD
KTFSS25800HPGM *	25,800	1.0157	5,440	.2142	ZD
KTFSS25806HPGM	25,806	1.0160	5,440	.2142	ZD
KTFSS25900HPGM *	25,900	1.0197	5,450	.2146	ZD
KTFSS26000HPGM	26,000	1.0236	5,470	.2154	ZD

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.
Products with D1 ≥ 20mm will be available by January 1st, 2018.

KenTIP FS HPG Geometry

Tolerance	
D1 metric	tolerance k8
6	0,000/+0,018
>6-10	0,000/+0,022
>10-18	0,000/+0,027
>18-26	0,000/+0,033

KenTIP FS HPG Geometry

Tolerance	
D1 inch	tolerance k8
.2362	.000/+0.007
>.2362-.3937	.000/+0.009
>.3937-.7087	.000/+0.011
>.7087-1.0236	.000/+0.013

■ Modular Drill Carbide Insert Blades • KenTIP™ FS • HPG Geometry • Grade KCP15A™ •
 No Internal Coolant Channels on the Insert • Through Coolant on the Body • Metric

Material Group	Cutting Speed – vc			Metric							
	Range – m/min			Recommended Feed Rate per Rev							
	min	Starting Value	max		8,0	10,0	12,0	14,0	16,0	20,0	
P	1	90	130	170	mm/r	0,11–0,22	0,13–0,28	0,14–0,34	0,17–0,43	0,19–0,50	0,25–0,53
	2	100	140	180	mm/r	0,11–0,26	0,13–0,32	0,14–0,36	0,17–0,40	0,19–0,50	0,25–0,53
	3	60	100	130	mm/r	0,11–0,31	0,12–0,39	0,16–0,41	0,21–0,51	0,23–0,51	0,30–0,56
	4	60	100	130	mm/r	0,11–0,31	0,12–0,39	0,16–0,41	0,17–0,51	0,18–0,51	0,23–0,51
	5	60	70	100	mm/r	0,10–0,22	0,10–0,25	0,10–0,28	0,14–0,32	0,16–0,35	0,20–0,46
	6	60	70	70	mm/r	0,10–0,22	0,10–0,25	0,10–0,28	0,14–0,32	0,16–0,35	0,20–0,46
K	1	80	120	170	mm/r	0,15–0,32	0,16–0,35	0,17–0,39	0,21–0,46	0,25–0,53	0,31–0,65
	2	80	110	120	mm/r	0,15–0,32	0,16–0,33	0,17–0,36	0,21–0,45	0,25–0,53	0,31–0,65
	3	50	80	100	mm/r	0,16–0,33	0,17–0,36	0,18–0,40	0,20–0,45	0,21–0,48	0,23–0,53

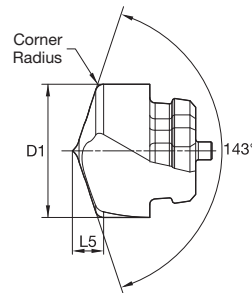
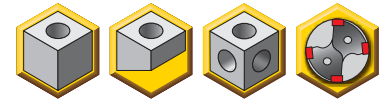
■ Modular Drill Carbide Insert Blades • KenTIP™ FS • HPG Geometry • Grade KCP15A™ •
 No Internal Coolant Channels on the Insert • Through Coolant on the Body • Inch

Material Group	Cutting Speed – vc			Inch							
	Range – SFM			Recommended Feed Rate per Rev							
	min	Starting Value	max		0.315	0.394	0.472	0.551	0.630	0.787	
P	1	300	430	560	IPR	0.004–0.009	0.005–0.011	0.006–0.013	0.007–0.017	0.007–0.020	0.010–0.021
	2	330	460	590	IPR	0.004–0.010	0.005–0.013	0.006–0.014	0.007–0.016	0.007–0.020	0.010–0.021
	3	200	330	430	IPR	0.004–0.012	0.005–0.015	0.006–0.016	0.008–0.020	0.009–0.020	0.012–0.022
	4	200	330	430	IPR	0.004–0.012	0.005–0.015	0.006–0.016	0.007–0.020	0.007–0.020	0.009–0.020
	5	200	230	330	IPR	0.004–0.009	0.004–0.010	0.004–0.011	0.006–0.013	0.006–0.014	0.008–0.018
	6	200	230	230	IPR	0.004–0.009	0.004–0.010	0.004–0.011	0.006–0.013	0.006–0.014	0.008–0.018
K	1	260	390	560	IPR	0.006–0.013	0.006–0.014	0.007–0.015	0.008–0.018	0.010–0.021	0.012–0.026
	2	260	360	390	IPR	0.006–0.013	0.006–0.013	0.007–0.014	0.008–0.018	0.010–0.021	0.012–0.026
	3	160	260	330	IPR	0.006–0.013	0.007–0.014	0.007–0.016	0.008–0.018	0.008–0.019	0.009–0.021



Modular Drills

- HPC-point geometry for all cast irons.
- 4-margin lands ensure hole straightness.
- Large corner radius prevents chipping and reduces exit burs when drilling through holes.
- KC7410™ is an AlCr PVD multilayer coating.
- Superb wear resistance.
- With internal coolant.



HPC Geometry

■ KenTIP FS Inserts • HPC KC7410 • With Internal Coolant Channels



KC7410	D1		L5		seat size
	mm	in	mm	in	
KTFST06000HPCM	6,000	.2362	1,410	.0555	A
KTFST06200HPCM	6,200	.2441	1,440	.0567	A
KTFST06350HPCM	6,350	.2500	1,490	.0587	B
KTFST06500HPCM	6,500	.2559	1,510	.0594	B
KTFST06530HPCM	6,530	.2571	1,520	.0598	B
KTFST06700HPCM	6,700	.2638	1,570	.0618	C
KTFST06746HPCM	6,746	.2656	1,570	.0618	C
KTFST06800HPCM	6,800	.2677	1,580	.0622	C
KTFST07000HPCM	7,000	.2756	1,640	.0646	D
KTFST07145HPCM	7,145	.2813	1,670	.0657	D
KTFST07300HPCM	7,300	.2874	1,690	.0665	D
KTFST07500HPCM	7,500	.2953	1,760	.0693	E
KTFST07600HPCM	7,600	.2992	1,780	.0701	E
KTFST07800HPCM	7,800	.3071	1,810	.0713	E
KTFST07938HPCM	7,938	.3125	1,830	.0720	E
KTFST08000HPCM	8,000	.3150	1,880	.0740	F
KTFST08100HPCM *	8,100	.3189	1,890	.0744	F
KTFST08204HPCM *	8,204	.3230	1,910	.0752	F
KTFST08500HPCM	8,500	.3346	1,990	.0783	G
KTFST08600HPCM *	8,600	.3386	2,010	.0791	G
KTFST08700HPCM *	8,700	.3425	2,030	.0799	G
KTFST08733HPCM *	8,732	.3438	2,030	.0799	G
KTFST09000HPCM	9,000	.3543	2,110	.0831	H
KTFST09100HPCM *	9,100	.3583	2,130	.0839	H
KTFST09500HPCM	9,500	.3740	2,230	.0878	I
KTFST09525HPCM	9,525	.3750	2,230	.0878	I
KTFST09600HPCM *	9,600	.3780	2,250	.0886	I
KTFST09700HPCM *	9,700	.3819	2,260	.0890	I
KTFST09800HPCM *	9,800	.3858	2,280	.0898	I
KTFST09921HPCM	9,921	.3906	2,300	.0906	I
KTFST10000HPCM	10,000	.3937	2,350	.0925	J
KTFST10023HPCM *	10,023	.3946	2,350	.0925	J
KTFST10200HPCM	10,200	.4016	2,380	.0937	J
KTFST10300HPCM	10,300	.4055	2,400	.0945	J
KTFST10320HPCM *	10,320	.4063	2,400	.0945	J
KTFST10500HPCM	10,500	.4134	2,460	.0969	K



KC7410	D1		L5		seat size
	mm	in	mm	in	
KTFST10600HPCM *	10,600	.4173	2,480	.0976	K
KTFST10700HPCM *	10,700	.4213	2,500	.0984	K
KTFST10716HPCM	10,716	.4219	2,500	.0984	K
KTFST10800HPCM	10,800	.4252	2,510	.0988	K
KTFST11000HPCM	11,000	.4331	2,580	.1016	L
KTFST11100HPCM	11,100	.4370	2,600	.1024	L
KTFST11113HPCM	11,112	.4375	2,600	.1024	L
KTFST11400HPCM	11,400	.4488	2,650	.1043	L
KTFST11500HPCM	11,500	.4528	2,700	.1063	M
KTFST11800HPCM *	11,800	.4646	2,750	.1083	M
KTFST11908HPCM *	11,908	.4688	2,770	.1091	M
KTFST12000HPCM	12,000	.4724	2,820	.1110	N
KTFST12304HPCM *	12,304	.4844	2,870	.1130	N
KTFST12500HPCM	12,500	.4921	2,930	.1154	O
KTFST12700HPCM	12,700	.5000	2,970	.1169	O
KTFST13000HPCM	13,000	.5118	3,050	.1201	P
KTFST13096HPCM	13,096	.5156	3,070	.1209	P
KTFST13200HPCM *	13,200	.5197	3,080	.1213	P
KTFST13300HPCM	13,300	.5236	3,100	.1220	P
KTFST13492HPCM	13,492	.5312	3,130	.1232	P
KTFST13500HPCM	13,500	.5315	3,170	.1248	Q
KTFST13600HPCM	13,600	.5354	3,180	.1252	Q
KTFST13800HPCM	13,800	.5433	3,220	.1268	Q
KTFST13891HPCM	13,891	.5469	3,230	.1272	Q
KTFST14000HPCM	14,000	.5512	3,290	.1295	R
KTFST14100HPCM *	14,100	.5551	3,300	.1299	R
KTFST14288HPCM	14,288	.5625	3,330	.1311	R
KTFST14500HPCM	14,500	.5709	3,400	.1339	S
KTFST14600HPCM *	14,600	.5748	3,420	.1346	S
KTFST14684HPCM *	14,684	.5781	3,430	.1350	S
KTFST14800HPCM *	14,800	.5827	3,450	.1358	S
KTFST15000HPCM	15,000	.5906	3,520	.1386	T
KTFST15083HPCM *	15,082	.5938	3,530	.1390	T
KTFST15100HPCM	15,100	.5945	3,540	.1394	T
KTFST15200HPCM *	15,200	.5984	3,550	.1398	T
KTFST15300HPCM *	15,300	.6024	3,570	.1406	T

- first choice
- alternate choice

(continued)

(KenTIP FS Inserts • HPC KC7410™ • With Internal Coolant Channels — continued)



● first choice
○ alternate choice

KC7410	D1		L5		seat size
	mm	in	mm	in	
KTFST15500HPCM	15,500	.6102	3,600	.1417	T
KTFST15600HPCM *	15,600	.6142	3,620	.1425	T
KTFST15800HPCM	15,800	.6220	3,650	.1437	T
KTFST15875HPCM *	15,875	.6250	3,670	.1445	T
KTFST16000HPCM	16,000	.6299	3,750	.1476	U
KTFST16100HPCM	16,100	.6339	3,770	.1484	U
KTFST16104HPCM *	16,104	.6340	3,770	.1484	U
KTFST16200HPCM *	16,200	.6378	3,790	.1492	U
KTFST16271HPCM *	16,271	.6406	3,800	.1496	U
KTFST16300HPCM *	16,300	.6417	3,800	.1496	U
KTFST16500HPCM	16,500	.6496	3,840	.1512	U
KTFST16550HPCM *	16,550	.6516	3,850	.1516	U
KTFST16600HPCM	16,600	.6535	3,850	.1516	U
KTFST16670HPCM	16,670	.6563	3,870	.1524	U
KTFST17000HPCM	17,000	.6693	3,990	.1571	V
KTFST17066HPCM *	17,066	.6719	4,000	.1575	V
KTFST17100HPCM *	17,100	.6732	4,010	.1579	V
KTFST17200HPCM	17,200	.6772	4,020	.1583	V
KTFST17300HPCM	17,300	.6811	4,040	.1591	V
KTFST17463HPCM *	17,462	.6875	4,070	.1602	V
KTFST17500HPCM	17,500	.6890	4,070	.1602	V
KTFST17550HPCM *	17,550	.6909	4,080	.1606	V
KTFST17600HPCM	17,600	.6929	4,090	.1610	V
KTFST17700HPCM *	17,700	.6969	4,110	.1618	V
KTFST17800HPCM	17,800	.7008	4,120	.1622	V
KTFST18000HPCM	18,000	.7087	4,220	.1661	W
KTFST18100HPCM *	18,100	.7126	4,240	.1669	W
KTFST18258HPCM *	18,258	.7188	4,270	.1681	W
KTFST18500HPCM	18,500	.7283	4,310	.1697	W
KTFST18600HPCM	18,600	.7323	4,320	.1701	W
KTFST18700HPCM *	18,700	.7362	4,340	.1709	W
KTFST19000HPCM	19,000	.7480	4,460	.1756	X

KC7410	D1		L5		seat size
	mm	in	mm	in	
KTFST19050HPCM	19,050	.7500	4,470	.1760	X
KTFST19279HPCM *	19,279	.7590	4,500	.1772	X
KTFST19446HPCM *	19,446	.7656	4,530	.1783	X
KTFST19500HPCM	19,500	.7677	4,540	.1787	X
KTFST19800HPCM *	19,800	.7795	4,590	.1807	X
KTFST20000HPCM	20,000	.7874	4,690	.1846	Y
KTFST20241HPCM	20,241	.7969	4,730	.1862	Y
KTFST20300HPCM *	20,300	.7992	4,740	.1866	Y
KTFST20500HPCM	20,500	.8071	4,780	.1882	Y
KTFST20638HPCM	20,638	.8125	4,800	.1890	Y
KTFST21000HPCM	21,000	.8268	4,930	.1941	Z
KTFST21433HPCM *	21,432	.8438	5,000	.1969	Z
KTFST21500HPCM *	21,500	.8465	5,010	.1972	Z
KTFST22000HPCM	22,000	.8661	5,160	.2031	ZA
KTFST22225HPCM *	22,225	.8750	5,200	.2047	ZA
KTFST22440HPCM *	22,440	.8835	5,240	.2063	ZA
KTFST22500HPCM *	22,500	.8858	5,250	.2067	ZA
KTFST23000HPCM	23,000	.9055	5,400	.2126	ZB
KTFST23416HPCM *	23,416	.9219	5,470	.2154	ZB
KTFST23500HPCM *	23,500	.9252	5,480	.2157	ZB
KTFST23813HPCM *	23,812	.9375	5,530	.2177	ZB
KTFST24000HPCM	24,000	.9449	5,630	.2217	ZC
KTFST24500HPCM *	24,500	.9646	5,720	.2252	ZC
KTFST24608HPCM *	24,608	.9688	5,730	.2256	ZC
KTFST25000HPCM	25,000	.9843	5,870	.2311	ZD
KTFST25070HPCM *	25,070	.9870	5,880	.2315	ZD
KTFST25400HPCM	25,400	1.0000	5,930	.2335	ZD
KTFST25500HPCM *	25,500	1.0039	5,950	.2343	ZD
KTFST25679HPCM *	25,679	1.0110	5,980	.2354	ZD
KTFST25806HPCM *	25,806	1.0160	6,000	.2362	ZD
KTFST26000HPCM	26,000	1.0236	6,030	.2374	ZD

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.
 Products with D1 ≤ 19,999mm will be available in November 2017.
 Products with D1 ≥ 20mm will be available by January 1st, 2018.

KenTIP FS HPC Geometry

D1 metric	Tolerance	
		tolerance k8
6		0,000/+0,018
>6-10		0,000/+0,022
>10-18		0,000/+0,027
>18-26		0,000/+0,033

KenTIP FS HPC Geometry

D1 inch	Tolerance	
		tolerance k8
.2362		.000/+0.0007
>.2362-.3937		.000/+0.0009
>.3937-.7087		.000/+0.0011
>.7087-1.0236		.000/+0.0013



■ Modular Drill Carbide Insert Blades • KenTIP™ FS • HPC Geometry • Grade KC7410™ • Through Coolant • Metric

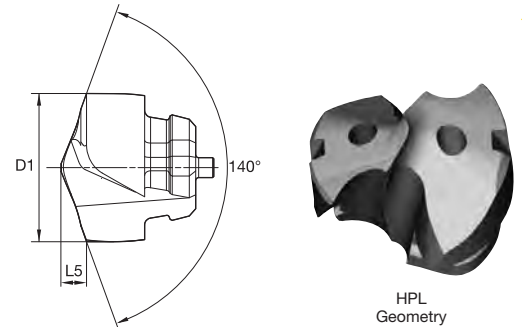
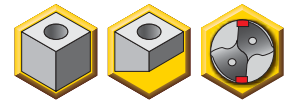
Modular Drills

Material Group	Cutting Speed – vc Range – m/min			Metric							
	min	Starting Value	max	Recommended Feed Rate per Rev							
					8,0	10,0	12,0	14,0	16,0	20,0	
K	1	100	175	200	mm/r	0,14–0,34	0,16–0,39	0,19–0,45	0,23–0,50	0,26–0,58	0,3–0,64
	2	100	160	180	mm/r	0,14–0,34	0,16–0,39	0,19–0,45	0,23–0,50	0,26–0,58	0,3–0,64
	3	70	85	120	mm/r	0,13–0,27	0,15–0,33	0,17–0,37	0,19–0,42	0,21–0,46	0,28–0,54

■ Modular Drill Carbide Insert Blades • KenTIP™ FS • HPC Geometry • Grade KC7410™ • Through Coolant • Inch

Material Group	Cutting Speed – vc Range – SFM			Inch							
	min	Starting Value	max	Recommended Feed Rate per Rev							
					.315	.394	.472	.551	.630	.787	
K	1	330	570	660	IPR	0.005–0.013	0.006–0.015	0.007–0.017	0.009–0.019	0.010–0.022	0.011–0.025
	2	330	520	590	IPR	0.005–0.013	0.006–0.015	0.007–0.017	0.009–0.019	0.010–0.022	0.011–0.025
	3	230	280	390	IPR	0.005–0.010	0.005–0.013	0.006–0.014	0.007–0.016	0.008–0.018	0.011–0.021

- HPL-point geometry for stainless steels.
- Forms 2 chips per cutting edge for an uninterrupted and smooth chip flow.
- KCMS15™ is an AlTiN PVD monolayer coating.
- Prevents edge built-up, which delivers superior hole quality.
- Very high metal removal rates.
- With internal coolant.



Modular Drills

■ KenTIP FS Inserts • HPL KCMS15 • With Internal Coolant Channels



KCMS15	D1		L5		seat size
	mm	in	mm	in	
KTFST06000HPLM	6,000	.2362	1,340	.0528	A
KTFST06350HPLM	6,350	.2500	1,400	.0551	B
KTFST06500HPLM	6,500	.2559	1,430	.0563	B
KTFST06629HPLM	6,629	.2610	1,460	.0575	C
KTFST06800HPLM	6,800	.2677	1,490	.0587	C
KTFST07000HPLM	7,000	.2756	1,530	.0602	D
KTFST07500HPLM	7,500	.2953	1,630	.0642	E
KTFST07800HPLM	7,800	.3071	1,680	.0661	E
KTFST07938HPLM	7,938	.3125	1,710	.0673	E
KTFST08000HPLM	8,000	.3150	1,720	.0677	F
KTFST08100HPLM *	8,100	.3189	1,740	.0685	F
KTFST08204HPLM *	8,204	.3230	1,760	.0693	F
KTFST08334HPLM *	8,334	.3281	1,790	.0705	F
KTFST08400HPLM *	8,400	.3307	1,800	.0709	F
KTFST08500HPLM	8,500	.3346	1,820	.0717	G
KTFST08600HPLM *	8,600	.3386	1,840	.0724	G
KTFST08700HPLM *	8,700	.3425	1,860	.0732	G
KTFST08800HPLM *	8,800	.3465	1,880	.0740	G
KTFST08900HPLM	8,900	.3504	1,900	.0748	G
KTFST09000HPLM	9,000	.3543	1,930	.0760	H
KTFST09100HPLM *	9,100	.3583	1,950	.0768	H
KTFST09200HPLM	9,200	.3622	1,970	.0776	H
KTFST09400HPLM *	9,400	.3701	2,000	.0787	H
KTFST09500HPLM	9,500	.3740	2,030	.0799	I
KTFST09558HPLM *	9,558	.3763	2,040	.0803	I
KTFST09600HPLM	9,600	.3780	2,050	.0807	I
KTFST09700HPLM *	9,700	.3819	2,070	.0815	I
KTFST09800HPLM	9,800	.3858	2,090	.0823	I
KTFST09900HPLM	9,900	.3898	2,110	.0831	I
KTFST10000HPLM	10,000	.3937	2,130	.0839	J
KTFST10100HPLM	10,100	.3976	2,150	.0846	J
KTFST10200HPLM	10,200	.4016	2,170	.0854	J
KTFST10300HPLM	10,300	.4055	2,190	.0862	J
KTFST10320HPLM	10,320	.4063	2,190	.0862	J
KTFST10400HPLM *	10,400	.4094	2,210	.0870	J
KTFST10500HPLM	10,500	.4134	2,230	.0878	K



- first choice
- alternate choice

KCMS15	D1		L5		seat size
	mm	in	mm	in	
KTFST10600HPLM *	10,600	.4173	2,250	.0886	K
KTFST10700HPLM	10,700	.4213	2,270	.0894	K
KTFST10800HPLM *	10,800	.4252	2,290	.0902	K
KTFST10900HPLM *	10,900	.4291	2,310	.0909	K
KTFST11000HPLM	11,000	.4331	2,340	.0921	L
KTFST11100HPLM	11,100	.4370	2,350	.0925	L
KTFST11113HPLM	11,112	.4375	2,360	.0929	L
KTFST11200HPLM *	11,200	.4409	2,370	.0933	L
KTFST11400HPLM *	11,400	.4488	2,410	.0949	L
KTFST11500HPLM	11,500	.4528	2,440	.0961	M
KTFST11600HPLM *	11,600	.4567	2,460	.0969	M
KTFST11800HPLM *	11,800	.4646	2,490	.0980	M
KTFST11908HPLM	11,908	.4688	2,520	.0992	M
KTFST12000HPLM	12,000	.4724	2,540	.1000	N
KTFST12200HPLM *	12,200	.4803	2,580	.1016	N
KTFST12304HPLM	12,304	.4844	2,600	.1024	N
KTFST12500HPLM	12,500	.4921	2,640	.1039	O
KTFST12700HPLM	12,700	.5000	2,680	.1055	O
KTFST12800HPLM *	12,800	.5039	2,700	.1063	O
KTFST12900HPLM *	12,900	.5079	2,720	.1071	O
KTFST13000HPLM	13,000	.5118	2,740	.1079	P
KTFST13096HPLM	13,096	.5156	2,760	.1087	P
KTFST13200HPLM *	13,200	.5197	2,780	.1094	P
KTFST13492HPLM *	13,492	.5312	2,840	.1118	P
KTFST13500HPLM	13,500	.5315	2,840	.1118	Q
KTFST13800HPLM *	13,800	.5433	2,900	.1142	Q
KTFST13891HPLM *	13,891	.5469	2,920	.1150	Q
KTFST13896HPLM *	13,896	.5471	2,920	.1150	Q
KTFST14000HPLM	14,000	.5512	2,950	.1161	R
KTFST14100HPLM *	14,100	.5551	2,960	.1165	R
KTFST14200HPLM *	14,200	.5591	2,980	.1173	R
KTFST14288HPLM	14,288	.5625	3,000	.1181	R
KTFST14300HPLM	14,300	.5630	3,000	.1181	R
KTFST14400HPLM *	14,400	.5669	3,020	.1189	R
KTFST14500HPLM	14,500	.5709	3,050	.1201	S
KTFST14684HPLM *	14,684	.5781	3,080	.1213	S

(continued)

(KenTIP FS Inserts • HPL KCMS15™ • With Internal Coolant Channels — continued)

Modular Drills



KCMS15	D1		L5		seat size
	mm	in	mm	in	
KTFST14800HPLM *	14,800	.5827	3,100	.1220	S
KTFST15000HPLM	15,000	.5906	3,150	.1240	T
KTFST15100HPLM *	15,100	.5945	3,170	.1248	T
KTFST15200HPLM *	15,200	.5984	3,190	.1256	T
KTFST15500HPLM	15,500	.6102	3,240	.1276	T
KTFST15875HPLM	15,875	.6250	3,310	.1303	T
KTFST16000HPLM	16,000	.6299	3,350	.1319	U
KTFST16100HPLM *	16,100	.6339	3,370	.1327	U
KTFST16104HPLM	16,104	.6340	3,370	.1327	U
KTFST16150HPLM	16,150	.6358	3,380	.1331	U
KTFST16271HPLM	16,271	.6406	3,400	.1339	U
KTFST16500HPLM	16,500	.6496	3,450	.1358	U
KTFST16670HPLM	16,670	.6563	3,480	.1370	U
KTFST17000HPLM	17,000	.6693	3,550	.1398	V
KTFST17463HPLM *	17,462	.6875	3,640	.1433	V
KTFST17480HPLM	17,480	.6882	3,640	.1433	V
KTFST17500HPLM	17,500	.6890	3,650	.1437	V
KTFST17700HPLM *	17,700	.6969	3,690	.1453	V
KTFST18000HPLM	18,000	.7087	3,760	.1480	W
KTFST18258HPLM *	18,258	.7188	3,800	.1496	W
KTFST18500HPLM	18,500	.7283	3,850	.1516	W
KTFST18654HPLM *	18,654	.7344	3,880	.1528	W
KTFST19000HPLM	19,000	.7480	3,960	.1559	X
KTFST19050HPLM	19,050	.7500	3,970	.1563	X
KTFST19200HPLM *	19,200	.7559	3,990	.1571	X
KTFST19228HPLM *	19,228	.7570	4,000	.1575	X
KTFST19253HPLM	19,253	.7580	4,000	.1575	X
KTFST19279HPLM	19,279	.7590	4,010	.1579	X



● first choice
○ alternate choice

KCMS15	D1		L5		seat size
	mm	in	mm	in	
KTFST19355HPLM *	19,355	.7620	4,020	.1583	X
KTFST19446HPLM	19,446	.7656	4,040	.1591	X
KTFST19460HPLM *	19,460	.7661	4,040	.1591	X
KTFST19500HPLM	19,500	.7677	4,050	.1594	X
KTFST19845HPLM	19,845	.7813	4,120	.1622	X
KTFST19850HPLM *	19,850	.7815	4,120	.1622	X
KTFST20000HPLM	20,000	.7874	4,160	.1638	Y
KTFST20500HPLM	20,500	.8071	4,250	.1673	Y
KTFST20638HPLM	20,638	.8125	4,280	.1685	Y
KTFST21000HPLM	21,000	.8268	4,360	.1717	Z
KTFST21150HPLM *	21,150	.8327	4,390	.1728	Z
KTFST21500HPLM	21,500	.8465	4,450	.1752	Z
KTFST22000HPLM	22,000	.8661	4,560	.1795	ZA
KTFST22225HPLM	22,225	.8750	4,600	.1811	ZA
KTFST22500HPLM	22,500	.8858	4,660	.1835	ZA
KTFST23000HPLM	23,000	.9055	4,760	.1874	ZB
KTFST23500HPLM	23,500	.9252	4,860	.1913	ZB
KTFST23813HPLM	23,812	.9375	4,920	.1937	ZB
KTFST24000HPLM	24,000	.9449	4,960	.1953	ZC
KTFST24500HPLM	24,500	.9646	5,060	.1992	ZC
KTFST25000HPLM	25,000	.9843	5,170	.2035	ZD
KTFST25400HPLM	25,400	1.0000	5,240	.2063	ZD
KTFST25500HPLM	25,500	1.0039	5,260	.2071	ZD
KTFST25600HPLM	25,600	1.0079	5,280	.2079	ZD
KTFST25650HPLM	25,650	1.0098	5,290	.2083	ZD
KTFST25679HPLM	25,679	1.0110	5,290	.2083	ZD
KTFST25806HPLM	25,806	1.0160	5,320	.2094	ZD
KTFST26000HPLM	26,000	1.0236	5,370	.2114	ZD

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.
Products with D1 ≥ 20mm will be available by January 1st, 2018.

KenTIP FS HPL Geometry

D1 metric	Tolerance	
		tolerance k8
6		0,000/+0,018
>6-10		0,000/+0,022
>10-18		0,000/+0,027
>18-26		0,000/+0,033

KenTIP FS HPL Geometry

D1 inch	Tolerance	
		tolerance k8
.2362		.000/+0.0007
>.2362-.3937		.000/+0.0009
>.3937-.7087		.000/+0.0011
>.7087-1.0236		.000/+0.0013

■ Modular Drill Carbide Insert Blades • KenTIP™ FS • HPL Geometry • Grade KCMS15™ • Through Coolant • Metric

Material Group	Cutting Speed – vc Range – m/min			Metric							
	min	Starting Value	max	Recommended Feed Rate per Rev							
					8,0	10,0	12,0	14,0	16,0	20,0	
M	1	50	60	90	mm/r	0,08–0,15	0,09–0,18	0,11–0,20	0,12–0,22	0,13–0,24	0,16–0,28
	2	30	60	90	mm/r	0,08–0,15	0,09–0,18	0,11–0,20	0,12–0,22	0,13–0,24	0,16–0,28
	3	20	50	60	mm/r	0,08–0,15	0,09–0,18	0,11–0,20	0,12–0,22	0,13–0,24	0,16–0,28



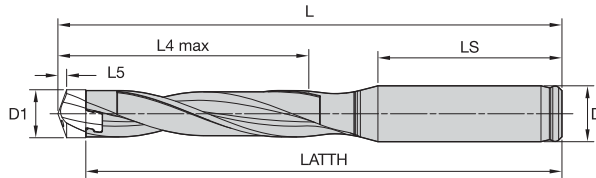
■ Modular Drill Carbide Insert Blades • KenTIP™ FS • HPL Geometry • Grade KCMS15™ • Through Coolant • Inch

Material Group	Cutting Speed – vc Range – SFM			Inch							
	min	Starting Value	max	Recommended Feed Rate per Rev							
					.315	.394	.472	.551	.630	.787	
M	1	160	200	300	IPR	0.003–0.006	0.004–0.007	0.004–0.008	0.005–0.009	0.005–0.009	0.006–0.011
	2	100	200	300	IPR	0.003–0.006	0.004–0.007	0.004–0.008	0.005–0.009	0.005–0.009	0.006–0.011
	3	70	160	200	IPR	0.003–0.006	0.004–0.007	0.004–0.008	0.005–0.009	0.005–0.009	0.006–0.011

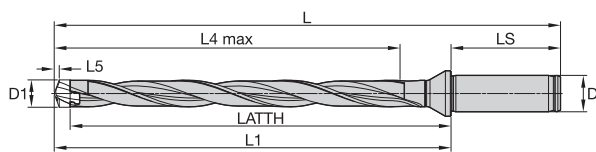
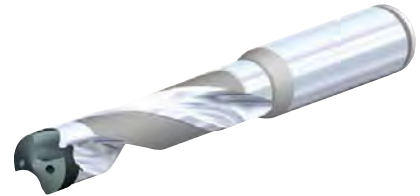
- KenTIP FS toolholder with straight cylindrical round metric shank.
- 12 x D holders feature a flanged shank for improved stiffness.
- Multi-coolant provides an advanced coolant channel layout with four coolant exits in each holder.
- Each tool body is shipped with related insert wrench.



Modular Drills



Straight Round Shank (SS Shank)



Flanged Round Shank (SF Shank)

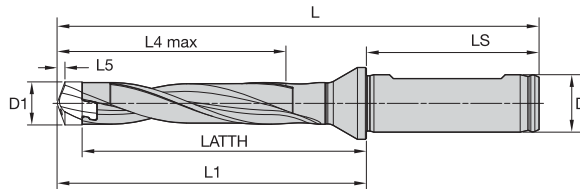


■ KenTIP FS Round Shank • 1.5 x D/3 x D/5 x D/8 x D/12 x D • Metric

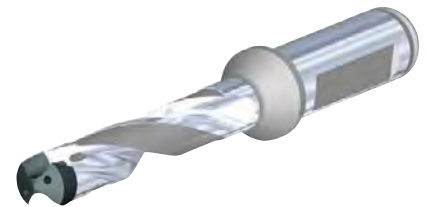


	1.5 x D SS	3 x D SS	5 x D SS	8 x D SS	12 x D SF	D1		D1 max		seat size	KenTIP wrench
						mm	in	mm	in		
	KTFS060R01SS8M	KTFS060R03SS8M	KTFS060R05SS8M	KTFS060R08SS8M	KTFS060R12SF12M	6,000	.2363	6,299	.2480	A	170.319
	KTFS063R01SS8M	KTFS063R03SS8M	KTFS063R05SS8M	KTFS063R08SS8M	KTFS063R12SF12M	6,300	.2481	6,599	.2598	B	170.319
	KTFS066R01SS8M	KTFS066R03SS8M	KTFS066R05SS8M	KTFS066R08SS8M	KTFS066R12SF12M	6,600	.2599	6,999	.2755	C	170.319
	KTFS070R01SS8M	KTFS070R03SS8M	KTFS070R05SS8M	KTFS070R08SS8M	KTFS070R12SF12M	7,000	.2756	7,499	.2952	D	170.319
	KTFS075R01SS8M	KTFS075R03SS8M	KTFS075R05SS8M	KTFS075R08SS8M	KTFS075R12SF12M	7,500	.2953	7,999	.3149	E	170.319
	KTFS080R01SS10M	KTFS080R03SS10M	KTFS080R05SS10M	KTFS080R08SS10M	KTFS080R12SF12M	8,000	.3150	8,499	.3346	F	170.306
	KTFS085R01SS10M	KTFS085R03SS10M	KTFS085R05SS10M	KTFS085R08SS10M	KTFS085R12SF12M	8,500	.3346	8,999	.3543	G	170.306
	KTFS090R01SS10M	KTFS090R03SS10M	KTFS090R05SS10M	KTFS090R08SS10M	KTFS090R12SF12M	9,000	.3544	9,499	.3739	H	170.306
	KTFS095R01SS10M	KTFS095R03SS10M	KTFS095R05SS10M	KTFS095R08SS10M	KTFS095R12SF12M	9,500	.3740	9,999	.3936	I	170.306
	KTFS100R01SS12M	KTFS100R03SS12M	KTFS100R05SS12M	KTFS100R08SS12M	KTFS100R12SF16M	10,000	.3937	10,499	.4133	J	170.307
	KTFS105R01SS12M	KTFS105R03SS12M	KTFS105R05SS12M	KTFS105R08SS12M	KTFS105R12SF16M	10,500	.4134	10,999	.4330	K	170.307
	KTFS110R01SS12M	KTFS110R03SS12M	KTFS110R05SS12M	KTFS110R08SS12M	KTFS110R12SF16M	11,000	.4331	11,499	.4527	L	170.307
	KTFS115R01SS12M	KTFS115R03SS12M	KTFS115R05SS12M	KTFS115R08SS12M	KTFS115R12SF16M	11,500	.4528	11,999	.4724	M	170.307
	KTFS120R01SS14M	KTFS120R03SS14M	KTFS120R05SS14M	KTFS120R08SS14M	KTFS120R12SF16M	12,000	.4725	12,499	.4921	N	170.308
	KTFS125R01SS14M	KTFS125R03SS14M	KTFS125R05SS14M	KTFS125R08SS14M	KTFS125R12SF16M	12,500	.4922	12,999	.5117	O	170.308
	KTFS130R01SS14M	KTFS130R03SS14M	KTFS130R05SS14M	KTFS130R08SS14M	KTFS130R12SF16M	13,000	.5118	13,499	.5314	P	170.308
	KTFS135R01SS14M	KTFS135R03SS14M	KTFS135R05SS14M	KTFS135R08SS14M	KTFS135R12SF16M	13,500	.5315	13,999	.5511	Q	170.308
	KTFS140R01SS16M	KTFS140R03SS16M	KTFS140R05SS16M	KTFS140R08SS16M	KTFS140R12SF16M	14,000	.5512	14,499	.5708	R	170.309
	KTFS145R01SS16M	KTFS145R03SS16M	KTFS145R05SS16M	KTFS145R08SS16M	KTFS145R12SF16M	14,500	.5709	14,999	.5905	S	170.309
	KTFS150R01SS16M	KTFS150R03SS16M	KTFS150R05SS16M	KTFS150R08SS16M	KTFS150R12SF20M	15,000	.5906	15,999	.6299	T	170.309
	KTFS160R01SS16M	KTFS160R03SS16M	KTFS160R05SS16M	KTFS160R08SS16M	KTFS160R12SF20M	16,000	.6300	16,999	.6692	U	170.309
	KTFS170R01SS20M	KTFS170R03SS20M	KTFS170R05SS20M	KTFS170R08SS20M	KTFS170R12SF20M	17,000	.6693	17,999	.7086	V	170.314
	KTFS180R01SS20M	KTFS180R03SS20M	KTFS180R05SS20M	KTFS180R08SS20M	KTFS180R12SF25M	18,000	.7087	18,999	.7479	W	170.314
	KTFS190R01SS20M	KTFS190R03SS20M	KTFS190R05SS20M	KTFS190R08SS20M	KTFS190R12SF25M	19,000	.7480	19,999	.7873	X	170.314

- KenTIP FS toolholder with flanged shank and 0° flat metric shank.
- Multi-coolant provides an advanced coolant channel layout with four coolant exits in each holder.
- Each tool body is shipped with related insert wrench.



Flanged Shank with Flat (SCF Shank)



Modular Drills

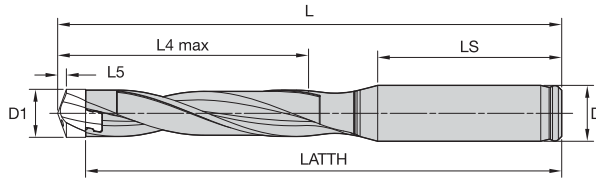
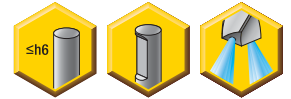
■ KenTIP FS Flanged Shank with Flat • 1.5 x D/3 x D/5 x D/8 x D/12 x D • Metric



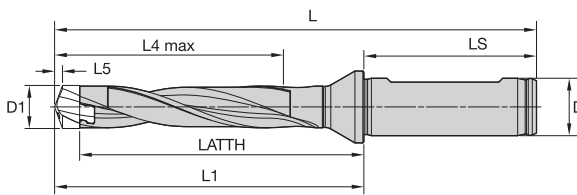
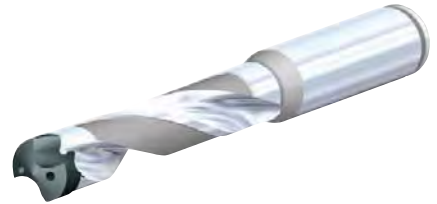
	1.5 x D SCF	3 x D SCF	5 x D SCF	8 x D SCF	12 x D SCF	D1		D1 max		seat size	KenTIP wrench
						mm	in	mm	in		
-		KTFS080R03SCF12M	KTFS080R05SCF12M	KTFS080R08SCF12M	-	8,000	.3150	8,499	.3346	F	170.306
-		KTFS085R03SCF12M	KTFS085R05SCF12M	KTFS085R08SCF12M	-	8,500	.3346	8,999	.3543	G	170.306
-		KTFS090R03SCF12M	KTFS090R05SCF12M	KTFS090R08SCF12M	-	9,000	.3544	9,499	.3739	H	170.306
-		KTFS095R03SCF12M	KTFS095R05SCF12M	KTFS095R08SCF12M	-	9,500	.3740	9,999	.3936	I	170.306
-		KTFS100R03SCF16M	KTFS100R05SCF16M	KTFS100R08SCF16M	-	10,000	.3937	10,499	.4133	J	170.307
-		KTFS105R03SCF16M	KTFS105R05SCF16M	KTFS105R08SCF16M	-	10,500	.4134	10,999	.4330	K	170.307
-		KTFS110R03SCF16M	KTFS110R05SCF16M	KTFS110R08SCF16M	-	11,000	.4331	11,499	.4527	L	170.307
-		KTFS115R03SCF16M	KTFS115R05SCF16M	KTFS115R08SCF16M	-	11,500	.4528	11,999	.4724	M	170.307
-		KTFS120R03SCF16M	KTFS120R05SCF16M	KTFS120R08SCF16M	-	12,000	.4725	12,499	.4921	N	170.308
-		KTFS125R03SCF16M	KTFS125R05SCF16M	KTFS125R08SCF16M	-	12,500	.4922	12,999	.5117	O	170.308
-		KTFS130R03SCF16M	KTFS130R05SCF16M	KTFS130R08SCF16M	-	13,000	.5118	13,499	.5314	P	170.308
-		KTFS135R03SCF16M	KTFS135R05SCF16M	KTFS135R08SCF16M	-	13,500	.5315	13,999	.5511	Q	170.308
-		KTFS140R03SCF16M	KTFS140R05SCF16M	KTFS140R08SCF16M	-	14,000	.5512	14,499	.5708	R	170.309
-		KTFS145R03SCF16M	KTFS145R05SCF16M	KTFS145R08SCF16M	-	14,500	.5709	14,999	.5905	S	170.309
-		KTFS150R03SCF20M	KTFS150R05SCF20M	KTFS150R08SCF20M	-	15,000	.5906	15,999	.6299	T	170.309
-		KTFS160R03SCF20M	KTFS160R05SCF20M	KTFS160R08SCF20M	-	16,000	.6300	16,999	.6692	U	170.309
-		KTFS170R03SCF20M	KTFS170R05SCF20M	KTFS170R08SCF20M	-	17,000	.6693	17,999	.7086	V	170.314
-		KTFS180R03SCF25M	KTFS180R05SCF25M	KTFS180R08SCF25M	-	18,000	.7087	18,999	.7479	W	170.314
-		KTFS190R03SCF25M	KTFS190R05SCF25M	KTFS190R08SCF25M	-	19,000	.7480	19,999	.7873	X	170.314
KTFS200R01SCF25M	KTFS200R03SCF25M	KTFS200R05SCF25M	KTFS200R08SCF25M	KTFS200R12SCF25M		20,000	.7874	20,999	.8267	Y	170.314
KTFS210R01SCF25M	KTFS210R03SCF25M	KTFS210R05SCF25M	KTFS210R08SCF25M	KTFS210R12SCF25M		21,000	.8268	21,999	.8661	Z	170.314
KTFS220R01SCF25M	KTFS220R03SCF25M	KTFS220R05SCF25M	KTFS220R08SCF25M	KTFS220R12SCF25M		22,000	.8662	22,999	.9054	ZA	170.314
KTFS230R01SCF25M	KTFS230R03SCF25M	KTFS230R05SCF25M	KTFS230R08SCF25M	KTFS230R12SCF25M		23,000	.9055	23,999	.9448	ZB	170.314
KTFS240R01SCF25M	KTFS240R03SCF25M	KTFS240R05SCF25M	KTFS240R08SCF25M	KTFS240R12SCF25M		24,000	.9449	24,999	.9842	ZC	170.314
KTFS250R01SCF25M	KTFS250R03SCF25M	KTFS250R05SCF25M	KTFS250R08SCF25M	KTFS250R12SCF25M		25,000	.9843	25,999	1.0236	ZD	170.314

NOTE: Products with D1 ≥ 20mm will be available by January 1st, 2018.

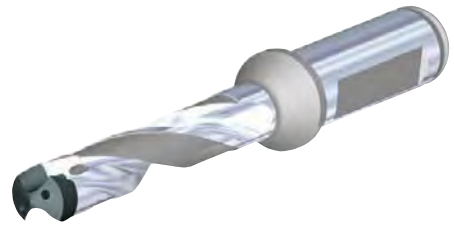
- KenTIP FS toolholder with straight cylindrical round shank. Inch shank <20mm nominal drilling diameter.
- KenTIP FS toolholder with Flanged shank and 0° Flat. Inch shank ≥20mm nominal drilling diameter.
- Multi-coolant provides an advanced coolant channel layout with four coolant exits in each holder.
- Each tool body is shipped with related insert wrench.



Straight Round Shank (SS Shank)



Flanged Shank with Flat (SCF Shank)



■ KenTIP FS Round and Flanged Shank with Flat • 3 x D/5 x D/8 x D • Inch

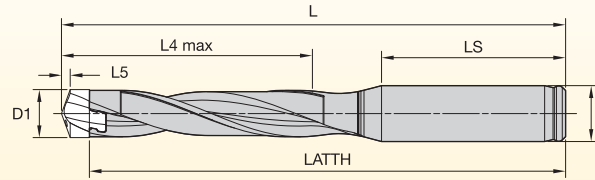


3 x D	5 x D	8 x D	D1		D1 max		seat size	KenTIP wrench
			mm	in	mm	in		
KTFS0237R03SS031	KTFS0237R05SS031	KTFS0237R08SS031	6,000	.2363	6,299	.2480	A	170.319
KTFS0249R03SS031	KTFS0249R05SS031	KTFS0249R08SS031	6,300	.2481	6,599	.2598	B	170.319
KTFS0260R03SS031	KTFS0260R05SS031	KTFS0260R08SS031	6,600	.2599	6,999	.2755	C	170.319
KTFS0276R03SS031	KTFS0276R05SS031	KTFS0276R08SS031	7,000	.2756	7,499	.2952	D	170.319
KTFS0296R03SS031	KTFS0296R05SS031	KTFS0296R08SS031	7,500	.2953	7,999	.3149	E	170.319
KTFS0315R03SS038	KTFS0315R05SS038	KTFS0315R08SS038	8,000	.3150	8,499	.3346	F	170.306
KTFS0335R03SS038	KTFS0335R05SS038	KTFS0335R08SS038	8,500	.3346	8,999	.3543	G	170.306
KTFS0355R03SS038	KTFS0355R05SS038	KTFS0355R08SS038	9,000	.3544	9,499	.3739	H	170.306
KTFS0375R03SS038	KTFS0375R05SS038	KTFS0375R08SS038	9,500	.3740	9,999	.3936	I	170.306
KTFS0394R03SS044	KTFS0394R05SS044	KTFS0394R08SS044	10,000	.3937	10,499	.4133	J	170.307
KTFS0414R03SS044	KTFS0414R05SS044	KTFS0414R08SS044	10,500	.4134	10,999	.4330	K	170.307
KTFS0434R03SS044	KTFS0434R05SS044	KTFS0434R08SS044	11,000	.4331	11,499	.4527	L	170.307
KTFS0453R03SS050	KTFS0453R05SS050	KTFS0453R08SS050	11,500	.4528	11,999	.4724	M	170.307
KTFS0473R03SS050	KTFS0473R05SS050	KTFS0473R08SS050	12,000	.4725	12,499	.4921	N	170.308
KTFS0493R03SS050	KTFS0493R05SS050	KTFS0493R08SS050	12,500	.4922	12,999	.5117	O	170.308
KTFS0512R03SS056	KTFS0512R05SS056	KTFS0512R08SS056	13,000	.5118	13,499	.5314	P	170.308
KTFS0532R03SS056	KTFS0532R05SS056	KTFS0532R08SS056	13,500	.5315	13,999	.5511	Q	170.308
KTFS0552R03SS056	KTFS0552R05SS056	KTFS0552R08SS056	14,000	.5512	14,499	.5708	R	170.309
KTFS0571R03SS063	KTFS0571R05SS063	KTFS0571R08SS063	14,500	.5709	14,999	.5905	S	170.309
KTFS0591R03SS063	KTFS0591R05SS063	KTFS0591R08SS063	15,000	.5906	15,999	.6299	T	170.309
KTFS0630R03SS063	KTFS0630R05SS063	KTFS0630R08SS063	16,000	.6300	16,999	.6692	U	170.309
KTFS0670R03SS075	KTFS0670R05SS075	KTFS0670R08SS075	17,000	.6693	17,999	.7086	V	170.314
KTFS0709R03SS075	KTFS0709R05SS075	KTFS0709R08SS075	18,000	.7087	18,999	.7479	W	170.314
KTFS0749R03SS075	KTFS0749R05SS075	KTFS0749R08SS075	19,000	.7480	19,999	.7873	X	170.314
KTFS0788R03SCF100	KTFS0788R05SCF100	KTFS0788R08SCF100	20,000	.7874	20,999	.8267	Y	170.314
KTFS0827R03SCF100	KTFS0827R05SCF100	KTFS0827R08SCF100	21,000	.8268	21,999	.8661	Z	170.314
KTFS0867R03SCF100	KTFS0867R05SCF100	KTFS0867R08SCF100	22,000	.8662	22,999	.9054	ZA	170.314
KTFS0906R03SCF100	KTFS0906R05SCF100	KTFS0906R08SCF100	23,000	.9055	23,999	.9448	ZB	170.314
KTFS0945R03SCF100	KTFS0945R05SCF100	KTFS0945R08SCF100	24,000	.9449	24,999	.9842	ZC	170.314
KTFS0985R03SCF100	KTFS0985R05SCF100	KTFS0985R08SCF100	25,000	.9843	25,999	1.0236	ZD	170.314

NOTE: Products with D1 ≥ 20mm will be available by January 1st, 2018.

Modular Drills • Dimension Tables

■ Straight Round Shank • Metric



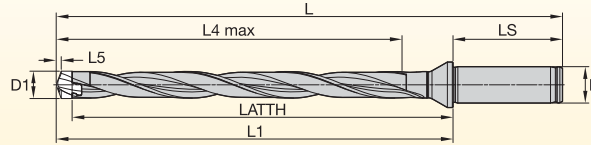
D1 min	D1 max	Seat	LS	round D	1.5 x D SS			3 x D SS			5 x D SS			8 x D SS		
					LATTH	L	L4 max	LATTH	L	L4 max	LATTH	L	L4 max	LATTH	L	L4 max
6,000	6,299	A	37	8	53,5	57	9	63,5	67	19	76,5	80	32	94,5	98	50
6,300	6,599	B	37	8	54,3	58	10	64,3	68	20	77,3	81	33	97,3	101	53
6,600	6,999	C	37	8	55,2	59	10	66,2	70	21	80,2	84	35	101,2	105	56
7,000	7,499	D	37	8	55,9	60	11	66,9	71	22	82,9	87	38	104,9	109	60
7,500	7,999	E	37	8	56,7	61	12	68,7	73	24	84,7	89	40	108,7	113	64
8,000	8,499	F	41	10	63,4	68	13	76,4	81	26	92,4	97	42	118,4	123	68
8,500	8,999	G	41	10	64,1	69	14	77,1	82	27	95,1	100	45	122,1	127	72
9,000	9,499	H	41	10	63,8	69	14	77,8	83	28	97,8	103	48	125,8	131	76
9,500	9,999	I	41	10	64,5	70	15	79,5	85	30	99,5	105	50	129,5	135	80
10,000	10,499	J	46	12	72,2	78	16	88,2	94	32	108,2	114	52	140,2	146	84
10,500	10,999	K	46	12	71,9	78	16	88,9	95	33	110,9	117	55	143,9	150	88
11,000	11,499	L	46	12	72,6	79	17	89,6	96	34	113,6	120	58	147,6	154	92
11,500	11,999	M	46	12	73,3	80	18	91,3	98	36	115,3	122	60	151,3	158	96
12,000	12,499	N	46	14	76,0	83	19	95,0	102	38	119,0	126	62	157,0	164	100
12,500	12,999	O	46	14	76,8	84	20	95,8	103	39	121,8	129	65	160,8	168	104
13,000	13,499	P	46	14	76,5	84	20	96,5	104	40	124,5	132	68	164,5	172	108
13,500	13,999	Q	46	14	77,2	85	21	98,2	106	42	126,2	134	70	168,2	176	112
14,000	14,499	R	49	16	81,9	90	22	103,9	112	44	131,9	140	72	175,9	184	116
14,500	14,999	S	49	16	81,6	90	22	104,6	113	45	134,6	143	75	179,6	188	120
15,000	15,999	T	49	16	83,3	92	24	107,3	116	48	139,3	148	80	187,3	196	128
16,000	16,999	U	49	16	84,7	94	26	109,7	119	51	143,7	153	85	194,7	204	136
17,000	17,999	V	51	20	90,1	100	27	117,1	127	54	153,1	163	90	207,1	217	144
18,000	18,999	W	51	20	90,6	101	28	119,6	130	57	157,6	168	95	214,6	225	152
19,000	19,999	X	51	20	92,0	103	30	122,0	133	60	162,0	173	100	222,0	233	160

NOTE: Toolholder dimensions:
L: Total length of drill
L4: Max. drilling depth
L5: Protruding length (Insert specific. See related insert pages)
LATTH: Pocket seat reference length
LS: Shank length

(continued)

Modular Drills • Dimension Tables *(continued)*

■ Flanged Round Shank • Metric



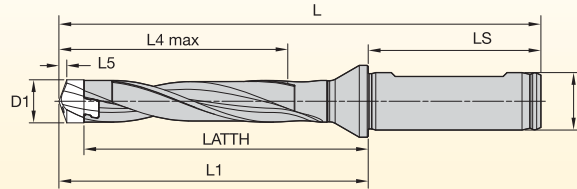
D1		Seat	LS	flanged D	LATTH	12 x D SF		
min	max					L	L1	L4 max
6,000	6,299	A	45	12	92,5	141	96	76
6,300	6,599	B	45	12	95,3	144	99	79
6,600	6,999	C	45	12	101,2	150	105	84
7,000	7,499	D	45	12	106,9	156	111	90
7,500	7,999	E	45	12	112,7	162	117	96
8,000	8,499	F	45	12	118,4	168	123	102
8,500	8,999	G	45	12	124,1	174	129	108
9,000	9,499	H	45	12	129,8	180	135	114
9,500	9,999	I	45	12	135,5	186	141	120
10,000	10,499	J	48	16	144,2	198	150	126
10,500	10,999	K	48	16	149,9	204	156	132
11,000	11,499	L	48	16	155,6	210	162	138
11,500	11,999	M	48	16	161,3	216	168	144
12,000	12,499	N	48	16	167,0	222	174	150
12,500	12,999	O	48	16	172,8	228	180	156
13,000	13,499	P	48	16	178,5	234	186	162
13,500	13,999	Q	48	16	184,2	240	192	168
14,000	14,499	R	48	16	189,9	246	198	174
14,500	14,999	S	48	16	195,6	252	204	180
15,000	15,999	T	50	20	210,3	269	219	192
16,000	16,999	U	50	20	221,7	281	231	204
17,000	17,999	V	50	20	233,1	293	243	216
18,000	18,999	W	56	25	247,6	314	258	228
19,000	19,999	X	56	25	259,0	326	270	240

NOTE: Toolholder dimensions:
 L: Total length of drill
 L1: Drill length including flange
 L4: Max. drilling depth
 L5: Protruding length (Insert specific. See related insert pages)
 LATTH: Pocket seat reference length
 LS: Shank length

(continued)

Modular Drills • Dimension Tables *(continued)*

■ **Flanged Shank with Flat • Metric**



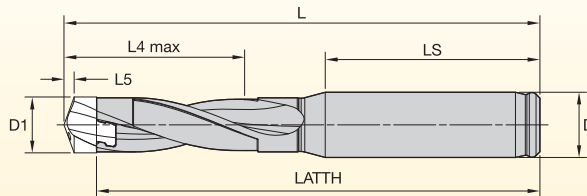
D1 min	D1 max	Seat	LS	flanged D	1.5 x D SCF				3 x D SCF				5 x D SCF				8 x D SCF				12 x D SCF			
					LATTH	L	L1	L4 max	LATTH	L	L1	L4 max	LATTH	L	L1	L4 max	LATTH	L	L1	L4 max	LATTH	L	L1	L4 max
8,000	8,499	F	45	12	—	—	—	—	42,4	92	2	26	58,4	108	2	42	84,4	134	4	68	—	—	—	—
8,500	8,999	G	45	12	—	—	—	—	43,1	93	2	27	61,1	111	3	45	88,1	138	4	72	—	—	—	—
9,000	9,499	H	45	12	—	—	—	—	43,8	94	2	28	63,8	114	3	48	91,8	142	4	76	—	—	—	—
9,500	9,999	I	45	12	—	—	—	—	45,5	96	2	30	65,5	116	3	50	95,5	146	4	80	—	—	—	—
10,000	10,499	J	48	16	—	—	—	—	50,2	104	2	32	70,2	124	3	52	102,2	156	4	84	—	—	—	—
10,500	10,999	K	48	16	—	—	—	—	50,9	105	2	33	72,9	127	3	55	105,9	160	4	88	—	—	—	—
11,000	11,499	L	48	16	—	—	—	—	51,6	106	2	34	75,6	130	3	58	109,6	164	5	92	—	—	—	—
11,500	11,999	M	48	16	—	—	—	—	53,3	108	2	36	77,3	132	3	60	113,3	168	5	96	—	—	—	—
12,000	12,499	N	48	16	—	—	—	—	55,0	110	2	38	79,0	134	3	62	117,0	172	5	100	—	—	—	—
12,500	12,999	O	48	16	—	—	—	—	55,8	111	2	39	81,8	137	4	65	120,8	176	5	104	—	—	—	—
13,000	13,499	P	48	16	—	—	—	—	56,5	112	3	40	84,5	140	4	68	124,5	180	5	108	—	—	—	—
13,500	13,999	Q	48	16	—	—	—	—	58,2	114	3	42	86,2	142	4	70	128,2	184	5	112	—	—	—	—
14,000	14,499	R	48	16	—	—	—	—	59,9	116	3	44	87,9	144	4	72	131,9	188	6	116	—	—	—	—
14,500	14,999	S	48	16	—	—	—	—	60,6	117	3	45	90,6	147	4	75	135,6	192	6	120	—	—	—	—
15,000	15,999	T	50	20	—	—	—	—	66,3	125	3	48	98,3	157	4	80	146,3	205	6	128	—	—	—	—
16,000	16,999	U	50	20	—	—	—	—	68,7	128	3	51	102,7	162	4	85	153,7	213	6	136	—	—	—	—
17,000	17,999	V	50	20	—	—	—	—	71,1	131	3	54	107,1	167	5	90	161,1	221	7	144	—	—	—	—
18,000	18,999	W	56	25	—	—	—	—	76,6	143	3	57	114,6	181	5	95	171,6	238	7	152	—	—	—	—
19,000	19,999	X	56	25	—	—	—	—	79,0	146	4	60	119,0	186	5	100	179,0	246	7	160	—	—	—	—
20,000	20,999	Y	56	25	50,4	118	2	32	81,4	149	4	63	123,4	191	5	105	186,4	254	8	168	270,4	338	11	252
21,000	21,999	Z	56	25	50,8	119	2	33	83,8	152	4	66	127,8	196	6	110	193,8	262	8	176	281,8	350	12	264
22,000	22,999	ZA	56	25	51,2	120	3	34	86,2	155	4	69	132,2	201	6	115	201,2	270	8	184	293,2	362	12	276
23,000	23,999	ZB	56	25	52,7	122	3	36	88,7	158	4	72	136,7	206	6	120	208,7	278	9	192	304,7	374	13	288
24,000	24,999	ZC	56	25	54,1	124	3	38	91,1	161	4	75	141,1	211	6	125	216,1	286	9	200	316,1	386	13	300
25,000	25,999	ZD	56	25	54,5	125	3	39	93,5	164	4	78	145,5	216	6	130	223,5	294	9	208	327,5	398	13	312

NOTE: Toolholder dimensions:
 L: Total length of drill
 L1: Drill length including flange
 L4: Max. drilling depth
 L5: Protruding length (Insert specific. See related insert pages)
 LATTH: Pocket seat reference length
 LS: Shank length

(continued)

Modular Drills • Dimension Tables *(continued)*

■ Straight Round Shank • Inch



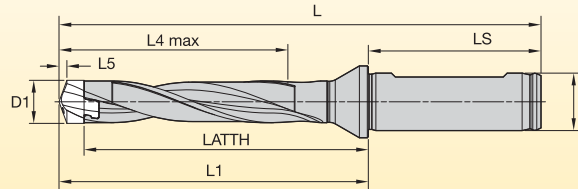
D1 min	D1 max	Seat	LS	round D	3 x D SS			5 x D SS			8 x D SS		
					LATTH	L	L4 max	LATTH	L	L4 max	LATTH	L	L4 max
.3937	.4133	J	1.67	.438	3.32	3.54	1.26	4.10	4.33	2.05	5.36	5.59	3.31
.4134	.4330	K	1.67	.438	3.34	3.58	1.30	4.21	4.45	2.17	5.51	5.75	3.47
.4331	.4527	L	1.67	.438	3.37	3.62	1.34	4.32	4.57	2.28	5.65	5.91	3.62
.4528	.4724	M	1.79	.500	3.60	3.86	1.42	4.54	4.80	2.36	5.96	6.22	3.78
.4725	.4921	N	1.79	.500	3.66	3.94	1.50	4.61	4.88	2.44	6.10	6.38	3.94
.4922	.5117	O	1.79	.500	3.69	3.98	1.54	4.71	5.00	2.56	6.25	6.54	4.09
.5118	.5314	P	1.79	.563	3.76	4.06	1.58	4.86	5.16	2.68	6.44	6.73	4.25
.5315	.5511	Q	1.79	.563	3.83	4.13	1.65	4.93	5.24	2.76	6.58	6.89	4.41
.5512	.5708	R	1.79	.563	3.89	4.21	1.73	5.00	5.32	2.84	6.73	7.05	4.57
.5709	.5905	S	1.91	.625	4.12	4.45	1.77	5.30	5.63	2.95	7.07	7.40	4.72
.5906	.6299	T	1.91	.625	4.22	4.57	1.89	5.48	5.83	3.15	7.37	7.72	5.04
.6300	.6692	U	1.91	.625	4.28	4.65	2.01	5.62	5.98	3.35	7.63	7.99	5.35
.6693	.7086	V	2.00	.750	4.57	4.96	2.13	5.99	6.38	3.54	8.12	8.50	5.67
.7087	.7479	W	2.00	.750	4.67	5.08	2.24	6.16	6.57	3.74	8.41	8.82	5.98
.7480	.7873	X	2.00	.750	4.76	5.20	2.36	6.34	6.77	3.94	8.70	9.13	6.30
.2363	.2480	A	1.52	.313	2.58	2.72	.75	3.09	3.23	1.26	3.80	3.94	1.97
.2481	.2598	B	1.52	.313	2.61	2.76	.79	3.12	3.27	1.30	3.91	4.06	2.09
.2599	.2755	C	1.52	.313	2.64	2.80	.83	3.20	3.35	1.38	4.02	4.17	2.21
.2756	.2952	D	1.52	.313	2.67	2.83	.87	3.30	3.46	1.50	4.17	4.33	2.36
.2953	.3149	E	1.52	.313	2.83	3.00	.95	3.46	3.63	1.58	4.40	4.58	2.52
.3150	.3346	F	1.59	.375	2.97	3.15	1.02	3.60	3.78	1.65	4.62	4.80	2.68
.3346	.3543	G	1.59	.375	2.99	3.19	1.06	3.70	3.90	1.77	4.77	4.96	2.84
.3544	.3739	H	1.59	.375	3.02	3.23	1.10	3.81	4.02	1.89	4.91	5.12	2.99
.3740	.3936	I	1.59	.375	3.09	3.31	1.18	3.88	4.09	1.97	5.06	5.28	3.15

NOTE: Toolholder dimensions:
 L: Total length of drill
 L4: Max. drilling depth
 L5: Protruding length (Insert specific. See related insert pages)
 LATTH: Pocket seat reference length
 LS: Shank length

(continued)

Modular Drills • Dimension Tables *(continued)*

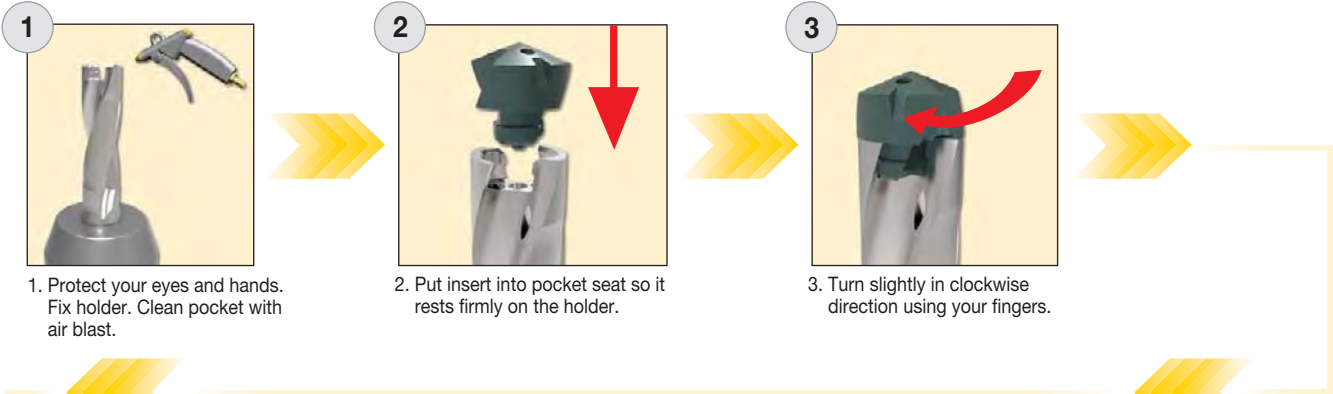
■ Flanged Shank with Flat • Inch



D1 min	D1 max	Seat	LS	flanged D	3 x D SCF				5 x D SCF				8 x D SCF			
					LATTH	L	L1	L4 max	LATTH	L	L1	L4 max	LATTH	L	L1	L4 max
.7874	.8267	Y	2.20	1.000	3.20	5.87	3.66	2.48	4.86	7.52	5.32	4.13	7.34	10.00	7.80	6.61
.8268	.8661	Z	2.20	1.000	3.30	5.98	3.78	2.60	5.03	7.72	5.51	4.33	7.63	10.32	8.11	6.93
.8662	.9054	ZA	2.20	1.000	3.40	6.10	3.90	2.72	5.21	7.91	5.71	4.53	7.92	10.63	8.43	7.24
.9055	.9448	ZB	2.20	1.000	3.49	6.22	4.02	2.84	5.38	8.11	5.91	4.72	8.22	10.94	8.74	7.56
.9449	.9842	ZC	2.20	1.000	3.59	6.34	4.13	2.95	5.55	8.31	6.10	4.92	8.51	11.26	9.06	7.87
.9843	1.0236	ZD	2.20	1.000	3.68	6.46	4.25	3.07	5.73	8.50	6.30	5.12	8.80	11.57	9.37	8.19

NOTE: Toolholder dimensions:
L: Total length of drill
L1: Drill length including flange
L4: Max. drilling depth
L5: Protruding length (Insert specific. See related insert pages)
LATTH: Pocket seat reference length
LS: Shank length

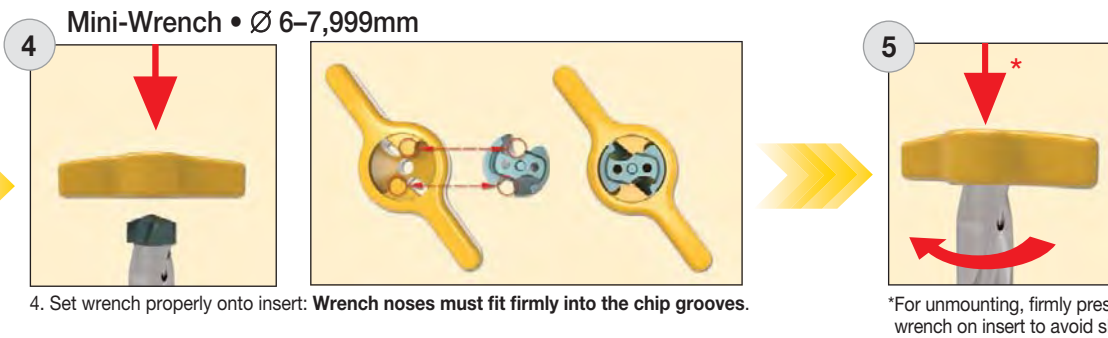
Mounting



1. Protect your eyes and hands. Fix holder. Clean pocket with air blast.

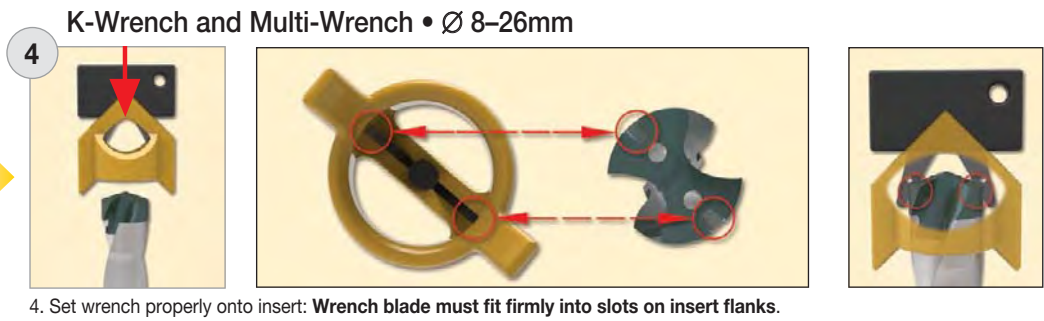
2. Put insert into pocket seat so it rests firmly on the holder.

3. Turn slightly in clockwise direction using your fingers.



4. Set wrench properly onto insert: **Wrench noses must fit firmly into the chip grooves.**

*For unmounting, firmly press wrench on insert to avoid slipping.



4. Set wrench properly onto insert: **Wrench blade must fit firmly into slots on insert flanks.**

Available Smart Wrenches

Mini-Wrench

Wrench noses must fit into the chip grooves.



K-Wrench

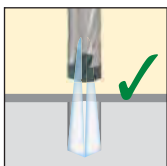
Wrench blades must fit into insert slots.



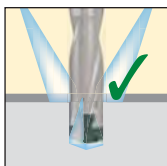
Multi-Wrench



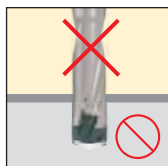
Coolant



Internal coolant is recommended for all applications.



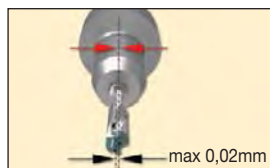
Flood coolant only for drilling depth $\leq 3 \times D$.



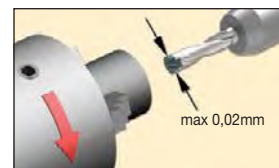
Dry cutting is not recommended. MQL ability is limited.

Core Deviation

Machining Center



Stationary Drill/Lathe



Rotating Applications

KenTIP FS holders with straight cylindrical SS and SF shanks (no flats) are designed for rotating applications where the drill rotates while the workpiece remains stationary. The shank to drill-point location of these drills is held to an extremely close tolerance. To maintain accuracy and gain maximum performance, please use the approved toolholding method shown below.



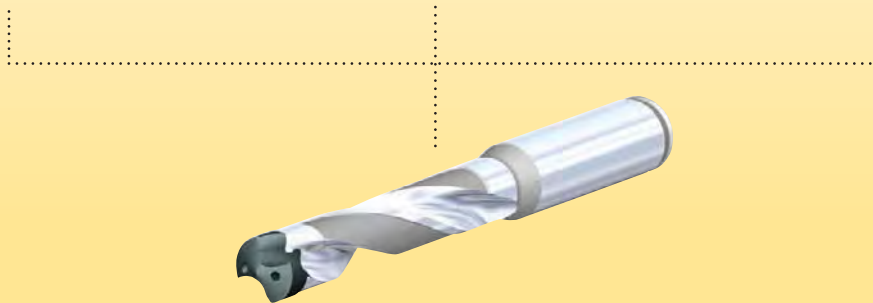
ERICKSON™ ER collet chucks



ERICKSON Hydrochuck HP Line



ERICKSON Shrink Fit toolholders for general purpose

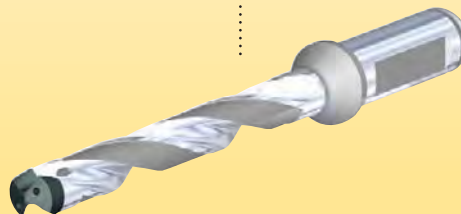


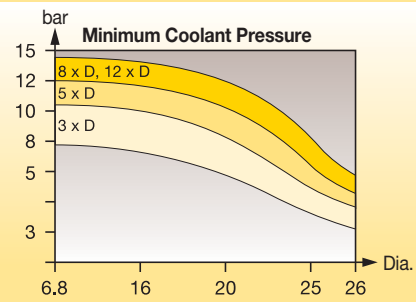
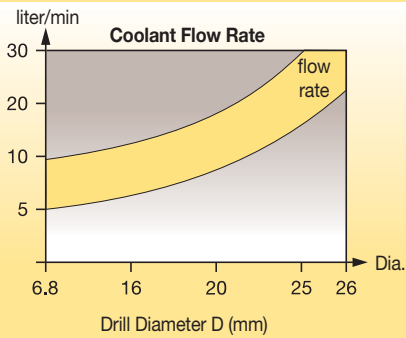
Rotating and Stationary Applications

KenTIP FS holders with SCF shanks (Cylindrical with 90° flat and flange) are reducing deflections and represent a stiffer holder solution. As the shank is compatible with end mill adapters, these holders are very flexible in use. SCF shanks can be used in any rotating applications and are suited for lathe and other settings where the tool is stationary.

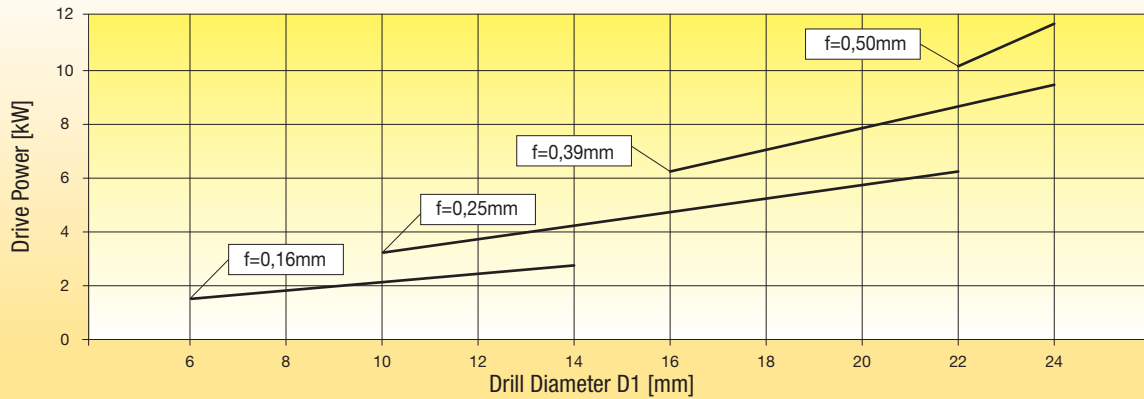


EM adapters

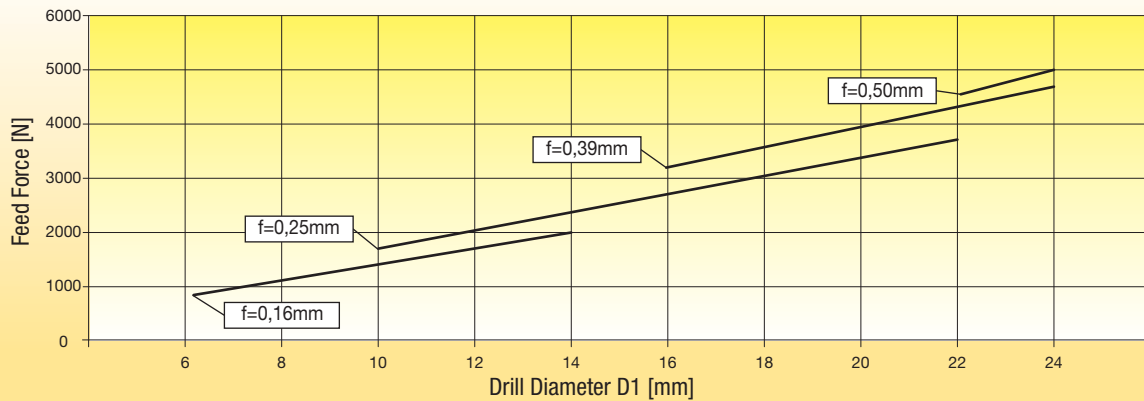




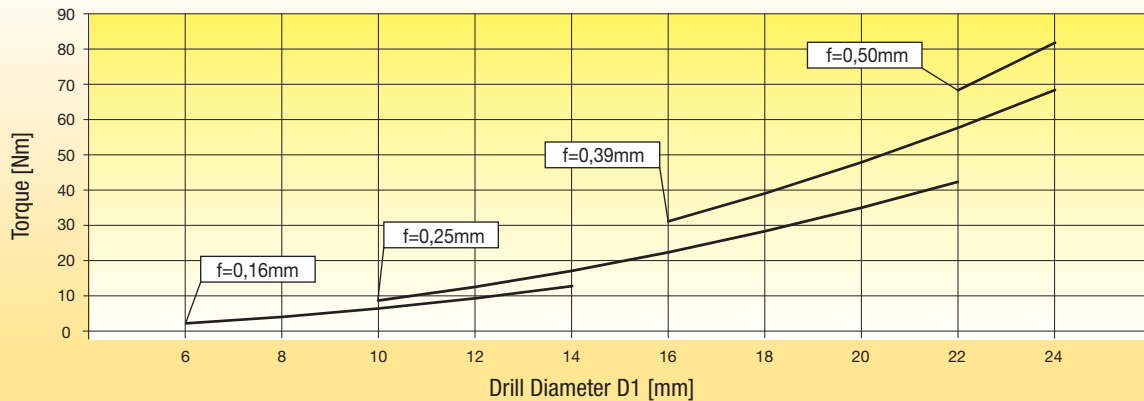
Drive Power (kW)



Feed Force (N)



Torque (Nm)



NOTE: The diagrams above are used to determine the drive power, feed force, and torque. They are based on cutting force measurement in tempered steels with a tensile strength: $R_m = 750 \text{ N/mm}^2$. The base cutting speed used is: $v_c = 80 \text{ m/min}$.

NOVO KNOWS CAD/CAM

With the addition of NOVO™ applications to your team, your CAD/CAM capabilities become much more accurate, streamlined, and productive.

Before NOVO: The programmer would be in their CAD/CAM software, programming a part. Using the tedious method of finding a tool in a catalog, and then manually inputting the tooling information from the catalog into the CAD/CAM software.

The concern is that assumptions are made, and only partial tooling information is entered.

With NOVO: The powerful digital intelligence of NOVO applications not only help the programmer find the right tool for the metalcutting job, but also automatically integrates all the tooling data into a complete CAD/CAM solution. The integration of all the tooling data increases the viability of the part being programmed, and is delivered quickly — saving you time.

NOVO applications can ensure you have the right tools on your machines, in the right sequence. Resulting in flawless execution that accelerates every job, and maximizes every shift. kenametal.com/novo



➤ KenTIP™ Modular Drill System

Primary Application

The KenTIP modular drill system offers performance levels commonly achieved with solid carbide drills. The proprietary locking system enables inserts to be changed inside the machine tool. Use KenTIP in steel, cast iron, ductile iron, and stainless steel applications. KenTIP modular drills are available up to diameter 27,99mm (1.1020"). Change drilling inserts within the machine without taking the body off, saving setup time and manufacturing costs.

With our new FEG Flat bottom E-shape inserts, the KenTIP modular drill system now offers an easy and very reliable solution to drill blind holes that performs on a very wide range of difficult applications.

Features and Benefits

Advanced Interface

- Strong pocket seats on all inserts and bodies.
- Long tip and body life in unstable conditions, especially when side loads occur.

HP Drill-Point Design

- Very high feed rates possible.
- Low thrust prevents workpiece flexing.
- Excellent centering capabilities.

Easy Insert Change

- Locking method requires no screws or clamps.
- Insert blades can be changed with a simple provided tool and do not require drill body removal from the machine or holder.

Disposable Inserts

- No reconditioning costs.
- Consistent performance.
- Eliminates number of tools waiting for reconditioning, providing significant cost savings.

Tailored Grades and Geometries

- KCP15™ grade has a new PVD coating enabling longer tool life in all steel applications.
- KCPM45™ grade combines a very tough, fine-grain carbide substrate with a TiAlN PVD coating. It is used on our FEG flat-bottom inserts.
- For applications in cast iron and stainless steel, we recommend to use our new KenTIP FS modular drill. Please see page H6 for drills.
- For further availability on KC7320™ HPL and KC7410™ HPC inserts for KenTIP, please refer to NOVO™ or contact your sales representative.

NEW!

FEG Style, E-shape Flat-Bottom Inserts

KenTIP™ FEG inserts create blind holes, through holes, and countersinks. These inserts are focused on versatility and will support you in many essential drilling applications.



Drill Body Portfolio

- Standard 12 x D holders with round shanks available, inch and metric. This covers the complete KenTIP diameter range.
- Standard 3, 5, and 8 x D tool bodies with round and flanged shank available, inch and metric.
- Standard 1.5 x D bodies available, especially for piloting operations on metric drill bodies.

Customization

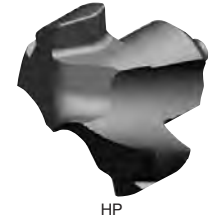
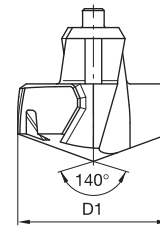
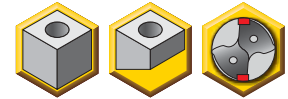
- Intermediate diameters available as semi-standards.
- Close tolerance tips available for precision holes.
- Chamfering insert pockets available.
- Multiple steps possible.
- CounterFix Micro tangential inserts for small diameter step drills.



NEW!

CounterFix Micro Tangential Inserts

- KenTIP KCP15™ HP cutting edges enable high metal removal rates and superior tool life for steel applications.
- KenTIP HP geometry works with low cutting and feed forces and provides very good centering. Reinforced cutting edges and good chip forming improve tool life due to high wear and edge chipping resistance.
- KCP15 is a fine grain carbide with a TiAlN-based PVD nanolayer coating with greatly improved layer bonding for higher tool life. Its increased Al content provides better thermal and chemical stability, which makes it more suitable for higher cutting speeds.
- KenTIP KCP15 HP cutting edges are perfectly suited to drill alloyed and high alloy steels.
- Use KenTIP KCP15 HP cutting edges as an alternative in cast iron materials.



■ KenTIP Inserts • HP KCP15



KCP15	D1		seat size
	mm	in	
KTIP0794HPM	7,938	.3125	F
KTIP0800HPM	8,000	.3150	F
KTIP0810HPM	8,100	.3189	F
KTIP0816HPM	8,164	.3214	F
KTIP0820HPM	8,204	.3230	F
KTIP0830HPM	8,300	.3268	F
KTIP0833HPM	8,334	.3281	F
KTIP0840HPM	8,400	.3307	F
KTIP0843HPM	8,433	.3320	F
KTIP0850HPM	8,500	.3346	G
KTIP0860HPM	8,600	.3386	G
KTIP0861HPM	8,611	.3390	G
KTIP0870HPM	8,700	.3425	G
KTIP0873HPM	8,733	.3438	G
KTIP0880HPM	8,800	.3465	G
KTIP0884HPM	8,839	.3480	G
KTIP0890HPM	8,900	.3504	G
KTIP0900HPM	9,000	.3543	H
KTIP0909HPM	9,093	.3580	H
KTIP0910HPM	9,100	.3583	H
KTIP0913HPM	9,129	.3594	H
KTIP0920HPM	9,200	.3622	H
KTIP0930HPM	9,300	.3661	H
KTIP0935HPM	9,347	.3680	H
KTIP0940HPM	9,400	.3701	H
KTIP0950HPM	9,500	.3740	I
KTIP0953HPM	9,525	.3750	I
KTIP0956HPM	9,558	.3763	I
KTIP0958HPM	9,576	.3770	I
KTIP0960HPM	9,600	.3780	I
KTIP0970HPM	9,703	.3820	I
KTIP0980HPM	9,804	.3860	I



- first choice
- alternate choice

KCP15	D1		seat size
	mm	in	
KTIP0983HPM	9,830	.3870	I
KTIP0990HPM	9,900	.3898	I
KTIP0992HPM	9,921	.3906	I
KTIP1000HPM	10,000	.3937	J
KTIP1002HPM	10,023	.3946	J
KTIP1008HPM	10,084	.3970	J
KTIP1010HPM	10,100	.3976	J
KTIP1020HPM	10,200	.4016	J
KTIP1026HPM	10,262	.4040	J
KTIP1030HPM	10,300	.4055	J
KTIP1032HPM	10,320	.4063	J
KTIP1040HPM	10,400	.4094	J
KTIP1049HPM	10,490	.4130	J
KTIP1050HPM	10,500	.4134	K
KTIP1060HPM	10,600	.4173	K
KTIP1070HPM	10,700	.4213	K
KTIP1072HPM	10,716	.4219	K
KTIP1080HPM	10,800	.4252	K
KTIP1090HPM	10,900	.4291	K
KTIP1100HPM	11,000	.4331	L
KTIP1110HPM	11,100	.4370	L
KTIP1111HPM	11,113	.4375	L
KTIP1120HPM	11,200	.4409	L
KTIP1130HPM	11,300	.4449	L
KTIP1140HPM	11,400	.4488	L
KTIP1150HPM	11,500	.4528	M
KTIP1151HPM	11,509	.4531	M
KTIP1160HPM	11,600	.4567	M
KTIP1161HPM	11,610	.4571	M
KTIP1170HPM	11,700	.4606	M
KTIP1180HPM	11,800	.4646	M
KTIP1190HPM	11,900	.4685	M

(continued)

(KenTIP inserts • HP KCP15™ — continued)



● first choice
○ alternate choice

KCP15	D1		seat size
	mm	in	
KTIP1191HPM	11,908	.4688	M
KTIP1200HPM	12,000	.4724	N
KTIP1210HPM	12,100	.4764	N
KTIP1220HPM	12,200	.4803	N
KTIP1230HPM	12,304	.4844	N
KTIP1240HPM	12,400	.4882	N
KTIP1247HPM	12,474	.4911	N
KTIP1250HPM	12,500	.4921	O
KTIP1260HPM	12,600	.4961	O
KTIP1270HPM	12,700	.5000	O
KTIP1280HPM	12,800	.5039	O
KTIP1290HPM	12,903	.5080	O
KTIP1300HPM	13,000	.5118	P
KTIP1310HPM	13,096	.5156	P
KTIP1320HPM	13,200	.5197	P
KTIP1328HPM	13,280	.5228	P
KTIP1330HPM	13,300	.5236	P
KTIP1338HPM	13,380	.5268	P
KTIP1340HPM	13,400	.5276	P
KTIP1349HPM	13,494	.5313	P
KTIP1350HPM	13,500	.5315	Q
KTIP1360HPM	13,600	.5354	Q
KTIP1370HPM	13,700	.5394	Q
KTIP1380HPM	13,800	.5433	Q
KTIP1389HPM	13,891	.5469	Q
KTIP1390HPM	13,896	.5471	Q
KTIP1394HPM	13,940	.5488	Q
KTIP1400HPM	14,000	.5512	R
KTIP1410HPM	14,100	.5551	R
KTIP1420HPM	14,200	.5591	R
KTIP1429HPM	14,288	.5625	R
KTIP1430HPM	14,300	.5630	R
KTIP1440HPM	14,400	.5669	R
KTIP1450HPM	14,500	.5709	S
KTIP1460HPM	14,600	.5748	S
KTIP1467HPM	14,666	.5774	S
KTIP1468HPM	14,684	.5781	S
KTIP1470HPM	14,700	.5787	S
KTIP1480HPM	14,800	.5827	S
KTIP1490HPM	14,900	.5866	S
KTIP1500HPM	15,000	.5906	T
KTIP1508HPM	15,083	.5938	T
KTIP1510HPM	15,100	.5945	T
KTIP1520HPM	15,200	.5984	T
KTIP1530HPM	15,300	.6024	T
KTIP1538HPM	15,380	.6055	T
KTIP1540HPM	15,400	.6063	T
KTIP1548HPM	15,479	.6094	T
KTIP1550HPM	15,500	.6102	T
KTIP1560HPM	15,600	.6142	T
KTIP1570HPM	15,700	.6181	T
KTIP1580HPM	15,800	.6220	T

KCP15	D1		seat size
	mm	in	
KTIP1588HPM	15,875	.6250	T
KTIP1600HPM	16,000	.6299	U
KTIP1603HPM	16,027	.6310	U
KTIP1608HPM	16,078	.6330	U
KTIP1610HPM	16,100	.6339	U
KTIP1620HPM	16,200	.6378	U
KTIP1627HPM	16,271	.6406	U
KTIP1630HPM	16,300	.6417	U
KTIP1640HPM	16,400	.6457	U
KTIP1650HPM	16,500	.6496	U
KTIP1660HPM	16,600	.6535	U
KTIP1667HPM	16,670	.6563	U
KTIP1670HPM	16,700	.6575	U
KTIP1680HPM	16,800	.6614	U
KTIP1690HPM	16,900	.6654	U
KTIP1700HPM	17,000	.6693	V
KTIP1707HPM	17,066	.6719	V
KTIP1710HPM	17,100	.6732	V
KTIP1720HPM	17,200	.6772	V
KTIP1730HPM	17,300	.6811	V
KTIP1740HPM	17,400	.6850	V
KTIP1748HPM	17,463	.6875	V
KTIP1750HPM	17,500	.6890	V
KTIP1760HPM	17,600	.6929	V
KTIP1770HPM	17,700	.6969	V
KTIP1780HPM	17,800	.7008	V
KTIP1786HPM	17,859	.7031	V
KTIP1790HPM	17,900	.7047	V
KTIP1800HPM	18,000	.7087	W
KTIP1810HPM	18,100	.7126	W
KTIP1820HPM	18,200	.7165	W
KTIP1826HPM	18,258	.7188	W
KTIP1830HPM	18,300	.7205	W
KTIP1840HPM	18,400	.7244	W
KTIP1850HPM	18,500	.7283	W
KTIP1860HPM	18,600	.7323	W
KTIP1865HPM	18,654	.7344	W
KTIP1870HPM	18,700	.7362	W
KTIP1880HPM	18,800	.7402	W
KTIP1890HPM	18,900	.7441	W
KTIP1900HPM	19,000	.7480	X
KTIP1905HPM	19,050	.7500	X
KTIP1910HPM	19,100	.7520	X
KTIP1920HPM	19,200	.7559	X
KTIP1923HPM	19,228	.7570	X
KTIP1925HPM	19,253	.7580	X
KTIP1930HPM	19,300	.7598	X
KTIP1935HPM	19,350	.7620	X
KTIP1940HPM	19,400	.7638	X
KTIP1946HPM	19,446	.7656	X
KTIP1950HPM	19,500	.7677	X
KTIP1960HPM	19,600	.7717	X

(continued)



(KenTIP inserts • HP KCP15™ — continued)



Modular Drills

KCP15	D1		seat size
	mm	in	
KTIP1970HPM	19,700	.7756	X
KTIP1980HPM	19,800	.7795	X
KTIP1984HPM	19,844	.7813	X
KTIP1990HPM	19,900	.7835	X
KTIP2000HPM	20,000	.7874	Y
KTIP2010HPM	20,100	.7913	Y
KTIP2020HPM	20,200	.7953	Y
KTIP2024HPM	20,241	.7969	Y
KTIP2030HPM	20,300	.7992	Y
KTIP2050HPM	20,500	.8071	Y
KTIP2060HPM	20,600	.8110	Y
KTIP2064HPM	20,638	.8125	Y
KTIP2070HPM	20,700	.8150	Y
KTIP2080HPM	20,800	.8189	Y
KTIP2090HPM	20,900	.8228	Y
KTIP2099HPM	20,990	.8264	Y
KTIP2100HPM	21,000	.8268	Z
KTIP2110HPM	21,100	.8307	Z
KTIP2143HPM	21,432	.8438	Z
KTIP2150HPM	21,500	.8465	Z
KTIP2200HPM	22,000	.8661	ZA
KTIP2223HPM	22,225	.8750	ZA
KTIP2250HPM	22,500	.8858	ZA
KTIP2280HPM	22,800	.8976	ZA



● first choice
○ alternate choice

KCP15	D1		seat size
	mm	in	
KTIP2300HPM	23,000	.9055	ZB
KTIP2350HPM	23,500	.9252	ZB
KTIP2381HPM	23,813	.9375	ZB
KTIP2400HPM	24,000	.9449	ZC
KTIP2450HPM	24,500	.9646	ZC
KTIP2461HPM	24,608	.9688	ZC
KTIP2500HPM	25,000	.9843	ZD
KTIP2540HPM	25,400	1.0000	ZD
KTIP2550HPM	25,500	1.0039	ZD
KTIP2567HPM	25,679	1.0110	ZD
KTIP2581HPM	25,806	1.0160	ZD
KTIP2599HPM	25,990	1.0232	ZD
KTIP2600HPM	26,000	1.0236	ZE
KTIP2619HPM	26,187	1.0310	ZE
KTIP2650HPM	26,500	1.0433	ZE
KTIP2659HPM	26,590	1.0469	ZE
KTIP2700HPM	27,000	1.0630	ZE
KTIP2750HPM	27,500	1.0827	ZE
KTIP2778HPM	27,780	1.0938	ZE
KTIP2799HPM	27,990	1.1020	ZE

KenTIP HP Geometry

Tolerance

D1 metric	tolerance k8
8–10	0,000/+0,022
>10–17	0,000/+0,027
>17–18	0,000/+0,027
>18–28	0,000/+0,033

KenTIP HP Geometry

Tolerance

D1 inch	tolerance k8
.3125–.3906	.000/+.0009
>.3906–.6250	.000/+.0011
>.6692–.7090	.000/+.0010
>.7090–.8228	.000/+.0013

■ Modular Drill Carbide Insert Blades • KenTIP™ • HP Geometry • Grade KCP15™ • Through Coolant • Metric

Material Group	Cutting Speed – vc			Metric									
	Range – m/min			Recommended Feed Rate (f) by Diameter									
	min	Starting Value	max		8,0	10,0	12,0	14,0	16,0	20,0	24,0	28,0	
P	1	90	130	180	mm/r	0,12–0,21	0,14–0,26	0,15–0,33	0,18–0,41	0,20–0,47	0,26–0,50	0,27–0,51	0,30–0,54
	2	110	150	190	mm/r	0,12–0,25	0,14–0,30	0,15–0,35	0,18–0,38	0,20–0,47	0,26–0,50	0,27–0,51	0,30–0,54
	3	50	80	110	mm/r	0,12–0,29	0,13–0,37	0,17–0,39	0,22–0,48	0,24–0,48	0,32–0,54	0,32–0,54	0,35–0,56
	4	50	80	110	mm/r	0,12–0,29	0,13–0,37	0,17–0,39	0,18–0,48	0,19–0,48	0,24–0,48	0,35–0,46	0,27–0,46
K	1	60	100	180	mm/r	0,16–0,30	0,17–0,34	0,18–0,37	0,22–0,44	0,26–0,50	0,33–0,62	0,35–0,65	0,40–0,70
	2	60	80	90	mm/r	0,16–0,30	0,17–0,32	0,18–0,35	0,22–0,43	0,26–0,50	0,33–0,62	0,35–0,65	0,40–0,70
	3	40	70	90	mm/r	0,17–0,32	0,18–0,35	0,19–0,38	0,21–0,43	0,22–0,46	0,24–0,50	0,25–0,51	0,40–0,70

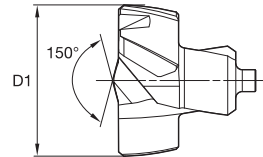
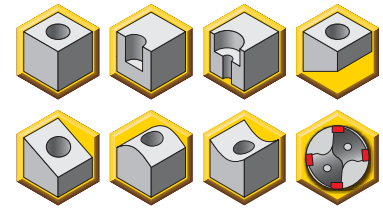
■ Modular Drill Carbide Insert Blades • KenTIP • HP Geometry • Grade KCP15 • Through Coolant • Inch

Material Group	Cutting Speed – vc			Inch									
	Range – SFM			Recommended Feed Rate (f) by Diameter									
	min	Starting Value	max		.315	.394	.472	.551	.630	.787	.945	1.102	
P	1	295	425	590	IPR	.005–.008	.006–.010	.006–.013	.007–.016	.008–.019	.010–.020	.011–.020	.012–.021
	2	360	490	625	IPR	.005–.010	.006–.012	.006–.014	.007–.015	.008–.019	.010–.020	.011–.020	.012–.021
	3	165	260	360	IPR	.005–.011	.005–.015	.007–.015	.009–.019	.009–.019	.013–.021	.013–.021	.014–.022
	4	165	260	360	IPR	.005–.011	.005–.015	.007–.015	.007–.019	.007–.019	.009–.019	.014–.018	.011–.018
K	1	195	330	590	IPR	.006–.012	.007–.013	.007–.015	.009–.017	.010–.020	.013–.024	.014–.026	.016–.028
	2	195	260	295	IPR	.006–.012	.007–.013	.007–.014	.009–.017	.010–.020	.013–.024	.014–.026	.016–.028
	3	130	230	295	IPR	.007–.013	.007–.014	.007–.015	.008–.017	.009–.018	.009–.020	.010–.020	.016–.028



Modular Drills

- KenTIP FEG flat-bottom inserts create 180° flat holes — only a small cavity remains in the center of the hole ground. KenTIP offers easy-to-change disposable inserts and low cutting forces for your flat-bottom applications.
- Whether it is a blind hole, a through hole, or if you need to countersink, these inserts are focused on versatility and will support you in many essential drilling applications.
- KenTIP FEG inserts feature a small centering point as well as double margin lands for improved guidance and hole straightness. A corner chamfer serves to reduce bur formation and to improve tool life.
- KCPM45™ combines a very tough, fine grain carbide substrate with an advanced multilayer TiAlN coating. It is capable of machining steel even in the most demanding conditions.
- Use KenTIP FEG KCPM45 cutting edges as an effective alternative in cast iron and stainless steel.



■ KenTIP Inserts • FEG (Flat Bottom)



KCPM45	D1		seat size
	mm	in	
KTIP0794FEGM	7,938	.3125	F
KTIP0800FEGM	8,000	.3150	F
KTIP0850FEGM	8,500	.3346	G
KTIP0852FEGM	8,520	.3354	G
KTIP0900FEGM	9,000	.3543	H
KTIP0913FEGM	9,130	.3594	H
KTIP0950FEGM	9,500	.3740	I
KTIP1000FEGM	10,000	.3937	J
KTIP1010FEGM	10,100	.3976	J
KTIP1050FEGM	10,500	.4134	K
KTIP1080FEGM	10,800	.4252	K
KTIP1100FEGM	11,000	.4331	L
KTIP1150FEGM	11,500	.4528	M
KTIP1170FEGM	11,700	.4606	M
KTIP1200FEGM	12,000	.4724	N
KTIP1250FEGM	12,500	.4921	O
KTIP1270FEGM	12,700	.5000	O
KTIP1300FEGM	13,000	.5118	P
KTIP1350FEGM	13,500	.5315	Q
KTIP1400FEGM	14,000	.5512	R



● first choice
○ alternate choice

KCPM45	D1		seat size
	mm	in	
KTIP1450FEGM	14,500	.5709	S
KTIP1490FEGM	14,900	.5866	S
KTIP1500FEGM	15,000	.5906	T
KTIP1550FEGM	15,500	.6102	T
KTIP1595FEGM	15,950	.6280	T
KTIP1600FEGM	16,000	.6299	U
KTIP1650FEGM	16,500	.6496	U
KTIP1700FEGM	17,000	.6693	V
KTIP1750FEGM	17,500	.6890	V
KTIP1770FEGM	17,700	.6969	V
KTIP1800FEGM	18,000	.7087	W
KTIP1850FEGM	18,500	.7283	W
KTIP1900FEGM	19,000	.7480	X
KTIP1905FEGM	19,050	.7500	X
KTIP1950FEGM	19,500	.7677	X
KTIP2000FEGM	20,000	.7874	Y

KenTIP FEG Geometry Tolerance

D1 metric	tolerance s7
8-10	0,023/+0,038
>10-18	0,028/+0,046
>18-28	0,035/+0,056

KenTIP FEG Geometry Tolerance

D1 Inch	tolerance s7
.3125-.3906	.0009/+ .0015
>.3906-.7090	.0011/+ .0018
>.7090-.8228	.0014/+ .0022

■ Modular Drill Carbide Insert Blades • KenTIP™ • FEG Geometry • Grade KCPM45™ • Through Coolant • Metric

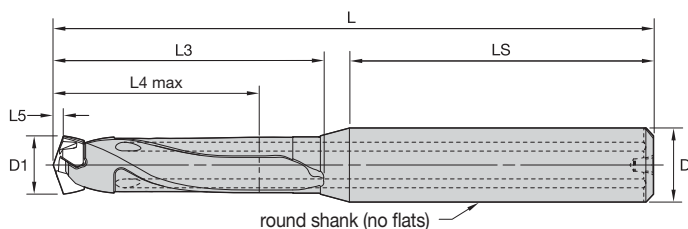
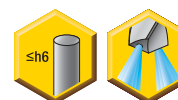
Material Group	Cutting Speed – vc			Metric									
	Range – m/min			Recommended Feed Rate (f) by Diameter									
	min	Starting Value	max		8,0	10,0	12,0	14,0	16,0	20,0	24,0	28,0	
P	1	110	140	170	mm/r	0,14–0,23	0,14–0,23	0,14–0,23	0,14–0,23	0,17–0,25	0,19–0,29	0,23–0,38	0,23–0,38
	2	100	120	140	mm/r	0,17–0,23	0,17–0,23	0,17–0,23	0,17–0,23	0,19–0,25	0,22–0,29	0,29–0,38	0,29–0,38
	3	80	100	120	mm/r	0,14–0,20	0,14–0,20	0,14–0,20	0,14–0,20	0,15–0,23	0,17–0,25	0,23–0,34	0,23–0,34
	4	70	90	110	mm/r	0,11–0,20	0,11–0,20	0,11–0,20	0,11–0,20	0,13–0,23	0,14–0,25	0,18–0,34	0,18–0,34
M	1	40	60	80	mm/r	0,09–0,14	0,09–0,14	0,09–0,14	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,16–0,25
	2	35	55	70	mm/r	0,09–0,14	0,09–0,14	0,09–0,14	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,16–0,25
K	1	90	135	175	mm/r	0,18–0,24	0,18–0,24	0,18–0,24	0,18–0,24	0,21–0,28	0,23–0,31	0,28–0,37	0,28–0,37
	2	80	120	140	mm/r	0,18–0,24	0,18–0,24	0,18–0,24	0,18–0,24	0,21–0,28	0,23–0,31	0,28–0,37	0,28–0,37
	3	70	110	125	mm/r	0,15–0,24	0,15–0,24	0,15–0,24	0,15–0,24	0,18–0,26	0,21–0,29	0,23–0,37	0,23–0,37

■ Modular Drill Carbide Insert Blades • KenTIP • FEG Geometry • Grade KCPM45 • Through Coolant • Inch

Material Group	Cutting Speed – vc			Inch									
	Range – SFM			Recommended Feed Rate (f) by Diameter									
	min	Starting Value	max		0.315	0.394	0.472	0.551	0.630	0.787	0.945	1.102	
P	1	360	460	560	IPR	.006–.009	.006–.009	.006–.009	.006–.009	.007–.010	.007–.011	.009–.015	.009–.015
	2	330	390	460	IPR	.007–.009	.007–.009	.007–.009	.007–.009	.007–.010	.009–.011	.011–.015	.011–.015
	3	260	330	390	IPR	.006–.008	.006–.008	.006–.008	.006–.008	.006–.009	.007–.010	.009–.013	.009–.013
	4	230	300	360	IPR	.004–.008	.004–.008	.004–.008	.004–.008	.005–.009	.006–.010	.007–.013	.007–.013
M	1	130	200	260	IPR	.004–.006	.004–.006	.004–.006	.004–.006	.004–.007	.005–.008	.006–.010	.006–.010
	2	110	180	230	IPR	.004–.006	.004–.006	.004–.006	.004–.006	.004–.007	.005–.008	.006–.010	.006–.010
K	1	300	440	570	IPR	.007–.009	.007–.009	.007–.009	.007–.009	.008–.011	.009–.012	.011–.015	.011–.015
	2	260	390	460	IPR	.007–.009	.007–.009	.007–.009	.007–.009	.008–.011	.009–.012	.011–.015	.011–.015
	3	230	360	410	IPR	.006–.009	.006–.009	.006–.009	.006–.009	.007–.010	.008–.011	.009–.015	.009–.015



- Tool body shipped with insert wrench.



For information on L, L3, and L4 max, see the Modular Drills Dimension Tables on page H44.

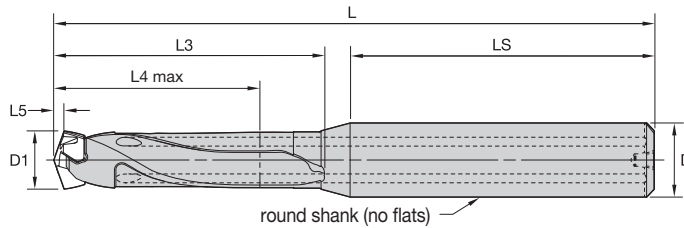


Modular Drills

■ KenTIP Round Shank • 1.5 x D/3 x D/5 x D/8 x D/12 x D • Metric

										D1		D1 max		seat size	KenTIP wrench
1.5 x D		3 x D		5 x D		8 x D		12 x D		mm	in	mm	in		
KTIP080R1SS10M	KTIP080R3SS10M	KTIP080R5SS10M	KTIP080R8SS10M	KTIP080R12SS10M	8,000	.3150	8,499	.3346	F	170.306					
KTIP085R1SS10M	KTIP085R3SS10M	KTIP085R5SS10M	KTIP085R8SS10M	KTIP085R12SS10M	8,500	.3346	8,999	.3543	G	170.306					
KTIP090R1SS10M	KTIP090R3SS10M	KTIP090R5SS10M	KTIP090R8SS10M	KTIP090R12SS10M	9,000	.3543	9,499	.3740	H	170.306					
KTIP095R1SS10M	KTIP095R3SS10M	KTIP095R5SS10M	KTIP095R8SS10M	KTIP095R12SS10M	9,500	.3740	9,999	.3937	I	170.306					
KTIP100R1SS12M	KTIP100R3SS12M	KTIP100R5SS12M	KTIP100R8SS12M	KTIP100R12SS12M	10,000	.3937	10,499	.4133	J	170.307					
KTIP105R1SS12M	KTIP105R3SS12M	KTIP105R5SS12M	KTIP105R8SS12M	KTIP105R12SS12M	10,500	.4134	10,999	.4330	K	170.307					
KTIP110R1SS12M	KTIP110R3SS12M	KTIP110R5SS12M	KTIP110R8SS12M	KTIP110R12SS12M	11,000	.4331	11,499	.4527	L	170.307					
KTIP115R1SS12M	KTIP115R3SS12M	KTIP115R5SS12M	KTIP115R8SS12M	KTIP115R12SS12M	11,500	.4528	11,999	.4724	M	170.307					
KTIP120R1SS14M	KTIP120R3SS14M	KTIP120R5SS14M	KTIP120R8SS14M	KTIP120R12SS14M	12,000	.4724	12,499	.4921	N	170.308					
KTIP125R1SS14M	KTIP125R3SS14M	KTIP125R5SS14M	KTIP125R8SS14M	KTIP125R12SS14M	12,500	.4921	12,999	.5118	O	170.308					
KTIP130R1SS14M	KTIP130R3SS14M	KTIP130R5SS14M	KTIP130R8SS14M	KTIP130R12SS14M	13,000	.5118	13,499	.5315	P	170.308					
KTIP135R1SS14M	KTIP135R3SS14M	KTIP135R5SS14M	KTIP135R8SS14M	KTIP135R12SS14M	13,500	.5315	13,999	.5511	Q	170.308					
KTIP140R1SS16M	KTIP140R3SS16M	KTIP140R5SS16M	KTIP140R8SS16M	KTIP140R12SS16M	14,000	.5512	14,499	.5708	R	170.309					
KTIP145R1SS16M	KTIP145R3SS16M	KTIP145R5SS16M	KTIP145R8SS16M	KTIP145R12SS16M	14,500	.5709	14,999	.5905	S	170.309					
KTIP150R1SS16M	KTIP150R3SS16M	KTIP150R5SS16M	KTIP150R8SS16M	KTIP150R12SS16M	15,000	.5906	15,999	.6299	T	170.309					
KTIP160R1SS18M	KTIP160R3SS18M	KTIP160R5SS18M	KTIP160R8SS18M	KTIP160R12SS18M	16,000	.6299	16,999	.6693	U	170.309					
KTIP170R1SS18M	KTIP170R3SS18M	KTIP170R5SS18M	KTIP170R8SS18M	KTIP170R12SS18M	17,000	.6693	17,999	.7086	V	170.314					
KTIP180R1SS20M	KTIP180R3SS20M	KTIP180R5SS20M	KTIP180R8SS20M	KTIP180R12SS20M	18,000	.7087	18,999	.7480	W	170.314					
KTIP190R1SS20M	KTIP190R3SS20M	KTIP190R5SS20M	KTIP190R8SS20M	KTIP190R12SS20M	19,000	.7480	19,999	.7874	X	170.314					
KTIP200R1SS25M	KTIP200R3SS25M	KTIP200R5SS25M	KTIP200R8SS25M	KTIP200R12SS25M	20,000	.7874	20,999	.8267	Y	170.314					
KTIP210R1SS25M	KTIP210R3SS25M	KTIP210R5SS25M	KTIP210R8SS25M	KTIP210R12SS25M	21,000	.8268	21,999	.8661	Z	170.314					
KTIP220R1SS25M	KTIP220R3SS25M	KTIP220R5SS25M	KTIP220R8SS25M	KTIP220R12SS25M	22,000	.8661	22,999	.9055	ZA	170.314					
KTIP230R1SS25M	KTIP230R3SS25M	KTIP230R5SS25M	KTIP230R8SS25M	KTIP230R12SS25M	23,000	.9055	23,999	.9448	ZB	170.314					
KTIP240R1SS25M	KTIP240R3SS25M	KTIP240R5SS25M	KTIP240R8SS25M	KTIP240R12SS25M	24,000	.9449	24,999	.9842	ZC	170.314					
KTIP250R1SS32M	KTIP250R3SS32M	KTIP250R5SS32M	KTIP250R8SS32M	KTIP250R12SS32M	25,000	.9843	25,999	1.0236	ZD	170.314					
KTIP260R1SS32M	KTIP260R3SS32M	KTIP260R5SS32M	KTIP260R8SS32M	KTIP260R12SS32M	26,000	1.0236	26,999	1.0630	ZE	170.314					
KTIP270R1SS32M	KTIP270R3SS32M	KTIP270R5SS32M	KTIP270R8SS32M	KTIP270R12SS32M	27,000	1.0630	27,999	1.1023	ZE	170.314					

- Tool body shipped with insert wrench.



For information on L, L3, and L4 max, see the Modular Drills Dimension Tables on page H45.

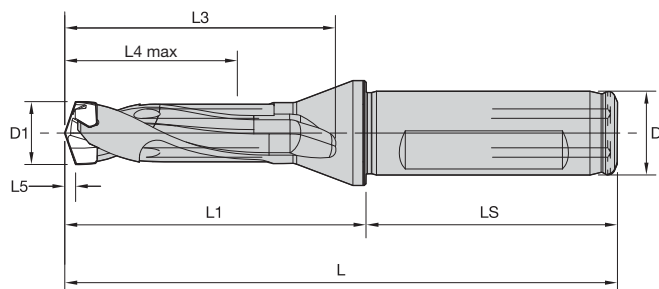


Modular Drills

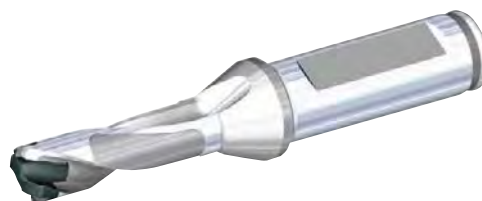
■ KenTIP Round Shank • 3 x D/5 x D/8 x D/12 x D • Inch

	3 x D	5 x D	8 x D	12 x D	D1		D1 max		seat size	KenTIP wrench
					mm	in	mm	in		
KTIP0313R3SS038	KTIP0313R5SS038	KTIP0313R8SS038	KTIP0313R12SS038	7,940	.3125	8,499	.3346	F	170.306	
KTIP0335R3SS038	KTIP0335R5SS038	KTIP0335R8SS038	KTIP0335R12SS038	8,500	.3346	8,999	.3543	G	170.306	
KTIP0354R3SS038	KTIP0354R5SS038	KTIP0354R8SS038	KTIP0354R12SS038	9,000	.3543	9,499	.3740	H	170.306	
KTIP0374R3SS038	KTIP0374R5SS038	KTIP0374R8SS038	KTIP0374R12SS038	9,500	.3740	9,999	.3937	I	170.306	
KTIP0374R3SS044	KTIP0374R5SS044	KTIP0374R8SS044	KTIP0374R12SS044	9,500	.3740	9,999	.3937	I	170.306	
KTIP0394R3SS044	KTIP0394R5SS044	KTIP0394R8SS044	KTIP0394R12SS044	10,000	.3937	10,499	.4133	J	170.307	
KTIP0413R3SS044	KTIP0413R5SS044	KTIP0413R8SS044	KTIP0413R12SS044	10,500	.4134	10,999	.4330	K	170.307	
KTIP0433R3SS044	KTIP0433R5SS044	KTIP0433R8SS044	KTIP0433R12SS044	11,000	.4331	11,499	.4527	L	170.307	
KTIP0453R3SS050	KTIP0453R5SS050	KTIP0453R8SS050	KTIP0453R12SS050	11,500	.4528	11,999	.4724	M	170.307	
KTIP0472R3SS050	KTIP0472R5SS050	KTIP0472R8SS050	KTIP0472R12SS050	12,000	.4724	12,499	.4921	N	170.308	
KTIP0492R3SS050	KTIP0492R5SS050	KTIP0492R8SS050	KTIP0492R12SS050	12,500	.4921	12,999	.5118	O	170.308	
KTIP0492R3SS056	KTIP0492R5SS056	KTIP0492R8SS056	KTIP0492R12SS056	12,500	.4921	12,999	.5118	O	170.308	
KTIP0512R3SS056	KTIP0512R5SS056	KTIP0512R8SS056	KTIP0512R12SS056	13,000	.5118	13,499	.5315	P	170.308	
KTIP0532R3SS056	KTIP0532R5SS056	KTIP0532R8SS056	KTIP0532R12SS056	13,500	.5315	13,999	.5511	Q	170.308	
KTIP0551R3SS056	KTIP0551R5SS056	KTIP0551R8SS056	KTIP0551R12SS056	14,000	.5512	14,499	.5708	R	170.309	
KTIP0571R3SS063	KTIP0571R5SS063	KTIP0571R8SS063	KTIP0571R12SS063	14,500	.5709	14,999	.5905	S	170.309	
KTIP0591R3SS063	KTIP0591R5SS063	KTIP0591R8SS063	KTIP0591R12SS063	15,000	.5906	15,999	.6299	T	170.309	
KTIP0630R3SS069	KTIP0630R5SS069	KTIP0630R8SS069	KTIP0630R12SS069	16,000	.6299	16,999	.6693	U	170.309	
KTIP0669R3SS069	KTIP0669R5SS069	KTIP0669R8SS069	KTIP0669R12SS069	17,000	.6693	17,999	.7086	V	170.314	
KTIP0709R3SS075	KTIP0709R5SS075	KTIP0709R8SS075	KTIP0709R12SS075	18,000	.7087	18,999	.7480	W	170.314	
KTIP0748R3SS075	KTIP0748R5SS075	KTIP0748R8SS075	KTIP0748R12SS075	19,000	.7480	19,999	.7874	X	170.314	
KTIP0787R3SS081	KTIP0787R5SS081	KTIP0787R8SS081	KTIP0787R12SS081	20,000	.7874	20,999	.8267	Y	170.314	
KTIP0827R3SS088	KTIP0827R5SS088	KTIP0827R8SS088	KTIP0827R12SS088	21,000	.8268	21,999	.8661	Z	170.314	
KTIP0866R3SS088	KTIP0866R5SS088	KTIP0866R8SS088	KTIP0866R12SS088	22,000	.8661	22,999	.9055	ZA	170.314	
KTIP0906R3SS094	KTIP0906R5SS094	KTIP0906R8SS094	KTIP0906R12SS094	23,000	.9055	23,999	.9448	ZB	170.314	
KTIP0945R3SS100	KTIP0945R5SS100	KTIP0945R8SS100	KTIP0945R12SS100	24,000	.9449	24,999	.9842	ZC	170.314	
KTIP0984R3SS100	KTIP0984R5SS100	KTIP0984R8SS100	KTIP0984R12SS100	25,000	.9843	25,999	1.0236	ZD	170.314	
KTIP1024R3SS125	KTIP1024R5SS125	KTIP1024R8SS125	KTIP1024R12SS125	26,000	1.0236	26,999	1.0630	ZE	170.314	
KTIP1063R3SS125	KTIP1063R5SS125	KTIP1063R8SS125	KTIP1063R12SS125	27,000	1.0630	27,999	1.1023	ZE	170.314	

- Tool body shipped with insert wrench.



round shank (no flats)
For information on L, L3, and L4 max, see the Modular Drills Dimension Tables on page H46.

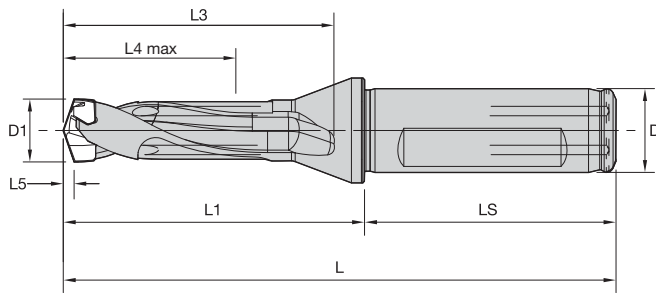


Modular Drills

■ KenTIP Flanged Shank • 1.5 x D/3 x D/5 x D/8 x D • Metric

1.5 x D	3 x D	5 x D	8 x D	D1		D1 max		seat size	KenTIP wrench
				mm	in	mm	in		
KTIP080R1SCF12M	KTIP080R3SCF12M	KTIP080R5SCF12M	KTIP080R8SCF12M	8,000	.3150	8,499	.3346	F	170.306
KTIP085R1SCF12M	KTIP085R3SCF12M	KTIP085R5SCF12M	KTIP085R8SCF12M	8,500	.3346	8,999	.3543	G	170.306
KTIP090R1SCF12M	KTIP090R3SCF12M	KTIP090R5SCF12M	KTIP090R8SCF12M	9,000	.3543	9,499	.3740	H	170.306
KTIP095R1SCF12M	KTIP095R3SCF12M	KTIP095R5SCF12M	KTIP095R8SCF12M	9,500	.3740	9,999	.3937	I	170.306
KTIP100R1SCF16M	KTIP100R3SCF16M	KTIP100R5SCF16M	KTIP100R8SCF16M	10,000	.3937	10,499	.4133	J	170.307
KTIP105R1SCF16M	KTIP105R3SCF16M	KTIP105R5SCF16M	KTIP105R8SCF16M	10,500	.4134	10,999	.4330	K	170.307
KTIP110R1SCF16M	KTIP110R3SCF16M	KTIP110R5SCF16M	KTIP110R8SCF16M	11,000	.4331	11,499	.4527	L	170.307
KTIP115R1SCF16M	KTIP115R3SCF16M	KTIP115R5SCF16M	KTIP115R8SCF16M	11,500	.4528	11,999	.4724	M	170.307
KTIP120R1SCF16M	KTIP120R3SCF16M	KTIP120R5SCF16M	KTIP120R8SCF16M	12,000	.4724	12,499	.4921	N	170.308
KTIP125R1SCF16M	KTIP125R3SCF16M	KTIP125R5SCF16M	KTIP125R8SCF16M	12,500	.4921	12,999	.5118	O	170.308
KTIP130R1SCF16M	KTIP130R3SCF16M	KTIP130R5SCF16M	KTIP130R8SCF16M	13,000	.5118	13,499	.5315	P	170.308
KTIP135R1SCF16M	KTIP135R3SCF16M	KTIP135R5SCF16M	KTIP135R8SCF16M	13,500	.5315	13,999	.5511	Q	170.308
KTIP140R1SCF16M	KTIP140R3SCF16M	KTIP140R5SCF16M	KTIP140R8SCF16M	14,000	.5512	14,499	.5708	R	170.309
KTIP145R1SCF16M	KTIP145R3SCF16M	KTIP145R5SCF16M	KTIP145R8SCF16M	14,500	.5709	14,999	.5905	S	170.309
KTIP150R1SCF20M	KTIP150R3SCF20M	KTIP150R5SCF20M	KTIP150R8SCF20M	15,000	.5906	15,999	.6299	T	170.309
KTIP160R1SCF20M	KTIP160R3SCF20M	KTIP160R5SCF20M	KTIP160R8SCF20M	16,000	.6299	16,999	.6693	U	170.309
KTIP170R1SCF20M	KTIP170R3SCF20M	KTIP170R5SCF20M	KTIP170R8SCF20M	17,000	.6693	17,999	.7086	V	170.314
KTIP180R1SCF25M	KTIP180R3SCF25M	KTIP180R5SCF25M	KTIP180R8SCF25M	18,000	.7087	18,999	.7480	W	170.314
KTIP190R1SCF25M	KTIP190R3SCF25M	KTIP190R5SCF25M	KTIP190R8SCF25M	19,000	.7480	19,999	.7874	X	170.314
KTIP200R1SCF25M	KTIP200R3SCF25M	KTIP200R5SCF25M	KTIP200R8SCF25M	20,000	.7874	20,999	.8267	Y	170.314
KTIP210R1SCF25M	KTIP210R3SCF25M	KTIP210R5SCF25M	KTIP210R8SCF25M	21,000	.8268	21,999	.8661	Z	170.314
KTIP220R1SCF25M	KTIP220R3SCF25M	KTIP220R5SCF25M	KTIP220R8SCF25M	22,000	.8661	22,999	.9055	ZA	170.314
KTIP230R1SCF25M	KTIP230R3SCF25M	KTIP230R5SCF25M	KTIP230R8SCF25M	23,000	.9055	23,999	.9448	ZB	170.314
KTIP240R1SCF25M	KTIP240R3SCF25M	KTIP240R5SCF25M	KTIP240R8SCF25M	24,000	.9449	24,999	.9842	ZC	170.314
KTIP250R1SCF25M	KTIP250R3SCF25M	KTIP250R5SCF25M	KTIP250R8SCF25M	25,000	.9843	25,999	1.0236	ZD	170.314
KTIP260R1SCF25M	KTIP260R3SCF25M	KTIP260R5SCF25M	KTIP260R8SCF25M	26,000	1.0236	26,999	1.0630	ZE	170.314
KTIP270R1SCF25M	KTIP270R3SCF25M	KTIP270R5SCF25M	KTIP270R8SCF25M	27,000	1.0630	27,999	1.1023	ZE	170.314





- Tool body shipped with insert wrench.



round shank (no flats)
For information on L, L3, and L4 max, see the Modular Drills Dimension Tables on page H47.

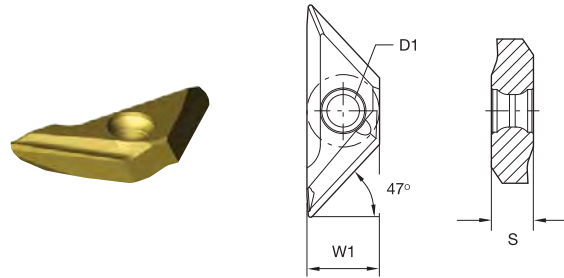


■ KenTIP Flanged Shank • 3 x D/5 x D/8 x D • Inch

 3 x D	 5 x D	 8 x D	D1		D1 max		seat size	 KenTIP wrench
			mm	in	mm	in		
KTIP0313R3SCF050	KTIP0313R5SCF050	KTIP0313R8SCF050	7,940	.3125	8,499	.3346	F	170.306
KTIP0335R3SCF050	KTIP0335R5SCF050	KTIP0335R8SCF050	8,500	.3346	8,999	.3543	G	170.306
KTIP0354R3SCF050	KTIP0354R5SCF050	KTIP0354R8SCF050	9,000	.3543	9,499	.3740	H	170.306
KTIP0374R3SCF050	KTIP0374R5SCF050	KTIP0374R8SCF050	9,500	.3740	9,999	.3937	I	170.306
KTIP0394R3SCF063	KTIP0394R5SCF063	KTIP0394R8SCF063	10,000	.3937	10,499	.4133	J	170.307
KTIP0413R3SCF063	KTIP0413R5SCF063	KTIP0413R8SCF063	10,500	.4134	10,999	.4330	K	170.307
KTIP0433R3SCF063	KTIP0433R5SCF063	KTIP0433R8SCF063	11,000	.4331	11,499	.4527	L	170.307
KTIP0453R3SCF063	KTIP0453R5SCF063	KTIP0453R8SCF063	11,500	.4528	11,999	.4724	M	170.307
KTIP0472R3SCF063	KTIP0472R5SCF063	KTIP0472R8SCF063	12,000	.4724	12,499	.4921	N	170.308
KTIP0492R3SCF063	KTIP0492R5SCF063	KTIP0492R8SCF063	12,500	.4921	12,999	.5118	O	170.308
KTIP0512R3SCF063	KTIP0512R5SCF063	KTIP0512R8SCF063	13,000	.5118	13,499	.5315	P	170.308
KTIP0532R3SCF063	KTIP0532R5SCF063	KTIP0532R8SCF063	13,500	.5315	13,999	.5511	Q	170.308
KTIP0551R3SCF063	KTIP0551R5SCF063	KTIP0551R8SCF063	14,000	.5512	14,499	.5708	R	170.309
KTIP0571R3SCF063	KTIP0571R5SCF063	KTIP0571R8SCF063	14,500	.5709	14,999	.5905	S	170.309
KTIP0591R3SCF075	KTIP0591R5SCF075	KTIP0591R8SCF075	15,000	.5906	15,999	.6299	T	170.309
KTIP0630R3SCF075	KTIP0630R5SCF075	KTIP0630R8SCF075	16,000	.6299	16,999	.6693	U	170.309
KTIP0669R3SCF075	KTIP0669R5SCF075	KTIP0669R8SCF075	17,000	.6693	17,999	.7086	V	170.314
KTIP0709R3SCF075	KTIP0709R5SCF075	KTIP0709R8SCF075	18,000	.7087	18,999	.7480	W	170.314
KTIP0748R3SCF075	KTIP0748R5SCF075	KTIP0748R8SCF075	19,000	.7480	19,999	.7874	X	170.314
KTIP0787R3SCF100	KTIP0787R5SCF100	KTIP0787R8SCF100	20,000	.7874	20,999	.8267	Y	170.314
KTIP0827R3SCF100	KTIP0827R5SCF100	KTIP0827R8SCF100	21,000	.8268	21,999	.8661	Z	170.314
KTIP0866R3SCF100	KTIP0866R5SCF100	KTIP0866R8SCF100	22,000	.8661	22,999	.9055	ZA	170.314
KTIP0906R3SCF100	KTIP0906R5SCF100	KTIP0906R8SCF100	23,000	.9055	23,999	.9448	ZB	170.314
KTIP0945R3SCF100	KTIP0945R5SCF100	KTIP0945R8SCF100	24,000	.9449	24,999	.9842	ZC	170.314
KTIP0984R3SCF100	KTIP0984R5SCF100	KTIP0984R8SCF100	25,000	.9843	25,999	1.0236	ZD	170.314
KTIP1024R3SCF100	KTIP1024R5SCF100	KTIP1024R8SCF100	26,000	1.0236	26,999	1.0630	ZE	170.314
KTIP1063R3SCF100	KTIP1063R5SCF100	KTIP1063R8SCF100	27,000	1.0630	27,999	1.1023	ZE	170.314

- Drilling and chamfering in one operation using the KenTIP drilling system.
- Low setup time — no height adjustment required.
- Use standard chamfering inserts with our universal -GD geometry style.
- Selection of two grade choices:
 - KC7215 offering the highest level of wear resistance for higher cutting speeds in stable conditions.
 - KC7015 for medium cutting speeds and normal conditions.
- Tool bodies with chamfer pockets available as custom solutions.

Modular Drills



■ FAS-GD • Chamfering Insert

catalog number	W1		D1		S		KC7215	KC7015
	mm	in	mm	in	mm	in		
FAS100302GD	6,35	.250	2,85	.112	3,48	.137	●	●

● first choice
○ alternate choice

P	■	○	●
M	■	○	○
K	■	○	●
N	■	●	○
S	■	○	●
H	■	■	■



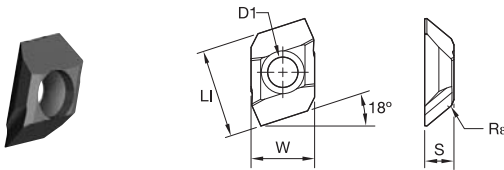
Made-to-order KenTIP holders with chamfering step using standard FAS inserts. Also available for KenTIP FS upon request.

- Very small incremental diameter changes for step drills.
- Best reliability and hole quality.
- Improved chip control and very low tendency for chattering.
- High tool life per edge; 2x indexable.
- Can be used with KenTIP and KSEM™ as well as Drill Fix™ indexable made-to-order step drills.
- CFM inserts are perfectly suited for usage on made-to-order indexable countersinking tools.

- first choice
- alternate choice

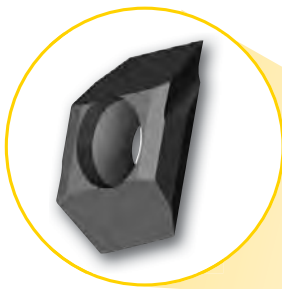
P	●
M	○
K	○
N	●
S	●
H	

Modular Drills



■ CounterFix Micro • Tangential Chamfer and Counterboring Inserts

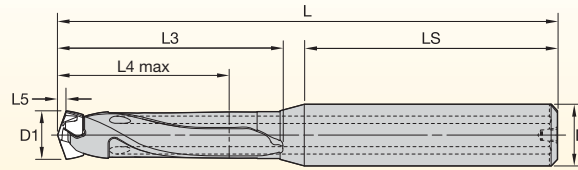
catalog number	D1		LI		W		S		Re		KCU40
	mm	in	mm	in	mm	in	mm	in	mm	in	
CFM0402R00RHP	2,05	0.081	6,000	0.24	4,25	.167	1,98	.078	0,20	.007	●
CFM0402R30RHP	2,05	0.081	6,000	0.24	4,25	.167	1,98	.078	0,20	.009	●
CFM0402R45RHP	2,05	0.081	6,000	0.24	4,25	.167	1,98	.078	0,20	.007	●



Made-to-order KenTIP holder with two very small counterboring steps using CounterFix Micro Inserts. Also available for KenTIP FS upon request.

Modular Drills • Dimension Tables

■ Dimensions for KenTIP™ Modular Drills • Round Shank • Metric

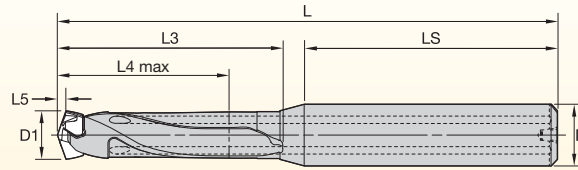


D1 mm	D1 max	seat	L5	LS	round D	1.5 x D L	L3	L4 max	3 x D L	L3	L4 max	5 x D L	L3	L4 max	8 x D L	L3	L4 max	12 x D L	L3	L4 max	wrench
8,000	8,499	F	1,4	41	10	67	23	13	79	35	26	97	53	43	123	79	68	157	113	102	170.306
8,500	8,999	G	1,5	41	10	68	24	14	81	37	27	100	56	45	127	83	72	163	119	108	170.306
9,000	9,499	H	1,6	41	10	69	25	14	83	39	29	103	58	48	132	88	76	170	126	114	170.306
9,500	9,999	I	1,6	41	10	70	26	15	85	41	30	107	63	50	137	92	80	177	133	120	170.306
10,000	10,499	J	1,7	46	12	77	28	16	92	43	32	115	66	53	147	98	84	189	140	126	170.307
10,500	10,999	K	1,8	46	12	78	29	17	94	45	33	118	68	55	151	101	88	195	146	132	170.307
11,000	11,499	L	1,9	46	12	79	30	17	96	47	35	121	71	58	156	105	92	202	153	138	170.307
11,500	11,999	M	2,0	46	12	80	31	18	98	49	36	124	75	60	160	110	96	208	159	144	170.307
12,000	12,499	N	2,1	46	14	83	34	19	101	52	38	127	78	63	165	116	100	215	166	150	170.308
12,500	12,999	O	2,2	46	14	84	35	20	103	54	39	130	81	65	169	120	104	221	172	156	170.308
13,000	13,499	P	2,2	46	14	85	36	20	105	56	41	133	84	68	174	125	108	228	179	162	170.308
13,500	13,999	Q	2,3	46	14	86	37	21	107	58	42	137	88	70	179	130	112	235	186	168	170.308
14,000	14,499	R	2,4	49	16	91	39	22	112	60	44	143	91	73	187	135	116	245	193	174	170.309
14,500	14,999	S	2,5	49	16	92	40	23	114	62	45	146	94	75	191	139	120	251	199	180	170.309
15,000	15,999	T	2,6	49	16	94	42	24	118	66	48	152	100	80	200	148	128	264	212	192	170.309
16,000	16,999	U	2,8	49	18	97	45	26	122	70	51	158	106	85	209	157	136	277	225	204	170.309
17,000	17,999	V	2,9	49	18	100	48	27	127	75	54	165	113	90	219	167	144	291	239	216	170.314
18,000	18,999	W	3,1	51	20	105	51	29	133	79	57	173	119	95	230	176	152	306	252	228	170.314
19,000	19,999	X	3,3	51	20	107	53	30	137	83	60	179	125	100	239	185	160	319	265	240	170.314
20,000	20,999	Y	3,5	57	25	116	56	32	147	87	63	191	131	105	254	200	168	344	284	252	170.314
21,000	21,999	Z	3,6	57	25	118	58	33	151	91	66	198	138	110	264	204	176	352	292	264	170.314
22,000	22,999	ZA	3,8	57	25	122	62	35	156	96	69	204	144	115	273	213	184	365	305	276	170.314
23,000	23,999	ZB	4,0	57	25	124	64	36	160	100	72	210	150	120	282	222	192	378	318	288	170.314
24,000	24,999	ZC	4,1	57	25	127	67	38	164	104	75	216	156	125	291	231	200	391	331	300	170.314
25,000	25,999	ZD	4,3	61	32	133	69	39	172	108	78	227	163	130	305	241	208	409	345	312	170.314
26,000	26,999	ZE	4,5	61	32	138	74	41	178	114	81	232	168	135	315	251	216	423	359	324	170.314
27,000	27,999	ZE	4,7	61	32	139	75	42	181	117	84	239	175	140	323	259	224	435	371	336	170.314

(continued)

Modular Drills • Dimension Tables *(continued)*

■ Dimensions for KentIP™ Modular Drills • Round Shank • Inch

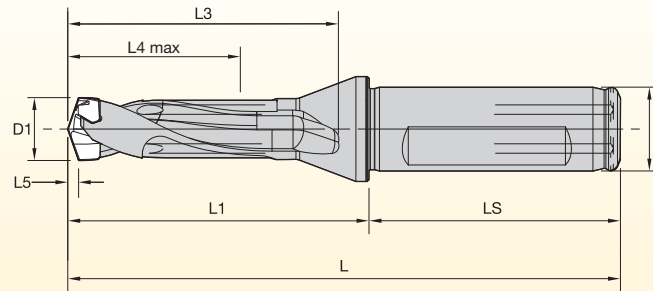


D1 mm	D1 max	seat	L5	LS	round D	3 x D L	L3	L4 max	5 x D L	L3	L4 max	8 x D L	L3	L4 max	12 x D L	L3	L4 max	wrench
.3125	.3346	F	.055	1.59	.3750	3.13	1.29	1.00	3.88	2.05	1.67	4.88	3.17	2.67	6.25	4.54	4.02	170.306
.3346	.3543	G	.059	1.59	.3750	3.25	1.38	1.06	4.00	2.16	1.77	5.13	3.42	2.83	6.50	4.79	4.25	170.306
.3543	.3740	H	.063	1.59	.3750	3.38	1.46	1.12	4.13	2.28	1.87	5.25	3.54	2.99	6.75	5.04	4.49	170.306
.3740	.3937	I	.063	1.59	.3750	3.38	1.54	1.18	4.25	2.44	1.97	5.38	3.67	3.15	7.13	5.34	4.72	170.306
.3740	.3937	I	.063	1.67	.4375	3.38	1.54	1.18	4.38	2.44	1.97	5.38	3.59	3.15	7.00	5.29	4.72	170.306
.3937	.4133	J	.067	1.67	.4375	3.63	1.63	1.24	4.63	2.55	2.07	5.75	3.96	3.30	7.37	5.59	4.96	170.307
.4134	.4330	K	.071	1.67	.4375	3.75	1.71	1.30	4.75	2.67	2.16	6.00	4.21	3.46	7.63	5.84	5.20	170.307
.4331	.4527	L	.075	1.67	.4375	3.88	1.79	1.36	4.88	2.78	2.26	6.25	4.46	3.62	7.87	6.09	5.43	170.307
.4528	.4724	M	.079	1.79	.5000	3.88	1.87	1.42	5.00	2.90	2.36	6.50	4.59	3.78	8.25	6.34	5.67	170.307
.4724	.4921	N	.083	1.79	.5000	4.00	1.95	1.48	5.00	3.01	2.46	6.75	4.84	3.94	8.50	6.59	5.91	170.308
.4921	.5118	O	.087	1.79	.5000	4.13	2.04	1.54	5.13	3.13	2.56	7.00	5.09	4.09	8.75	6.84	6.14	170.308
.4921	.5118	O	.087	1.79	.5625	4.13	2.04	1.54	5.13	3.13	2.56	7.00	5.09	4.09	8.75	6.84	6.14	170.308
.5118	.5315	P	.087	1.79	.5625	4.25	2.11	1.60	5.25	3.24	2.66	7.13	5.22	4.25	9.00	7.09	6.38	170.308
.5315	.5511	Q	.091	1.79	.5625	4.25	2.19	1.65	5.50	3.39	2.75	7.25	5.34	4.41	9.25	7.34	6.61	170.308
.5512	.5708	R	.095	1.79	.5625	4.50	2.27	1.71	5.75	3.50	2.85	7.38	5.47	4.57	9.50	7.59	6.85	170.309
.5709	.5905	S	.098	1.91	.6250	4.50	2.34	1.77	5.75	3.61	2.95	7.50	5.47	4.72	9.87	7.85	7.09	170.309
.5906	.6299	T	.102	1.91	.6250	4.75	2.43	1.89	6.00	3.76	3.15	7.75	5.72	5.04	1.37	8.35	7.56	170.309
.6299	.6693	U	.110	1.91	.6875	4.88	2.59	2.01	6.25	4.06	3.34	8.00	5.97	5.35	11.00	8.97	8.03	170.309
.6693	.7086	V	.116	1.91	.6875	5.00	2.99	2.24	6.50	4.47	3.66	8.75	6.72	5.79	11.50	9.47	8.50	170.314
.7087	.7480	W	.122	2.00	.7500	5.25	3.13	2.25	6.88	4.76	3.86	9.25	7.13	6.11	12.13	1.01	8.98	170.314
.7480	.7874	X	.129	2.00	.7500	5.50	3.38	2.49	7.13	5.01	4.07	9.63	7.51	6.43	12.63	1.51	9.45	170.314
.7874	.8267	Y	.136	2.00	.8125	5.75	3.63	2.62	7.50	5.38	4.27	1.00	7.88	6.75	13.13	11.01	9.92	170.314
.8268	.8661	Z	.142	2.07	.8750	5.88	3.69	2.60	7.63	5.44	4.33	1.25	8.06	6.93	13.75	11.56	1.39	170.314
.8661	.9055	ZA	.150	2.07	.8750	6.00	3.81	2.72	7.88	5.69	4.53	1.63	8.44	7.24	14.25	12.06	1.87	170.314
.9055	.9448	ZB	.158	2.15	.9375	6.25	3.98	2.83	8.25	5.98	4.72	11.13	8.86	7.56	14.87	12.61	11.34	170.314
.9449	.9842	ZC	.161	3.00	1.0000	7.25	4.13	2.95	9.38	6.26	4.92	12.25	9.13	7.87	16.25	13.13	11.81	170.314
.9843	1.0236	ZD	.169	3.00	1.0000	7.38	4.26	3.07	9.63	6.51	5.12	12.63	9.51	8.19	16.75	13.63	12.28	170.314
1.0236	1.0630	ZE	.176	3.25	1.2500	7.86	4.49	3.19	9.99	6.62	5.32	13.25	9.88	8.50	17.50	14.13	12.76	170.314
1.0630	1.1023	ZE	.185	3.25	1.2500	7.98	4.61	3.31	1.18	6.81	5.51	13.57	1.20	8.82	18.00	14.63	13.23	170.314

(continued)

Modular Drills • Dimension Tables *(continued)*

■ Dimensions for KenTIP™ Modular Drills • Flanged Shank • Metric

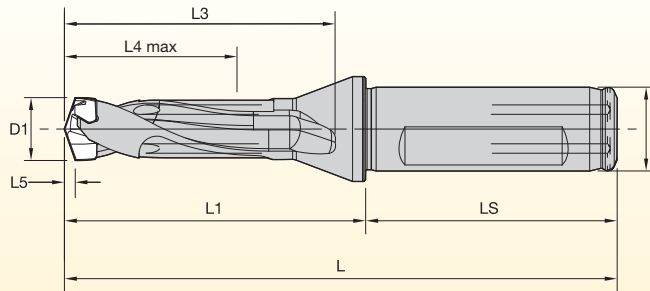


D1 mm	D1 max	seat	L5	LS	Flanged D	1.5 x D L	L3	L4 max	3 x D L	L3	L4 max	5 x D L	L3	L4 max	8 x D L	L3	L4 max	wrench
8,000	8,490	F	1,4	45	12	73	23	13	86	35	26	104	53	43	129	79	68	170.306
8,500	8,990	G	1,5	45	12	74	24	14	88	37	27	107	56	45	134	83	72	170.306
9,000	9,490	H	1,6	45	12	76	25	14	90	39	29	110	59	48	138	88	76	170.306
9,500	9,990	I	1,6	45	12	77	26	15	92	41	30	114	63	50	144	93	80	170.306
10,000	10,490	J	1,7	48	16	81	28	16	97	43	32	120	66	53	151	97	84	170.307
10,500	10,990	K	1,8	48	16	82	29	17	99	45	33	123	69	55	156	102	88	170.307
11,000	11,490	L	1,9	48	16	84	30	17	101	47	35	126	72	58	160	107	92	170.307
11,500	11,990	M	2,0	48	16	85	31	18	103	49	36	129	75	60	165	111	96	170.307
12,000	12,490	N	2,1	48	16	87	34	19	106	52	38	132	78	63	169	116	100	170.308
12,500	12,990	O	2,2	48	16	88	35	20	108	54	39	135	81	65	174	120	104	170.308
13,000	13,490	P	2,2	48	16	90	36	20	110	56	41	138	84	68	178	124	108	170.308
13,500	13,990	Q	2,3	48	16	91	37	21	112	58	42	142	88	70	184	130	112	170.308
14,000	14,490	R	2,4	48	16	92	39	22	114	60	44	145	91	73	188	134	116	170.309
14,500	14,990	S	2,5	48	16	93	40	23	116	62	45	148	94	75	193	139	120	170.309
15,000	15,990	T	2,6	50	20	98	42	24	122	66	48	156	100	80	204	148	128	170.309
16,000	16,990	U	2,8	50	20	100	45	26	126	70	51	162	106	85	213	157	136	170.309
17,000	17,990	V	2,9	50	20	104	48	27	131	75	54	169	113	90	223	167	144	170.314
18,000	18,990	W	3,1	56	25	112	51	29	141	79	57	181	119	95	238	176	152	170.314
19,000	19,990	X	3,3	56	25	115	53	30	144	83	60	187	125	100	247	185	160	170.314
20,000	20,990	Y	3,5	56	25	117	56	32	149	87	63	193	131	105	256	194	168	170.314
21,000	21,990	Z	3,6	56	25	120	58	33	153	91	66	200	138	110	266	204	176	170.314
22,000	22,990	ZA	3,8	56	25	123	62	35	158	96	69	206	144	115	275	213	184	170.314
23,000	23,990	ZB	4,0	56	25	126	64	36	162	100	72	212	150	120	284	222	192	170.314
24,000	24,990	ZC	4,1	56	25	128	67	38	166	104	75	218	156	125	293	231	200	170.314
25,000	25,990	ZD	4,3	56	25	131	69	39	170	108	78	225	163	130	303	241	208	170.314
26,000	26,990	ZE	4,5	56	25	135	74	41	176	114	81	230	168	135	313	251	216	170.314
27,000	27,990	ZE	4,7	56	25	137	75	42	179	117	84	237	175	140	321	259	224	170.314

(continued)

Modular Drills • Dimension Tables *(continued)*

■ Dimensions for KenTIP™ Modular Drills • Flanged Shank • Inch



D1 mm	D1 max	seat	L5	LS	Flanged D	3 x D L	L3	L4 max	5 x D L	L3	L4 max	8 x D L	L3	L4 max	wrench
.3125	.3343	F	.054	1.77	.5000	3.40	1.41	1.00	4.15	2.16	1.67	5.15	3.16	2.28	170.306
.3390	.3539	G	.059	1.77	.5000	3.52	1.53	1.06	4.27	2.28	1.77	5.27	3.28	2.83	170.306
.3580	.3736	H	.062	1.77	.5000	3.65	1.66	1.12	4.40	2.41	1.87	5.52	3.53	2.99	170.306
.3750	.3933	I	.065	1.77	.5000	3.65	1.66	1.18	4.52	2.53	1.97	5.77	3.78	3.15	170.306
.3946	.4130	J	.068	1.89	.6250	3.89	1.78	1.24	4.76	2.66	2.07	6.01	3.91	3.31	170.307
.4219	.4327	K	.073	1.89	.6250	3.89	1.78	1.30	4.89	2.78	2.17	6.14	4.03	3.46	170.307
.4375	.4524	L	.076	1.89	.6250	4.01	1.91	1.36	5.01	2.91	2.26	6.39	4.28	3.62	170.307
.4531	.4720	M	.078	1.89	.6250	4.14	2.03	1.42	5.14	3.03	2.36	6.51	4.41	3.78	170.307
.4844	.4917	N	.084	1.89	.6250	4.26	2.16	1.48	5.26	3.16	2.46	6.76	4.66	3.94	170.308
.5000	.5114	O	.086	1.89	.6250	4.26	2.16	1.54	5.39	3.28	2.56	6.89	4.78	4.09	170.308
.5156	.5311	P	.089	1.89	.6250	4.39	2.28	1.59	5.51	3.41	2.66	7.01	4.91	4.25	170.308
.5469	.5508	Q	.095	1.89	.6250	4.39	2.28	1.65	5.64	3.53	2.76	7.26	5.16	4.41	170.308
.5625	.5705	R	.097	1.89	.6250	4.51	2.41	1.71	5.76	3.66	2.85	7.51	5.41	4.57	170.309
.5774	.5902	S	.100	1.89	.6250	4.64	2.53	1.77	5.89	3.78	2.95	7.64	5.53	4.72	170.309
.5938	.6295	T	.102	1.97	.7500	4.84	2.66	1.89	6.22	4.03	3.15	8.09	5.91	5.04	170.309
.6310	.6689	U	.109	1.97	.7500	4.97	2.78	2.01	6.47	4.28	3.35	8.47	6.28	5.35	170.309
.6719	.7083	V	.116	1.97	.7500	5.22	3.03	2.13	6.72	4.53	3.54	8.84	6.66	5.67	170.314
.7188	.7476	W	.124	1.97	.7500	5.34	3.16	2.24	6.97	4.78	3.74	9.22	7.03	5.98	170.314
.7500	.7870	X	.129	1.97	.7500	5.47	3.28	2.36	7.22	5.03	3.94	9.47	7.28	6.30	170.314
.7969	.8264	Y	.137	2.20	1.0000	5.95	3.53	2.48	7.58	5.16	4.13	10.08	7.66	6.61	170.314
.8440	.8657	Z	.146	2.20	1.0000	6.08	3.66	2.60	7.95	5.53	4.33	10.45	8.03	6.93	170.314
.8750	.9051	ZA	.151	2.20	1.0000	6.20	3.78	2.72	8.20	5.78	4.53	10.83	8.41	7.24	170.314
.9375	.9445	ZB	.162	2.20	1.0000	6.45	4.03	2.83	8.33	5.91	4.72	11.20	8.78	7.56	170.314
.9690	.9839	ZC	.167	2.20	1.0000	6.58	4.16	2.95	8.58	6.16	4.92	11.58	9.16	7.87	170.314
.9744	1.0232	ZD	.172	2.20	1.0000	6.70	4.28	3.07	8.95	6.53	5.12	11.95	9.53	8.19	170.314
1.0240	1.0620	ZE	.176	2.20	1.0000	6.83	4.41	3.19	9.08	6.66	5.32	11.70	9.28	8.50	170.314
1.0630	1.1020	ZE	.184	2.20	1.0000	6.95	4.53	3.30	9.20	6.78	5.51	11.95	9.53	8.69	170.314

Mounting the KenTIP Inserts



1) Fix drill holder on arbor. For insert exchange, fix arbor on the machine or set on tool presetter.



2) Remove dust using air blast.



3) Put insert into drill holder (use gloves to protect your hands).



4) Turn lightly in a clockwise direction (use gloves to protect your hands).



5) Set the wrench properly.



6) Make sure the wrench fits with the insert slot (check size and alignment of wrench and insert slots to avoid injury).

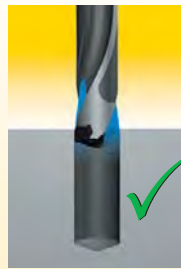


7) Slowly turn the wrench in a clockwise direction.

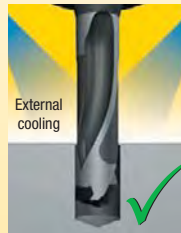


8) Complete.

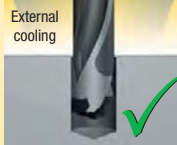
Cooling the KenTIP Drill



1) Internal coolant is recommended.



2) In case of external coolant, cutting depth must be 3 x D or less.



Only when using the 3 x D tool bodies



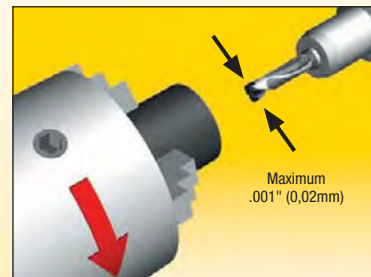
3) Dry cutting is not recommended. Limited applicability in cast iron materials, MQL strongly recommended.

Dry machining

Usage Precautions

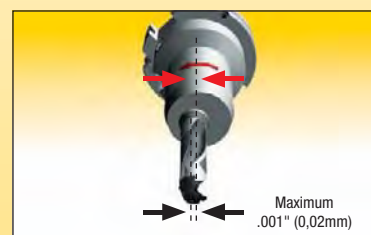
Core Deviation

1) For Turning Machines



Set deviation amount under 0,02mm between workpiece and drill.

2) For Machining Centers



Do not use any arbor with a damaged attachment surface. Center of arbor deviation must be within 0,02mm.

A Natural Fit...

Tube Sheet Drilling with Kennametal



Our advanced drilling solutions provide the performance and reliability you need to succeed in your challenging business. We offer a complete holemaking range for working with tube sheets, support baffles, and many other components.

KSEM™ MODULAR DRILL SYSTEM

- Highly stable pocket seat holding replaceable carbide inserts for drill depth up to 10 x D and deeper*.
- Very high performance with the ability to create H10 fit holes in tube sheets in one pass.
- Application- and material-specific insert styles.
- All TEMA standard diameters in stock, with very high availability.

* Made-to-order holders easily available as made-to-order tools.

Find KSEM Modular Drills on pages H50–H97.



KGEM TUBE SHEET GROOVER

- Internal coolant for longer tool life and better chip formation.
- Covers TEMA standard sizes 19,25mm (.758") and above with circular interpolation.
- Productive solution for shallow or deep-hole applications on a wide range of machines.

Find KGEM Groovers on pages H98–H101.

Experience the advantages at your Authorized Kennametal Distributor or at kennametal.com.



kennametal.com

KSEM™ Modular Drill System

Primary Application

The KSEM™ modular drill system offers extended length and drilling diameters beyond the KenTIP™ modular drill system. The KSEM system enables very aggressive feed rates in many applications to enable very high productivity levels. It offers a very robust pocket for its exchangeable inserts to increase tool life for both steel holder and carbide tip. This makes the KSEM system a very economic and reliable system for drilling in the intermediate diameter range.

Hole depths of 10 x D and drilling diameters from 12,5–40mm (.4921–1.5748") are covered by our standard tooling range. Various grades are available for drilling applications in almost any materials.

Features and Benefits

HP Drill-Point styles

- Low thrust prevents workpiece flexing.
- Excellent centering capabilities.
- Application specific selection of geometries for unmatched performance.

Strong Pocket, Easy Insert Change

- Robust pocket design for increased insert and holder life.
- Four-wall pocket provides insert stability.
- Requires only a simple wrench for insert removal.

Regrindable Inserts

- All geometries except SPL can be reconditioned to improve tool economy.
- Quick and reliable regrinding services offered by Kennametal and our partners.

Tailored Grades

- KC7315™ grade TiAlN-based PVD multilayer coating for high cutting speeds, primarily in steel applications.
- KCPM45™ grade multilayer TiAlN coated, very tough carbide substrate. Improved chipping resistance in demanding machining conditions.
- KC7320™ grade AlTiN-based PVD coating for the demands of drilling stainless steels.
- KCMS35™ grade with high Al content TiAlN PVD coating specifically for M3 and S-type materials.
- KC7410™ grade contains multiple layers of PVD coating offering outstanding wear resistance for drilling cast irons.
- KC7135™ grade with thin TiCN-TiN PVD coating for universal usage in all materials.



KSEM™ SPL inserts offer extraordinary drilling performance in stainless steels, super alloys, and other demanding environments.



KSEM FEG inserts create blind holes, through holes, and countersinks. These inserts are focused on versatility and will support you in many essential drilling applications.



Drill Body Portfolio

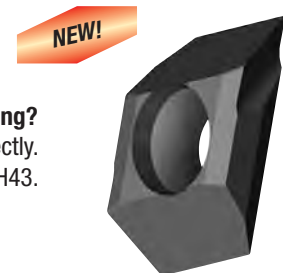
- Standard 1, 3, 5, 7, and 10 x D tool bodies with round shanks (inch) and Whistle Notch shanks (metric) available.
- Flanged shanks with 2 flats and entry for external coolant supply in 1, 3, 5, and 8 x D.
- KSEM mountable chamfering ring with FAS carbide chamfer inserts.

Customization

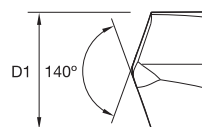
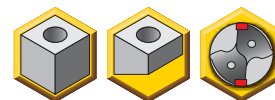
- Intermediate diameters available as semi-standards.
- Extensive step drill capabilities to support advanced applications and for one-shot counterboring and chamfering drills.
- Nearly all shank styles for toolholders available as semi-standards.
- Very high L x D ratios possible up to 25 x D and even higher (depending on drill diameter).

Need to create very small diameter steps for chamfering and counterboring?

CFM inserts fit KSEM made-to-order step drills perfectly. Find them in the KenTIP™ modular drill system section page H43.



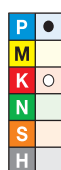
- KSEM KC7315™ HP cutting edges enable high metal removal rates and superior tool life for steel applications.
- HP geometry offers a wide and strong HP-style chiseled edge that prevents material quenching in the center, enabling high feed rates. Sickle shaped, honed cutting edges provide excellent chip forming and tool life, even in long chipping materials.
- KC7315 is a fine-grain carbide with a TiAlN-based PVD multilayer coating. Its high wear resistance enables very high cutting speeds in stable conditions.
- KC7315 HP cutting edges are perfectly suited to drill alloyed and high-alloy steels.
- Use KC7315 HP cutting edges as an alternative to cast iron materials.



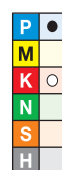
HP

Modular Drills

■ KSEM Inserts • HP KC7315



KC7315	D1		seat size
	mm	in	
KSEM1250HPM	12,500	.4921	C
KSEM1270HPM	12,700	.5000	C
KSEM1280HPM	12,800	.5039	C
KSEM1300HPM	13,000	.5118	C
KSEM1310HPM	13,100	.5160	C
KSEM1320HPM	13,200	.5197	C
KSEM1350HPM	13,500	.5310	C
KSEM1370HPM	13,700	.5394	B
KSEM1380HPM	13,800	.5433	B
KSEM1389HPM	13,890	.5470	B
KSEM1400HPM	14,000	.5512	B
KSEM1410HPM	14,100	.5551	B
KSEM1420HPM	14,200	.5591	B
KSEM1429HPM	14,290	.5630	B
KSEM1440HPM	14,400	.5669	B
KSEM1450HPM	14,500	.5709	B
KSEM1468HPM	14,680	.5780	A
KSEM1480HPM	14,800	.5827	A
KSEM1500HPM	15,000	.5906	A
KSEM1508HPM	15,080	.5940	A
KSEM1530HPM	15,300	.6024	A
KSEM1550HPM	15,500	.6102	A
KSEM1560HPM	15,600	.6142	A
KSEM1570HPM	15,700	.6181	A
KSEM1580HPM	15,800	.6220	A
KSEM1588HPM	15,880	.6250	1
KSEM1600HPM	16,000	.6299	1
KSEM1609HPM	16,090	.6340	1
KSEM1620HPM	16,200	.6378	1
KSEM1627HPM	16,270	.6410	1
KSEM1650HPM	16,500	.6496	1
KSEM1667HPM	16,670	.6560	1
KSEM1700HPM	17,000	.6693	1
KSEM1707HPM	17,070	.6720	1
KSEM1746HPM	17,460	.6875	1
KSEM1750HPM	17,500	.6890	1

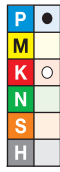


KC7315	D1		seat size
	mm	in	
KSEM1786HPM	17,860	.7030	1
KSEM1800HPM	18,000	.7087	1
KSEM1826HPM	18,260	.7190	2
KSEM1850HPM	18,500	.7283	2
KSEM1865HPM	18,650	.7340	2
KSEM1900HPM	19,000	.7480	2
KSEM1905HPM	19,050	.7500	2
KSEM1923HPM	19,228	.7570	2
KSEM1927HPM	19,270	.7590	2
KSEM1945HPM	19,450	.7660	2
KSEM1950HPM	19,500	.7677	2
KSEM1984HPM	19,840	.7810	2
KSEM2000HPM	20,000	.7874	3
KSEM2024HPM	20,240	.7970	3
KSEM2050HPM	20,500	.8071	3
KSEM2064HPM	20,640	.8125	3
KSEM2100HPM	21,000	.8268	3
KSEM2143HPM	21,430	.8440	3
KSEM2150HPM	21,500	.8460	3
KSEM2183HPM	21,830	.8590	3
KSEM2200HPM	22,000	.8661	3
KSEM2223HPM	22,230	.8750	4
KSEM2244HPM	22,440	.8840	4
KSEM2250HPM	22,500	.8858	4
KSEM2300HPM	23,000	.9055	4
KSEM2342HPM	23,420	.9220	4
KSEM2350HPM	23,500	.9252	4
KSEM2381HPM	23,810	.9375	4
KSEM2400HPM	24,000	.9449	4
KSEM2450HPM	24,500	.9646	5
KSEM2461HPM	24,610	.9690	5
KSEM2500HPM	25,000	.9843	5
KSEM2540HPM	25,400	1.0000	5
KSEM2550HPM	25,500	1.0039	5
KSEM2560HPM	25,610	1.0080	5
KSEM2567HPM	25,670	1.0110	5

- first choice
- alternate choice

(continued)

(KSEM Inserts • HP KC7315™ — continued)



● first choice
○ alternate choice

KC7315	D1		seat size
	mm	in	
KSEM2600HPM	26,000	1.0236	5
KSEM2619HPM	26,190	1.0310	6
KSEM2650HPM	26,500	1.0433	6
KSEM2659HPM	26,590	1.0470	6
KSEM2700HPM	27,000	1.0630	6
KSEM2750HPM	27,500	1.0827	6
KSEM2778HPM	27,780	1.0940	6
KSEM2800HPM	28,000	1.1024	6
KSEM2818HPM	28,180	1.1090	7
KSEM2850HPM	28,500	1.1220	7
KSEM2858HPM	28,580	1.1250	7
KSEM2900HPM	29,000	1.1417	7
KSEM2937HPM	29,370	1.1563	7
KSEM2950HPM	29,500	1.1614	7
KSEM2977HPM	29,770	1.1720	7
KSEM3000HPM	30,000	1.1811	7
KSEM3016HPM	30,160	1.1875	8
KSEM3050HPM	30,500	1.2008	8
KSEM3096HPM	30,960	1.2190	8
KSEM3100HPM	31,000	1.2205	8

KC7315	D1		seat size
	mm	in	
KSEM3150HPM	31,500	1.2402	8
KSEM3175HPM	31,750	1.2500	8
KSEM3200HPM	32,000	1.2598	8
KSEM3250HPM	32,500	1.2795	9
KSEM3300HPM	33,000	1.2992	9
KSEM3334HPM	33,340	1.3130	9
KSEM3400HPM	34,000	1.3386	9
KSEM3413HPM	34,130	1.3440	9
KSEM3493HPM	34,930	1.3750	9
KSEM3500HPM	35,000	1.3780	9
KSEM3550HPM	35,500	1.3976	9
KSEM3600HPM	36,000	1.4173	9
KSEM3750HPM	37,500	1.4764	10
KSEM3800HPM	38,000	1.4961	10
KSEM3810HPM	38,100	1.5000	10
KSEM3850HPM	38,500	1.5157	10
KSEM3900HPM	39,000	1.5354	10
KSEM3950HPM	39,500	1.5551	10
KSEM4000HPM	40,000	1.5748	10

Tolerance HP • Metric

D1 metric	tolerance h8
12,5–18	+0,000/-0,027
>18–30	+0,000/-0,033
>30–40	+0,000/-0,039

Tolerance HP • Inch

D1 inch	tolerance h8
.500–.709	+ .000/- .0010
>.709–1.181	+ .000/- .0013
>1.181–1.575	+ .000/- .0015

Application Data

■ Modular Drill Carbide Insert Blades • KSEM • HP Geometry • Grade KC7315 • Through Coolant • Metric

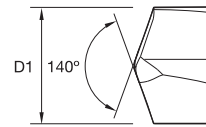
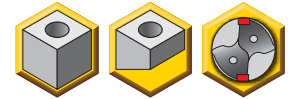
Material Group	Cutting Speed – vc			Metric							
	Range – m/min			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max		12,5	16,0	20,0	25,4	32,0	40,0	
P	1	70	90	110	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
	2	80	100	120	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
	3	65	75	80	mm/r	0,15–0,28	0,17–0,31	0,19–0,36	0,25–0,46	0,23–0,53	0,33–0,60
	4	50	65	75	mm/r	0,12–0,28	0,14–0,31	0,16–0,36	0,20–0,46	0,23–0,53	0,30–0,60
	5	45	50	65	mm/r	0,09–0,15	0,11–0,18	0,12–0,21	0,15–0,25	0,17–0,29	0,20–0,33
	6	45	50	65	mm/r	0,12–0,23	0,14–0,26	0,16–0,29	0,20–0,38	0,23–0,43	0,26–0,54

■ Modular Drill Carbide Insert Blades • KSEM • HP Geometry • Grade KC7315 • Through Coolant • Inch

Material Group	Cutting Speed – vc			Inch							
	Range – SFM			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max		0.462	0.630	0.787	1.000	1.260	1.575	
P	1	230	300	360	IPR	.006–.012	.007–.014	.007–.016	.010–.021	.011–.024	.013–.027
	2	260	330	390	IPR	.006–.012	.007–.014	.007–.016	.010–.021	.014–.024	.016–.027
	3	210	250	260	IPR	.006–.011	.007–.012	.007–.014	.010–.018	.009–.021	.013–.024
	4	150	160	210	IPR	.005–.011	.006–.012	.006–.014	.008–.018	.009–.021	.012–.024
	5	150	160	210	IPR	.004–.006	.004–.007	.005–.008	.006–.010	.007–.011	.008–.013
	6	150	160	210	IPR	.005–.009	.006–.010	.006–.011	.008–.015	.009–.017	.010–.021



- KSEM KC7315™ HPG cutting edges enable high metal removal rates and superior tool life for steel applications.
- HPG geometry works with low cutting and feed forces and provides very good centering. Reinforced cutting edges and good chip forming improve tool life due to high wear and edge chipping resistance.
- KC7315 is a fine-grain carbide with a TiAlN-based PVD multilayer coating. Its high wear resistance enables very high cutting speeds in stable conditions.
- KC7315 HPG cutting edges are perfectly suited to drill alloyed and high-alloy steels.
- Use KC7315 HPG cutting edges as an alternative to cast iron materials.



HPG

Modular Drills

■ KSEM Inserts • HPG KC7315



- first choice
- alternate choice

KC7315	D1		seat size
	mm	in	
KSEM1250HPGM	12,500	.4921	C
KSEM1260HPGM	12,600	.4961	C
KSEM1270HPGM	12,700	.5000	C
KSEM1280HPGM	12,800	.5039	C
KSEM1293HPGM	12,930	.5090	C
KSEM1300HPGM	13,000	.5118	C
KSEM1310HPGM	13,100	.5160	C
KSEM1320HPGM	13,200	.5197	C
KSEM1350HPGM	13,500	.5310	C
KSEM1360HPGM	13,600	.5354	B
KSEM1370HPGM	13,700	.5394	B
KSEM1380HPGM	13,800	.5433	B
KSEM1389HPGM	13,890	.5470	B
KSEM1400HPGM	14,000	.5512	B
KSEM1410HPGM	14,100	.5551	B
KSEM1420HPGM	14,200	.5591	B
KSEM1429HPGM	14,290	.5630	B
KSEM1440HPGM	14,400	.5669	B
KSEM1450HPGM	14,500	.5709	B
KSEM1460HPGM	14,600	.5748	A
KSEM1468HPGM	14,680	.5780	A
KSEM1480HPGM	14,800	.5827	A
KSEM1500HPGM	15,000	.5906	A
KSEM1508HPGM	15,080	.5940	A
KSEM1530HPGM	15,300	.6024	A
KSEM1548HPGM	15,480	.6090	A
KSEM1550HPGM	15,500	.6102	A
KSEM1560HPGM	15,600	.6142	A
KSEM1570HPGM	15,700	.6181	A
KSEM1580HPGM	15,800	.6220	A
KSEM1588HPGM	15,880	.6250	1
KSEM1600HPGM	16,000	.6299	1
KSEM1604HPGM	16,040	.6315	1
KSEM1609HPGM	16,090	.6340	1
KSEM1619HPGM	16,190	.6374	1
KSEM1620HPGM	16,200	.6378	1

KC7315	D1		seat size
	mm	in	
KSEM1627HPGM	16,270	.6410	1
KSEM1650HPGM	16,500	.6496	1
KSEM1660HPGM	16,600	.6535	1
KSEM1667HPGM	16,670	.6560	1
KSEM1700HPGM	17,000	.6693	1
KSEM1707HPGM	17,070	.6720	1
KSEM1735HPGM	17,350	.6831	1
KSEM1746HPGM	17,460	.6875	1
KSEM1750HPGM	17,500	.6890	1
KSEM1760HPGM	17,600	.6929	1
KSEM1770HPGM	17,700	.6969	1
KSEM1786HPGM	17,860	.7030	1
KSEM1800HPGM	18,000	.7087	1
KSEM1826HPGM	18,260	.7190	2
KSEM1850HPGM	18,500	.7283	2
KSEM1860HPGM	18,600	.7323	2
KSEM1865HPGM	18,650	.7340	2
KSEM1880HPGM	18,800	.7402	2
KSEM1900HPGM	19,000	.7480	2
KSEM1905HPGM	19,050	.7500	2
KSEM1925HPGM	19,250	.7579	2
KSEM1927HPGM	19,270	.7590	2
KSEM1932HPGM	19,320	.7606	2
KSEM1935HPGM	19,350	.7618	2
KSEM1945HPGM	19,450	.7660	2
KSEM1950HPGM	19,500	.7677	2
KSEM1970HPGM	19,700	.7756	2
KSEM1984HPGM	19,840	.7810	2
KSEM2000HPGM	20,000	.7874	3
KSEM2024HPGM	20,240	.7969	3
KSEM2050HPGM	20,500	.8071	3
KSEM2064HPGM	20,640	.8125	3
KSEM2070HPGM	20,700	.8150	3
KSEM2100HPGM	21,000	.8268	3
KSEM2110HPGM	21,100	.8307	3
KSEM2120HPGM	21,200	.8346	3

(continued)

(KSEM Inserts • HPG KC7315™ — continued)



● first choice
○ alternate choice

KC7315	D1		seat size
	mm	in	
KSEM2133HPGM	21,330	.8398	3
KSEM2143HPGM	21,430	.8440	3
KSEM2150HPGM	21,500	.8460	3
KSEM2170HPGM	21,700	.8543	3
KSEM2183HPGM	21,830	.8590	3
KSEM2200HPGM	22,000	.8661	3
KSEM2210HPGM	22,100	.8701	4
KSEM2215HPGM	22,150	.8720	4
KSEM2223HPGM	22,230	.8750	4
KSEM2244HPGM	22,440	.8840	4
KSEM2250HPGM	22,500	.8858	4
KSEM2262HPGM	22,620	.8906	4
KSEM2300HPGM	23,000	.9055	4
KSEM2305HPGM	23,050	.9075	4
KSEM2310HPGM	23,100	.9094	4
KSEM2325HPGM	23,250	.9154	4
KSEM2330HPGM	23,300	.9173	4
KSEM2342HPGM	23,420	.9220	4
KSEM2350HPGM	23,500	.9252	4
KSEM2381HPGM	23,810	.9375	4
KSEM2400HPGM	24,000	.9449	4
KSEM2430HPGM	24,300	.9567	5
KSEM2450HPGM	24,500	.9646	5
KSEM2461HPGM	24,610	.9690	5
KSEM2470HPGM	24,700	.9724	5
KSEM2500HPGM	25,000	.9843	5
KSEM2540HPGM	25,400	1.0000	5
KSEM2550HPGM	25,500	1.0039	5
KSEM2554HPGM	25,540	1.0055	5
KSEM2560HPGM	25,600	1.0080	5
KSEM2565HPGM	25,654	1.0100	5
KSEM2567HPGM	25,670	1.0110	5
KSEM2600HPGM	26,000	1.0236	5
KSEM2619HPGM	26,190	1.0310	6
KSEM2650HPGM	26,500	1.0433	6
KSEM2653HPGM	26,530	1.0445	6
KSEM2659HPGM	26,590	1.0470	6
KSEM2670HPGM	26,700	1.0512	6
KSEM2700HPGM	27,000	1.0630	6
KSEM2750HPGM	27,500	1.0827	6
KSEM2778HPGM	27,780	1.0940	6
KSEM2800HPGM	28,000	1.1024	6
KSEM2818HPGM	28,180	1.1090	7
KSEM2850HPGM	28,500	1.1220	7
KSEM2858HPGM	28,580	1.1250	7
KSEM2900HPGM	29,000	1.1417	7
KSEM2937HPGM	29,370	1.1563	7
KSEM2950HPGM	29,500	1.1614	7

KC7315	D1		seat size
	mm	in	
KSEM2955HPGM	29,550	1.1634	7
KSEM2973HPGM	29,730	1.1705	7
KSEM2977HPGM	29,770	1.1720	7
KSEM3000HPGM	30,000	1.1811	7
KSEM3016HPGM	30,160	1.1875	8
KSEM3050HPGM	30,500	1.2008	8
KSEM3056HPGM	30,560	1.2030	8
KSEM3096HPGM	30,960	1.2190	8
KSEM3100HPGM	31,000	1.2205	8
KSEM3125HPGM	31,250	1.2303	8
KSEM3150HPGM	31,500	1.2402	8
KSEM3175HPGM	31,750	1.2500	8
KSEM3200HPGM	32,000	1.2598	8
KSEM3220HPGM	32,200	1.2677	9
KSEM3234HPGM	32,340	1.2732	9
KSEM3250HPGM	32,500	1.2795	9
KSEM3254HPGM	32,540	1.2810	9
KSEM3294HPGM	32,940	1.2970	9
KSEM3300HPGM	33,000	1.2992	9
KSEM3334HPGM	33,340	1.3130	9
KSEM3350HPGM	33,500	1.3189	9
KSEM3373HPGM	33,730	1.3280	9
KSEM3400HPGM	34,000	1.3386	9
KSEM3413HPGM	34,130	1.3440	9
KSEM3450HPGM	34,500	1.3583	9
KSEM3493HPGM	34,930	1.3750	9
KSEM3500HPGM	35,000	1.3780	9
KSEM3550HPGM	35,500	1.3976	9
KSEM3572HPGM	35,720	1.4060	9
KSEM3600HPGM	36,000	1.4173	9
KSEM3612HPGM	36,120	1.4220	10
KSEM3650HPGM	36,500	1.4375	10
KSEM3651HPGM	36,510	1.4375	10
KSEM3700HPGM	37,000	1.4567	10
KSEM3731HPGM	37,310	1.4690	10
KSEM3750HPGM	37,500	1.4764	10
KSEM3800HPGM	38,000	1.4961	10
KSEM3810HPGM	38,100	1.5000	10
KSEM3846HPGM	38,460	1.5142	10
KSEM3850HPGM	38,500	1.5157	10
KSEM3900HPGM	39,000	1.5354	10
KSEM3950HPGM	39,500	1.5551	10
KSEM3975HPGM	39,750	1.5650	10
KSEM4000HPGM	40,000	1.5748	10

Tolerance HPG • Metric

D1 metric	tolerance h8
12,5-18	+0,000/-0,027
>18-30	+0,000/-0,033
>30-40	+0,000/-0,039

Tolerance HPG • Inch

D1 inch	tolerance h8
.500-.709	+0,000/-0,010
>.709-1.181	+0,000/-0,013
>1.181-1.575	+0,000/-0,015

■ **Modular Drill Carbide Insert Blades • KSEM™ • HPG Geometry • Grade KC7315™ • Through Coolant • Metric**

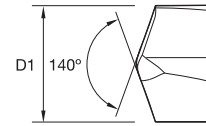
Modular Drills

Material Group	Cutting Speed – vc			Metric							
	Range – m/min			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max		12,5	16,0	20,0	25,4	32,0	40,0	
P	1	75	110	140	mm/r	0,15–0,34	0,17–0,40	0,19–0,45	0,25–0,58	0,29–0,66	0,33–0,76
	2	90	120	150	mm/r	0,15–0,34	0,17–0,40	0,19–0,45	0,25–0,58	0,29–0,66	0,33–0,76
	3	50	75	100	mm/r	0,15–0,28	0,17–0,34	0,19–0,40	0,25–0,51	0,29–0,58	0,33–0,66
	4	55	75	95	mm/r	0,12–0,31	0,14–0,34	0,16–0,40	0,20–0,51	0,23–0,58	0,26–0,66
	5	50	65	80	mm/r	0,09–0,17	0,11–0,20	0,12–0,23	0,15–0,28	0,17–0,32	0,20–0,36
	6	50	65	80	mm/r	0,12–0,25	0,14–0,29	0,16–0,32	0,20–0,42	0,23–0,47	0,26–0,54
K	1	90	135	175	mm/r	0,17–0,35	0,21–0,42	0,25–0,48	0,31–0,59	0,37–0,70	0,43–0,81
	2	90	110	125	mm/r	0,17–0,33	0,21–0,41	0,25–0,48	0,31–0,59	0,37–0,70	0,43–0,81
	3	40	95	125	mm/r	0,18–0,36	0,20–0,41	0,21–0,44	0,23–0,48	0,25–0,53	0,27–0,57

■ **Modular Drill Carbide Insert Blades • KSEM • HPG Geometry • Grade KC7315 • Through Coolant • Inch**

Material Group	Cutting Speed – vc			Inch							
	Range – SFM			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max		0.462	0.630	0.787	1.000	1.260	1.575	
P	1	250	360	460	IPR	.006–.013	.007–.016	.007–.018	.010–.023	.011–.026	.013–.030
	2	300	390	490	IPR	.006–.013	.007–.016	.007–.018	.010–.023	.011–.026	.013–.030
	3	160	250	330	IPR	.006–.011	.007–.013	.007–.016	.010–.020	.011–.023	.013–.026
	4	160	210	260	IPR	.005–.012	.006–.011	.006–.016	.008–.020	.009–.023	.010–.026
	5	160	210	260	IPR	.004–.007	.004–.008	.005–.009	.006–.011	.007–.013	.008–.014
	6	160	210	260	IPR	.005–.010	.006–.011	.006–.013	.008–.017	.009–.019	.010–.021
K	1	300	440	570	IPR	.007–.014	.008–.017	.010–.019	.012–.023	.015–.028	.017–.032
	2	300	360	410	IPR	.007–.013	.008–.016	.010–.019	.012–.023	.015–.028	.017–.032
	3	130	310	410	IPR	.007–.014	.008–.016	.008–.017	.009–.019	.010–.021	.011–.022

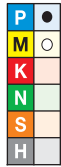
- KSEM KCPM45™ HPG cutting edges provide increased productivity and improved tool life in steel in difficult conditions.
- HPG geometry works with low cutting and feed forces and provides very good centering. Reinforced cutting edges and good chip forming improve tool life due to high wear and edge chipping resistance.
- KCPM45 combines a very tough, fine-grain carbide substrate with an advanced multilayer TiAlN coating. It is capable of machining steel even in the most demanding conditions.
- Material snap back, stacked plates, cross holes, and inclined exits are some examples of where KCPM45 HPG edges will do a great job in your operations.
- Use KCPM45 HPG cutting edges as an effective alternative in stainless steel as well.



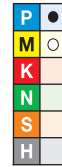
HPG



■ KSEM Inserts • HPG KCPM45



KCPM45	D1		seat size
	mm	in	
KSEM1250HPGM	12,500	.4921	C
KSEM1270HPGM	12,700	.5000	C
KSEM1280HPGM	12,800	.5039	C
KSEM1293HPGM	12,930	.5090	C
KSEM1300HPGM	13,000	.5118	C
KSEM1350HPGM	13,500	.5310	C
KSEM1360HPGM	13,600	.5354	B
KSEM1380HPGM	13,800	.5433	B
KSEM1389HPGM	13,890	.5470	B
KSEM1400HPGM	14,000	.5512	B
KSEM1410HPGM	14,100	.5551	B
KSEM1429HPGM	14,290	.5630	B
KSEM1450HPGM	14,500	.5709	B
KSEM1468HPGM	14,680	.5780	A
KSEM1500HPGM	15,000	.5906	A
KSEM1508HPGM	15,080	.5940	A
KSEM1550HPGM	15,500	.6102	A
KSEM1580HPGM	15,800	.6220	A
KSEM1588HPGM	15,880	.6250	1
KSEM1600HPGM	16,000	.6299	1
KSEM1609HPGM	16,090	.6340	1
KSEM1620HPGM	16,200	.6378	1
KSEM1627HPGM	16,270	.6410	1
KSEM1650HPGM	16,500	.6496	1
KSEM1667HPGM	16,670	.6560	1
KSEM1700HPGM	17,000	.6693	1
KSEM1707HPGM	17,070	.6720	1
KSEM1746HPGM	17,460	.6875	1
KSEM1750HPGM	17,500	.6890	1
KSEM1786HPGM	17,860	.7030	1
KSEM1800HPGM	18,000	.7087	1
KSEM1826HPGM	18,260	.7190	2



- first choice
- alternate choice

KCPM45	D1		seat size
	mm	in	
KSEM1850HPGM	18,500	.7283	2
KSEM1865HPGM	18,650	.7340	2
KSEM1900HPGM	19,000	.7480	2
KSEM1905HPGM	19,050	.7500	2
KSEM1920HPGM	19,200	.7559	2
KSEM1923HPGM	19,228	.7570	2
KSEM1925HPGM	19,250	.7579	2
KSEM1927HPGM	19,270	.7590	2
KSEM1945HPGM	19,450	.7660	2
KSEM1950HPGM	19,500	.7677	2
KSEM1965HPGM	19,650	.7736	2
KSEM1984HPGM	19,840	.7810	2
KSEM2000HPGM	20,000	.7874	3
KSEM2024HPGM	20,240	.7969	3
KSEM2050HPGM	20,500	.8071	3
KSEM2064HPGM	20,640	.8125	3
KSEM2100HPGM	21,000	.8268	3
KSEM2143HPGM	21,430	.8440	3
KSEM2150HPGM	21,500	.8460	3
KSEM2183HPGM	21,830	.8590	3
KSEM2200HPGM	22,000	.8661	3
KSEM2223HPGM	22,230	.8750	4
KSEM2244HPGM	22,440	.8840	4
KSEM2250HPGM	22,500	.8858	4
KSEM2300HPGM	23,000	.9055	4
KSEM2342HPGM	23,420	.9220	4
KSEM2350HPGM	23,500	.9252	4
KSEM2360HPGM	23,600	.9291	4
KSEM2370HPGM	23,700	.9331	4
KSEM2381HPGM	23,810	.9375	4
KSEM2400HPGM	24,000	.9449	4
KSEM2450HPGM	24,500	.9646	5

(continued)

(KSEM Inserts • HPG KCPM45™ — continued)



● first choice
○ alternate choice

Modular Drills

KCPM45	D1		seat size
	mm	in	
KSEM2461HPGM	24,610	.9690	5
KSEM2500HPGM	25,000	.9843	5
KSEM2540HPGM	25,400	1.0000	5
KSEM2550HPGM	25,500	1.0039	5
KSEM2560HPGM	25,600	1.0080	5
KSEM2565HPGM	25,654	1.0100	5
KSEM2567HPGM	25,670	1.0106	5
KSEM2581HPGM	25,810	1.0161	5
KSEM2600HPGM	26,000	1.0236	5
KSEM2619HPGM	26,190	1.0310	6
KSEM2650HPGM	26,500	1.0433	6
KSEM2659HPGM	26,590	1.0470	6
KSEM2700HPGM	27,000	1.0630	6
KSEM2750HPGM	27,500	1.0827	6
KSEM2778HPGM	27,780	1.0940	6
KSEM2800HPGM	28,000	1.1024	6
KSEM2818HPGM	28,180	1.1090	7
KSEM2835HPGM	28,350	1.1161	7
KSEM2850HPGM	28,500	1.1220	7
KSEM2858HPGM	28,580	1.1250	7
KSEM2900HPGM	29,000	1.1417	7
KSEM2937HPGM	29,370	1.1563	7
KSEM2950HPGM	29,500	1.1614	7
KSEM2977HPGM	29,770	1.1720	7
KSEM3000HPGM	30,000	1.1811	7
KSEM3016HPGM	30,160	1.1875	8
KSEM3050HPGM	30,500	1.2008	8
KSEM3096HPGM	30,960	1.2190	8

KCPM45	D1		seat size
	mm	in	
KSEM3100HPGM	31,000	1.2205	8
KSEM3115HPGM	31,150	1.2264	8
KSEM3150HPGM	31,500	1.2402	8
KSEM3175HPGM	31,750	1.2500	8
KSEM3200HPGM	32,000	1.2598	8
KSEM3250HPGM	32,500	1.2795	9
KSEM3254HPGM	32,540	1.2810	9
KSEM3300HPGM	33,000	1.2992	9
KSEM3334HPGM	33,340	1.3130	9
KSEM3350HPGM	33,500	1.3189	9
KSEM3400HPGM	34,000	1.3386	9
KSEM3450HPGM	34,500	1.3583	9
KSEM3493HPGM	34,930	1.3750	9
KSEM3500HPGM	35,000	1.3780	9
KSEM3600HPGM	36,000	1.4173	9
KSEM3651HPGM	36,510	1.4375	10
KSEM3700HPGM	37,000	1.4567	10
KSEM3731HPGM	37,310	1.4690	10
KSEM3750HPGM	37,500	1.4764	10
KSEM3800HPGM	38,000	1.4961	10
KSEM3810HPGM	38,100	1.5000	10
KSEM3846HPGM	38,460	1.5142	10
KSEM3900HPGM	39,000	1.5354	10
KSEM4000HPGM	40,000	1.5748	10

Tolerance HPG • Metric

D1 metric	tolerance h8
12,5–18	+0,000/-0,027
>18–30	+0,000/-0,033
>30–40	+0,000/-0,039

Tolerance HPG • Inch

D1 inch	tolerance h8
.500–.709	+ .000/- .0010
>.709–1.181	+ .000/- .0013
>1.181–1.575	+ .000/- .0015

■ Modular Drill Carbide Insert Blades • KSEM™ • HPG Geometry • Grade KCPM45™ • Through Coolant • Metric


Material Group	Cutting Speed – vc			Metric							
	Range – m/min			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max		12,5	16,0	20,0	25,4	32,0	40,0	
P	1	100	110	120	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
	2	80	95	110	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
	3	65	70	80	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
M	1	30	60	90	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
	2	30	50	90	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
	3	20	40	60	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31

■ Modular Drill Carbide Insert Blades • KSEM • HPG Geometry • Grade KCPM45 • MQL* • Metric


Material Group	Cutting Speed – vc			Metric							
	Range – m/min			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max		12,5	16,0	20,0	25,4	32,0	40,0	
P	1	60	70	80	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
	2	50	60	70	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
	3	65	45	80	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
M	1	30	40	50	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
	2	25	30	35	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
	3	20	25	30	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31

 *Recommended for drilling depths $\leq 1.5 \times D$.

■ Modular Drill Carbide Insert Blades • KSEM • HPG Geometry • Grade KCPM45 • Through Coolant • Inch

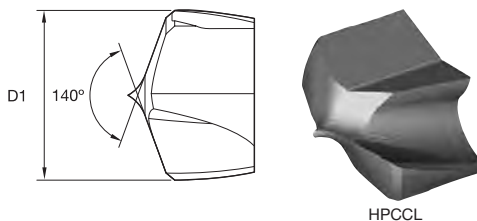
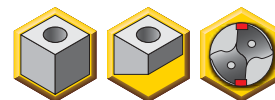

Material Group	Cutting Speed – vc			Inch							
	Range – SFM			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max		.462	.630	.787	1.000	1.260	1.575	
P	1	330	360	390	IPR	.006–.012	.007–.014	.007–.016	.010–.021	.011–.024	.013–.027
	2	260	310	360	IPR	.006–.012	.007–.014	.007–.016	.010–.021	.011–.024	.013–.027
	3	210	230	260	IPR	.006–.012	.007–.014	.007–.016	.010–.021	.011–.024	.013–.027
M	1	100	200	300	IPR	.004–.006	.004–.007	.005–.008	.006–.010	.007–.011	.008–.012
	2	100	160	300	IPR	.004–.006	.004–.007	.005–.008	.006–.010	.007–.011	.008–.012
	3	70	130	200	IPR	.004–.006	.004–.007	.005–.008	.006–.010	.007–.011	.008–.012

■ Modular Drill Carbide Insert Blades • KSEM • HPG Geometry • Grade KCPM45 • MQL* • Inch


Material Group	Cutting Speed – vc			Inch							
	Range – SFM			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max		.462	.630	.787	1.000	1.260	1.575	
P	1	200	230	260	IPR	.006–.012	.007–.014	.007–.016	.010–.021	.011–.024	.013–.027
	2	160	200	230	IPR	.006–.012	.007–.014	.007–.016	.010–.021	.011–.024	.013–.027
	3	210	150	260	IPR	.006–.012	.007–.014	.007–.016	.010–.021	.011–.024	.013–.027
M	1	100	130	160	IPR	.004–.006	.004–.007	.005–.008	.006–.010	.007–.011	.008–.012
	2	80	100	110	IPR	.004–.006	.004–.007	.005–.008	.006–.010	.007–.011	.008–.012
	3	70	80	100	IPR	.004–.006	.004–.007	.005–.008	.006–.010	.007–.011	.008–.012

 *Recommended for drilling depths $\leq 1.5 \times D$.

- KSEM KC7410™ HPCCL focuses on tool life and process reliability in cast iron materials in all cast iron materials. It offers increased feed forces in increases your productivity.
- HPCCL geometry offers a wide and strong HP-style chiseled edge that prevents material quenching in the center, enabling high feed rates. With a corner chamfer and strong edges, it creates high quality holes and increased tool life.
- KC7410 is a multilayer AlCr-based coating over fine-grain carbide. It is extraordinarily wear resistant in cast iron applications due to its high hot hardness.
- Use KC7410 HPCCL in all cast iron applications, especially when working in difficult conditions and CGI or ADI irons.



Modular Drills

■ KSEM Inserts • HPCCL KC7410



KC7410	D1		seat size
	mm	in	
KSEM1250HPCCLM	12,500	.4921	C
KSEM1270HPCCLM *	12,700	.5000	C
KSEM1293HPCCLM	12,930	.5091	C
KSEM1300HPCCLM	13,000	.5118	C
KSEM1310HPCCLM	13,100	.5157	C
KSEM1350HPCCLM	13,500	.5315	C
KSEM1389HPCCLM	13,890	.5469	B
KSEM1400HPCCLM	14,000	.5512	B
KSEM1429HPCCLM	14,290	.5626	B
KSEM1450HPCCLM	14,500	.5709	B
KSEM1468HPCCLM	14,680	.5780	A
KSEM1500HPCCLM	15,000	.5906	A
KSEM1548HPCCLM *	15,480	.6094	A
KSEM1550HPCCLM	15,500	.6102	A
KSEM1588HPCCLM *	15,880	.6252	1
KSEM1600HPCCLM	16,000	.6299	1
KSEM1609HPCCLM	16,090	.6335	1
KSEM1627HPCCLM	16,270	.6406	1
KSEM1650HPCCLM	16,500	.6496	1
KSEM1667HPCCLM	16,670	.6563	1
KSEM1700HPCCLM	17,000	.6693	1
KSEM1707HPCCLM	17,070	.6720	1
KSEM1746HPCCLM	17,460	.6874	1
KSEM1750HPCCLM	17,500	.6890	1
KSEM1760HPCCLM	17,600	.6929	1
KSEM1800HPCCLM	18,000	.7087	1
KSEM1826HPCCLM	18,260	.7189	2
KSEM1850HPCCLM	18,500	.7283	2
KSEM1900HPCCLM	19,000	.7480	2
KSEM1905HPCCLM	19,050	.7500	2
KSEM1927HPCCLM *	19,270	.7587	2
KSEM1945HPCCLM *	19,450	.7657	2



- first choice
- alternate choice

KC7410	D1		seat size
	mm	in	
KSEM1950HPCCLM	19,500	.7677	2
KSEM1984HPCCLM	19,840	.7811	2
KSEM2000HPCCLM	20,000	.7874	3
KSEM2024HPCCLM	20,240	.7969	3
KSEM2050HPCCLM	20,500	.8071	3
KSEM2064HPCCLM	20,640	.8126	3
KSEM2100HPCCLM	21,000	.8268	3
KSEM2143HPCCLM	21,430	.8437	3
KSEM2150HPCCLM	21,500	.8465	3
KSEM2200HPCCLM	22,000	.8661	3
KSEM2210HPCCLM	22,100	.8701	4
KSEM2223HPCCLM	22,230	.8752	4
KSEM2244HPCCLM	22,440	.8835	4
KSEM2250HPCCLM	22,500	.8858	4
KSEM2300HPCCLM	23,000	.9055	4
KSEM2342HPCCLM	23,420	.9220	4
KSEM2350HPCCLM	23,500	.9252	4
KSEM2381HPCCLM	23,810	.9374	4
KSEM2400HPCCLM	24,000	.9449	4
KSEM2450HPCCLM	24,500	.9646	5
KSEM2461HPCCLM	24,610	.9689	5
KSEM2500HPCCLM	25,000	.9843	5
KSEM2540HPCCLM	25,400	1.0000	5
KSEM2550HPCCLM	25,500	1.0039	5
KSEM2567HPCCLM	25,670	1.0106	5
KSEM2600HPCCLM	26,000	1.0236	5
KSEM2619HPCCLM	26,190	1.0311	6
KSEM2650HPCCLM	26,500	1.0433	6
KSEM2659HPCCLM	26,590	1.0469	6
KSEM2700HPCCLM	27,000	1.0630	6
KSEM2750HPCCLM	27,500	1.0827	6
KSEM2778HPCCLM	27,780	1.0937	6

(continued)

(KSEM Inserts • HPCCL KC7410™ – continued)



● first choice
○ alternate choice

KC7410	D1		seat size
	mm	in	
KSEM2800HPCCLM	28,000	1.1024	6
KSEM2818HPCCLM *	28,180	1.0940	7
KSEM2850HPCCLM	28,500	1.1220	7
KSEM2858HPCCLM	28,580	1.1250	7
KSEM2900HPCCLM	29,000	1.1417	7
KSEM2937HPCCLM	29,370	1.1563	7
KSEM2950HPCCLM *	29,500	1.1614	7
KSEM2977HPCCLM	29,770	1.1720	7
KSEM3000HPCCLM	30,000	1.1811	7
KSEM3016HPCCLM	30,160	1.1875	8
KSEM3050HPCCLM	30,500	1.2008	8
KSEM3100HPCCLM	31,000	1.2205	8

KC7410	D1		seat size
	mm	in	
KSEM3175HPCCLM	31,750	1.2500	8
KSEM3200HPCCLM	32,000	1.2598	8
KSEM3300HPCCLM	33,000	1.2992	9
KSEM3400HPCCLM *	34,000	1.3386	9
KSEM3500HPCCLM	35,000	1.3780	9
KSEM3600HPCCLM	36,000	1.4173	9
KSEM3700HPCCLM	37,000	1.4567	10
KSEM3800HPCCLM	38,000	1.4961	10
KSEM3900HPCCLM	39,000	1.5354	10
KSEM3920HPCCLM	39,200	1.5433	10
KSEM4000HPCCLM *	40,000	1.5748	10

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Tolerance HPCCL • Metric

D1	tolerance h8
12,5–18	+0,000/-0,027
>18–30	+0,000/-0,033
>30–40	+0,000/-0,039

Tolerance HPCCL • Inch

D1	tolerance h8
.500–.709	+0,000/-0,010
>.709–1.181	+0,000/-0,013
>1.181–1.575	+0,000/-0,015

Application Data

Modular Drill Carbide Insert Blades • KSEM™ • HPCCL Geometry • Grade KC7410™ • Through Coolant • Metric

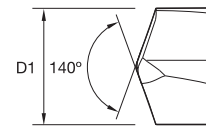
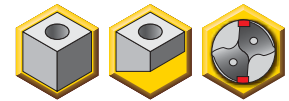
Material Group	Cutting Speed – vc			Metric							
	Range – m/min			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max		12,5	16,0	20,0	25,4	32,0	40,0	
K	1	100	175	200	mm/r	0,17–0,35	0,21–0,42	0,25–0,48	0,31–0,59	0,37–0,70	0,43–0,81
	2	100	160	180	mm/r	0,17–0,33	0,21–0,41	0,25–0,48	0,31–0,59	0,37–0,70	0,43–0,81
	3	70	85	100	mm/r	0,18–0,36	0,20–0,41	0,21–0,44	0,23–0,48	0,25–0,53	0,27–0,57

Modular Drill Carbide Insert Blades • KSEM • HPCCL Geometry • Grade KC7410 • Through Coolant • Inch

Material Group	Cutting Speed – vc			Inch							
	Range – SFM			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max		0.462	0.630	0.787	1.000	1.260	1.575	
K	1	330	570	660	IPR	.007–.014	.008–.017	.010–.019	.012–.023	.015–.028	.017–.032
	2	330	520	590	IPR	.007–.013	.008–.016	.010–.019	.012–.023	.015–.028	.017–.032
	3	230	280	330	IPR	.007–.014	.008–.016	.008–.017	.009–.019	.010–.021	.011–.022



- KSEM KC7320™ HPL cutting edges provide perfect results and very high productivity in stainless steel.
- HPL geometry forms two chips per cutting edge for an uninterrupted, smooth chip flow. Very high metal removal rates and a reliable drilling process up to 10 x D makes HPL the superior solution for drilling in stainless steels.
- Grade KC7320 features a high Al content TiAlN coating on a universal fine-grain carbide. Its excellent oxidation stability and carbide toughness enables a high level of wear resistance in austenitic and other stainless steels.



HPL

Modular Drills

■ KSEM Inserts • HPL KC7320



KC7320	D1		seat size
	mm	in	
KSEM1250HPLM	12,500	.4921	C
KSEM1270HPLM	12,700	.5000	C
KSEM1280HPLM	12,800	.5039	C
KSEM1293HPLM	12,930	.5090	C
KSEM1300HPLM	13,000	.5118	C
KSEM1311HPLM	13,100	.5157	C
KSEM1350HPLM	13,500	.5310	C
KSEM1360HPLM	13,600	.5354	B
KSEM1380HPLM	13,800	.5433	B
KSEM1389HPLM	13,890	.5470	B
KSEM1400HPLM	14,000	.5512	B
KSEM1410HPLM	14,100	.5551	B
KSEM1415HPLM	14,150	.5571	B
KSEM1420HPLM	14,200	.5591	B
KSEM1429HPLM	14,290	.5630	B
KSEM1450HPLM	14,500	.5709	B
KSEM1460HPLM	14,600	.5748	A
KSEM1468HPLM	14,680	.5780	A
KSEM1480HPLM	14,800	.5827	A
KSEM1500HPLM	15,000	.5906	A
KSEM1508HPLM	15,080	.5940	A
KSEM1548HPLM	15,480	.6090	A
KSEM1550HPLM	15,500	.6102	A
KSEM1560HPLM	15,600	.6142	A
KSEM1588HPLM	15,880	.6250	1
KSEM1600HPLM	16,000	.6299	1
KSEM1609HPLM	16,090	.6340	1
KSEM1610HPLM	16,100	.6339	1
KSEM1615HPLM	16,150	.6358	1
KSEM1620HPLM	16,200	.6378	1
KSEM1627HPLM	16,270	.6410	1
KSEM1650HPLM	16,500	.6496	1
KSEM1667HPLM	16,670	.6560	1
KSEM1700HPLM	17,000	.6693	1
KSEM1707HPLM	17,070	.6720	1
KSEM1746HPLM	17,460	.6875	1
KSEM1750HPLM	17,500	.6890	1
KSEM1775HPLM	17,750	.6988	1
KSEM1780HPLM	17,800	.7008	1
KSEM1786HPLM	17,860	.7030	1
KSEM1790HPLM	17,900	.7047	1
KSEM1800HPLM	18,000	.7087	1
KSEM1826HPLM	18,260	.7190	2
KSEM1850HPLM	18,500	.7283	2



KC7320	D1		seat size
	mm	in	
KSEM1860HPLM	18,600	.7323	2
KSEM1865HPLM	18,650	.7340	2
KSEM1890HPLM	18,900	.7441	2
KSEM1900HPLM	19,000	.7480	2
KSEM1905HPLM	19,050	.7500	2
KSEM1920HPLM	19,200	.7559	2
KSEM1923HPLM	19,228	.7570	2
KSEM1925HPLM	19,250	.7579	2
KSEM1927HPLM	19,270	.7590	2
KSEM1935HPLM	19,350	.7618	2
KSEM1936HPLM	19,360	.7622	2
KSEM1938HPLM	19,380	.7630	2
KSEM1945HPLM	19,450	.7660	2
KSEM1950HPLM	19,500	.7677	2
KSEM1984HPLM	19,840	.7810	2
KSEM2000HPLM	20,000	.7874	3
KSEM2010HPLM	20,100	.7913	3
KSEM2024HPLM	20,240	.7970	3
KSEM2035HPLM	20,350	.8012	3
KSEM2050HPLM	20,500	.8071	3
KSEM2064HPLM	20,640	.8125	3
KSEM2100HPLM	21,000	.8268	3
KSEM2115HPLM	21,150	.8327	3
KSEM2133HPLM	21,330	.8398	3
KSEM2143HPLM	21,430	.8440	3
KSEM2150HPLM	21,500	.8460	3
KSEM2183HPLM	21,830	.8590	3
KSEM2200HPLM	22,000	.8661	3
KSEM2223HPLM	22,230	.8750	4
KSEM2244HPLM	22,440	.8840	4
KSEM2250HPLM	22,500	.8858	4
KSEM2277HPLM	22,770	.8965	4
KSEM2300HPLM	23,000	.9055	4
KSEM2342HPLM	23,420	.9220	4
KSEM2350HPLM	23,500	.9252	4
KSEM2381HPLM	23,810	.9375	4
KSEM2400HPLM	24,000	.9449	4
KSEM2450HPLM	24,500	.9646	5
KSEM2461HPLM	24,610	.9690	5
KSEM2500HPLM	25,000	.9843	5
KSEM2507HPLM	25,070	.9870	5
KSEM2540HPLM	25,400	1.0000	5
KSEM2550HPLM	25,500	1.0039	5
KSEM2560HPLM	25,600	1.0080	5

- first choice
- alternate choice

(continued)

(KSEM Inserts • HPL KC7320™ — continued)



KC7320	D1		seat size
	mm	in	
KSEM2565HPLM	25,650	1.0098	5
KSEM2567HPLM	25,670	1.0110	5
KSEM2581HPLM	25,810	1.0161	5
KSEM2600HPLM	26,000	1.0236	5
KSEM2619HPLM	26,190	1.0310	6
KSEM2650HPLM	26,500	1.0433	6
KSEM2659HPLM	26,590	1.0470	6
KSEM2670HPLM	26,700	1.0512	6
KSEM2700HPLM	27,000	1.0630	6
KSEM2750HPLM	27,500	1.0827	6
KSEM2779HPLM	27,780	1.0940	6
KSEM2800HPLM	28,000	1.1024	6
KSEM2810HPLM	28,100	1.1063	7
KSEM2817HPLM	28,180	1.1090	7
KSEM2850HPLM	28,500	1.1220	7
KSEM2858HPLM	28,580	1.1250	7
KSEM2900HPLM	29,000	1.1417	7
KSEM2937HPLM	29,370	1.1563	7
KSEM2950HPLM	29,500	1.1614	7
KSEM2977HPLM	29,770	1.1720	7



● first choice
○ alternate choice

KC7320	D1		seat size
	mm	in	
KSEM3000HPLM	30,000	1.1811	7
KSEM3016HPLM	30,160	1.1875	8
KSEM3050HPLM	30,500	1.2008	8
KSEM3100HPLM	31,000	1.2205	8
KSEM3150HPLM	31,500	1.2402	8
KSEM3175HPLM	31,750	1.2500	8
KSEM3200HPLM	32,000	1.2598	8
KSEM3254HPLM	32,540	1.2810	9
KSEM3300HPLM	33,000	1.2992	9
KSEM3335HPLM	33,400	1.3130	9
KSEM3400HPLM	34,000	1.3386	9
KSEM3493HPLM	34,930	1.3750	9
KSEM3500HPLM	35,000	1.3780	9
KSEM3571HPLM	35,720	1.4060	9
KSEM3600HPLM	36,000	1.4173	9
KSEM3700HPLM	37,000	1.4567	10
KSEM3750HPLM	37,500	1.4764	10
KSEM3800HPLM	38,000	1.4961	10
KSEM3810HPLM	38,100	1.5000	10
KSEM3846HPLM	38,460	1.5140	10
KSEM3900HPLM	39,000	1.5354	10
KSEM4000HPLM	40,000	1.5748	10

Tolerance HPL • Metric

D1 metric	tolerance h8
12,5–18	+0,000/-0,027
>18–30	+0,000/-0,033
>30–40	+0,000/-0,039

Tolerance HPL • Inch

D1 inch	tolerance h8
.500–.709	+0,000/-0,010
>.709–1.181	+0,000/-0,013
>1.181–1.575	+0,000/-0,015

Application Data

■ **Modular Drill Carbide Insert Blades • KSEM • HPL Geometry • Grade KC7320 • Through Coolant • Metric**

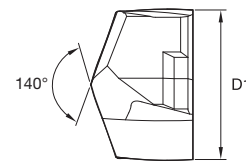
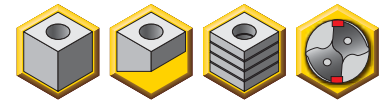
Material Group	Cutting Speed – vc			Metric							
	Range – m/min			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max	12,5	16,0	20,0	25,4	32,0	40,0		
M	1	30	60	90	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
	2	30	50	90	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
	3	20	40	60	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31

■ **Modular Drill Carbide Insert Blades • KSEM • HPL Geometry • Grade KC7320 • Through Coolant • Inch**

Material Group	Cutting Speed – vc			Inch							
	Range – SFM			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max	0.462	0.630	0.787	1.000	1.260	1.575		
M	1	100	200	300	IPR	.004–.006	.004–.007	.005–.008	.006–.010	.007–.011	.008–.012
	2	100	160	300	IPR	.004–.006	.004–.007	.005–.008	.006–.010	.007–.011	.008–.012
	3	70	130	200	IPR	.004–.006	.004–.007	.005–.008	.006–.010	.007–.011	.008–.012



- KSEM SPL geometry was made to offer extraordinary drilling performance in stainless steels, super alloys, and other demanding environments.
- KSEM SPL provides process reliability, ensuring longer tool life and productivity in difficult-to-machine materials. Its advanced-point geometry and web design greatly reduces cutting forces.
- KCMS35™ is based on a very tough, fine-grain carbide substrate with a high Al content TiAlN PVD coating. It offers a high level of wear resistance and oxidation stability in parallel with chipping resistance for center point and cutting edges.
- This insert style is ideally suited to drill heavy-duty and corrosion-resistant tube end sheets and other heat exchanger components (especially from M3 and type S materials).
- Use KSEM KCMS35 SPL inserts as an effective alternative for plain and alloyed steels, as well as in the most important Al and Cu applications.



SPL

Modular Drills

■ KSEM Inserts • SPL KCMS35



KCMS35	D1		seat size
	mm	in	
KSEM1250SPLM	12,500	.4921	C
KSEM1270SPLM	12,700	.5000	C
KSEM1300SPLM	13,000	.5118	C
KSEM1350SPLM	13,500	.5315	C
KSEM1400SPLM	14,000	.5512	B
KSEM1429SPLM	14,290	.5626	B
KSEM1450SPLM	14,500	.5709	B
KSEM1500SPLM	15,000	.5906	A
KSEM1550SPLM	15,500	.6102	A
KSEM1588SPLM	15,880	.6252	1
KSEM1600SPLM	16,000	.6299	1
KSEM1609SPLM	16,090	.6335	1
KSEM1615SPLM	16,150	.6358	1
KSEM1627SPLM	16,270	.6406	1
KSEM1650SPLM	16,500	.6496	1
KSEM1667SPLM	16,670	.6563	1
KSEM1700SPLM	17,000	.6693	1
KSEM1746SPLM	17,460	.6874	1
KSEM1750SPLM	17,500	.6890	1
KSEM1800SPLM	18,000	.7087	1
KSEM1830SPLM	18,300	.7205	2
KSEM1850SPLM	18,500	.7283	2
KSEM1900SPLM	19,000	.7480	2
KSEM1905SPLM	19,050	.7500	2
KSEM1920SPLM	19,200	.7559	2
KSEM1923SPLM	19,230	.7571	2
KSEM1925SPLM	19,250	.7579	2
KSEM1927SPLM	19,270	.7587	2
KSEM1935SPLM	19,350	.7618	2
KSEM1945SPLM	19,450	.7657	2
KSEM1950SPLM	19,500	.7677	2
KSEM1984SPLM	19,840	.7811	2



KCMS35	D1		seat size
	mm	in	
KSEM2000SPLM	20,000	.7874	3
KSEM2024SPLM	20,240	.7969	3
KSEM2050SPLM	20,500	.8071	3
KSEM2064SPLM	20,640	.8126	3
KSEM2100SPLM	21,000	.8268	3
KSEM2150SPLM	21,500	.8465	3
KSEM2200SPLM	22,000	.8661	3
KSEM2223SPLM	22,230	.8752	4
KSEM2250SPLM	22,500	.8858	4
KSEM2300SPLM	23,000	.9055	4
KSEM2350SPLM	23,500	.9252	4
KSEM2381SPLM	23,810	.9374	4
KSEM2400SPLM	24,000	.9449	4
KSEM2450SPLM	24,500	.9646	5
KSEM2500SPLM	25,000	.9843	5
KSEM2525SPLM	25,250	.9941	5
KSEM2530SPLM	25,300	.9961	5
KSEM2540SPLM	25,400	1.0000	5
KSEM2550SPLM	25,500	1.0039	5
KSEM2560SPLM	25,600	1.0079	5
KSEM2565SPLM	25,650	1.0098	5
KSEM2567SPLM	25,670	1.0106	5
KSEM2581SPLM	25,810	1.0161	5
KSEM2600SPLM	26,000	1.0236	5
KSEM2619SPLM	26,190	1.0311	6
KSEM2630SPLM	26,300	1.0354	6
KSEM2650SPLM	26,500	1.0433	6
KSEM2659SPLM	26,590	1.0469	6
KSEM2700SPLM	27,000	1.0630	6
KSEM2750SPLM	27,500	1.0827	6
KSEM2800SPLM	28,000	1.1024	6
KSEM2850SPLM	28,500	1.1220	7

- first choice
- alternate choice

(continued)

(KSEM Inserts • SPL KCMS35™ — continued)



KCMS35	D1		seat size
	mm	in	
KSEM2858SPLM	28,580	1.1252	7
KSEM2900SPLM	29,000	1.1417	7
KSEM2950SPLM	29,500	1.1614	7
KSEM3000SPLM	30,000	1.1811	7
KSEM3050SPLM	30,500	1.2008	8
KSEM3100SPLM	31,000	1.2205	8
KSEM3150SPLM	31,500	1.2402	8
KSEM3175SPLM	31,750	1.2500	8
KSEM3200SPLM	32,000	1.2598	8
KSEM3250SPLM	32,500	1.2795	9
KSEM3350SPLM	33,500	1.3189	9
KSEM3400SPLM	34,000	1.3386	9



● first choice
○ alternate choice

KCMS35	D1		seat size
	mm	in	
KSEM3450SPLM	34,500	1.3583	9
KSEM3500SPLM	35,000	1.3780	9
KSEM3550SPLM	35,500	1.3976	9
KSEM3600SPLM	36,000	1.4173	9
KSEM3650SPLM	36,500	1.4370	10
KSEM3700SPLM	37,000	1.4567	10
KSEM3750SPLM	37,500	1.4764	10
KSEM3800SPLM	38,000	1.4961	10
KSEM3846SPLM	38,460	1.5142	10
KSEM3850SPLM	38,500	1.5157	10
KSEM3900SPLM	39,000	1.5354	10
KSEM3950SPLM	39,500	1.5551	10
KSEM4000SPLM	40,000	1.5748	10

Tolerance SPL • Metric

D1 metric	tolerance h8
12,5–18	+0,000/-0,027
>18–30	+0,000/-0,033
>30–40	+0,000/-0,039

Tolerance SPL • Inch

D1 inch	tolerance h8
.500–.709	+.000/-.0010
>.709–1.181	+.000/-.0013
>1.181–1.575	+.000/-.0015



■ Modular Drill Carbide Insert Blades • KSEM™ • SPL Geometry • Grade KCMS35™ • Through Coolant • Metric

Modular Drills

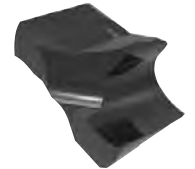
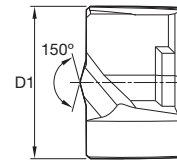
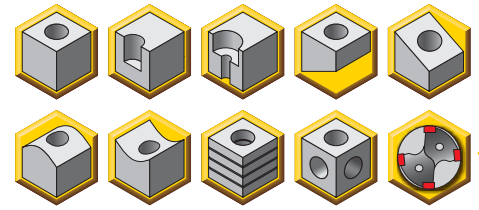
Material Group	Cutting Speed – vc			Metric							
	Range – m/min			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max		12,5	16,0	20,0	25,4	32,0	40,0	
P	1	110	140	170	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
	2	100	120	140	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
	3	80	100	120	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
M	1	40	60	80	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
	2	35	55	70	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
	3	20	40	60	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
N	1	90	155	220	mm/r	0,19–0,40	0,25–0,50	0,28–0,56	0,32–0,63	0,32–0,70	0,32–0,70
	2	90	155	220	mm/r	0,19–0,40	0,25–0,50	0,28–0,56	0,32–0,63	0,32–0,70	0,32–0,70
	3	80	120	160	mm/r	0,19–0,40	0,25–0,50	0,28–0,56	0,32–0,63	0,32–0,70	0,32–0,70
	4	90	155	220	mm/r	0,19–0,40	0,25–0,50	0,28–0,56	0,32–0,63	0,32–0,70	0,32–0,70
S	1	20	40	60	mm/r	0,05–0,10	0,07–0,12	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25
	2	15	30	45	mm/r	0,05–0,10	0,07–0,12	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25
	3	15	30	45	mm/r	0,05–0,10	0,07–0,12	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25
	4	10	25	40	mm/r	0,05–0,10	0,07–0,12	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31

■ Modular Drill Carbide Insert Blades • KSEM • SPL Geometry • Grade KCMS35 • Through Coolant • Inch

Material Group	Cutting Speed – vc			Inch							
	Range – SFM			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max		0.462	0.630	0.787	1.000	1.260	1.575	
P	1	360	460	560	IPR	.006–.012	.007–.014	.007–.016	.010–.021	.011–.024	.013–.027
	2	330	390	460	IPR	.006–.012	.007–.014	.007–.016	.010–.021	.011–.024	.013–.027
	3	260	330	390	IPR	.006–.012	.007–.014	.007–.016	.010–.021	.011–.024	.013–.027
M	1	130	200	260	IPR	.004–.006	.004–.007	.005–.008	.006–.010	.007–.011	.008–.012
	2	110	180	230	IPR	.004–.006	.004–.007	.005–.008	.006–.010	.007–.011	.008–.012
	3	70	130	200	IPR	.004–.006	.004–.007	.005–.008	.006–.010	.007–.011	.008–.012
N	1	300	510	720	IPR	.007–.016	.010–.020	.011–.022	.013–.025	.013–.028	.013–.028
	2	300	510	720	IPR	.007–.016	.010–.020	.011–.022	.013–.025	.013–.028	.013–.028
	3	260	390	520	IPR	.007–.016	.010–.020	.011–.022	.013–.025	.013–.028	.013–.028
	4	300	510	720	IPR	.007–.016	.010–.020	.011–.022	.013–.025	.013–.028	.013–.028
S	1	70	130	200	IPR	.002–.004	.003–.005	.004–.006	.004–.007	.005–.008	.006–.010
	2	50	100	150	IPR	.002–.004	.003–.005	.004–.006	.004–.007	.005–.008	.006–.010
	3	50	100	150	IPR	.002–.004	.003–.005	.004–.006	.004–.007	.005–.008	.006–.010
	4	30	80	130	IPR	.002–.004	.003–.005	.004–.006	.004–.007	.005–.008	.006–.010

Application recommendation: We recommend pre-centering when drilling with SPL inserts >5 x D.
For deeper holes (> = 10 x D), and for drilling M1 and M2 materials in general, we recommend using KSEM HPL inserts as a first choice.

- KSEM FEG flat-bottom inserts create 180° flat holes — only a small cavity remains in the center of the hole ground. KSEM offers an extraordinarily strong pocket seat for your demanding flat-bottom applications.
- Whether it is a blind hole, a through hole, or if you need to countersink, these inserts are focused on versatility and will support you in many essential drilling applications.
- KSEM FEG inserts feature a small centering point as well as double margin lands for improved guidance and hole straightness. A corner chamfer serves to reduce bur formation and to improve tool life.
- KCPM45™ combines a very tough, fine-grain carbide substrate with an advanced multilayer TiAlN coating. It is capable of machining steel even in the most demanding conditions.
- Use KSEM FEG KCPM45 cutting edges as an effective alternative in cast iron, stainless steel, and high-temp alloys.



FEG

Modular Drills

■ KSEM Inserts • FEG KCPM45



KCPM45	D1		seat size
	mm	in	
KSEM1600FEGM	16,000	.6299	1
KSEM1650FEGM	16,500	.6496	1
KSEM1700FEGM	17,000	.6693	1
KSEM1750FEGM	17,500	.6890	1
KSEM1800FEGM	18,000	.7087	1
KSEM1850FEGM	18,500	.7283	2
KSEM1900FEGM	19,000	.7480	2
KSEM1905FEGM	19,050	.7500	2
KSEM1950FEGM	19,500	.7677	2
KSEM1984FEGM	19,840	.7811	2
KSEM2000FEGM	20,000	.7874	3
KSEM2050FEGM	20,500	.8071	3
KSEM2100FEGM	21,000	.8268	3
KSEM2150FEGM	21,500	.8465	3
KSEM2200FEGM	22,000	.8661	3
KSEM2250FEGM	22,500	.8858	4
KSEM2300FEGM	23,000	.9055	4
KSEM2350FEGM	23,500	.9252	4
KSEM2400FEGM	24,000	.9449	4
KSEM2450FEGM	24,500	.9646	5
KSEM2500FEGM	25,000	.9843	5
KSEM2540FEGM	25,400	1.0000	5
KSEM2550FEGM	25,500	1.0039	5
KSEM2580FEGM	25,800	1.0157	5



- first choice
- alternate choice

KCPM45	D1		seat size
	mm	in	
KSEM2581FEGM	25,810	1.0161	5
KSEM2600FEGM	26,000	1.0236	5
KSEM2619FEGM	26,190	1.0311	6
KSEM2650FEGM	26,500	1.0433	6
KSEM2670FEGM	26,700	1.0512	6
KSEM2700FEGM	27,000	1.0630	6
KSEM2750FEGM	27,500	1.0827	6
KSEM2800FEGM	28,000	1.1024	6
KSEM2850FEGM	28,500	1.1220	7
KSEM2900FEGM	29,000	1.1417	7
KSEM2950FEGM	29,500	1.1614	7
KSEM3000FEGM	30,000	1.1811	7
KSEM3050FEGM	30,500	1.2008	8
KSEM3100FEGM	31,000	1.2205	8
KSEM3150FEGM	31,500	1.2402	8
KSEM3175FEGM	31,750	1.2500	8
KSEM3200FEGM	32,000	1.2598	8
KSEM3250FEGM	32,500	1.2795	9
KSEM3300FEGM	33,000	1.2992	9
KSEM3350FEGM	33,500	1.3189	9
KSEM3400FEGM	34,000	1.3386	9
KSEM3450FEGM	34,500	1.3583	9
KSEM3500FEGM	35,000	1.3780	9
KSEM3550FEGM	35,500	1.3976	9

(continued)

(KSEM Inserts • FEG KCPM45™ — continued)



● first choice
○ alternate choice

Modular Drills

KCPM45	D1		seat size
	mm	in	
KSEM3600FEGM	36,000	1.4173	9
KSEM3650FEGM	36,500	1.4370	10
KSEM3700FEGM	37,000	1.4567	10
KSEM3750FEGM	37,500	1.4764	10
KSEM3800FEGM	38,000	1.4961	10
KSEM3810FEGM	38,100	1.5000	10
KSEM3850FEGM	38,500	1.5157	10
KSEM3900FEGM	39,000	1.5354	10
KSEM3950FEGM	39,500	1.5551	10
KSEM4000FEGM	40,000	1.5748	10

Tolerance FEG • Metric

D1 metric	tolerance k7
12,5–18	+0,001/+ 0,019
>18–30	+0,002/+ 0,023
>30–40	+0,002/+ 0,027

Tolerance FEG • Inch

D1 inch	tolerance k7
.500–.709	+.0000/+.0008
>.709–1.181	+.0000/+.0009
>1.181–1.575	+.0000/+.0010

■ Modular Drill Carbide Insert Blades • KSEM™ • FEG Geometry • Grade KCPM45™ • Through Coolant • Metric

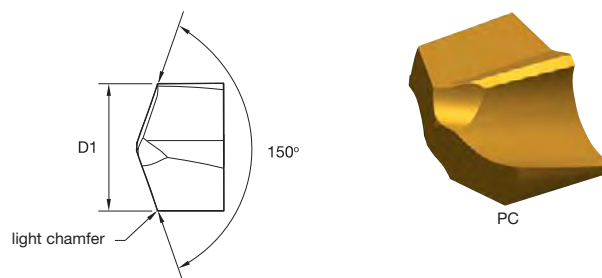
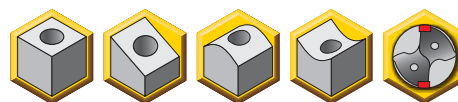
Material Group	Cutting Speed – vc			Metric							
	Range – m/min			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max		12,5	16,0	20,0	25,4	32,0	40,0	
P	1	110	140	170	mm/r	0,14–0,23	0,17–0,25	0,19–0,29	0,23–0,38	0,26–0,43	0,33–0,76
	2	100	120	140	mm/r	0,17–0,23	0,19–0,25	0,22–0,29	0,29–0,38	0,32–0,43	0,33–0,76
	3	80	100	120	mm/r	0,14–0,20	0,15–0,23	0,17–0,25	0,23–0,34	0,26–0,38	0,33–0,66
	4	70	90	110	mm/r	0,11–0,20	0,13–0,23	0,14–0,25	0,18–0,34	0,21–0,38	0,26–0,66
M	1	40	60	80	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
	2	35	55	70	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
	3	20	40	60	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
K	1	90	135	175	mm/r	0,17–0,23	0,19–0,25	0,22–0,29	0,29–0,38	0,32–0,43	0,33–0,76
	2	80	120	140	mm/r	0,17–0,23	0,19–0,25	0,22–0,29	0,29–0,38	0,32–0,43	0,33–0,76
	3	70	110	125	mm/r	0,15–0,24	0,18–0,26	0,21–0,29	0,23–0,37	0,25–0,42	0,27–0,57
S	1	20	40	60	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
	3	15	30	45	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31

■ Modular Drill Carbide Insert Blades • KSEM • FEG Geometry • Grade KCPM45 • Through Coolant • Inch

Material Group	Cutting Speed – vc			Inch							
	Range – SFM			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max		0.462	0.630	0.787	1.000	1.260	1.575	
P	1	360	460	560	IPR	.006–.009	.007–.010	.007–.011	.009–.015	.010–.017	.013–.030
	2	330	390	460	IPR	.007–.009	.007–.010	.009–.011	.011–.015	.013–.017	.013–.030
	3	260	330	390	IPR	.006–.008	.006–.009	.007–.010	.009–.013	.010–.015	.013–.026
	4	230	300	360	IPR	.004–.008	.005–.009	.006–.010	.007–.013	.008–.015	.010–.026
M	1	130	200	260	IPR	.004–.006	.004–.007	.005–.008	.006–.010	.007–.011	.008–.012
	2	110	180	230	IPR	.004–.006	.004–.007	.005–.008	.006–.010	.007–.011	.008–.012
	3	70	130	200	IPR	.004–.006	.004–.007	.005–.008	.006–.010	.007–.011	.008–.012
K	1	300	440	570	IPR	.007–.009	.007–.010	.009–.011	.011–.015	.013–.017	.013–.030
	2	260	390	460	IPR	.007–.009	.007–.010	.009–.011	.011–.015	.013–.017	.013–.030
	3	230	360	410	IPR	.006–.009	.007–.010	.008–.011	.009–.015	.010–.017	.011–.022
S	1	70	130	200	IPR	.004–.006	.004–.007	.005–.008	.006–.010	.007–.011	.008–.012
	3	50	100	150	IPR	.004–.006	.004–.007	.005–.008	.006–.010	.007–.011	.008–.012



- KSEM PC cutting edges serve mainly as precentering inserts, but can also be used in demanding conditions.
- Steep 150° degree angle with a light corner chamfer. Very good centering capability and edge chipping resistance.
- KC7135™ is a very resistant grade featuring a TiCN-TiN PVD coating.



Modular Drills

■ KSEM Inserts • PC KC7135



KC7135	D1		seat size
	mm	in	
KSEM1250PCM	12,500	.4921	C
KSEM1280PCM	12,800	.5039	C
KSEM1300PCM	13,000	.5118	C
KSEM1350PCM	13,500	.5310	C
KSEM1380PCM	13,800	.5433	B
KSEM1400PCM	14,000	.5512	B
KSEM1410PCM	14,100	.5551	B
KSEM1450PCM	14,500	.5709	B
KSEM1460PCM	14,600	.5748	A
KSEM1480PCM	14,800	.5827	A
KSEM1500PCM	15,000	.5906	A
KSEM1550PCM	15,500	.6102	A
KSEM1560PCM	15,600	.6142	A
KSEM1580PCM	15,800	.6220	A
KSEM1600PCM	16,000	.6299	1
KSEM1620PCM	16,200	.6378	1
KSEM1650PCM	16,500	.6496	1
KSEM1700PCM	17,000	.6693	1
KSEM1750PCM	17,500	.6890	1
KSEM1800PCM	18,000	.7087	1
KSEM1850PCM	18,500	.7283	2
KSEM1900PCM	19,000	.7480	2
KSEM1950PCM	19,500	.7677	2
KSEM2000PCM	20,000	.7874	3
KSEM2050PCM	20,500	.8071	3
KSEM2100PCM	21,000	.8268	3
KSEM2150PCM	21,500	.8460	3
KSEM2200PCM	22,000	.8661	3



● first choice
○ alternate choice

KC7135	D1		seat size
	mm	in	
KSEM2250PCM	22,500	.8858	4
KSEM2300PCM	23,000	.9055	4
KSEM2350PCM	23,500	.9252	4
KSEM2400PCM	24,000	.9449	4
KSEM2450PCM	24,500	.9646	5
KSEM2500PCM	25,000	.9843	5
KSEM2550PCM	25,500	1.0039	5
KSEM2600PCM	26,000	1.0236	5
KSEM2650PCM	26,500	1.0433	6
KSEM2700PCM	27,000	1.0630	6
KSEM2800PCM	28,000	1.1024	6
KSEM2850PCM	28,500	1.1220	7
KSEM2900PCM	29,000	1.1417	7
KSEM2950PCM	29,500	1.1614	7
KSEM3000PCM	30,000	1.1811	7
KSEM3050PCM	30,500	1.2008	8
KSEM3100PCM	31,000	1.2205	8
KSEM3200PCM	32,000	1.2598	8
KSEM3300PCM	33,000	1.2992	9
KSEM3400PCM	34,000	1.3386	9
KSEM3500PCM	35,000	1.3780	9
KSEM3600PCM	36,000	1.4173	9
KSEM3700PCM	37,000	1.4567	10
KSEM3800PCM	38,000	1.4961	10
KSEM3900PCM	39,000	1.5354	10
KSEM4000PCM	40,000	1.5748	10

Tolerance PC • Metric

D1 metric	tolerance k7
12,5-18	+0,001/+0,019
>18-30	+0,002/+0,023
>30-40	+0,002/+0,027

Tolerance PC • Inch

D1 inch	tolerance k7
.500-.709	+0.0000/+0.0008
>.709-1.181	+0.0000/+0.0009
>1.181-1.575	+0.0000/+0.0010

■ Modular Drill Carbide Insert Blades • KSEM™ • PC Geometry • Grade KC7135™ • Through Coolant • Metric

Material Group	Cutting Speed – vc			Metric						
	Range – m/min			Recommended Feed Rate (f) by Diameter						
	min	Starting Value	max		12,5	16,0	20,0	25,4	32,0	
P	1	90	100	110	mm/r	0,14–0,23	0,17–0,25	0,19–0,29	0,23–0,38	0,26–0,43
	2	80	90	100	mm/r	0,17–0,23	0,19–0,25	0,22–0,29	0,29–0,38	0,32–0,43
	3	55	65	75	mm/r	0,14–0,20	0,15–0,23	0,17–0,25	0,23–0,34	0,26–0,38
	4	50	60	70	mm/r	0,11–0,20	0,13–0,23	0,14–0,25	0,18–0,34	0,21–0,38
	5	45	50	60	mm/r	0,08–0,11	0,10–0,13	0,11–0,14	0,14–0,18	0,15–0,20
	6	45	55	65	mm/r	0,11–0,17	0,13–0,18	0,14–0,20	0,18–0,28	0,21–0,31
K	1	60	60	90	mm/r	0,08–0,24	0,09–0,28	0,11–0,31	0,14–0,43	0,15–0,48
	2	60	60	75	mm/r	0,18–0,24	0,21–0,28	0,23–0,31	0,28–0,37	0,32–0,42
	3	40	40	75	mm/r	0,15–0,24	0,18–0,26	0,21–0,29	0,23–0,37	0,25–0,42

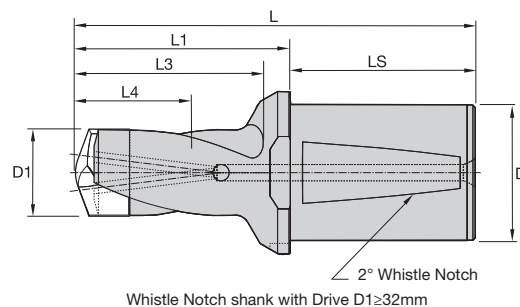
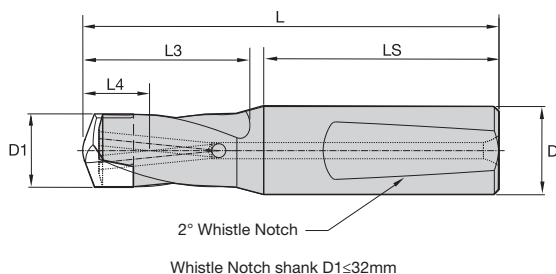
■ Modular Drill Carbide Insert Blades • KSEM • PC Geometry • Grade KC7135 • Through Coolant • Inch

Material Group	Cutting Speed – vc			Inch						
	Range – SFM			Recommended Feed Rate (f) by Diameter						
	min	Starting Value	max		0.462	0.630	0.787	1.000	1.260	
P	1	300	330	360	IPR	.006–.009	.007–.010	.007–.011	.009–.015	.010–.017
	2	260	300	330	IPR	.007–.009	.007–.010	.009–.011	.011–.015	.013–.017
	3	180	210	250	IPR	.006–.008	.006–.009	.007–.010	.009–.013	.010–.015
	4	150	160	200	IPR	.004–.008	.005–.009	.006–.010	.007–.013	.008–.015
	5	150	180	210	IPR	.003–.004	.004–.005	.004–.006	.006–.007	.006–.008
	6	150	180	210	IPR	.004–.007	.005–.007	.006–.008	.007–.011	.008–.012
K	1	200	200	300	IPR	.003–.009	.004–.011	.004–.012	.006–.017	.006–.019
	2	200	200	250	IPR	.007–.009	.008–.011	.009–.012	.011–.015	.013–.017
	3	130	130	250	IPR	.006–.009	.007–.010	.008–.011	.009–.015	.010–.017

- Use designated insert blade with each drill body.
- For alternatives, see insert blade fitment chart on page H91–H92.
- Drill shipped with central lock screw, wrench, and side pipe plug.
- Order insert blade separately; see pages H52–H71.



Modular Drills

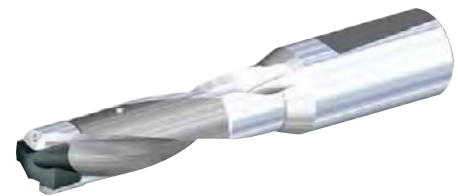
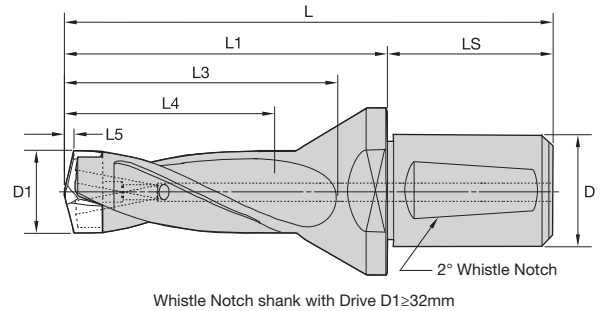
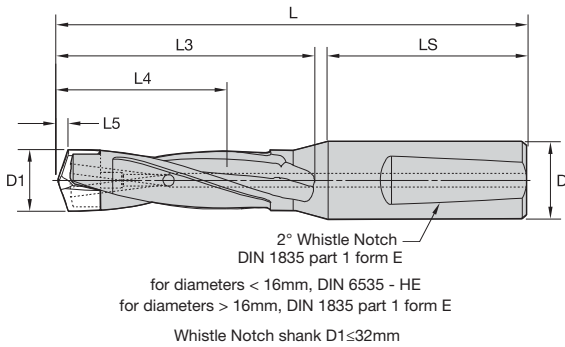
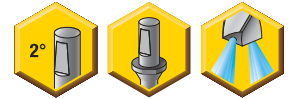


■ KSEM WN/WD50 Shank • 1 x D • Metric

1 x D	D1		D1 max		L	L1	L4 max	L5	LS	D	seat size	central lock screw	wrench
	mm	in	mm	in									
KSEM125R1WN16M	12,500	.4921	13,500	.5314	78	—	14	2,0	48	16	C	364.017	170.294
KSEM136R1WN16M	13,510	.5319	14,500	.5708	81	—	15	2,2	48	16	B	364.016	170.289
KSEM146R1WN20M	14,510	.5713	15,874	.6249	85	—	16	2,3	50	20	A	364.016	170.289
KSEM160R1WN20M	16,000	.6299	18,000	.7086	88	—	18	2,5	50	20	1	364.010	170.270
KSEM181R1WN25M	18,010	.7091	19,999	.7873	99	—	20	2,9	56	25	2	364.010	170.270
KSEM200R1WN25M	20,000	.7874	22,000	.8661	102	—	22	3,2	56	25	3	364.011	170.272
KSEM221R1WN25M	22,010	.8665	24,000	.9448	107	—	24	3,5	56	25	4	364.011	170.272
KSEM241R1WN32M	24,010	.9453	26,000	1.0236	115	—	26	3,8	60	32	5	364.012	170.274
KSEM261R1WN32M	26,010	1.0240	28,000	1.1023	119	—	28	4,0	60	32	6	364.012	170.274
KSEM281R1WN32M	28,016	1.1030	30,000	1.1811	123	—	30	4,3	60	32	7	364.013	170.276
KSEM301R1WN32M	30,010	1.1815	32,000	1.2598	127	—	32	4,6	60	32	8	364.013	170.276
KSEM321R1WD50M	32,010	1.2602	36,000	1.4173	147	79	36	4,9	68	50	9	364.015	170.276
KSEM361R1WD50M	36,010	1.4177	40,000	1.5748	155	87	40	5,5	68	50	10	364.015	170.276



- Use designated insert blade with each drill body.
- For alternatives, see insert blade fitment chart on page H91–H92.
- Drill shipped with central lock screw, wrench, and side pipe plug.
- Order insert blade separately; see pages H52–H71.



■ KSEM WN/WD50 Shank • 3 x D/5 x D • Metric

3 x D	5 x D	D1		D1 max		L5	LS	D	seat size	central lock screw
		mm	in	mm	in					
KSEM125R3WN16M	KSEM125R5WN16M	12,500	.4921	13,000	.5118	2,0	48	16	C	364.017
KSEM130R3WN16M	KSEM130R5WN16M	13,000	.5118	13,500	.5314	2,1	48	16	C	364.017
KSEM135R3WN16M	KSEM135R5WN16M	13,500	.5315	13,500	.5314	2,1	48	16	C	364.017
KSEM136R3WN16M	KSEM136R5WN16M	13,510	.5319	14,000	.5512	2,2	48	16	B	364.016
KSEM140R3WN16M	KSEM140R5WN16M	14,000	.5512	14,500	.5708	2,2	48	16	B	364.016
KSEM145R3WN20M	KSEM145R5WN20M	14,500	.5709	14,500	.5708	2,3	50	20	B	364.016
KSEM146R3WN20M	KSEM146R5WN20M	14,510	.5713	15,000	.5906	2,3	50	20	A	364.016
KSEM150R3WN20M	KSEM150R5WN20M	15,000	.5906	15,500	.6102	2,4	50	20	A	364.016
KSEM155R3WN20M	KSEM155R5WN20M	15,500	.6102	15,874	.6249	2,5	50	20	A	364.016
KSEM160R3WN20M	KSEM160R5WN20M	16,000	.6299	16,500	.6496	2,5	50	20	1	364.010
KSEM165R3WN20M	KSEM165R5WN20M	16,500	.6496	17,000	.6693	2,6	50	20	1	364.010
KSEM170R3WN20M	KSEM170R5WN20M	17,000	.6693	17,500	.6890	2,7	50	20	1	364.010
KSEM175R3WN20M	KSEM175R5WN20M	17,500	.6890	18,000	.7086	2,8	50	20	1	364.010
KSEM180R3WN20M	KSEM180R5WN20M	18,000	.7087	18,000	.7086	2,9	50	20	1	364.010
—	KSEM181R5WN25M	18,010	.7091	18,500	.7283	2,9	56	25	2	364.010
KSEM185R3WN25M	KSEM185R5WN25M	18,500	.7283	19,000	.7480	2,9	56	25	2	364.010
KSEM190R3WN25M	KSEM190R5WN25M	19,000	.7480	19,500	.7677	3,0	56	25	2	364.010
KSEM195R3WN25M	KSEM195R5WN25M	19,500	.7677	19,999	.7873	3,1	56	25	2	364.010
KSEM200R3WN25M	KSEM200R5WN25M	20,000	.7874	20,500	.8071	3,2	56	25	3	364.011
KSEM205R3WN25M	KSEM205R5WN25M	20,500	.8071	21,000	.8268	3,3	56	25	3	364.011
KSEM210R3WN25M	KSEM210R5WN25M	21,000	.8268	21,500	.8465	3,3	56	25	3	364.011
KSEM215R3WN25M	KSEM215R5WN25M	21,500	.8465	22,000	.8661	3,4	56	25	3	364.011
KSEM220R3WN25M	KSEM220R5WN25M	22,000	.8661	22,000	.8661	3,5	56	25	3	364.011
—	KSEM221R5WN25M	22,010	.8665	22,500	.8858	3,5	56	25	4	364.011

(continued)




Modular Drills

KSEM™ 2° Whistle Notch Shank Bodies






(KSEM WN/WD50 Shank • 3 x D/5 x D • Metric — continued)

Modular Drills

			D1		D1 max		L5	LS	D		seat size	central lock screw
	3 x D	5 x D	mm	in	mm	in						
KSEM225R3WN25M	KSEM225R5WN25M	22,500	.8858	23,000	.9055	3,6	56	25	4	364.011		
KSEM230R3WN25M	KSEM230R5WN25M	23,000	.9055	23,500	.9252	3,7	56	25	4	364.011		
KSEM235R3WN25M	KSEM235R5WN25M	23,500	.9252	24,000	.9448	3,7	56	25	4	364.011		
KSEM240R3WN25M	KSEM240R5WN25M	24,000	.9449	24,000	.9448	3,8	56	25	4	364.011		
—	KSEM241R5WN32M	24,010	.9453	24,500	.9646	3,8	60	32	5	364.012		
KSEM245R3WN32M	KSEM245R5WN32M	24,500	.9646	25,000	.9843	3,9	60	32	5	364.012		
KSEM250R3WN32M	KSEM250R5WN32M	25,000	.9843	25,500	1.0039	3,8	60	32	5	364.012		
KSEM255R3WN32M	KSEM255R5WN32M	25,500	1.0039	26,000	1.0236	3,9	60	32	5	364.012		
KSEM260R3WN32M	KSEM260R5WN32M	26,000	1.0236	26,000	1.0236	4,0	60	32	5	364.012		
—	KSEM261R5WN32M	26,010	1.0240	26,500	1.0433	4,0	60	32	6	364.012		
KSEM265R3WN32M	KSEM265R5WN32M	26,500	1.0433	27,000	1.0630	4,1	60	32	6	364.012		
KSEM270R3WN32M	KSEM270R5WN32M	27,000	1.0630	27,500	1.0827	4,2	60	32	6	364.012		
KSEM275R3WN32M	KSEM275R5WN32M	27,500	1.0827	28,000	1.1023	4,2	60	32	6	364.012		
KSEM280R3WN32M	KSEM280R5WN32M	28,000	1.1024	28,000	1.1023	4,3	60	32	6	364.012		
—	KSEM281R5WN32M	28,016	1.1030	28,500	1.1220	4,3	60	32	7	364.013		
KSEM285R3WN32M	KSEM285R5WN32M	28,500	1.1220	29,000	1.1417	4,4	60	32	7	364.013		
KSEM290R3WN32M	KSEM290R5WN32M	29,000	1.1417	29,500	1.1614	4,5	60	32	7	364.013		
KSEM295R3WN32M	KSEM295R5WN32M	29,500	1.1614	30,000	1.1811	4,5	60	32	7	364.013		
KSEM300R3WN32M	KSEM300R5WN32M	30,000	1.1811	30,000	1.1811	4,6	60	32	7	364.013		
—	KSEM301R5WN32M	30,010	1.1815	30,500	1.2008	4,6	60	32	8	364.013		
KSEM305R3WN32M	KSEM305R5WN32M	30,500	1.2008	31,000	1.2205	4,7	60	32	8	364.013		
KSEM310R3WN32M	KSEM310R5WN32M	31,000	1.2205	31,500	1.2402	4,8	60	32	8	364.013		
KSEM315R3WN32M	KSEM315R5WN32M	31,500	1.2402	32,000	1.2598	4,8	60	32	8	364.013		
KSEM320R3WN32M	KSEM320R5WN32M	32,000	1.2598	32,000	1.2598	4,9	60	32	8	364.013		
KSEM321R3WD50M	KSEM321R5WD50M	32,010	1.2602	33,000	1.2992	4,9	68	50	9	364.015		
KSEM330R3WD50M	KSEM330R5WD50M	33,000	1.2992	34,000	1.3386	5,1	68	50	9	364.015		
KSEM340R3WD50M	KSEM340R5WD50M	34,000	1.3386	35,000	1.3780	5,2	68	50	9	364.015		
KSEM350R3WD50M	KSEM350R5WD50M	35,000	1.3780	36,000	1.4173	5,4	68	50	9	364.015		
KSEM360R3WD50M	KSEM360R5WD50M	36,000	1.4173	36,000	1.4173	5,5	68	50	9	364.015		
KSEM361R3WD50M	KSEM361R5WD50M	36,010	1.4177	37,000	1.4567	5,5	68	50	10	364.015		
KSEM370R3WD50M	KSEM370R5WD50M	37,000	1.4567	38,000	1.4961	5,7	68	50	10	364.015		
KSEM380R3WD50M	KSEM380R5WD50M	38,000	1.4961	39,000	1.5354	5,8	68	50	10	364.015		
KSEM390R3WD50M	KSEM390R5WD50M	39,000	1.5354	40,000	1.5748	6,0	68	50	10	364.015		
KSEM400R3WD50M	KSEM400R5WD50M	40,000	1.5748	40,000	1.5748	6,2	68	50	10	364.015		

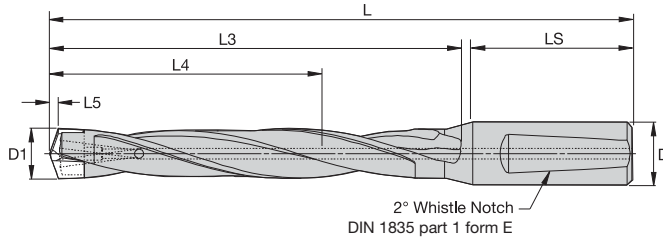


■ KSEM WD40 Shank • 3 x D/5 x D • Metric

			D1		L5	LS	D		seat size	central lock screw
	3 x D	5 x D	mm	in						
KSEM321R3WD40M	KSEM321R5WD40M	32,010	1.2602	5,6	68	40	9	364.015		
KSEM330R3WD40M	KSEM330R5WD40M	33,000	1.2992	5,8	68	40	9	364.015		
KSEM340R3WD40M	KSEM340R5WD40M	34,000	1.3386	6,0	68	40	9	364.015		
KSEM350R3WD40M	KSEM350R5WD40M	35,000	1.3780	6,1	68	40	9	364.015		
KSEM360R3WD40M	KSEM360R5WD40M	36,000	1.4173	6,3	68	40	9	364.015		
KSEM361R3WD40M	KSEM361R5WD40M	36,010	1.4177	6,3	68	40	10	364.015		
KSEM370R3WD40M	KSEM370R5WD40M	37,000	1.4567	6,5	68	40	10	364.015		
KSEM380R3WD40M	KSEM380R5WD40M	38,000	1.4961	6,7	68	40	10	364.015		
KSEM390R3WD40M	KSEM390R5WD40M	39,000	1.5354	6,9	68	40	10	364.015		
KSEM400R3WD40M	KSEM400R5WD40M	40,000	1.5748	7,0	68	40	10	364.015		



- Use designated insert blade with each drill body.
- For alternatives, see insert blade fitment chart on page H91–H92.
- Drill shipped with central lock screw, wrench, and side pipe plug.
- Order insert blade separately; see pages H52–H71.



for diameter <16mm DIN 6535 — HE
for diameter >16mm DIN 1835 part 1 form E
For information on L, L3, and L4 max, see the Modular
Drills Dimension Tables on page H94–H95.



■ KSEM WN Shank • 7 x D/10 x D • Metric

7 x D	10 x D	D1		D1 max		L5	LS	D	seat size	central lock screw
		mm	in	mm	in					
KSEM125R7WN16M	KSEM125R10WN16M	12,500	.4921	13,000	.5118	2,0	48	16	C	364.017
KSEM130R7WN16M	KSEM130R10WN16M	13,000	.5118	13,500	.5314	2,1	48	16	C	364.017
KSEM135R7WN16M	KSEM135R10WN16M	13,500	.5315	13,500	.5314	2,1	48	16	C	364.017
KSEM136R7WN16M	KSEM136R10WN16M	13,510	.5319	14,000	.5512	2,2	48	16	B	364.016
KSEM140R7WN16M	KSEM140R10WN16M	14,000	.5512	14,500	.5708	2,2	48	16	B	364.016
KSEM145R7WN20M	KSEM145R10WN20M	14,500	.5709	14,500	.5708	2,3	50	20	B	364.016
KSEM146R7WN20M	KSEM146R10WN20M	14,510	.5713	15,000	.5906	2,3	50	20	A	364.016
KSEM150R7WN20M	KSEM150R10WN20M	15,000	.5906	15,500	.6102	2,4	50	20	A	364.016
KSEM155R7WN20M	KSEM155R10WN20M	15,500	.6102	15,874	.6249	2,5	50	20	A	364.016
KSEM160R7WN20M	KSEM160R10WN20M	16,000	.6299	16,500	.6496	2,5	50	20	1	364.010
KSEM165R7WN20M	KSEM165R10WN20M	16,500	.6496	17,000	.6693	2,6	50	20	1	364.010
KSEM170R7WN20M	KSEM170R10WN20M	17,000	.6693	17,500	.6890	2,7	50	20	1	364.010
KSEM175R7WN20M	KSEM175R10WN20M	17,500	.6890	18,000	.7086	2,8	50	20	1	364.010
KSEM180R7WN20M	KSEM180R10WN20M	18,000	.7087	18,000	.7086	2,9	50	20	1	364.010
—	KSEM181R10WN25M	18,010	.7091	18,500	.7283	2,9	56	25	2	364.010
KSEM185R7WN25M	KSEM185R10WN25M	18,500	.7283	19,000	.7480	2,9	56	25	2	364.010
KSEM190R7WN25M	KSEM190R10WN25M	19,000	.7480	19,500	.7677	3,0	56	25	2	364.010
KSEM195R7WN25M	KSEM195R10WN25M	19,500	.7677	19,999	.7873	3,1	56	25	2	364.010
KSEM200R7WN25M	KSEM200R10WN25M	20,000	.7874	20,500	.8071	3,2	56	25	3	364.011
KSEM205R7WN25M	KSEM205R10WN25M	20,500	.8071	21,000	.8268	3,3	56	25	3	364.011
KSEM210R7WN25M	KSEM210R10WN25M	21,000	.8268	21,500	.8465	3,3	56	25	3	364.011
KSEM215R7WN25M	KSEM215R10WN25M	21,500	.8465	22,000	.8661	3,4	56	25	3	364.011
KSEM220R7WN25M	KSEM220R10WN25M	22,000	.8661	22,000	.8661	3,5	56	25	3	364.011
—	KSEM221R10WN25M	22,010	.8665	22,500	.8858	3,5	56	25	4	364.011
KSEM225R7WN25M	KSEM225R10WN25M	22,500	.8858	23,000	.9055	3,6	56	25	4	364.011
KSEM230R7WN25M	KSEM230R10WN25M	23,000	.9055	23,500	.9252	3,7	56	25	4	364.011
KSEM235R7WN25M	KSEM235R10WN25M	23,500	.9252	24,000	.9448	3,7	56	25	4	364.011
KSEM240R7WN25M	KSEM240R10WN25M	24,000	.9449	24,000	.9448	3,8	56	25	4	364.011
—	KSEM241R10WN32M	24,010	.9453	24,500	.9646	3,8	60	32	5	364.012
KSEM245R7WN32M	KSEM245R10WN32M	24,500	.9646	25,000	.9843	3,9	60	32	5	364.012
KSEM250R7WN32M	KSEM250R10WN32M	25,000	.9843	25,500	1.0039	3,8	60	32	5	364.012
KSEM255R7WN32M	KSEM255R10WN32M	25,500	1.0039	26,000	1.0236	3,9	60	32	5	364.012

(continued)

Modular Drills

KSEM™ 2° Whistle Notch Shank Bodies



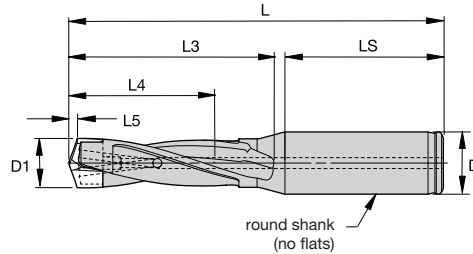
(KSEM WN Shank • 7 x D/10 x D • Metric — continued)



Modular Drills

	7 x D	10 x D	D1		D1 max		L5	LS	D	seat size	central lock screw
			mm	in	mm	in					
	KSEM260R7WN32M	KSEM260R10WN32M	26,000	1.0236	26,000	1.0236	4,0	60	32	5	364.012
	—	KSEM261R10WN32M	26,010	1.0240	26,500	1.0433	4,0	60	32	6	364.012
	KSEM265R7WN32M	KSEM265R10WN32M	26,500	1.0433	27,000	1.0630	4,1	60	32	6	364.012
	KSEM270R7WN32M	KSEM270R10WN32M	27,000	1.0630	27,500	1.0827	4,2	60	32	6	364.012
	KSEM275R7WN32M	KSEM275R10WN32M	27,500	1.0827	28,000	1.1023	4,2	60	32	6	364.012
	KSEM280R7WN32M	KSEM280R10WN32M	28,000	1.1024	28,000	1.1023	4,3	60	32	6	364.012
	—	KSEM281R10WN32M	28,016	1.1030	28,500	1.1220	4,3	60	32	7	364.013
	KSEM285R7WN32M	KSEM285R10WN32M	28,500	1.1220	29,000	1.1417	4,4	60	32	7	364.013
	KSEM290R7WN32M	KSEM290R10WN32M	29,000	1.1417	29,500	1.1614	4,5	60	32	7	364.013
	KSEM295R7WN32M	KSEM295R10WN32M	29,500	1.1614	30,000	1.1811	4,5	60	32	7	364.013
	KSEM300R7WN32M	KSEM300R10WN32M	30,000	1.1811	30,000	1.1811	4,6	60	32	7	364.013
	—	KSEM301R10WN32M	30,010	1.1815	30,500	1.2008	4,6	60	32	8	364.013
	KSEM305R7WN32M	—	30,500	1.2008	31,000	1.2205	4,7	60	32	8	364.013
	KSEM310R7WN32M	KSEM310R10WN32M	31,000	1.2205	31,500	1.2402	4,8	60	32	8	364.013
	KSEM315R7WN32M	—	31,500	1.2402	32,000	1.2598	4,8	60	32	8	364.013
	KSEM320R7WN32M	KSEM320R10WN32M	32,000	1.2598	32,000	1.2598	4,9	60	32	8	364.013

- Use designated insert blade with each drill body.
- For alternatives, see insert blade fitment chart on page H91–H92.
- Drill shipped with central lock screw and wrench.
- Order insert blade separately; see pages H52–H71.



For information on L, L3, and L4 max, see page H97.



■ **KSEM Round Shank • 3 x D/5 x D • Inch**

3 x D	5 x D	D1		D1 max		L5	LS	D	seat size	central lock screw
		mm	in	mm	in					
–	KSEM0500R5SS050	12,700	.5000	13,200	.5197	.079	1.50	.5000	C	364.017
KSEM0500R3SS075	KSEM0500R5SS075	12,700	.5000	13,200	.5197	.079	2.00	.7500	C	364.017
KSEM0509R3SS075	KSEM0509R5SS075	12,929	.5090	13,429	.5287	.081	2.00	.7500	C	364.017
–	KSEM0516R5SS075	13,106	.5160	13,500	.5314	.082	2.00	.7500	C	364.017
KSEM0531R3SS075	KSEM0531R5SS075	13,494	.5313	13,500	.5314	.084	2.00	.7500	C	364.017
KSEM0547R3SS075	–	13,891	.5469	14,394	.5667	.087	2.00	.7500	B	364.016
–	KSEM0547R5SS075	13,894	.5470	14,394	.5667	.087	2.00	.7500	B	364.016
KSEM0563R3SS075	KSEM0563R5SS075	14,300	.5630	14,500	.5708	.089	2.00	.7500	B	364.016
KSEM0578R3SS075	KSEM0578R5SS075	14,681	.5780	15,181	.5977	.092	2.00	.7500	A	364.016
KSEM0594R3SS075	KSEM0594R5SS075	15,088	.5940	15,588	.6137	.094	2.00	.7500	A	364.016
KSEM0609R3SS075	KSEM0609R5SS075	15,469	.6090	15,874	.6249	.097	2.00	.7500	A	364.016
KSEM0625R3SS075	KSEM0625R5SS075	15,875	.6250	16,375	.6447	.099	2.00	.7500	1	364.010
KSEM0634R3SS075	KSEM0634R5SS075	16,104	.6340	16,604	.6537	.101	2.00	.7500	1	364.010
KSEM0641R3SS075	KSEM0641R5SS075	16,281	.6410	16,781	.6607	.102	2.00	.7500	1	364.010
KSEM0656R3SS075	KSEM0656R5SS075	16,670	.6563	17,170	.6760	.104	2.00	.7500	1	364.010
KSEM0672R3SS075	KSEM0672R5SS075	17,069	.6720	17,569	.6917	.107	2.00	.7500	1	364.010
KSEM0688R3SS075	KSEM0688R5SS075	17,463	.6875	17,963	.7072	.109	2.00	.7500	1	364.010
KSEM0703R3SS075	KSEM0703R5SS075	17,856	.7030	18,000	.7086	.112	2.00	.7500	1	364.010
KSEM0719R3SS075	KSEM0719R5SS075	18,256	.7187	18,756	.7384	.114	2.00	.7500	2	364.010
KSEM0734R3SS075	KSEM0734R5SS075	18,644	.7340	19,144	.7537	.117	2.00	.7500	2	364.010
KSEM0750R3SS075	KSEM0750R5SS075	19,050	.7500	19,550	.7697	.119	2.00	.7500	2	364.010
KSEM0750R3SS100	KSEM0750R5SS100	19,050	.7500	19,550	.7697	.119	3.00	1.0000	2	364.010
KSEM0759R3SS075	KSEM0759R5SS075	19,279	.7590	19,779	.7787	.121	2.00	.7500	2	364.010
KSEM0766R3SS100	KSEM0766R5SS100	19,456	.7660	19,956	.7857	.122	3.00	1.0000	2	364.010
KSEM0781R3SS100	KSEM0781R5SS100	19,844	.7813	19,999	.7873	.124	3.00	1.0000	2	364.010
KSEM0797R3SS100	KSEM0797R5SS100	20,244	.7970	20,744	.8167	.127	3.00	1.0000	3	364.011
KSEM0813R3SS100	KSEM0813R5SS100	20,638	.8125	21,138	.8322	.129	3.00	1.0000	3	364.011
KSEM0844R3SS100	KSEM0844R5SS100	21,431	.8437	21,931	.8634	.134	3.00	1.0000	3	364.011
KSEM0859R3SS100	KSEM0859R5SS100	21,819	.8590	22,000	.8661	.136	3.00	1.0000	3	364.011
KSEM0875R3SS100	KSEM0875R5SS100	22,225	.8750	22,725	.8947	.139	3.00	1.0000	4	364.011
KSEM0875R3SS125	KSEM0875R5SS125	22,225	.8750	22,725	.8947	.139	3.25	1.2500	4	364.011
KSEM0884R3SS100	KSEM0884R5SS100	22,454	.8840	22,954	.9037	.140	3.00	1.0000	4	364.011

(continued)




Modular Drills

KSEM™ Round Shank Bodies

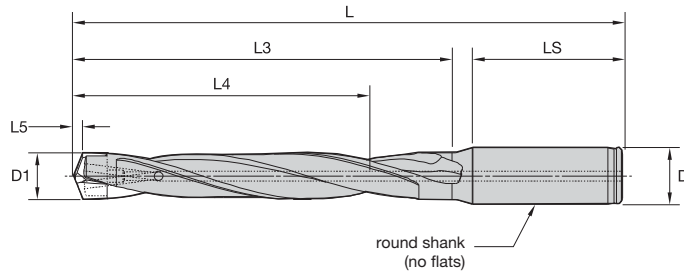


(KSEM Round Shank • 3 x D/5 x D • Inch — continued)

Modular Drills

			D1		D1 max		L5	LS	D		seat size	central lock screw
	3 x D	5 x D	mm	in	mm	in						
KSEM0906R3SS100	KSEM0906R5SS100	23,019	.9063	23,519	.9260	.144	3.00	1.0000	4	364.011		
KSEM0922R3SS100	KSEM0922R5SS100	23,419	.9220	23,919	.9417	.146	3.00	1.0000	4	364.011		
KSEM0938R3SS100	KSEM0938R5SS100	23,813	.9375	24,000	.9448	.149	3.00	1.0000	4	364.011		
KSEM0969R3SS100	KSEM0969R5SS100	24,606	.9687	25,106	.9884	.154	3.00	1.0000	5	364.012		
KSEM0984R3SS100	KSEM0984R5SS100	25,003	.9844	25,503	1.0041	.151	3.00	1.0000	5	364.012		
KSEM1000R3SS100	KSEM1000R5SS100	25,400	1.0000	25,900	1.0197	.154	3.00	1.0000	5	364.012		
-	KSEM1000R5SS125	25,400	1.0000	25,900	1.0197	.154	3.25	1.2500	5	364.012		
KSEM1011R3SS125	KSEM1011R5SS125	25,679	1.0110	26,000	1.0236	.156	3.25	1.2500	5	364.012		
KSEM1031R3SS125	KSEM1031R5SS125	26,195	1.0313	26,695	1.0510	.159	3.25	1.2500	6	364.012		
-	KSEM1047R5SS125	26,594	1.0470	27,094	1.0667	.161	3.25	1.2500	6	364.012		
KSEM1063R3SS125	KSEM1063R5SS125	26,988	1.0625	27,488	1.0822	.164	3.25	1.2500	6	364.012		
-	KSEM1094R5SS125	27,781	1.0937	28,000	1.1023	.168	3.25	1.2500	6	364.012		
KSEM1109R3SS125	KSEM1109R5SS125	28,169	1.1090	28,669	1.1287	.171	3.25	1.2500	7	364.013		
KSEM1125R3SS125	KSEM1125R5SS125	28,575	1.1250	29,075	1.1447	.173	3.25	1.2500	7	364.013		
KSEM1156R3SS125	KSEM1156R5SS125	29,370	1.1563	29,870	1.1760	.178	3.25	1.2500	7	364.013		
KSEM1172R3SS125	KSEM1172R5SS125	29,769	1.1720	30,000	1.1811	.180	3.25	1.2500	7	364.013		
KSEM1188R3SS125	KSEM1188R5SS125	30,163	1.1875	30,663	1.2072	.183	3.25	1.2500	8	364.013		
-	KSEM1203R5SS125	30,556	1.2030	31,056	1.2227	.185	3.25	1.2500	8	364.013		
KSEM1219R3SS125	KSEM1219R5SS125	30,958	1.2188	31,458	1.2385	.188	3.25	1.2500	8	364.013		
KSEM1250R3SS125	KSEM1250R5SS125	31,750	1.2500	32,000	1.2598	.192	3.25	1.2500	8	364.013		
KSEM1250R3SS150	KSEM1250R5SS150	31,750	1.2500	32,000	1.2598	.192	3.75	1.5000	8	364.013		
KSEM1281R3SS150	KSEM1281R5SS150	32,537	1.2810	33,537	1.3204	.197	3.75	1.5000	9	364.015		
KSEM1297R3SS150	KSEM1297R5SS150	32,941	1.2969	33,941	1.3363	.200	3.75	1.5000	9	364.015		
KSEM1313R3SS150	KSEM1313R5SS150	33,350	1.3130	34,350	1.3524	.202	3.75	1.5000	9	364.015		
KSEM1328R3SS150	KSEM1328R5SS150	33,731	1.3280	34,731	1.3674	.204	3.75	1.5000	9	364.015		
-	KSEM1344R5SS150	34,138	1.3440	35,138	1.3834	.207	3.75	1.5000	9	364.015		
KSEM1375R3SS150	KSEM1375R5SS150	34,925	1.3750	35,925	1.4144	.212	3.75	1.5000	9	364.015		
KSEM1406R3SS150	KSEM1406R5SS150	35,712	1.4060	36,000	1.4173	.216	3.75	1.5000	9	364.015		
-	KSEM1422R5SS150	36,119	1.4220	37,119	1.4614	.219	3.75	1.5000	10	364.015		
KSEM1438R3SS150	KSEM1438R5SS150	36,513	1.4375	37,513	1.4769	.221	3.75	1.5000	10	364.015		
-	KSEM1469R5SS150	37,313	1.4690	38,313	1.5084	.226	3.75	1.5000	10	364.015		
KSEM1500R3SS150	KSEM1500R5SS150	38,100	1.5000	39,100	1.5394	.231	3.75	1.5000	10	364.015		
KSEM1514R3SS150	KSEM1514R5SS150	38,456	1.5140	39,456	1.5534	.233	3.75	1.5000	10	364.015		

- Use designated insert blade with each drill body.
- For alternatives, see insert blade fitment chart on page H91–H92.
- Drill shipped with central lock screw and wrench.
- Order insert blade separately; see pages H52–H71.



For information on L, L3, and L4 max, see the Modular Drills Dimension Tables on page H96.



Modular Drills

■ **KSEM Round Shank • 7 x D/10 x D • Inch**

10 x D	7 x D	D1		D1 max		L5	LS	D	seat size	central lock screw
		mm	in	mm	in					
-	KSEM0500R7SS050	12,700	.5000	13,200	.5197	.079	1.50	.5000	C	364.017
KSEM0500R10SS075	KSEM0500R7SS075	12,700	.5000	13,200	.5197	.079	2.00	.7500	C	364.017
KSEM0509R10SS075	KSEM0509R7SS075	12,929	.5090	13,429	.5287	.081	2.00	.7500	C	364.017
KSEM0516R10SS075	KSEM0516R7SS075	13,096	.5156	13,500	.5314	.082	2.00	.7500	C	364.017
KSEM0531R10SS075	KSEM0531R7SS075	13,494	.5313	13,500	.5314	.084	2.00	.7500	C	364.017
KSEM0547R10SS075	KSEM0547R7SS075	13,891	.5469	14,394	.5667	.087	2.00	.7500	B	364.016
KSEM0563R10SS075	KSEM0563R7SS075	14,288	.5625	14,500	.5708	.089	2.00	.7500	B	364.016
KSEM0578R10SS075	KSEM0578R7SS075	14,681	.5780	15,181	.5977	.092	2.00	.7500	A	364.016
KSEM0594R10SS075	KSEM0594R7SS075	15,083	.5938	15,588	.6137	.094	2.00	.7500	A	364.016
KSEM0609R10SS075	KSEM0609R7SS075	15,479	.6094	15,874	.6249	.097	2.00	.7500	A	364.016
KSEM0625R10SS075	KSEM0625R7SS075	15,875	.6250	16,375	.6447	.099	2.00	.7500	1	364.010
KSEM0634R10SS075	KSEM0634R7SS075	16,104	.6340	16,604	.6537	.101	2.00	.7500	1	364.010
KSEM0656R10SS075	KSEM0656R7SS075	16,670	.6563	17,170	.6760	.104	2.00	.7500	1	364.010
KSEM0688R10SS075	KSEM0688R7SS075	17,463	.6875	17,963	.7072	.109	2.00	.7500	1	364.010
KSEM0719R10SS075	KSEM0719R7SS075	18,256	.7187	18,756	.7384	.114	2.00	.7500	2	364.010
KSEM0750R10SS075	KSEM0750R7SS075	19,050	.7500	19,550	.7502	.119	2.00	.7500	2	364.010
KSEM0750R10SS100	KSEM0750R7SS100	19,050	.7500	19,550	.7502	.119	3.00	1.0000	2	364.010
-	KSEM0759R7SS075	19,279	.7590	19,779	.7787	.121	2.00	.7500	2	364.010
KSEM0759R10SS100	-	19,279	.7590	19,779	.7787	.121	3.00	1.0000	2	364.010
KSEM0781R10SS100	KSEM0781R7SS100	19,844	.7813	19,999	.7873	.124	3.00	1.0000	2	364.010
KSEM0813R10SS100	KSEM0813R7SS100	20,638	.8125	21,138	.8322	.129	3.00	1.0000	3	364.011
KSEM0844R10SS100	KSEM0844R7SS100	21,431	.8437	21,931	.8634	.134	3.00	1.0000	3	364.011
KSEM0875R10SS100	KSEM0875R7SS100	22,225	.8750	22,725	.8947	.139	3.00	1.0000	4	364.011
-	KSEM0875R7SS125	22,225	.8750	22,725	.8947	.139	3.25	1.2500	4	364.011
KSEM0884R10SS100	KSEM0884R7SS100	22,454	.8840	22,954	.9037	.140	3.00	1.0000	4	364.011
KSEM0906R10SS100	KSEM0906R7SS100	23,019	.9063	23,519	.9260	.144	3.00	1.0000	4	364.011
KSEM0938R10SS100	KSEM0938R7SS100	23,813	.9375	24,000	.9448	.149	3.00	1.0000	4	364.011
KSEM0969R10SS100	KSEM0969R7SS100	24,606	.9687	25,106	.9884	.154	3.00	1.0000	5	364.012
KSEM0984R10SS100	KSEM0984R7SS100	25,003	.9844	25,503	1.0041	.151	3.00	1.0000	5	364.012
KSEM1000R10SS100	KSEM1000R7SS100	25,400	1.0000	25,900	1.0197	.154	3.00	1.0000	5	364.012
KSEM1000R10SS125	KSEM1000R7SS125	25,400	1.0000	25,900	1.0197	.154	3.25	1.2500	5	364.012
KSEM1011R10SS125	KSEM1011R7SS125	25,679	1.0110	26,000	1.0236	.156	3.25	1.2500	5	364.012

(continued)

Modular Drills

KSEM™ Round Shank Bodies



(KSEM Round Shank • 7 x D/10 x D • Inch – continued)



10 x D

7 x D

D1

D1 max

L5

LS

D

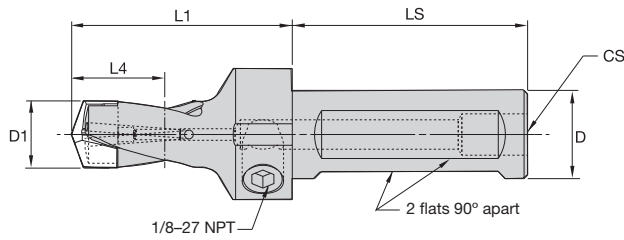
seat size

central lock screw

Modular Drills

		D1		D1 max		L5	LS	D	seat size	central lock screw
		mm	in	mm	in					
KSEM1031R10SS125	KSEM1031R7SS125	26,195	1.0313	26,695	1.0510	.159	3.25	1.2500	6	364.012
KSEM1063R10SS125	KSEM1063R7SS125	26,988	1.0625	27,488	1.0822	.164	3.25	1.2500	6	364.012
KSEM1094R10SS125	KSEM1094R7SS125	27,781	1.0937	28,000	1.1023	.168	3.25	1.2500	6	364.012
KSEM1125R10SS125	KSEM1125R7SS125	28,575	1.1250	29,075	1.1447	.173	3.25	1.2500	7	364.013
KSEM1156R10SS125	KSEM1156R7SS125	29,370	1.1563	29,870	1.1760	.178	3.25	1.2500	7	364.013
KSEM1188R10SS125	KSEM1188R7SS125	30,163	1.1875	30,663	1.2072	.183	3.25	1.2500	8	364.013
KSEM1219R10SS125	KSEM1219R7SS125	30,958	1.2188	31,458	1.2385	.188	3.25	1.2500	8	364.013
KSEM1250R10SS125	KSEM1250R7SS125	31,750	1.2500	32,000	1.2598	.192	3.25	1.2500	8	364.013
KSEM1250R10SS150	KSEM1250R7SS150	31,750	1.2500	32,000	1.2598	.192	3.75	1.5000	8	364.013

- Use designated insert blade with each drill body.
- For alternatives, see insert blade fitment chart on page H91–H92.
- Drill shipped with central lock screw, wrench, and side pipe plug.
- Order insert blade separately; see pages H52–H71.



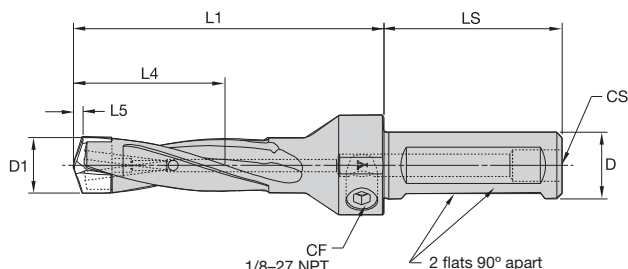
Modular Drills

■ KSEM Flanged Shank • 1 x D • Inch



1 x D	D1		D1 max		L	L1	L4 max	L5	LS	D	seat size	CS	central lock screw	wrench
	mm	in	mm	in										
KSEM0493R1SSF075	12,522	.4930	13,500	.5314	3.94	1.94	.53	.07	2.00	.750	C	1/8-27 NPT	364.017	170.294
KSEM0532R1SSF075	13,513	.5320	14,500	.5708	4.00	2.00	.61	.08	2.00	.750	B	1/8-27 NPT	364.016	170.289
KSEM0571R1SSF075	14,503	.5710	15,874	.6249	4.00	2.00	.63	.09	2.00	.750	A	1/8-27 NPT	364.016	170.289
KSEM0625R1SSF075	15,875	.6250	18,000	.7086	4.19	2.19	.71	.10	2.00	.750	1	1/8-27 NPT	364.010	170.270
KSEM0709R1SSF075	18,009	.7090	19,999	.7873	4.25	2.25	.78	.11	2.00	.750	2	1/8-27 NPT	364.010	170.270
KSEM0788R1SSF100	20,015	.7880	22,000	.8661	5.50	2.50	.87	.13	3.00	1.000	3	1/4-18 NPT	364.011	170.272
KSEM0867R1SSF100	22,022	.8670	24,000	.9448	5.56	2.56	.95	.14	3.00	1.000	4	1/4-18 NPT	364.011	170.272
KSEM0945R1SSF100	24,003	.9450	26,000	1.0236	5.63	2.63	1.02	.15	3.00	1.000	5	1/4-18 NPT	364.012	170.274
KSEM1024R1SSF125	26,010	1.0240	28,000	1.1023	6.13	2.88	1.11	.16	3.25	1.250	6	1/4-18 NPT	364.012	170.274
KSEM1103R1SSF125	28,016	1.1030	30,000	1.1811	6.19	2.94	1.18	.17	3.25	1.250	7	1/4-18 NPT	364.013	170.276
KSEM1182R1SSF125	30,023	1.1820	32,000	1.2598	6.25	3.00	1.27	.18	3.25	1.250	8	1/4-18 NPT	364.013	170.276
KSEM1260R1SSF125	32,004	1.2600	36,000	1.4173	6.50	3.25	1.42	.19	3.25	1.250	9	1/4-18 NPT	364.015	170.276
KSEM1418R1SSF125	36,017	1.4180	40,000	1.5748	6.63	3.38	1.57	.22	3.25	1.250	10	1/4-18 NPT	364.015	170.276

- Use designated insert blade with each drill body.
- For alternatives, see insert blade fitment chart on page H91–H92.
- Drill shipped with central lock screw, wrench, and side pipe plug.
- Order insert blade separately; see pages H52–H71.



For information on L, L3, and L4 max, see the Modular Drills Dimension Tables on page H96.



■ KSEM Flanged Shank • 3 x D/5 x D • Inch

3 x D	5 x D	D1		D1 max		L5	LS	D	seat size	CS	central lock screw
		mm	in	mm	in						
KSEM0500R3SSF075	KSEM0500R5SSF075	12,700	.5000	13,200	.5197	.08	2.00	.750	C	1/8-27 NPT	364.017
KSEM0509R3SSF075	KSEM0509R5SSF075	12,929	.5090	13,429	.5287	.08	2.00	.750	C	1/8-27 NPT	364.017
KSEM0516R3SSF075	KSEM0516R5SSF075	13,106	.5160	13,500	.5314	.08	2.00	.750	C	1/8-27 NPT	364.017
KSEM0531R3SSF075	KSEM0531R5SSF075	13,487	.5310	13,500	.5314	.08	2.00	.750	C	1/8-27 NPT	364.017
KSEM0547R3SSF075	KSEM0547R5SSF075	13,894	.5470	14,394	.5667	.09	2.00	.750	B	1/8-27 NPT	364.016
KSEM0563R3SSF075	KSEM0563R5SSF075	14,300	.5630	14,500	.5708	.09	2.00	.750	B	1/8-27 NPT	364.016
KSEM0578R3SSF075	KSEM0578R5SSF075	14,681	.5780	15,181	.5977	.09	2.00	.750	A	1/8-27 NPT	364.016
KSEM0594R3SSF075	KSEM0594R5SSF075	15,088	.5940	15,588	.6137	.09	2.00	.750	A	1/8-27 NPT	364.016
KSEM0609R3SSF075	KSEM0609R5SSF075	15,469	.6090	15,874	.6249	.10	2.00	.750	A	1/8-27 NPT	364.016
KSEM0625R3SSF075	KSEM0625R5SSF075	15,875	.6250	16,375	.6447	.10	2.00	.750	1	1/8-27 NPT	364.010
KSEM0634R3SSF075	-	16,104	.6340	16,604	.6537	.10	2.00	.750	1	1/8-27 NPT	364.010
KSEM0641R3SSF075	-	16,281	.6410	16,781	.6607	.10	2.00	.750	1	1/8-27 NPT	364.010
KSEM0672R3SSF075	-	17,069	.6720	17,569	.6917	.11	2.00	.750	1	1/8-27 NPT	364.010
KSEM0688R3SSF075	KSEM0688R5SSF075	17,463	.6875	17,963	.7072	.11	2.00	.750	1	1/8-27 NPT	364.010
KSEM0703R3SSF075	-	17,856	.7030	18,000	.7086	.11	2.00	.750	1	1/8-27 NPT	364.010
KSEM0734R3SSF075	-	18,644	.7340	19,144	.7537	.12	2.00	.750	2	1/8-27 NPT	364.010
KSEM0750R3SSF075	KSEM0750R5SSF075	19,050	.7500	19,550	.7502	.12	2.00	.750	2	1/8-27 NPT	364.010
KSEM0750R3SSF100	KSEM0750R5SSF100	19,050	.7500	19,550	.7502	.12	3.00	1.000	2	1/4-18 NPT	364.010
KSEM0759R3SSF100	-	19,279	.7590	19,779	.7787	.12	3.00	1.000	2	1/4-18 NPT	364.010
KSEM0766R3SSF100	-	19,456	.7660	19,956	.7857	.12	3.00	1.000	2	1/4-18 NPT	364.010
KSEM0781R3SSF100	-	19,844	.7813	19,999	.7873	.12	3.00	1.000	2	1/4-18 NPT	364.010
KSEM0797R3SSF100	-	20,244	.7970	20,744	.8167	.13	3.00	1.000	3	1/4-18 NPT	364.011
KSEM0813R3SSF100	KSEM0813R5SSF100	20,638	.8125	21,138	.8322	.13	3.00	1.000	3	1/4-18 NPT	364.011
KSEM0859R3SSF100	-	21,819	.8590	22,000	.8661	.14	3.00	1.000	3	1/4-18 NPT	364.011
KSEM0875R3SSF100	KSEM0875R5SSF100	22,225	.8750	22,725	.8947	.14	3.00	1.000	4	1/4-18 NPT	364.011
KSEM0875R3SSF125	KSEM0875R5SSF125	22,225	.8750	22,725	.8947	.14	3.25	1.250	4	1/4-18 NPT	364.011
KSEM0884R3SSF100	-	22,454	.8840	22,954	.9037	.14	3.00	1.000	4	1/4-18 NPT	364.011
KSEM0906R3SSF100	-	23,019	.9063	23,519	.9260	.14	3.00	1.000	4	1/4-18 NPT	364.011
KSEM0922R3SSF100	-	23,419	.9220	23,919	.9417	.15	3.00	1.000	4	1/4-18 NPT	364.011
KSEM0938R3SSF100	KSEM0938R5SSF100	23,813	.9375	24,000	.9448	.15	3.00	1.000	4	1/4-18 NPT	364.011
KSEM0969R3SSF100	KSEM0969R5SSF100	24,606	.9687	25,106	.9884	.15	3.00	1.000	5	1/4-18 NPT	364.012
KSEM0984R3SSF100	KSEM0984R5SSF100	25,003	.9844	25,503	1.0041	.15	3.00	1.000	5	1/4-18 NPT	364.012

(continued)

(KSEM Flanged Shank • 3 x D/5 x D • Inch — continued)

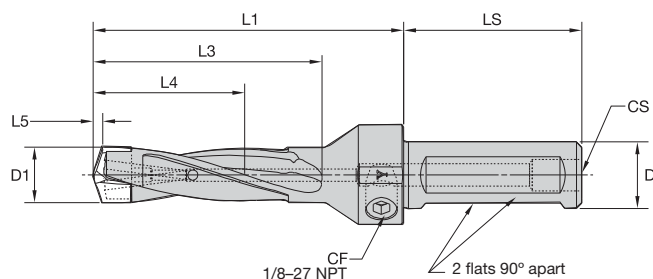
3 x D	5 x D	D1		D1 max		L5	LS	D	seat size	CS	central lock screw
		mm	in	mm	in						
KSEM1000R3SSF100	KSEM1000R5SSF100	25,400	1.0000	25,900	1.0197	.15	3.00	1.000	5	1/4-18 NPT	364.012
KSEM1000R3SSF125	KSEM1000R5SSF125	25,400	1.0000	25,900	1.0197	.15	3.25	1.250	5	1/4-18 NPT	364.012
KSEM1011R3SSF100	—	25,679	1.0110	26,000	1.0236	.16	3.00	1.000	5	1/4-18 NPT	364.012
KSEM1031R3SSF125	—	26,195	1.0313	26,695	1.0510	.16	3.25	1.250	6	1/4-18 NPT	364.012
KSEM1047R3SSF125	—	26,594	1.0470	27,094	1.0667	.16	3.25	1.250	6	1/4-18 NPT	364.012
KSEM1063R3SSF125	KSEM1063R5SSF125	26,988	1.0625	27,488	1.0822	.16	3.25	1.250	6	1/4-18 NPT	364.012
KSEM1094R3SSF125	—	27,781	1.0937	28,000	1.1023	.17	3.25	1.250	6	1/4-18 NPT	364.012
KSEM1109R3SSF125	—	28,169	1.1090	28,669	1.1287	.17	3.25	1.250	7	1/4-18 NPT	364.013
KSEM1125R3SSF125	KSEM1125R5SSF125	28,575	1.1250	29,075	1.1447	.17	3.25	1.250	7	1/4-18 NPT	364.013
KSEM1156R3SSF125	—	29,370	1.1563	29,870	1.1760	.18	3.25	1.250	7	1/4-18 NPT	364.013
KSEM1188R3SSF125	KSEM1188R5SSF125	30,163	1.1875	30,663	1.2072	.18	3.25	1.250	8	1/4-18 NPT	364.013
KSEM1203R3SSF125	—	30,556	1.2030	31,056	1.2227	.19	3.25	1.250	8	1/4-18 NPT	364.013
KSEM1250R3SSF125	KSEM1250R5SSF125	31,750	1.2500	32,000	1.2598	.19	3.25	1.250	8	1/4-18 NPT	364.013
KSEM1250R3SSF150	KSEM1250R5SSF150	31,750	1.2500	32,000	1.2598	.19	3.75	1.500	8	1/4-18 NPT	364.013
KSEM1281R3SSF150	—	32,540	1.2811	36,000	1.4173	.20	3.75	1.500	9	1/4-18 NPT	364.015
KSEM1281R5SSF150	—	32,540	1.2811	36,000	1.4173	.22	3.75	1.500	9	1/4-18 NPT	364.015
KSEM1297R3SSF150	KSEM1297R5SSF150	32,940	1.2969	36,000	1.4173	.23	3.75	1.500	9	1/4-18 NPT	364.015
KSEM1313R3SSF150	KSEM1313R5SSF150	33,340	1.3126	36,000	1.4173	.23	3.75	1.500	9	1/4-18 NPT	364.015
KSEM1328R3SSF150	—	33,730	1.3280	36,000	1.4173	.23	3.75	1.500	9	1/4-18 NPT	364.015
—	KSEM1328R5SSF150	33,730	1.2380	36,000	1.4173	.23	3.75	1.500	9	1/4-18 NPT	364.015
KSEM1344R3SSF150	KSEM1344R5SSF150	34,130	1.3437	36,000	1.4173	.24	3.75	1.500	9	1/4-18 NPT	364.015
KSEM1375R3SSF150	KSEM1375R5SSF150	34,930	1.3752	36,000	1.4173	.24	3.75	1.500	9	1/4-18 NPT	364.015
KSEM1406R3SSF150	KSEM1406R5SSF150	35,720	1.4063	36,000	1.4173	.25	3.75	1.500	9	1/4-18 NPT	364.015
KSEM1422R3SSF150	KSEM1422R5SSF150	36,120	1.4220	40,000	1.5748	.25	3.75	1.500	10	1/4-18 NPT	364.015
KSEM1438R3SSF150	KSEM1438R5SSF150	36,520	1.4378	40,000	1.5748	.25	3.75	1.500	10	1/4-18 NPT	364.015
KSEM1469R3SSF150	KSEM1469R5SSF150	37,310	1.4689	40,000	1.5748	.26	3.75	1.500	10	1/4-18 NPT	364.015
KSEM1500R3SSF150	KSEM1500R5SSF150	38,100	1.5000	40,000	1.5748	.26	3.75	1.500	10	1/4-18 NPT	364.015
KSEM1514R3SSF150	KSEM1514R5SSF150	38,460	1.5142	40,000	1.5748	.27	3.75	1.500	10	1/4-18 NPT	364.015



- Use designated insert blade with each drill body.
- For alternatives, see insert blade fitment chart on page H91–H92.
- Drill shipped with central lock screw, wrench, and side pipe plug.
- Order insert blade separately; see pages H52–H71.



Modular Drills



■ KSEM Flanged Shank • 8 x D • Inch

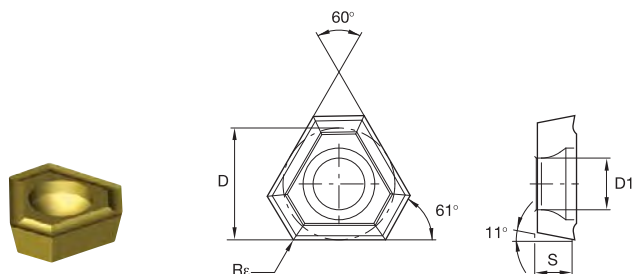


8 x D	D1		D1 max		L1	L3	L4 max	L5	LS	D	seat size	CS	central lock screw	wrench
	mm	in	mm	in										
KSEM0625R8SSF075	15,875	.6250	16,375	.6447	6.25	5.63	5.00	.10	2.00	.750	1	1/8-27 NPT	364.010	170.271
KSEM0688R8SSF075	17,463	.6875	17,963	.7072	7.00	6.38	5.50	.11	2.00	.750	1	1/8-27 NPT	364.010	170.271
KSEM0750R8SSF075	19,050	.7500	19,550	.7502	7.50	6.88	6.00	.12	2.00	.750	2	1/8-27 NPT	364.010	170.281
KSEM0750R8SSF100	19,050	.7500	19,550	.7502	7.50	6.88	6.00	.12	3.00	1.000	2	1/4-18 NPT	364.010	170.281
KSEM0813R8SSF100	20,638	.8125	21,138	.8322	8.00	7.38	6.50	.13	3.00	1.000	3	1/4-18 NPT	364.011	170.282
KSEM0875R8SSF100	22,225	.8750	22,725	.8947	8.50	7.88	7.00	.14	3.00	1.000	4	1/4-18 NPT	364.011	170.282
KSEM0875R8SSF125	22,225	.8750	22,725	.8947	8.50	7.88	7.00	.14	3.25	1.250	4	1/4-18 NPT	364.011	170.282
KSEM0938R8SSF100	23,813	.9375	24,000	.9448	9.13	8.51	7.50	.15	3.00	1.000	4	1/4-18 NPT	364.011	170.282
KSEM0984R8SSF100	25,003	.9844	25,503	1.0041	9.50	8.88	7.88	.15	3.00	1.000	5	1/4-18 NPT	364.012	170.283
KSEM1000R8SSF100	25,400	1.0000	25,900	1.0197	9.63	9.01	8.00	.15	3.00	1.000	5	1/4-18 NPT	364.012	170.283
KSEM1000R8SSF125	25,400	1.0000	25,900	1.0197	9.63	9.01	8.00	.15	3.25	1.250	5	1/4-18 NPT	364.012	170.283
KSEM1063R8SSF125	26,988	1.0625	27,488	1.0822	10.25	9.63	8.50	.16	3.25	1.250	6	1/4-18 NPT	364.012	170.283
KSEM1125R8SSF125	28,575	1.1250	29,075	1.1447	10.75	10.13	9.00	.17	3.25	1.250	7	1/4-18 NPT	364.013	170.284
KSEM1188R8SSF125	30,163	1.1875	30,663	1.2072	11.38	10.76	9.50	.18	3.25	1.250	8	1/4-18 NPT	364.013	170.284
KSEM1250R8SSF125	31,750	1.2500	32,000	1.2598	11.88	11.26	10.00	.19	3.25	1.250	8	1/4-18 NPT	364.013	170.284
KSEM1250R8SSF150	31,750	1.2500	32,000	1.2598	11.88	11.26	10.00	.19	3.75	1.500	8	1/4-18 NPT	364.013	170.284



KSEM Chamfering Solutions

- Drilling and chamfering in one operation.
- No height adjustment required.
- Low setup time.
- Use standard inserts.
- Tool bodies available as standard.



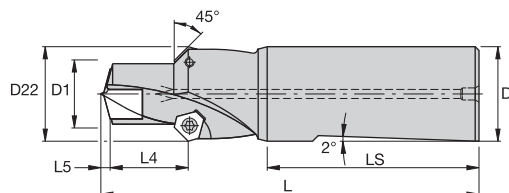
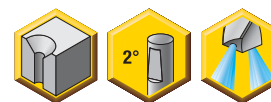
● first choice
 ○ alternate choice

P	●	○	○	○
M	●	○	○	○
K	●	○	○	○
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○

TPGX-GD Geometry

catalog number	D		S		Re		D1		KC7015	KC7315	KC7140
	mm	in	mm	in	mm	in	mm	in			
TPGX0902ZPRGD	5,56	.219	2,38	.094	0,20	.008	2,50	.098	●	●	●
TPGX1102ZPRGD	6,35	.250	2,38	.094	0,20	.008	2,85	.112	●	●	●
TPGX1303ZPRGD	7,94	.313	3,18	.125	0,20	.008	3,40	.134	●	●	●
TPGX1603ZPRGD	9,52	.375	3,18	.125	0,20	.008	4,40	.173	●	●	●

- Use any KSEM insert blade diameter within the designated seat size.
- Drill shipped with central lock screw, insert screw, and wrenches.
- Order insert blades separately; see pages H52–H71.
- Order TPGX chamfering insert separately; see page H85.



KSEM Bodies • WN/WD50 Shank with Chamfer • 1 x D • Metric

1 x D	D1		D1 max		D22	L	L4 max	L5	LS	D	seat size	chamfer insert	central lock screw	wrench
	mm	in	mm	in										
KSEM125R1WN16F45M	12,500	.4921	13,500	.5314	18	107	14	2,0	48,0	16	C	KSEM1250	364.017	170.051
KSEM136R1WN16F45M	13,510	.5319	14,500	.5708	19	107	15	2,2	48,0	16	B	KSEM1351	364.016	170.289
KSEM146R1WN20F45M	14,510	.5713	15,874	.6249	20	109	16	2,3	50,0	20	A	KSEM1451	364.016	170.289
KSEM160R1WN20F45M	16,000	.6299	18,000	.7086	22	110	18	2,5	50,0	20	1	KSEM1600	364.010	170.270
KSEM181R1WN25F45M	18,010	.7091	19,999	.7873	25	118	20	2,9	56,0	25	2	KSEM1801	364.010	170.270
KSEM200R1WN25F45M	20,000	.7874	22,000	.8661	28	120	22	3,2	56,0	25	3	KSEM2000	364.011	170.272
KSEM221R1WN25F45M	22,010	.8665	24,000	.9448	30	123	24	3,5	56,0	25	4	KSEM2201	364.011	170.272
KSEM241R1WN32F45M	24,010	.9453	26,000	1.0236	34	129	26	3,8	60,0	32	5	KSEM2401	364.012	170.055
KSEM261R1WN32F45M	26,010	1.0240	28,000	1.1023	36	131	28	4,0	60,0	32	6	KSEM2601	364.012	170.055
KSEM281R1WN32F45M	28,016	1.1030	30,000	1.1811	38	134	30	4,3	60,0	32	7	KSEM2801	364.013	170.276
KSEM301R1WN32F45M	30,010	1.1815	32,000	1.2598	40	136	32	4,6	60,0	32	8	KSEM3001	364.013	170.276
KSEM321R1WD50F45M	32,010	1.2602	36,000	1.4173	42	155	36	4,9	68,0	50	9	KSEM3201	364.015	170.276
KSEM361R1WD50F45M	36,010	1.4177	40,000	1.5748	46	165	40	5,5	68,0	50	10	KSEM3601	364.015	170.276

Modular Drills

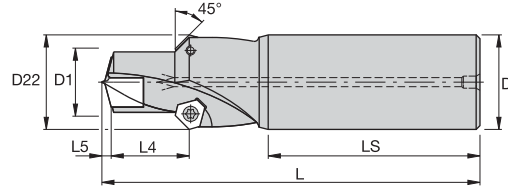
KSEM™ 45° Chamfer • Round Shank Bodies • KSEM™ 45° Chamfer • Flanged Shank Bodies



- Use any KSEM insert blade diameter within the designated seat size.
- Drill shipped with central lock screw, insert screw, and wrenches.
- Order insert blades separately; see pages H52–H71.
- Order TPGX chamfering insert separately; see page H85.

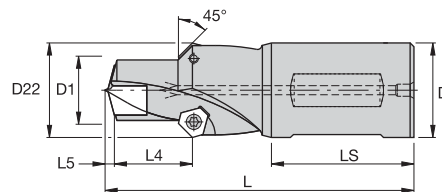


Modular Drills



■ KSEM Bodies • WN/WD50 Shank with Chamfer • 1 x D • Metric

1 x D	D1		D1 max		D22	L	L4 max	L5	LS	D	seat size	chamfer insert	central lock screw	wrench
	mm	in	mm	in										
KSEM125R1WN16F45M	12,500	.4921	13,500	.5314	18	107	14	2,0	48,0	16	C	KSEM1250	364.017	170.051
KSEM136R1WN16F45M	13,510	.5319	14,500	.5708	19	107	15	2,2	48,0	16	B	KSEM1351	364.016	170.289
KSEM146R1WN20F45M	14,510	.5713	15,874	.6249	20	109	16	2,3	50,0	20	A	KSEM1451	364.016	170.289
KSEM160R1WN20F45M	16,000	.6299	18,000	.7086	22	110	18	2,5	50,0	20	1	KSEM1600	364.010	170.270
KSEM181R1WN25F45M	18,010	.7091	19,999	.7873	25	118	20	2,9	56,0	25	2	KSEM1801	364.010	170.270
KSEM200R1WN25F45M	20,000	.7874	22,000	.8661	28	120	22	3,2	56,0	25	3	KSEM2000	364.011	170.272
KSEM221R1WN25F45M	22,010	.8665	24,000	.9448	30	123	24	3,5	56,0	25	4	KSEM2201	364.011	170.272
KSEM241R1WN32F45M	24,010	.9453	26,000	1.0236	34	129	26	3,8	60,0	32	5	KSEM2401	364.012	170.055
KSEM261R1WN32F45M	26,010	1.0240	28,000	1.1023	36	131	28	4,0	60,0	32	6	KSEM2601	364.012	170.055
KSEM281R1WN32F45M	28,016	1.1030	30,000	1.1811	38	134	30	4,3	60,0	32	7	KSEM2801	364.013	170.276
KSEM301R1WN32F45M	30,010	1.1815	32,000	1.2598	40	136	32	4,6	60,0	32	8	KSEM3001	364.013	170.276
KSEM321R1WD50F45M	32,010	1.2602	36,000	1.4173	42	155	36	4,9	68,0	50	9	KSEM3201	364.015	170.276
KSEM361R1WD50F45M	36,010	1.4177	40,000	1.5748	46	165	40	5,5	68,0	50	10	KSEM3601	364.015	170.276

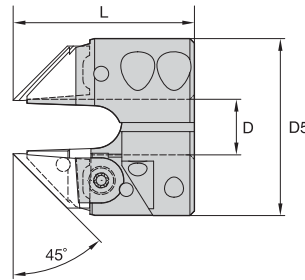


■ KSEM Bodies • Flanged Shank with Chamfer • 1 x D • Inch

1 x D	D1		D1 max		D22	L	L4 max	L5	LS	D	seat size	chamfer insert	central lock screw	pipe plug	wrench
	mm	in	mm	in											
KSEM0493R1SSF075F45	12,500	.4921	13,500	.5314	.70	4.00	.53	.08	2.00	.750	C	KSEM1250	364.017	HSFS0125	170.051
KSEM0532R1SSF075F45	13,600	.5354	14,500	.5708	.74	4.25	.57	.08	2.00	.750	B	KSEM1360	364.016	HSFS0125	170.289
KSEM0571R1SSF075F45	14,600	.5748	15,874	.6249	.77	4.25	.62	.09	2.00	.750	A	KSEM1460	364.016	HSFS0125	170.289
KSEM0625R1SSF075F45	15,880	.6252	18,000	.7086	.88	4.25	.71	.10	2.00	.750	1	KSEM0625	364.010	HSFS0125	170.270
KSEM0709R1SSF075F45	18,260	.7189	19,999	.7873	.96	4.25	.78	.11	2.00	.750	2	KSEM0719	364.010	HSFS0125	170.270
KSEM0788R1SSF100F45	20,000	.7874	22,000	.8661	1.11	5.50	.87	.13	3.00	1.000	3	KSEM2000	364.011	HSFS0125	170.272
KSEM0867R1SSF100F45	22,230	.8752	24,000	.9448	1.19	5.50	.94	.14	3.00	1.000	4	KSEM0875	364.011	HSFS0125	170.272
KSEM0945R1SSF100F45	24,500	.9646	26,000	1.0236	1.34	5.75	1.02	.15	3.00	1.000	5	KSEM2450	364.012	HSFS0125	170.055
KSEM1024R1SSF125F45	26,187	1.0310	28,000	1.1023	1.42	5.75	1.10	.16	3.25	1.250	6	KSEM1031	364.012	HSFS0125	170.055
KSEM1103R1SSF125F45	28,169	1.1090	30,000	1.1811	1.50	6.25	1.18	.17	3.25	1.250	7	KSEM1109	364.013	HSFS0125	170.276
KSEM1182R1SSF125F45	30,160	1.1874	32,000	1.2598	1.58	6.25	1.26	.18	3.25	1.250	8	KSEM1188	364.013	HSFS0125	170.276
KSEM1260R1SSF125F45	32,500	1.2795	36,000	1.4173	1.66	6.25	1.42	.19	3.25	1.250	9	KSEM3250	364.015	HSFS0125	170.276
KSEM1418R1SSF125F45	36,119	1.4220	40,000	1.5748	1.82	6.25	1.57	.22	3.25	1.250	10	KSEM1422	364.015	HSFS0125	170.276

- The NEW chamfering rings for KSEM are available in a diameter range of 12,5–32mm.
- The KSEM SEF ring is double-edged, features a more rigid design to withstand high feed rates, and reduces time-consuming deburring and small chamfer operations.
- Reduce machining time — combine drilling and chamfering in one operation.
- Short-term availability — standard tooling off-the-shelf — KSEM body and inserts, SEF ring, and SEFAS™ inserts.
- Flexibility — adjustable drilling depth.

- For speed and feed recommendations, please refer to catalog recommendations based on geometry and tool body length of the carrying KSEM tool.
- Small chamfers up to 1mm do not need further feed reduction.
- At deeper chamfers, a feed rate reduction of 50% is highly recommended to avoid vibrations and movement of the ring during operation.
- For inserts, please refer to SEFAS System.

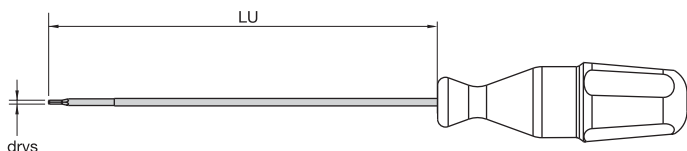


Modular Drills

■ **KSEM Chamfer Rings**

catalog number	D		L		D5		clamp assembly	chip deflector	chip deflector screw	drill clamp screw
	mm	in	mm	in	mm	in				
KSEM125SEFM	12,5	.4921	40	1.57	39	1.54	360.551	360.660	128.508	191.726
KSEM130SEFM	13,0	.5118	40	1.57	39	1.54	360.551	360.660	128.508	191.726
KSEM135SEFM	13,5	.5315	40	1.57	39	1.54	360.551	360.660	128.508	191.726
KSEM140SEFM	14,0	.5512	40	1.57	40	1.57	360.551	360.661	128.508	199.123
KSEM145SEFM	14,5	.5709	40	1.57	40	1.57	360.551	360.661	128.508	199.123
KSEM150SEFM	15,0	.5906	40	1.57	40	1.57	360.551	360.662	128.508	199.123
KSEM155SEFM	15,5	.6102	40	1.57	40	1.57	360.551	360.662	128.508	199.123
KSEM160SEFM	16,0	.6299	42	1.65	43	1.69	360.551	360.663	128.508	199.123
KSEM165SEFM	16,5	.6496	42	1.65	43	1.69	360.551	360.663	128.508	199.123
KSEM170SEFM	17,0	.6693	42	1.65	43	1.69	360.551	360.663	128.508	199.123
KSEM175SEFM	17,5	.6890	42	1.65	43	1.69	360.551	360.663	128.508	199.123
KSEM180SEFM	18,0	.7087	42	1.65	43	1.69	360.551	360.663	128.508	199.123
KSEM185SEFM	18,5	.7283	42	1.65	43	1.69	360.551	360.664	128.508	199.123
KSEM190SEFM	19,0	.7480	42	1.65	43	1.69	360.551	360.664	128.508	199.123
KSEM195SEFM	19,5	.7677	42	1.65	43	1.69	360.551	360.664	128.508	199.123
KSEM200SEFM	20,0	.7874	48	1.89	50	1.97	360.551	360.665	128.510	199.123
KSEM205SEFM	20,5	.8071	48	1.89	50	1.97	360.551	360.665	128.510	199.123
KSEM210SEFM	21,0	.8268	48	1.89	50	1.97	360.551	360.665	128.510	199.123
KSEM215SEFM	21,5	.8465	48	1.89	50	1.97	360.551	360.665	128.510	199.123
KSEM220SEFM	22,0	.8661	48	1.89	50	1.97	360.551	360.665	128.510	199.123
KSEM225SEFM	22,5	.8858	50	1.97	50	1.97	360.551	360.666	128.510	—
KSEM230SEFM	23,0	.9055	50	1.97	50	1.97	360.551	360.666	128.510	—
KSEM235SEFM	23,5	.9252	50	1.97	50	1.97	360.551	360.666	128.510	—
KSEM240SEFM	24,0	.9449	50	1.97	50	1.97	360.551	360.666	128.510	—
KSEM245SEFM	24,5	.9646	54	2.13	55	2.17	360.551	360.667	128.510	—
KSEM250SEFM	25,0	.9843	54	2.13	55	2.17	360.551	360.667	128.510	—
KSEM255SEFM	25,5	1.0039	54	2.13	55	2.17	360.551	360.667	128.510	—
KSEM260SEFM	26,0	1.0236	54	2.13	55	2.17	360.551	360.667	128.510	—
KSEM265SEFM	26,5	1.0433	56	2.20	55	2.17	360.551	360.668	128.510	—
KSEM270SEFM	27,0	1.0630	56	2.20	55	2.17	360.551	360.668	128.510	—
KSEM275SEFM	27,5	1.0827	56	2.20	55	2.17	360.551	360.668	128.510	—
KSEM280SEFM	28,0	1.1024	56	2.20	55	2.17	360.551	360.668	128.510	—
KSEM285SEFM	28,5	1.1220	61	2.40	60	2.36	360.551	360.669	128.510	—
KSEM290SEFM	29,0	1.1417	61	2.40	60	2.36	360.551	360.669	128.510	—
KSEM295SEFM	29,5	1.1614	61	2.40	60	2.36	360.551	360.669	128.510	—
KSEM300SEFM	30,0	1.1811	61	2.40	60	2.36	360.551	360.669	128.510	—
KSEM305SEFM	30,5	1.2008	61	2.40	60	2.36	360.551	360.670	128.510	—
KSEM310SEFM	31,0	1.2205	61	2.40	60	2.36	360.551	360.670	128.510	—
KSEM315SEFM	31,5	1.2402	61	2.40	60	2.36	360.551	360.670	128.510	—
KSEM320SEFM	32,0	1.2598	61	2.40	60	2.36	360.551	360.670	128.510	—

NOTE: Order inserts separately; see the SEFAS system on page I30.



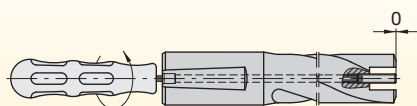
■ KSEM Wrenches

Modular Drills

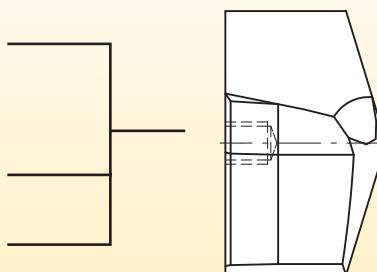
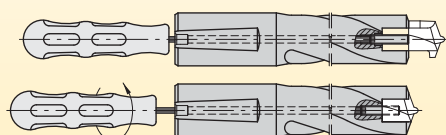
order number	catalog number	central lock screw		DRVS	LU	
		D1<32mm	D1≥32mm		mm	in
1126021	170.270	364.010	—	1.5 mm	185,00	7
1126032	170.271	364.010	—	1.5 mm	225,00	9
1510773	170.281	364.010	—	1.5 mm	297,00	12
1255899	170.285	364.010	—	1.5 mm	351,00	14
1126040	170.272	364.011	—	2 mm	210,00	8
1126049	170.273	364.011	—	2 mm	260,00	10
1510776	170.282	364.011	—	2 mm	343,00	14
1255900	170.286	364.011	—	2 mm	405,00	16
1126066	170.274	364.012	—	2.5 mm	240,00	9
1126072	170.275	364.012	—	2.5 mm	295,00	12
1510779	170.283	364.012	—	2.5 mm	393,00	15
1255901	170.287	364.012	—	2.5 mm	459,00	18
1126079	170.276	364.101	364.015	3 mm	265,00	10
1126088	170.277	364.101	364.015	3 mm	330,00	13
1510781	170.284	364.101	364.015	3 mm	439,00	17
1255902	170.288	364.101	364.015	3 mm	513,00	20
1834819	170.294	364.017	—	T5	156,00	6
1836470	170.295	364.017	—	T5	188,00	7
1836471	170.296	364.017	—	T5	290,00	11
1795811	170.289	364.016	—	T6	156,00	6
1795956	170.290	364.016	—	T6	188,00	7
1795960	170.291	364.016	—	T6	290,00	11

Mounting the Inserts

1.



2.



Inserts (<32mm) without Connector Pin

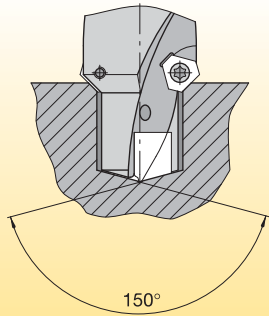
- 1) Use the screwdriver to set the threaded pin:
 - For inserts up to Ø 32mm, flush with the drill face.
 - For inserts bigger Ø 32mm, set 2mm below the drill face.
- 2) Tighten the insert using the screwdriver to fit securely in the insert seat.

To change the insert, turn the clamping screw counter-clockwise until the insert is released.

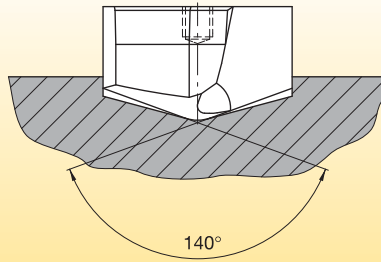
Repair of Damaged Threaded Pin

In the event that the central threaded pin becomes damaged, it can be removed after severing it in the tool body. To do this, drill beneath the insert seat in the tool body. The insert and threaded pin can then be removed. For information regarding the position and diameter of this repair hole, please refer to the manual (sheet 290.001 D/GB) supplied with the tool body.

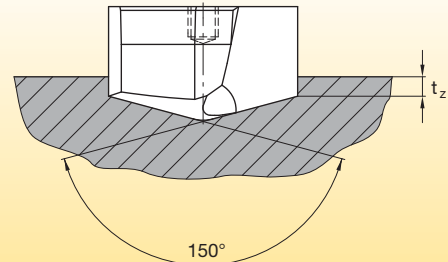
NOTE: For inserts without a connector pin, avoid jamming during mounting through precise positioning.



Precentering with FAS centering tool



HP inserts of the follower drill



Centering using PC inserts

Why is pre-centering necessary?

- Generally speaking, for drilling depths 5x the nominal diameter and above (5 x D).
- In unstable conditions (workpiece and tool clamping).

Why pre-center using PC inserts?

- Soft-cut entry of follower drill due to 150° point angle of the PC insert.
- No extension of the follower drill in the entry area.
- Prevent chipping and breaking on the cutting edges.
- To avoid deflection, it is recommended to pre-center with PC inserts using toolholders as short as possible (1 x D).

What happens if...

...a center cannot be used for technical reasons?

- Spot drill with normal insert at normal and reduced cutting data (approximately 1/2 vc and approximately 1/2 vf), then continue drilling with regular cutting data without lifting off/stopping.

...there is no suitable PC cutting insert in the standard range (∅)?

- Use a made-to-order PC insert with k7 tolerance in the required nominal diameter.

OR

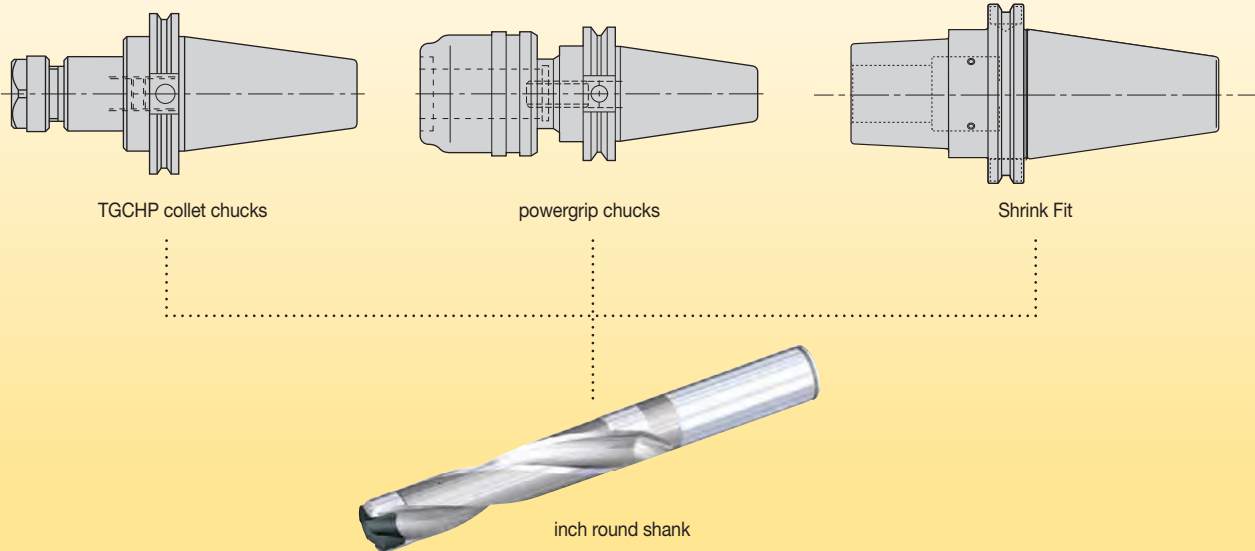
- Pre-center, using the same cutting insert as used for the follower drill but without the cutting edges penetrating the workpiece (spot drill ∅ approximately 90% of drill ∅ D1).

...only one tool body is required?

- Enter the workpiece with 50% feed until the cutting edges and the heels have penetrated the hole, then continue drilling without lifting off/stopping using regular cutting data.

Rotating Applications

KSEM inch drills with round shanks (no flats) are specifically designed for rotating applications where the drill rotates and the workpiece remains stationary. The shank to drill-point location of these drills is held to an extremely close tolerance. To maintain accuracy, and get maximum performance from the KSEM drill, use only the approved toolholding method shown below.

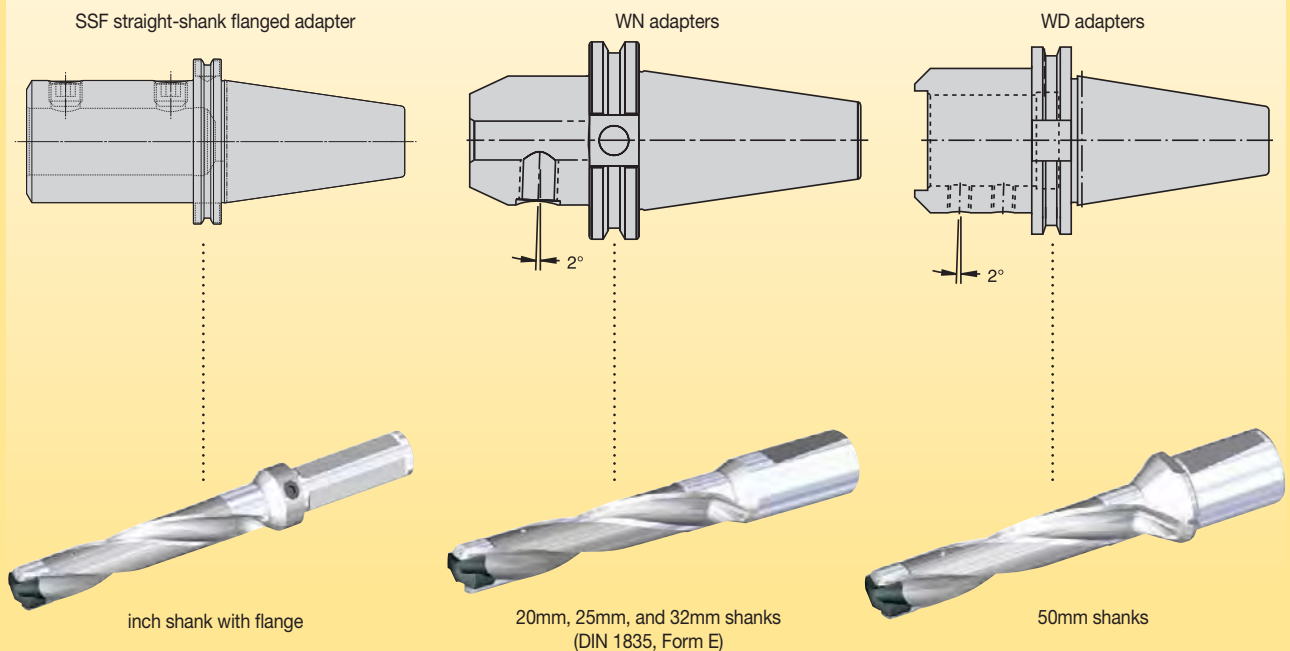


Inch Drill Bodies with Flange

KSEM inch drills with a flange can be used in rotating applications where the drill rotates and the workpiece remains stationary. To maintain accuracy and get maximum performance from the drill, use only the approved toolholding method shown here.

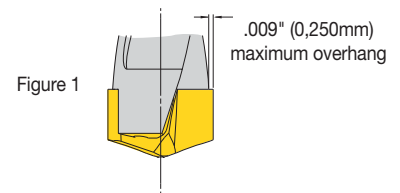
Metric Drill Bodies with a 2° Whistle Notch

KSEM metric drills come equipped with 2° Whistle Notch shanks. The 20mm, 25mm, and 32mm diameter shanks use WN adapters. The 50mm shank uses a WD adapter. Choose the correct adapter to minimize runout and securely hold the drill.



Insert blades may be used, within limits, on different drill bodies. The insert blade must be of the same seat size. Overhang (see Figure 1) must be kept under .0098" (0,250mm) per side. For best drilling performance, rigidity, and efficient chip evacuation, always use the first-choice steel body. Performance may be compromised by using alternatives. In some applications, chips may bind between the drill body and the hole wall — especially when machining long-chipping materials like austenitic stainless steel and low-carbon steel.

(does not apply to stub length drills)



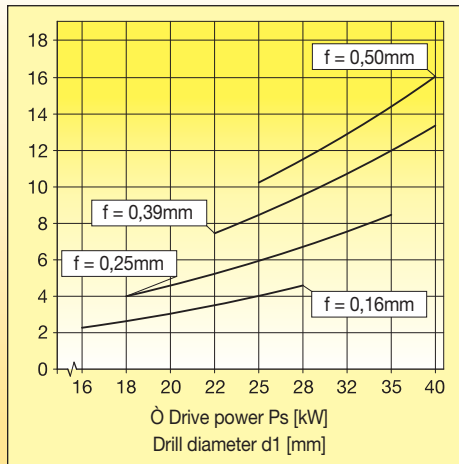
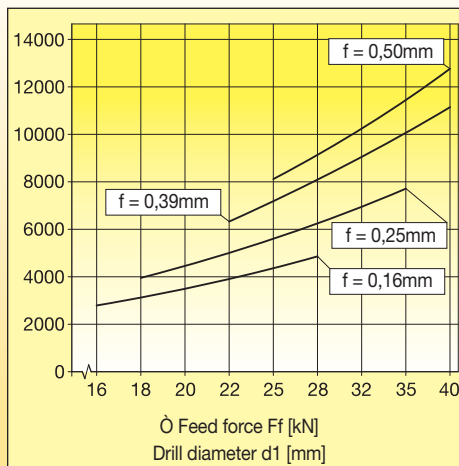
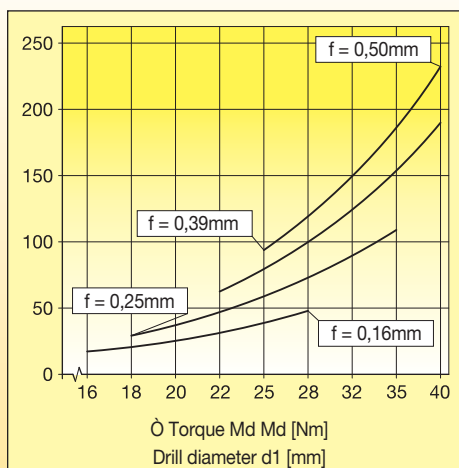
diameter D		insert blade	seat size	first choice	alternate body 1	alternate body 2	alternate body 3	alternate body 4
inch	mm							
.492	12,50	KSEM1250	C	KSEM125..M	-	-	-	-
.500	12,70	KSEM0500	C	KSEM0500..	KSEM125..M	-	-	-
.509	12,93	KSEM0509	C	KSEM0509..	KSEM0500..	KSEM125..M	-	-
.512	13,00	KSEM1300	C	KSEM130..M	KSEM0509..	KSEM0500..	KSEM125..M	-
.516	13,10	KSEM0516	C	KSEM0516..	KSEM130..M	KSEM0509..	KSEM0500..	-
.531	13,50	KSEM1350	C	KSEM135..M	KSEM0531..	KSEM0516..	KSEM130..M	-
.547	13,89	KSEM0547	B	KSEM0547..	KSEM136..M	-	-	-
.551	14,00	KSEM1400	B	KSEM140..M	KSEM136..M	KSEM0547..	-	-
.563	14,29	KSEM0563	B	KSEM0563..	KSEM140..M	KSEM0547..	-	-
.571	14,50	KSEM1450	B	KSEM145..M	KSEM0563..	KSEM140..M	-	-
.578	14,68	KSEM0578	A	KSEM0578..	KSEM146..M	-	-	-
.591	15,00	KSEM1500	A	KSEM150..M	KSEM146..M	KSEM0578..	-	-
.594	15,08	KSEM0594	A	KSEM0594..	KSEM150..M	KSEM0578..	-	-
.609	15,48	KSEM0609	A	KSEM0609..	KSEM0594..	KSEM150..M	-	-
.610	15,50	KSEM1550	A	KSEM155..M	KSEM0609..	KSEM0594..	KSEM150..M	-
.625	15,88	KSEM0625	1	KSEM0625..	-	-	-	-
.630	16,00	KSEM1600	1	KSEM160..M	KSEM0625..	-	-	-
.634	16,09	KSEM0634	1	KSEM0634..	KSEM160..M	KSEM0625..	-	-
.641	16,27	KSEM0641	1	KSEM0641..	KSEM0634..	KSEM160..M	KSEM0625..	-
.650	16,50	KSEM1650	1	KSEM165..M	KSEM0641..	KSEM0634..	-	-
.656	16,67	KSEM0656	1	KSEM0656..	KSEM165..M	KSEM0641..	-	-
.669	17,00	KSEM1700	1	KSEM170..M	KSEM0656..	KSEM165..M	-	-
.672	17,07	KSEM0672	1	KSEM0672..	KSEM170..M	KSEM0656..	-	-
.688	17,46	KSEM0688	1	KSEM0688..	KSEM0672..	KSEM170..M	-	-
.689	17,50	KSEM1750	1	KSEM175..M	KSEM0688..	KSEM0672..	KSEM170..M	-
.700	17,78	KSEM0700	1	N/A	KSEM175..M	KSEM0688..	-	-
.703	17,86	KSEM0703	1	KSEM0703..	KSEM175..M	KSEM0688..	-	-
.709	18,00	KSEM1800	1	KSEM180..M	KSEM0703..	KSEM175..M	-	-
.719	18,26	KSEM0719	2	KSEM0719..	KSEM181..M	-	-	-
.728	18,50	KSEM1850	2	KSEM185..M	KSEM0719..	KSEM181..M	-	-
.734	18,65	KSEM0734	2	KSEM0734..	KSEM185..M	KSEM0719..	-	-
.748	19,00	KSEM1900	2	KSEM190..M	KSEM0734..	KSEM185..M	-	-
.750	19,05	KSEM0750	2	KSEM0750..	KSEM190..M	KSEM0734..	-	-
.759	19,27	KSEM0759	2	KSEM0759..	KSEM0750..	KSEM190..M	-	-
.766	19,45	KSEM0766	2	KSEM0766..	KSEM0759..	KSEM0750..	KSEM190..M	-
.768	19,50	KSEM1950	2	KSEM195..M	KSEM0766..	KSEM0759..	KSEM0750..	KSEM190..M
.781	19,84	KSEM0781	2	KSEM0781..	KSEM195..M	KSEM0766..	-	-
.787	20,00	KSEM2000	3	KSEM200..M	-	-	-	-
.797	20,24	KSEM0797	3	KSEM0797..	KSEM200..M	-	-	-
.800	20,32	KSEM0800	3	N/A	KSEM0797..	KSEM200..M	-	-
.807	20,50	KSEM2050	3	KSEM205..M	KSEM0797..	KSEM200..M	-	-
.813	20,64	KSEM0813	3	KSEM0813..	KSEM205..M	KSEM0797..	-	-
.827	21,00	KSEM2100	3	KSEM210..M	KSEM0813..	KSEM205..M	-	-
.844	21,43	KSEM0844	3	KSEM0844..	KSEM210..M	-	-	-
.847	21,50	KSEM2150	3	KSEM215..M	KSEM0844..	KSEM210..M	-	-
.859	21,83	KSEM0859	3	KSEM0859..	KSEM215..M	KSEM0844..	-	-
.866	22,00	KSEM2200	3	KSEM220..M	KSEM0859..	KSEM215..M	-	-
.875	22,23	KSEM0875	4	KSEM0875..	KSEM221..M	-	-	-
.884	22,44	KSEM0884	4	KSEM0884..	KSEM0875..	KSEM221..M	-	-
.886	22,50	KSEM2250	4	KSEM225..M	KSEM0884..	KSEM0875..	KSEM221..M	-
.906	23,00	KSEM2300	4	KSEM230..M	KSEM0906..	KSEM225..M	-	-
.922	23,42	KSEM0922	4	KSEM0922..	KSEM230..M	-	-	-
.925	23,50	KSEM2350	4	KSEM235..M	KSEM0922..	KSEM230..M	-	-
.938	23,81	KSEM0938	4	KSEM0938..	KSEM235..M	KSEM0922..	-	-
.945	24,00	KSEM2400	4	KSEM240..M	KSEM0938..	KSEM235..M	-	-

(continued)

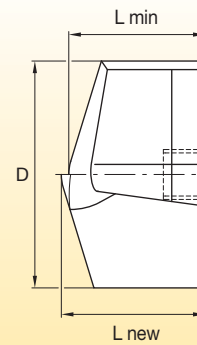
(continued)

Modular Drills

diameter D		insert blade	seat size	first choice	alternate body 1	alternate body 2	alternate body 3	alternate body 4
inch	mm							
.965	24,50	KSEM2450	5	KSEM245..M	KSEM241..M	-	-	-
.969	24,61	KSEM0969	5	KSEM0969..	KSEM245..M	-	-	-
.984	25,00	KSEM2500	5	KSEM250..M	KSEM0984..	KSEM0969..	KSEM245..M	-
1.000	25,40	KSEM1000	5	KSEM1000..	KSEM250..M	-	-	-
1.004	25,50	KSEM2550	5	KSEM255..M	KSEM1000..	KSEM250..M	-	-
1.011	25,67	KSEM1011	5	KSEM1011..	KSEM255..M	-	-	-
1.024	26,00	KSEM2600	5	KSEM260..M	KSEM1011..	KSEM255..M	-	-
1.031	26,19	KSEM1031	6	KSEM1031..	KSEM261..M	-	-	-
1.043	26,50	KSEM2650	6	KSEM265..M	KSEM1031..	KSEM261..M	-	-
1.047	26,59	KSEM1047	6	KSEM1047..	KSEM265..M	KSEM1031..	KSEM261..M	-
1.063	27,00	KSEM2700	6	KSEM270..M	KSEM1063..	KSEM1047..	KSEM265..M	-
1.083	27,50	KSEM2750	6	KSEM275..M	KSEM270..M	KSEM1063..	-	-
1.094	27,78	KSEM1094	6	KSEM1094..	KSEM275..M	-	-	-
1.102	28,00	KSEM2800	6	KSEM280..M	KSEM1094..	KSEM275..M	-	-
1.109	28,18	KSEM1109	7	KSEM1109..	KSEM281..M	-	-	-
1.122	28,50	KSEM2850	7	KSEM285..M	KSEM1109..	KSEM281..M	-	-
1.125	28,58	KSEM1125	7	KSEM1125..	KSEM285..M	KSEM1109..	KSEM281..M	-
1.142	29,00	KSEM2900	7	KSEM290..M	KSEM1125..	KSEM285..M	-	-
1.156	29,37	KSEM1156	7	KSEM1156..	KSEM290..M	-	-	-
1.161	29,50	KSEM2950	7	KSEM295..M	KSEM1156..	KSEM290..M	-	-
1.172	29,77	KSEM1172	7	KSEM1172..	KSEM295..M	KSEM1156..	-	-
1.181	30,00	KSEM3000	7	KSEM300..M	KSEM1172..	KSEM295..M	-	-
1.188	30,16	KSEM1188	8	KSEM1188..	KSEM301..M	-	-	-
1.201	30,50	KSEM3050	8	KSEM305..M	KSEM1188..	KSEM301..M	-	-
1.203	30,56	KSEM1203	8	KSEM1203..	KSEM305..M	KSEM1188..	KSEM301..M	-
1.219	30,96	KSEM1219	8	KSEM1219..	KSEM1203..	KSEM305..M	-	-
1.220	31,00	KSEM3100	8	KSEM310..M	KSEM1219..	KSEM1203..	KSEM305..M	-
1.240	31,50	KSEM3150	8	KSEM315..M	KSEM310..M	-	-	-
1.250	31,75	KSEM1250	8	KSEM1250..	KSEM315..M	-	-	-
1.260	32,00	KSEM3200	8	KSEM320..M	KSEM1250..	KSEM315..M	-	-
1.280	32,50	KSEM3250	9	-	KSEM321..M	-	-	-
1.281	32,54	KSEM1281	9	KSEM1281..	KSEM321..M	-	-	-
1.297	32,94	KSEM1297	9	KSEM1297..	KSEM1281..	-	-	-
1.299	33,00	KSEM3300	9	KSEM330..M	KSEM1297..	KSEM1281..	-	-
1.313	33,34	KSEM1313	9	KSEM1313..	KSEM330..M	KSEM1297..	-	-
1.319	33,50	KSEM3350	9	-	-	KSEM1313..	KSEM330..M	-
1.328	33,73	KSEM1328	9	KSEM1328..	KSEM1313..	-	-	-
1.339	34,00	KSEM3400	9	KSEM340..M	KSEM1328..	-	-	-
1.344	34,13	KSEM1344	9	KSEM1344..	KSEM340..M	KSEM1328..	-	-
1.358	34,50	KSEM3450	9	-	-	KSEM1344..	KSEM340..M	-
1.375	34,93	KSEM1375	9	KSEM1375..	-	-	-	-
1.378	35,00	KSEM3500	9	KSEM350..M	KSEM1375..	-	-	-
1.398	35,50	KSEM3550	9	-	-	KSEM350..M	-	-
1.406	35,72	KSEM1406	9	KSEM1406..	-	-	-	-
1.417	36,00	KSEM3600	9	KSEM360..M	KSEM1406..	-	-	-
1.422	36,12	KSEM1422	10	KSEM1422..	KSEM361..M	-	-	-
1.437	36,50	KSEM3650	10	-	-	KSEM1422..	KSEM361..M	-
1.438	36,51	KSEM1438	10	KSEM1438..	KSEM1422..	KSEM361..M	-	-
1.457	37,00	KSEM3700	10	KSEM370..M	KSEM1438..	-	-	-
1.469	37,31	KSEM1469	10	KSEM1469..	KSEM370..M	-	-	-
1.476	37,50	KSEM3750	10	-	-	KSEM1469..	KSEM370..M	-
1.496	38,00	KSEM3800	10	KSEM380..M	-	-	-	-
1.500	38,10	KSEM1500	10	KSEM1500..	KSEM380..M	-	-	-
1.514	38,46	KSEM1514	10	KSEM1514..	KSEM1500..	KSEM380..M	-	-
1.516	38,50	KSEM3850	10	-	-	KSEM1514..	KSEM1500..	KSEM380..M
1.535	39,00	KSEM3900	10	KSEM390..M	-	-	-	-
1.555	39,50	KSEM3950	10	-	-	KSEM390..M	-	-
1.575	40,00	KSEM4000	10	KSEM400..M	-	-	-	-

Drive Power (kW)

Feed Force (kN)

Torque (Nm)


NOTE: The diagrams above are used to determine the drive power, feed force, and torque. They are based on cutting force measurement in tempered steels in Cgr. 6. Tensile strength: $R_m = 600 \text{ N/mm}^2$. The base cutting speed used is: $v_c = 80 \text{ m/min}$.



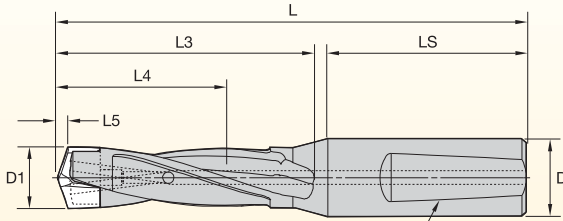
The following coolant pressure is recommended:

relative drilling depth	coolant pressure
1–3 x D	8 bars
5 x D	12 bars
7 x D	20 bars
10 x D	30 bars

insert seat size	diameter range D (mm)	L min. (mm)	L new (mm)
C	12,50–13,50	8,5	9,6
B	13,51–14,50	8,9	10,1
A	14,51–15,88	9,4	10,6
1	15,88–18,00	10,3	11,6
2	18,01–19,99	11,2	12,6
3	20,00–22,00	12,1	13,6
4	22,01–24,00	13,0	14,6
5	24,01–26,00	13,9	15,6
6	26,01–28,00	14,8	16,6
7	28,01–30,00	15,7	17,6
8	30,01–32,00	16,6	18,6
9	32,01–36,00	18,4	20,6
10	36,01–40,00	20,2	22,6

Modular Drills • Dimension Tables

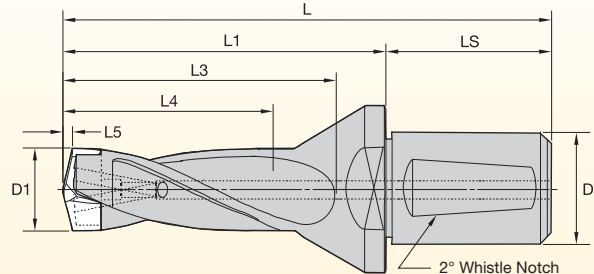
■ Dimensions for KSEM™ Whistle Notch Shank • WN/WD 3 x D to 10 x D • Metric



2° Whistle Notch
DIN 1835 part 1 form E

for diameters <math>< 16\text{mm}</math>, DIN 6535 - HE
for diameters >math>16\text{mm}</math>, DIN 1835 part 1 form E

Whistle Notch shank $D1 \le 32\text{mm}$



Whistle Notch shank with Drive $D1 \ge 32\text{mm}$

D1		WN/WD Shank Metric								WN Shank Metric					
		3 x D				5 x D				7 x D			10 x D		
mm	inch	L	L1	L4 max	wrench	L	L1	L4 max	wrench	L	L4 max	wrench	L	L4 max	wrench
12,50	.4921	111	—	42	170.294	139	—	70	170.294	167	98	170.295	195	125	170.296
13,00	.5118	111	—	42	170.294	139	—	70	170.294	167	98	170.295	200	130	170.296
13,50	.5315	111	—	42	170.294	139	—	70	170.294	167	98	170.295	205	135	170.296
13,51	.5319	111	—	42	170.289	139	—	70	170.289	167	98	170.290	205	135	170.291
14,00	.5512	111	—	42	170.289	139	—	70	170.289	167	98	170.290	210	140	170.291
14,50	.5709	122	—	48	170.289	154	—	80	170.289	186	112	170.290	220	145	170.291
14,51	.5713	122	—	48	170.289	154	—	80	170.289	186	112	170.290	220	145	170.291
15,00	.5906	122	—	48	170.289	154	—	80	170.289	186	112	170.290	225	150	170.291
15,50	.6102	122	—	48	170.289	154	—	80	170.289	186	112	170.290	230	155	170.291
16,00	.6299	122	—	48	170.270	154	—	80	170.270	186	112	170.270	234	160	170.271
16,50	.6496	130	—	54	170.270	166	—	90	170.270	202	126	170.271	241	165	170.281
17,00	.6693	130	—	54	170.270	166	—	90	170.270	202	126	170.271	246	170	170.281
17,50	.6890	130	—	54	170.270	166	—	90	170.270	202	126	170.271	251	175	170.281
18,00	.7087	130	—	54	170.270	166	—	90	170.270	202	126	170.271	256	180	170.281
18,01	.7091	—	—	—	—	184	—	100	170.270	—	—	170.271	269	185	170.281
18,50	.7283	144	—	60	170.270	184	—	100	170.270	224	140	170.271	269	185	170.281
19,00	.7480	144	—	60	170.270	184	—	100	170.270	224	140	170.271	274	190	170.281
19,50	.7677	144	—	60	170.270	184	—	100	170.270	224	140	170.271	279	195	170.281
20,00	.7874	153	—	60	170.272	197	—	100	170.272	241	140	170.273	297	200	170.282
20,50	.8071	153	—	66	170.272	197	—	110	170.272	241	154	170.273	297	205	170.282
21,00	.8268	153	—	66	170.272	197	—	110	170.272	241	154	170.273	297	210	170.282
21,50	.8465	153	—	66	170.272	197	—	110	170.272	241	154	170.273	307	215	170.282
22,00	.8661	153	—	66	170.272	197	—	110	170.272	241	154	170.273	307	220	170.282
22,01	.8665	—	—	—	—	209	—	120	170.272	—	—	170.273	319	225	170.282
22,50	.8858	161	—	72	170.272	209	—	120	170.272	257	168	170.273	319	225	170.282
23,00	.9055	161	—	72	170.272	209	—	120	170.272	257	168	170.273	319	230	170.282
23,50	.9252	161	—	72	170.272	209	—	120	170.272	257	168	170.273	329	235	170.282
24,00	.9449	161	—	72	170.272	209	—	120	170.272	257	168	170.273	329	240	170.282
24,01	.9453	—	—	—	—	226	—	130	170.274	—	—	—	346	245	170.283
24,50	.9646	174	—	78	170.274	226	—	130	170.274	278	182	170.275	346	245	170.283
25,00	.9843	174	—	78	170.274	226	—	130	170.274	278	182	170.275	346	250	170.283
25,50	10.039	174	—	78	170.274	226	—	130	170.274	278	182	170.275	356	255	170.283
26,00	10.236	174	—	78	170.274	226	—	130	170.274	278	182	170.275	356	260	170.283
26,01	10.240	—	—	—	—	238	—	140	170.274	—	—	170.275	363	265	170.283
26,50	10.433	182	—	84	170.274	238	—	140	170.274	294	196	170.275	363	265	170.283
27,00	10.630	182	—	84	170.274	238	—	140	170.274	294	196	170.275	368	270	170.283
27,50	10.827	182	—	84	170.274	238	—	140	170.274	294	196	170.275	378	275	170.283
28,00	11.024	182	—	84	170.274	238	—	140	170.274	294	196	170.275	378	280	170.283
28,02	11.028	—	—	—	—	250	—	150	170.276	—	—	—	390	285	170.284
28,50	11.220	190	—	90	170.276	250	—	150	170.276	310	210	170.277	390	285	170.284
29,00	11.417	190	—	90	170.276	250	—	150	170.276	310	210	170.277	390	290	170.284
29,50	11.614	190	—	90	170.276	250	—	150	170.276	310	210	170.277	400	295	170.284

(continued)

Modular Drills • Dimension Tables *(continued)*

■ Dimensions for KSEM™ Whistle Notch Shank • WN/WD 3 x D to 10 x D • Metric

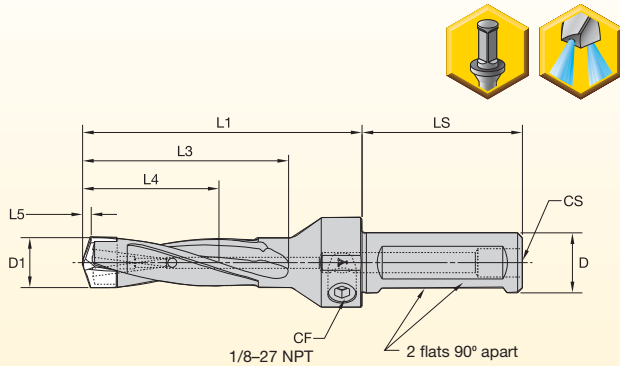


D1		WN/WD Shank Metric								WN Shank Metric					
		3 x D				5 x D				7 x D			10 x D		
mm	inch	L	L1	L4 max	wrench	L	L1	L4 max	wrench	L	L4 max	wrench	L	L4 max	wrench
30,00	11.811	190	—	90	170.276	250	—	150	170.276	310	210	170.277	400	300	170.284
30,01	11.815	—	—	—	—	264	—	160	170.276	—	—	170.277	414	305	170.284
30,50	12.008	200	—	96	170.276	264	—	160	170.276	328	224	170.277	—	—	—
31,00	12.205	200	—	96	170.276	264	—	160	170.276	328	224	170.277	414	310	170.284
31,50	12.402	200	—	96	170.276	264	—	160	170.276	328	224	170.277	—	—	—
32,00	12.598	200	—	96	170.276	264	—	160	170.276	328	224	170.277	424	320	170.284
32,01	12.602	220	159	99	170.276	293	225	165	170.277	—	—	—	—	—	—
33,00	12.992	227	159	99	170.276	293	225	165	170.277	—	—	—	—	—	—
34,00	13.386	225	157	102	170.276	293	225	170	170.277	—	—	—	—	—	—
35,00	13.780	235	167	105	170.276	305	237	175	170.277	—	—	—	—	—	—
36,00	14.173	233	165	108	170.276	305	237	180	170.277	—	—	—	—	—	—
36,01	14.177	237	176	111	170.276	318	250	185	170.277	—	—	—	—	—	—
37,00	14.567	244	176	111	170.276	318	250	185	170.277	—	—	—	—	—	—
38,00	14.961	242	174	114	170.276	318	250	190	170.277	—	—	—	—	—	—
39,00	15.354	252	184	117	170.276	330	262	195	170.277	—	—	—	—	—	—
40,00	15.748	250	182	120	170.276	330	262	200	170.277	—	—	—	—	—	—

(continued)

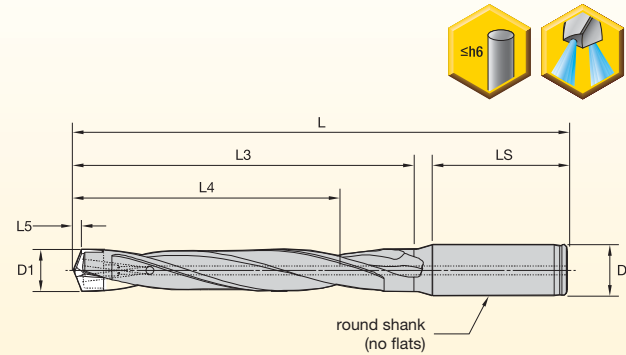
Modular Drills • Dimension Tables (continued)

■ Dimensions for KSEM Flanged Shank • 5 x D/8 x D • Inch



D1		5 x D			8 x D		
mm	inch	L1	L4 max	wrench	L1	L4 max	wrench
12,700	.5000	3.94	2.50	170.294	—	—	—
12,929	.5090	4.00	2.55	170.294	—	—	—
13,106	.5160	4.00	2.58	170.294	—	—	—
13,487	.5310	4.13	2.66	170.294	—	—	—
13,894	.5470	4.13	2.73	170.289	—	—	—
14,300	.5630	4.25	2.81	170.289	—	—	—
14,681	.5780	4.31	2.89	170.289	—	—	—
15,088	.5940	4.38	2.97	170.289	—	—	—
15,469	.6090	4.5	3.05	170.289	—	—	—
15,875	.6250	4.75	3.15	170.270	6.25	5.00	170.271
17,463	.6875	5.25	3.54	170.270	7.00	5.50	170.271
19,050	.7500	5.88	3.94	170.271	7.50	6.00	170.281
19,050	.7500	6.00	3.94	170.271	7.50	6.00	170.281
20,637	.8125	6.25	4.33	170.273	8.00	6.50	170.282
20,638	.8125	6.25	4.33	170.273	—	—	170.282
22,225	.8750	6.63	4.72	170.273	8.50	7.00	170.282
22,225	.8750	6.75	4.72	170.273	8.50	7.00	170.282
23,813	.9375	6.63	4.72	170.273	9.13	7.50	170.282
24,606	.9688	7.13	5.12	170.275	—	—	—
25,003	.9844	7.13	5.12	170.275	9.50	7.88	170.283
25,400	1.0000	7.25	5.12	170.275	9.63	8.00	170.283
25,400	1.0000	7.25	5.12	170.275	9.63	8.00	170.283
26,988	1.0625	7.63	5.51	170.275	10.25	8.50	170.283
28,575	1.1250	8.13	5.91	170.277	10.75	9.00	170.284
30,163	1.1875	8.50	6.30	170.277	11.38	9.50	170.284
31,750	1.2500	8.50	6.30	170.277	11.88	10.00	170.284
31,750	1.2500	8.75	6.30	170.277	11.88	10.00	170.284

■ Dimensions for KSEM Round Shank • 7 x D/10 x D • Inch



D1		7 x D			10 x D		
mm	inch	L1	L4 max	wrench	L1	L4 max	wrench
12,70	.5000	5.63	3.50	170.295	7.75	5.00	170.296
12,70	.5000	6.13	3.50	170.295	—	—	—
12,93	.5090	6.25	3.56	170.295	7.88	5.09	170.296
13,10	.5160	6.25	3.61	170.295	8.00	5.16	170.296
13,49	.5310	6.38	3.72	170.295	8.13	5.31	170.296
13,89	.5470	6.50	3.83	170.290	8.25	5.47	170.291
14,29	.5630	6.63	3.94	170.290	8.38	5.63	170.291
14,68	.5780	6.75	4.05	170.290	8.50	5.78	170.291
15,08	.5940	6.88	4.16	170.290	8.75	5.94	170.291
15,48	.6090	7.00	4.27	170.290	8.88	6.09	170.291
15,88	.6250	7.38	4.41	170.270	9.00	6.25	170.281
16,10	.6335	8.00	4.59	170.271	9.13	6.34	170.281
16,67	.6563	8.00	4.96	170.271	9.38	6.56	170.281
17,46	.6875	8.00	4.96	170.271	9.75	6.88	170.281
18,25	.7188	8.88	5.51	170.271	10.25	7.19	170.281
19,05	.7500	8.88	5.51	170.271	10.50	7.50	170.281
19,05	.7500	9.88	5.51	170.281	11.50	7.50	170.281
19,28	.7585	8.88	5.51	170.271	—	—	—
19,28	.7585	—	—	—	11.50	7.59	170.281
19,85	.7813	9.88	5.51	170.281	11.75	7.81	170.281
20,64	.8125	10.25	6.06	170.273	12.13	8.13	170.282
21,43	.8438	10.25	6.06	170.273	12.50	8.44	170.282
22,23	.8750	10.88	6.61	170.282	12.75	8.75	170.282
22,23	.8750	11.13	6.61	170.282	—	—	—
22,45	.8835	10.88	6.61	170.282	12.88	8.84	170.282
23,02	.9063	10.88	6.61	170.282	13.13	9.06	170.282
23,81	.9375	10.88	6.61	170.282	13.44	9.38	170.282
24,61	.9688	11.63	7.17	170.275	13.88	9.69	170.283
25,00	.9844	11.63	7.17	170.283	14.00	9.84	170.283
25,40	1.0000	11.63	7.17	170.283	14.13	10.00	170.283
25,40	1.0000	11.88	7.17	170.283	14.38	10.00	170.283
25,68	1.0105	12.25	7.08	170.283	14.50	10.11	170.283
26,20	1.0313	12.50	7.72	170.283	14.75	10.31	170.283
26,99	1.0625	12.50	7.72	170.283	15.13	10.63	170.283
27,78	1.0938	12.50	7.72	170.283	15.50	10.94	170.283
28,58	1.1250	13.13	8.27	170.284	15.75	11.25	170.284
29,37	1.1563	13.13	8.27	170.284	16.13	11.56	170.284
30,16	1.1875	13.75	8.82	170.284	16.50	11.88	170.284
30,96	1.2188	13.75	8.82	170.284	16.88	12.19	170.284
31,75	1.2500	13.75	8.82	170.284	17.13	12.50	170.284
31,75	1.2500	14.25	8.82	170.284	17.63	12.50	170.284

(continued)

Modular Drills • Dimension Tables (continued)

■ **Dimensions for KSEM Round Shank • 3 x D/5 x D • Inch**



D1		3 x D			5 x D		
mm	inch	L1	L4 max	wrench	L1	L4 max	wrench
12,700	.5000	—	—	170.294	4.63	2.50	170.294
12,700	.5000	4.13	1.50	170.294	5.13	2.50	170.294
12,929	.5090	4.25	1.53	170.294	5.25	2.55	170.294
13,106	.5160	—	—	170.294	5.25	2.58	170.294
13,487	.5310	4.25	1.59	170.294	5.38	2.66	170.294
13,894	.5470	4.38	1.64	170.289	5.44	2.73	170.289
14,300	.5630	4.38	1.69	170.289	5.50	2.81	170.289
14,681	.5780	4.50	1.73	170.289	5.63	2.89	170.289
15,088	.5940	4.50	1.78	170.289	5.75	2.97	170.289
15,469	.6090	4.63	1.83	170.289	5.88	3.05	170.289
15,875	.6250	4.63	1.88	170.270	6.00	3.15	170.270
16,091	.6335	—	—	170.270	6.50	3.54	170.270
16,104	.6340	4.75	1.90	170.270	—	—	170.270
16,281	.6410	4.75	1.92	170.270	6.50	3.54	170.270
16,662	.6560	4.88	1.97	170.270	—	—	170.270
16,669	.6563	—	—	170.270	6.50	3.54	170.270
17,069	.6720	4.88	2.02	170.270	6.50	3.54	170.270
17,463	.6875	4.88	2.06	170.270	6.50	3.54	170.270
17,856	.7030	5.00	2.11	170.270	6.50	3.54	170.270
18,256	.7188	—	—	170.270	7.25	3.94	170.270
18,263	.7190	5.00	2.16	170.270	—	—	170.270
18,644	.7340	5.13	2.20	170.270	7.25	3.94	170.270
19,050	.7500	6.13	2.25	170.270	8.25	3.94	170.271
19,050	.7500	5.13	2.25	170.270	7.25	3.94	170.270
19,279	.7585	5.25	2.28	170.270	7.25	3.94	170.270
19,456	.7660	6.25	2.30	170.270	8.25	3.94	170.271
19,845	.7813	6.25	2.34	170.270	8.13	3.94	170.271
19,837	.7810	—	—	—	—	—	170.271
20,244	.7970	6.38	2.39	170.272	8.50	4.33	170.272
20,638	.8125	6.38	2.44	170.272	8.50	4.33	170.272
21,431	.8438	—	—	170.272	8.50	4.33	170.272
21,438	.8440	6.50	2.53	170.272	—	—	170.272
21,829	.8590	6.63	2.58	170.272	8.50	4.33	170.272
21,819	.8590	—	—	170.272	—	—	170.272
22,225	.8750	6.88	2.63	170.272	9.00	4.72	170.273
22,225	.8750	6.63	2.63	170.272	9.25	4.72	170.273
22,454	.8835	6.75	2.65	170.272	9.00	4.72	170.273
22,454	.8840	—	—	170.272	—	—	170.273
23,012	.9060	6.75	2.72	170.272	—	—	170.273
23,019	.9063	—	—	170.272	9.00	4.72	170.273

D1		3 x D			5 x D		
mm	inch	L1	L4 max	wrench	L1	L4 max	wrench
23,419	.9220	6.88	2.77	170.272	9.00	4.72	170.273
23,813	.9375	6.88	2.81	170.272	9.00	4.72	170.273
24,606	.9688	—	—	170.272	9.50	5.12	170.274
24,613	.9690	7.00	2.91	170.274	—	—	170.274
25,003	.9844	7.13	2.95	170.274	9.50	5.12	170.274
25,400	1.0000	7.13	3.00	170.274	9.75	5.12	170.274
25,400	1.0000	—	—	170.274	9.50	5.12	170.274
25,679	1.0105	—	—	170.274	10.00	5.06	170.274
25,679	1.0110	7.50	3.03	170.274	—	—	—
26,187	1.0310	7.50	3.09	170.274	—	—	—
26,195	1.0313	—	—	170.274	10.25	5.51	170.275
26,594	1.0470	—	—	170.274	10.25	5.51	170.275
26,988	1.0625	7.63	3.19	170.274	10.25	5.51	170.275
27,781	1.0938	—	—	170.274	10.25	5.51	170.275
28,169	1.1090	7.88	3.33	170.274	10.75	5.91	170.276
28,575	1.1250	7.88	3.38	170.276	10.75	5.91	170.276
29,362	1.1560	8.00	3.47	170.276	—	—	—
29,370	1.1563	—	—	170.276	10.75	5.91	170.276
29,769	1.1720	8.13	3.52	170.276	10.75	5.91	170.276
30,163	1.1875	8.13	3.56	170.276	11.25	6.30	170.277
30,556	1.2030	—	—	170.276	11.25	6.30	170.277
30,958	1.2188	—	—	170.276	11.25	6.30	170.277
30,963	1.2190	8.25	3.66	170.276	—	—	—
31,750	1.2500	8.38	3.75	170.276	11.75	6.30	170.277
31,750	1.2500	8.88	3.75	170.276	11.25	6.30	170.277
32,537	1.2810	9.00	3.84	170.276	12.50	6.41	170.277
32,941	1.2970	—	—	170.276	12.50	6.48	170.277
32,944	1.2970	9.13	3.89	170.276	—	—	—
33,350	1.3130	9.13	3.94	170.276	12.50	6.56	170.277
33,731	1.3280	9.25	3.98	170.276	—	—	—
33,734	1.3280	—	—	170.276	12.50	6.64	170.277
34,138	1.3440	—	—	170.276	13.00	6.72	170.277
34,925	1.3750	9.38	4.13	170.276	13.00	6.87	170.277
35,712	1.4060	9.50	4.22	170.276	13.00	7.03	170.277
36,119	1.4220	—	—	170.276	13.50	7.11	170.277
36,513	1.4380	—	—	170.276	13.50	7.19	170.277
36,525	1.4380	9.63	4.31	170.276	—	—	—
37,313	1.4690	—	—	170.276	13.50	7.34	170.277
38,100	1.5000	9.88	4.50	170.276	13.50	7.50	170.277
38,456	1.5140	10.00	4.54	170.276	13.50	7.57	170.277

➤ KGEM Tube Sheet Grooving Tool

Primary Application

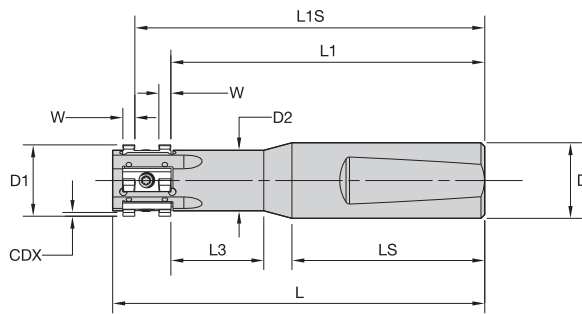
The new Kennametal grooving tool features a unique approach for manufacturing two grooves simultaneously in minimal time, especially in heat exchanger manufacturing. All tubes need a finish operation to connect them. This new grooving insert features a geometry designed for bur-free cutting and is made with KCU45™, a special grade for machining a wide variety of materials in the heat exchanger industry, including A516-grade 70 low-carbon steel, 304 stainless steel, duplex, and Hastelloy®. The minimal amount of tungsten carbide in the insert eliminates the need for refurbishment, enabling the tool to work faster with a lower cost per hole.

Features and Benefits

Higher Productivity and Profitability

- Two edges per insert.
- Up to four inserts working at the same time.
- Rigid tool body design for highest productivity and grooving quality.
- Milling tool for maximum flexibility in hole diameter and interrupted cut for chip control.
- KCU45 grade for machining a variety of materials used for heat exchangers.
- Internal coolant supply for optimal tool life, groove quality, and chip evacuation.
- One-path-to-finish tool.
- Flexibility in groove position.



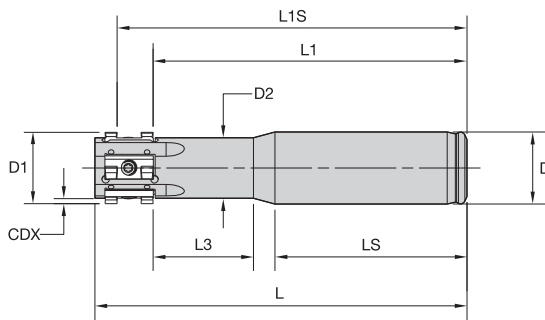


■ KGEM Groover Body • Metric



order number	catalog number	D1		D			L	LS	L1	L1S	L3	CDX	insert screw
		mm	in	D2	mm	in							
5408657	KGEM1588R1WN20M	15,88	.625	13,50	20,00	.787	101,00	51,00	85,00	94,52	25,63	1,00	MS1861
5134143	KGEM1905R1WN20M	18,87	.743	16,00	20,00	.787	98,42	50,80	83,03	92,55	24,58	1,00	MS1861
5134145	KGEM1905R3WN20M	18,87	.743	16,00	20,00	.787	123,82	50,80	108,44	117,96	49,99	1,00	MS1861

NOTE: The above dimensions are used when ordering engineered-solution reamers on this page unless otherwise specified.

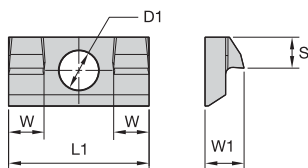


■ KGEM Groover Body • Inch



order number	catalog number	D1		D2	D	L	LS	L1	L1S	L3	CDX	insert screw
		mm	in									
5134142	KGEM0750R1SS075	18,87	.743	.63	.75	3 7/8	2.000	3.269	3.644	1.045	.039	MS1861
5134144	KGEM0750R3SS075	18,87	.743	.63	.75	4 7/8	2.000	4.269	4.644	2.045	.039	MS1861

NOTE: The above dimensions are used when ordering engineered-solution reamers on this page unless otherwise specified.



- first choice
- alternate choice

P	●
M	●
K	○
N	○
S	●
H	○



Modular Drills

KGEM Groover Insert

order number	catalog number	D1		W1		W		S		KCU45
		mm	in	mm	in	mm	in	mm	in	
5134141	KGIP0125N0189GD	2,80	.110	3,56	.140	3,18	.125	2,82	.111	●
5986819	KGIP0300N0189GD	2,80	.110	3,56	.140	3,00	.118	2,82	.111	●

Application Data

P	A516-Grade70
M	304SS/Duplex
S	Hastelloy

KGEM Tube Sheet Groover • KGIP GD Geometry • Grade KCU45™ • Through Coolant • Metric

Material Group	fz (mm/tooth)	tooth	RPM	vc (m/min)	VFC (mm/min)	VFL (mm/min)	DH (mm)	DT (mm)
P	0,05–0,075	4	1300–1500	77–89	2,46–4,27	264–457	19,05	18,87
M	0,05–0,075	4	600–900	35–53	1,70–2,57	183–274	19,05	18,87
S	0,05–0,075	4	250–300	15–18	0,48–0,86	51–91	19,05	18,87

KGEM Tube Sheet Groover • KGIP GD Geometry • Grade KCU45 • Through Coolant • Inch

Material Group	fz (inch/tooth)	tooth	RPM	vc (SFM)	VFC (inch/min)	VFL (inch/min)	DH (inch)	DT (inch)
P	0.002–0.003	4	1300–1500	252–291	0.097–0.168	10.4–18.0	0.75	0.743
M	0.002–0.003	4	600–900	116–174	0.067–0.101	7.2–10.8	0.75	0.743
S	0.002–0.003	4	250–300	48–58	0.019–0.034	2.0–3.6	0.75	0.743

Nomenclature:

fz: feed per tooth

VFL: linear feed rate = fz x number of tooth x RPM

VFC: compensated feed = VFL x (DH - DT)/DH

DT: tool diameter

DH: hole diameter

 NOTE: Choose low-feed (fz) for long tools and less rigid machine tools.
 Choose low RPM for lower coolant.

➤ KSEM PLUS™ Modular Drill System

Our KSEM PLUS drill concept is simple but effective. It combines the benefits of the KSEM™ modular drill (high feeds and length-to-diameter [L/D] ratios) with the benefits of an indexable drill (high speeds and low consumable costs). The KSEM PLUS system is a modular drilling platform, offering a pre-mountable HSS head with pocket seats for carbide inserts. The KSEM PLUS modular drill system features two head styles that are interchangeable on fitting tool bodies with our flexible FDS interface.

Primary Application

The KSEM PLUS system performs in steel, cast iron, stainless steel, and advanced materials. It is perfectly suited to exchange older HSS tools or low performance indexable drills for a very high performance drilling solution. The KSEM PLUS range comprises 28–101mm (1.102–4") from 1.5–10 x D. There is a wide range of applications in the energy market, and in general engineering (e.g., bearing rings for windmills, hydraulic manifolds, large engine parts, generator housings, etc.). This tool will deliver vast improvements in productivity, and greatly attribute to increasing your machining capacity.

Features and Benefits

Replaceable Heads with FDS-Interface Coupling

- Quickly and easily replace inserts or drill heads without removing tool bodies from the machine.
- Save money and reduce tool stock by replacing just the worn drill head.
- Use one tool body for different sizes and styles of drill head (a head fits any drill body of the same FDS size).

KSEM PLUS A1 Heads

- High metal removal rates.
- Very stable in normal cutting conditions.
- Cost-effective indexable Drill Fix™ DFT inserts.

KSEM PLUS B1 Heads

- High-speed drilling in difficult conditions.
- Drills stacked plates and cored holes.
- Capable of machining through cross holes.
- Works with slanted exits up to 15°.

Two Effective Cutting Edges

- The KSEM PLUS system has two full cutting edges in action when operating.
- Achieve up to 100% increased productivity versus an indexable drill of the same diameter.
- High L/D ratios possible from 1.5 x D up to 10 x D as stocked standards. Longer drills are possible as custom solutions.

KSEM PLUS Pilot Insert

- Very high feed rates, comparable to modular drills.
- Very long tool life of KSEM PLUS center inserts and modular heads due to better chip flow.
- No precentering necessary for drill depths up to 5 x D.

DFR™/DFT™/DFC™ Outboard Inserts

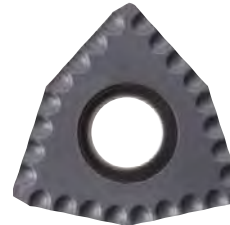
- Very high cutting speeds for high metal removal rates.
- Improved stability in all cutting conditions.
- Indexable inserts provide good surface finish and hole diameter accuracy.

KSEM PLUS™ A1 Heads
Economic, high-performance drilling.



NEW! All KSEMP Heads >70mm now available in 1mm and 1/8" pitch as standard product.

KSEM PLUS B1 Heads
High-performance drilling in difficult conditions.



NEW! DS geometry for long chipping materials.

NEW! 1.5 x D toolholders now available with WD and SSF shanks.



Tailored Grades

Center Inserts

- KC7315™ grade — TiAlN-based PVD grade for superior performance in steel and stainless steel applications.
- KC7410™ grade — multilayered PVD coating for outstanding wear resistance when drilling cast irons.
- KC7135™ grade — chip-resistant universal grade with a TiCN-TiN PVD coating for challenging applications in steel and stainless steel materials.

Drill Fix™ Lateral Inserts

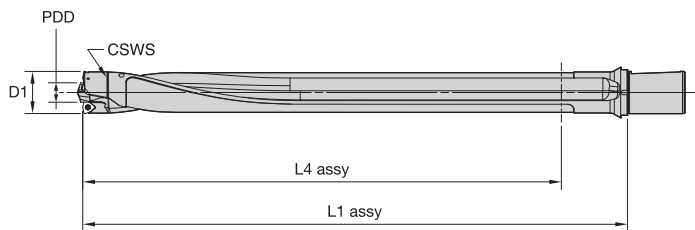
- KCU25™ grade — high metal removal rates, advanced TiCN-Al-CVD coating, and superior tool life in stable working conditions.
- KCU40™ grade — multilayered TiAlN-PVD coating with high wear resistance and reliability in most materials at medium cutting speeds.
- KC7140™ grade — TiCN-based, PVD-coated alloyed carbide for machining alloyed steel and stainless steel on KSEM PLUS systems.
- KC7225™ grade — TiAlN PVD-coated fine-grain carbide offers extreme process safety for non-ferrous materials, super alloys, and titanium.

NEW! **DFT™ and DFC™ Lateral Inserts with DS Geometry**

- Excellent performance and process stability in applications with long-chipping materials.
- Use for low carbon steel, difficult stainless steel, and non-ferrous materials where long chips can be an issue.
- Available in the KCU40™ grade.

Customization

- Heads are available in intermediate diameters, and up to Ø 127mm as semi-standards.
- Tool bodies available in all popular shank styles up to shank length of 1200mm. Some restrictions with L/D ratios over 20 x D apply.
- Toolholders can be designed with helical chip flutes for better chip evacuation (e.g. drilling in cast iron).
- Heads for use with reground center inserts are available as semi-standards.
- The KSEM PLUS system features a high level of available customization. Please contact us about for your individual metalcutting applications.

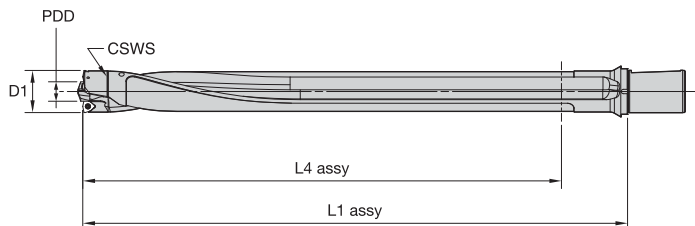


Modular Drills

D1		available KSEM PLUS heads		requested insert size reference per head		CSWS	available tool bodies per CSWS connecting size 3 x D, 5 x D, 8 x D, 10 x D (metric and inch bodies)				
mm	in	KSEM PLUS head order number	KSEM PLUS head ANSI catalog number	PDD (mm)	outboard insert Drill Fix™ DFC DPA guiding pads		KSEM PLUS body order number	KSEM PLUS body ANSI catalog number	L/D ratio	L4 assembly (mm)	L1 assembly (mm)
28.000	1.1024	4000408	KSEMP2800FDS28A1M	14.000	DFR040304D28	28	6123570	WD32FDS28076M	1.5 x D	57	101
28.575	1.1250	4047811	KSEMP1125FDS28A1	15.000	DFR040304D28		4000409	WD32FDS28128M	3 x D	96	153
29.000	1.1417	4047812	KSEMP2900FDS28A1M	15.000	DFR040304D28		4051136	WD32FDS28190M	5 x D	158	215
29.362	1.1563	4047823	KSEMP1156FDS28A1	16.000	DFR040304D28		4051137	WD32FDS28283M	8 x D	251	308
30.000	1.1811	4047824	KSEMP3000FDS28A1M	16.000	DFR040304D28		4000411	WD32FDS28345M	10 x D	313	370
30.175	1.1875	4047825	KSEMP1188FDS28A1	17.000	DFR040304D28		6123582	SSF150FDS280299	1.5 x D	57	101
30.963	1.2188	4047826	KSEMP1219FDS28A1	17.000	DFR040304D28		4051138	SSF150FDS280502	3 x D	96	153
31.000	1.2205	4047827	KSEMP3100FDS28A1M	17.000	DFR040304D28		4051139	SSF150FDS280746	5 x D	158	215
							4051140	SSF150FDS281112	8 x D	251	308
							4051141	SSF150FDS281356	10 x D	313	370
31.750	1.2500	3794916	KSEMP1250FDS32A1	15.000	DFT05T308D32	32	6123571	WD32FDS32082M	1.5 x D	59	107
32.000	1.2598	3794291	KSEMP3200FDS32A1M	15.000	DFT05T308D32		3950219	WD32FDS32146M	3 x D	110	171
33.000	1.2992	3742210	KSEMP3300FDS32A1M	16.000	DFT05T308D33		3794428	WD32FDS32216M	5 x D	180	241
33.200	1.3071	3793949	KSEMP3320FDS32A1M	16.000	DFT05T308D33		3742293	WD32FDS32321M	8 x D	285	346
33.350	1.3130	3794917	KSEMP1313FDS32A1	17.000	DFT05T308D33		3794429	WD32FDS32391M	10 x D	355	416
34.000	1.3386	3794292	KSEMP3400FDS32A1M	17.000	DFT05T308D33		6123583	SSF150FDS320323	1.5 x D	59	107
34.925	1.3750	3794918	KSEMP1375FDS32A1	18.000	DFT05T308D33		3952192	SSF150FDS320573	3 x D	110	171
35.000	1.3780	3794393	KSEMP3500FDS32A1M	18.000	DFT05T308D33		3794835	SSF150FDS320850	5 x D	180	241
							3794836	SSF150FDS321263	8 x D	285	346
							3794837	SSF150FDS321539	10 x D	355	416
36.000	1.4173	3794394	KSEMP3600FDS36A1M	13.000	DFT06T308D36	36	6123572	WD32FDS36092M	1.5 x D	65	117
36.525	1.4380	3794919	KSEMP1438FDS36A1	14.000	DFT06T308D36		3950220	WD32FDS36166M	3 x D	122	191
37.000	1.4567	3794395	KSEMP3700FDS36A1M	14.000	DFT06T308D36		3794430	WD32FDS36244M	5 x D	200	269
37.500	1.4764	3794427	KSEMP3750FDS36A1M	15.000	DFT06T308D36		3794431	WD32FDS36361M	8 x D	317	386
38.000	1.4961	3794396	KSEMP3800FDS36A1M	15.000	DFT06T308D36		3794432	WD32FDS36439M	10 x D	395	464
38.100	1.5000	3794920	KSEMP1500FDS36A1	15.000	DFT06T308D36		6123584	SSF150FDS360362	1.5 x D	65	117
39.000	1.5354	3794397	KSEMP3900FDS36A1M	16.000	DFT06T308D39		3952343	SSF150FDS360652	3 x D	122	191
39.200	1.5433	3793950	KSEMP3920FDS36A1M	16.000	DFT06T308D39		3794838	SSF150FDS360960	5 x D	200	269
39.700	1.5630	3794921	KSEMP1563FDS36A1	17.000	DFT06T308D39		3794839	SSF150FDS361421	8 x D	317	386
							3794840	SSF150FDS361728	10 x D	395	464
40.000	1.5748	3794398	KSEMP4000FDS40A1M	17.000	DFT06T308D39	40	6123573	WD50FDS40100M	1.5 x D	73	125
41.000	1.6142	3794399	KSEMP4100FDS40A1M	18.000	DFT06T308D39		3872075	WD50FDS40183M	3 x D	137	213
41.275	1.6250	3794922	KSEMP1625FDS40A1	18.000	DFT06T308D39		3794443	WD50FDS40271M	5 x D	225	301
42.000	1.6535	3794400	KSEMP4200FDS40A1M	19.000	DFT06T308D39		3794444	WD50FDS40403M	8 x D	357	433
43.000	1.6929	3794401	KSEMP4300FDS40A1M	20.000	DFT06T308D39		3794445	WD50FDS40491M	10 x D	445	521
44.000	1.7323	3794402	KSEMP4400FDS40A1M	21.000	DFT06T308D44		6123585	SSF200FDS400394	1.5 x D	73	125
44.450	1.7500	3794933	KSEMP1750FDS40A1	22.000	DFT06T308D44		3952344	SSF200FDS400721	3 x D	137	213
							3794841	SSF200FDS401066	5 x D	225	301
							3794842	SSF200FDS401586	8 x D	357	433
							3794903	SSF200FDS401933	10 x D	445	521

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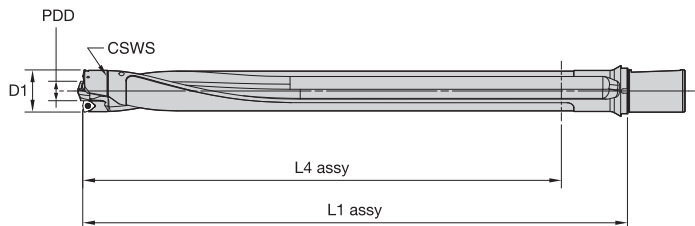
(KSEM PLUS Overview and Assembly for Systems Using A1 Heads — continued)



available KSEM PLUS heads			requested insert size reference per head		CSWS	available tool bodies per CSWS connecting size 3 x D, 5 x D, 8 x D, 10 x D (metric and inch bodies)					
D1 mm	D1 in	KSEM PLUS head order number	KSEM PLUS head ANSI catalog number	PDD (mm) center insert size reference		outboard insert Drill Fix™ DFC DPA guiding pads	KSEM PLUS body order number	KSEM PLUS body ANSI catalog number	L/D ratio	L4 assembly (mm)	L1 assembly (mm)
45.000	1.7717	3794403	KSEMP4500FDS45A1M	18.000	DFT070408D45	45	6123575	WD50FDS45112M	1.5 x D	85	147
46.000	1.8110	3794404	KSEMP4600FDS45A1M	19.000	DFT070408D45		3872709	WD50FDS45206M	3 x D	152	236
47.000	1.8504	3794405	KSEMP4700FDS45A1M	20.000	DFT070408D45		3794446	WD50FDS45304M	5 x D	250	334
47.625	1.8750	3794934	KSEMP1875FDS45A1	21.000	DFT070408D45		3794447	WD50FDS45451M	8 x D	397	481
48.000	1.8898	3794406	KSEMP4800FDS45A1M	21.000	DFT070408D45		3794448	WD50FDS45549M	10 x D	495	579
49.000	1.9291	3794407	KSEMP4900FDS45A1M	22.000	DFT070408D45		6123586	SSF200FDS450441	1.5 x D	85	147
							3952345	SSF200FDS450809	3 x D	152	236
						3794904	SSF200FDS451196	5 x D	250	334	
						3794905	SSF200FDS451775	8 x D	397	481	
						3794906	SSF200FDS452161	10 x D	495	579	
50.000	1.9685	3742211	KSEMP5000FDS50A1M	23.000	DFT070408D50	50	6123576	WD50FDS50122M	1.5 x D	89	157
50.800	2.0000	3794935	KSEMP2000FDS50A1	24.000	DFT070408D50		3950221	WD50FDS50228M	3 x D	170	263
51.000	2.0079	3794408	KSEMP5100FDS50A1M	24.000	DFT070408D50		3794449	WD50FDS50338M	5 x D	280	373
52.000	2.0472	3794409	KSEMP5200FDS50A1M	25.000	DFT070408D50		3742294	WD50FDS50503M	8 x D	445	538
53.000	2.0866	3794410	KSEMP5300FDS50A1M	26.000	DFT070408D50		3794450	WD50FDS50613M	10 x D	555	648
53.975	2.1250	3794936	KSEMP2125FDS50A1	27.000	DFT070408D50		6123587	SSF200FDS500480	1.5 x D	89	157
54.000	2.1260	3794411	KSEMP5400FDS50A1M	27.000	DFT070408D50		3952346	SSF200FDS500896	3 x D	170	263
55.000	2.1654	3794412	KSEMP5500FDS50A1M	28.000	DFT070408D50	3794907	SSF200FDS501330	5 x D	280	373	
						3794908	SSF200FDS501980	8 x D	445	538	
						3794909	SSF200FDS502413	10 x D	555	648	
56.000	2.2047	3794413	KSEMP5600FDS56A1M	20.000	DFT090508D56	56	6123577	WD50FDS56140M	1.5 x D	130	175
57.000	2.2441	3794414	KSEMP5700FDS56A1M	21.000	DFT090508D56		3950222	WD50FDS56259M	3 x D	191	294
57.150	2.2500	3794937	KSEMP2250FDS56A1	21.000	DFT090508D56		3794451	WD50FDS56383M	5 x D	315	418
58.000	2.2835	3794415	KSEMP5800FDS56A1M	22.000	DFT090508D56		3794452	WD50FDS56569M	8 x D	501	604
59.000	2.3228	3794416	KSEMP5900FDS56A1M	23.000	DFT090508D56		3794453	WD50FDS56693M	10 x D	625	728
60.000	2.3622	3794417	KSEMP6000FDS56A1M	24.000	DFT090508D56		6123588	SSF200FDS560551	1.5 x D	130	175
60.330	2.3750	3794938	KSEMP2375FDS56A1	24.000	DFT090508D56		3952347	SSF200FDS561020	3 x D	191	294
61.000	2.4016	3794418	KSEMP6100FDS56A1M	25.000	DFT090508D56	3794910	SSF200FDS561507	5 x D	315	418	
62.000	2.4409	3794419	KSEMP6200FDS56A1M	26.000	DFT090508D56	3794911	SSF200FDS562240	8 x D	501	604	
						3794912	SSF200FDS562783	10 x D	625	728	
63.000	2.4803	3794420	KSEMP6300FDS63A1M	27.000	DFT090508D63	63	6123578	WD50FDS63154M	1.5 x D	111	194
63.500	2.5000	3794939	KSEMP2500FDS63A1	28.000	DFT090508D63		3950333	WD50FDS63289M	3 x D	214	329
64.000	2.5197	3794421	KSEMP6400FDS63A1M	28.000	DFT090508D63		3794454	WD50FDS63429M	5 x D	354	469
65.000	2.5591	3794422	KSEMP6500FDS63A1M	29.000	DFT090508D63		3794455	WD50FDS63639M	8 x D	564	679
66.000	2.5984	3794423	KSEMP6600FDS63A1M	30.000	DFT090508D63		3742296	WD50FDS63779M	10 x D	704	819
66.680	2.6250	3794940	KSEMP2625FDS63A1	31.000	DFT090508D63		6123589	SSF200FDS630606	1.5 x D	111	194
67.000	2.6378	3794424	KSEMP6700FDS63A1M	31.000	DFT090508D63		3952348	SSF200FDS631138	3 x D	214	329
68.000	2.6772	3794425	KSEMP6800FDS63A1M	32.000	DFT090508D63	3794913	SSF200FDS631688	5 x D	354	469	
69.000	2.7165	3794426	KSEMP6900FDS63A1M	33.000	DFT090508D63	3794914	SSF200FDS632515	8 x D	564	679	
69.850	2.7500	3794941	KSEMP2750FDS63A1	34.000	DFT090508D63	3794915	SSF200FDS633066	10 x D	704	819	
70.000	2.7559	3742212	KSEMP7000FDS63A1M	34.000	DFT090508D63						

(continued)

(KSEM PLUS Overview and Assembly for Systems Using A1 Heads — continued)



Modular Drills

D1		available KSEM PLUS heads		requested insert size reference per head		CSWS	available tool bodies per CSWS connecting size 3 x D, 5 x D, 8 x D, 10 x D (metric and inch bodies)					
mm	in	KSEM PLUS head order number	KSEM PLUS head ANSI catalog number	PDD (mm)	outboard insert Drill Fix™ DFC DPA guiding pads		KSEM PLUS body order number	KSEM PLUS body ANSI catalog number	L/D ratio	L4 assembly (mm)	L1 assembly (mm)	
71.000	2.7950	6041904	KSEMP7100FDS71A1M	26.000	4x DFT06T308D44	71	6123579	WD50FDS71172M	1.5 x D	128	217	
72.000	2.8350	5397513	KSEMP7200FDS71A1M	27.000			5397942	WD50FDS71292M	3 x D	241	333	
73.000	2.8740	6041906	KSEMP7300FDS71A1M	28.000			5397943	WD50FDS71452M	5 x D	401	493	
73.025	2.8750	6041931	KSEMP2875FDS71A1	28.000			6123590	SSF200FDS710677	1.5 x D	128	217	
74.000	2.9130	5397514	KSEMP7400FDS71A1M	29.000			5397948	SSF200FDS711150	3 x D	241	333	
75.000	2.9530	6041907	KSEMP7500FDS71A1M	30.000			5397949	SSF200FDS711780	5 x D	401	493	
76.000	2.9920	5397515	KSEMP7600FDS71A1M	31.000								
76.200	3.0000	5397516	KSEMP3000FDS71A1	31.000								
77.000	3.0310	6041908	KSEMP7700FDS71A1M	32.000								
78.000	3.0710	5397517	KSEMP7800FDS71A1M	33.000								
79.000	3.1100	6041909	KSEMP7900FDS71A1M	34.000								
79.375	3.1250	6041932	KSEMP3125FDS80A1	31.000	2x DFT06T308D44 & 2x DFT070408D50	80	6123580	WD50FDS80192M	1.5 x D	145	247	
80.000	3.1500	5397518	KSEMP8000FDS80A1M	31.000			5397944	WD50FDS80327M	3 x D	271	373	
81.000	3.1890	6041910	KSEMP8100FDS80A1M	32.000			5397945	WD50FDS80507M	5 x D	451	553	
82.000	3.2280	5397519	KSEMP8200FDS80A1M	33.000			6123591	SSF200FDS800756	1.5 x D	145	247	
83.000	3.2680	6041921	KSEMP8300FDS80A1M	34.000			5398010	SSF200FDS801287	3 x D	271	373	
82.550	3.2500	5397550	KSEMP3250FDS80A1	34.000			5398011	SSF200FDS801996	5 x D	451	553	
84.000	3.3070	5397551	KSEMP8400FDS80A1M	35.000								
85.000	3.3070	6041922	KSEMP8500FDS80A1M	36.000								
85.725	3.3750	6041933	KSEMP3375FDS80A1	37.000								
86.000	3.3860	5397552	KSEMP8600FDS80A1M	37.000								
87.000	3.4250	6041923	KSEMP8700FDS80A1M	38.000								
88.000	3.4650	5397553	KSEMP8800FDS80A1M	39.000								
88.900	3.5000	5397554	KSEMP3500FDS80A1	40.000								
89.000	3.5040	6041924	KSEMP8900FDS80A1M	40.000								
90.000	3.5430	5397555	KSEMP9000FDS90A1M	37.000	4x DFT070408D50	90	6123581	WD50FDS90212M	1.5 x D	160	272	
91.000	3.5830	6041925	KSEMP9100FDS90A1M	38.000			5397946	WD50FDS90362M	3 x D	302	414	
92.000	3.6220	5397556	KSEMP9200FDS90A1M	39.000			5397947	WD50FDS90562M	5 x D	502	614	
92.075	3.6250	6041934	KSEMP3625FDS90A1	39.000			6123592	SSF200FDS900835	1.5 x D	160	272	
93.000	3.6610	6041926	KSEMP9300FDS90A1M	40.000			5398012	SSF200FDS901425	3 x D	302	414	
							5398013	SSF200FDS902213	5 x D	502	614	
94.000	3.7010	5397557	KSEMP9400FDS90A1M	26.000	6x DFT06T308D44	90						
95.000	3.7400	6041927	KSEMP9500FDS90A1M	27.000								
95.250	3.7500	5397558	KSEMP3750FDS90A1	27.000								
96.000	3.7800	5397559	KSEMP9600FDS90A1M	28.000								
97.000	3.8190	6041928	KSEMP9700FDS90A1M	29.000								
98.000	3.8580	5397560	KSEMP9800FDS90A1M	30.000								
98.425	3.8750	6041935	KSEMP3875FDS90A1	31.000								
99.000	3.8980	6041929	KSEMP9900FDS90A1M	31.000								
100.000	3.9370	6041930	KSEMP10000FDS90A1M	32.000								
101.600	4.0000	5397561	KSEMP4000FDS90A1	34.000								

Keep it Short and Simple...

Achieve short chips in long-chipping materials with our new DS/LP geometries for indexable drills and KSEM PLUS™.

- High metal removal rates without long chips, especially in low-carbon steel applications.
- Improved control of chip flow, chip breakage, and chip curling. Eliminates chip jamming by providing excellent chip forming and chipbreaking capabilities.
- Avoid bird nesting and long, stringy chips to reduce idle time and improve process stability.

See pages J4–J59 for Drill Fix™ Indexable Drills.

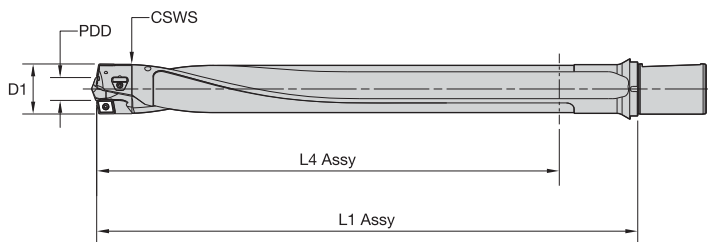
See pages H102–H106, H108–H125, and H133 for KSEM PLUS A1 and B1 head systems.



Experience the advantages at your Authorized Kennametal Distributor or at kennametal.com.



kennametal.com

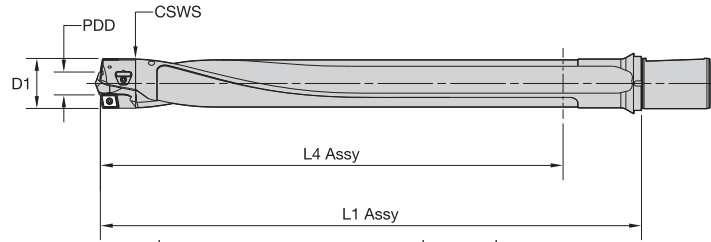


Modular Drills

D1		available KSEM PLUS heads		requested insert size reference per head		available tool bodies per CSWS connecting size 3 x D, 5 x D, 8 x D, 10 x D (metric and inch bodies)					
mm	in	KSEM PLUS head order number	KSEM PLUS head ANSI catalog number	PDD (mm)	outboard insert	CSWS	KSEM PLUS body order number	KSEM PLUS body ANSI catalog number	L/D ratio	L4 assembly (mm)	L1 assembly (mm)
				center insert size reference	Drill Fix™ DFC DPA guiding pads						
28.000	1.1020	5115736	KSEMP2800FDS28B1M	14.000	DFC inserts DFC040310D28 DPA guiding pads DPA07T3D25	28	6123570	WD32FDS28076M	1.5 x D	54	98
28.575	1.1250	5115737	KSEMP1125FDS28B1	15.000			4000409	WD32FDS28128M	3 x D	93	150
29.000	1.1420	5115738	KSEMP2900FDS28B1M	15.000			4051136	WD32FDS28190M	5 x D	155	212
29.362	1.1560	5115739	KSEMP1156FDS28B1	16.000			4051137	WD32FDS28283M	8 x D	248	305
30.000	1.1810	5116010	KSEMP3000FDS28B1M	16.000			4000411	WD32FDS28345M	10 x D	310	367
30.175	1.1880	5116011	KSEMP1188FDS28B1	17.000			6123582	SSF150FDS280299	1.5 x D	54	98
30.963	1.2190	5116012	KSEMP1219FDS28B1	17.000			4051138	SSF150FDS280502	3 x D	93	150
31.000	1.2200	5116013	KSEMP3100FDS28B1M	17.000			4051139	SSF150FDS280746	5 x D	155	212
					4051140	SSF150FDS281112	8 x D	248	305		
					4051141	SSF150FDS281356	10 x D	310	367		
31.750	1.2500	5116014	KSEMP1250FDS32B1	15.000	DFC inserts DFC05T312D32 DPA guiding pads DPA09T4D32	32	6123571	WD32FDS32082M	1.5 x D	54	102
32.000	1.2600	5116015	KSEMP3200FDS32B1M	15.000			3950219	WD32FDS32146M	3 x D	105	166
33.000	1.2990	5116016	KSEMP3300FDS32B1M	16.000			3794428	WD32FDS32216M	5 x D	175	236
33.200	1.3070	5116017	KSEMP3320FDS32B1M	16.000			3742293	WD32FDS32321M	8 x D	280	341
33.350	1.3130	5116018	KSEMP1313FDS32B1	17.000			3794429	WD32FDS32391M	10 x D	350	411
34.000	1.3390	5116019	KSEMP3400FDS32B1M	17.000			6123583	SSF150FDS320323	1.5 x D	54	102
34.925	1.3750	5116030	KSEMP1375FDS32B1	18.000			3952192	SSF150FDS320573	3 x D	105	166
35.000	1.3780	5116031	KSEMP3500FDS32B1M	18.000			3794835	SSF150FDS320850	5 x D	175	236
					3794836	SSF150FDS321263	8 x D	280	341		
					3794837	SSF150FDS321539	10 x D	350	411		
36.000	1.4170	5116032	KSEMP3600FDS36B1M	13.000	DFC inserts DFC06T312D36 DPA guiding pads DPA09T4D32	36	6123572	WD32FDS36092M	1.5 x D	60	112
36.525	1.4380	5116033	KSEMP1438FDS36B1	14.000			3950220	WD32FDS36166M	3 x D	117	186
37.000	1.4570	5116034	KSEMP3700FDS36B1M	14.000			3794430	WD32FDS36244M	5 x D	195	264
37.500	1.4760	5116035	KSEMP3750FDS36B1M	15.000			3794431	WD32FDS36361M	8 x D	312	381
38.000	1.4960	5116036	KSEMP3800FDS36B1M	15.000			3794432	WD32FDS36439M	10 x D	390	459
38.100	1.5000	5116037	KSEMP1500FDS36B1	15.000			6123584	SSF150FDS360362	1.5 x D	60	112
39.000	1.5350	5116038	KSEMP3900FDS36B1M	16.000			3952343	SSF150FDS360652	3 x D	117	186
39.200	1.5430	5116039	KSEMP3920FDS36B1M	16.000			3794838	SSF150FDS360960	5 x D	195	264
39.700	1.5630	5116040	KSEMP1563FDS36B1	17.000	3794839	SSF150FDS361421	8 x D	312	381		
					3794840	SSF150FDS361728	10 x D	390	459		
40.000	1.5750	5116041	KSEMP4000FDS40B1M	17.000	DFC inserts DFC06T312D36 DPA guiding pads DPA09T4D32	40	6123573	WD50FDS40100M	1.5 x D	68	120
41.000	1.6140	5116042	KSEMP4100FDS40B1M	18.000			3872075	WD50FDS40183M	3 x D	132	208
41.275	1.6250	5116043	KSEMP1625FDS40B1	18.000			3794443	WD50FDS40271M	5 x D	220	296
42.000	1.6540	5116044	KSEMP4200FDS40B1M	19.000			3794444	WD50FDS40403M	8 x D	352	428
43.000	1.6930	5116045	KSEMP4300FDS40B1M	20.000			3794445	WD50FDS40491M	10 x D	440	516
44.000	1.7320	5116046	KSEMP4400FDS40B1M	21.000			6123585	SSF200FDS400394	1.5 x D	68	120
44.450	1.7500	5116047	KSEMP1750FDS40B1	22.000			3952344	SSF200FDS400721	3 x D	132	208
							3794841	SSF200FDS401066	5 x D	220	296
					3794842	SSF200FDS401586	8 x D	352	428		
					3794903	SSF200FDS401933	10 x D	440	516		

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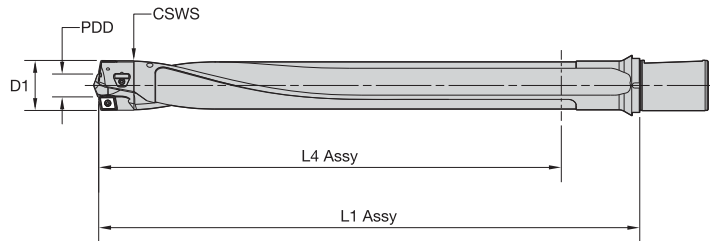
(KSEM PLUS Overview and Assembly for Systems Using B1 Heads — continued)



available KSEM PLUS heads		requested insert size reference per head		available tool bodies per CSWS connecting size 3 x D, 5 x D, 8 x D, 10 x D (metric and inch bodies)						
D1	KSEM PLUS head order number	KSEM PLUS head ANSI catalog number	PDD (mm)	outboard insert	CSWS	KSEM PLUS body order number	KSEM PLUS body ANSI catalog number	L/D ratio	L4 assembly (mm)	L1 assembly (mm)
45.000	1.7720	5116098	KSEMP4500FDS45B1M	18.000	45	6123575	WD50FDS45112M	1.5 x D	80	142
46.000	1.8110	5116099	KSEMP4600FDS45B1M	19.000		3872709	WD50FDS45206M	3 x D	147	231
47.000	1.8500	5116110	KSEMP4700FDS45B1M	20.000		3794446	WD50FDS45304M	5 x D	245	329
47.625	1.8750	5116111	KSEMP1875FDS45B1	21.000		3794447	WD50FDS45451M	8 x D	392	476
48.000	1.8900	5116112	KSEMP4800FDS45B1M	21.000		3794448	WD50FDS45549M	10 x D	490	574
49.000	1.9290	5116113	KSEMP4900FDS45B1M	22.000		6123586	SSF200FDS450441	1.5 x D	80	142
						3952345	SSF200FDS450809	3 x D	147	231
						3794904	SSF200FDS451196	5 x D	245	329
					3794905	SSF200FDS451775	8 x D	392	476	
					3794906	SSF200FDS452161	10 x D	490	574	
50.000	1.9690	5116114	KSEMP5000FDS50B1M	23.000	50	6123576	WD50FDS50122M	1.5 x D	84	152
50.800	2.0000	5116115	KSEMP2000FDS50B1	24.000		3950221	WD50FDS50228M	3 x D	165	258
51.000	2.0080	5116116	KSEMP5100FDS50B1M	24.000		3794449	WD50FDS50338M	5 x D	275	368
52.000	2.0470	5116117	KSEMP5200FDS50B1M	25.000		3742294	WD50FDS50503M	8 x D	440	533
53.000	2.0870	5116118	KSEMP5300FDS50B1M	26.000		3794450	WD50FDS50613M	10 x D	550	643
53.975	2.1250	5116119	KSEMP2125FDS50B1	27.000		6123587	SSF200FDS500480	1.5 x D	84	152
54.000	2.1260	5116120	KSEMP5400FDS50B1M	27.000		3952346	SSF200FDS500896	3 x D	165	258
55.000	2.1650	5116121	KSEMP5500FDS50B1M	28.000		3794907	SSF200FDS501330	5 x D	275	368
					3794908	SSF200FDS501980	8 x D	440	533	
					3794909	SSF200FDS502413	10 x D	550	643	
56.000	2.2050	5116122	KSEMP5600FDS56B1M	20.000	56	6123577	WD50FDS56140M	1.5 x D	125	170
57.000	2.2440	5116123	KSEMP5700FDS56B1M	21.000		3950222	WD50FDS56259M	3 x D	186	289
57.150	2.2500	5116124	KSEMP2250FDS56B1	21.000		3794451	WD50FDS56383M	5 x D	310	413
58.000	2.2830	5116125	KSEMP5800FDS56B1M	22.000		3794452	WD50FDS56569M	8 x D	496	599
59.000	2.3230	5116126	KSEMP5900FDS56B1M	23.000		3794453	WD50FDS56693M	10 x D	620	723
60.000	2.3620	5116127	KSEMP6000FDS56B1M	24.000		6123588	SSF200FDS560551	1.5 x D	125	170
60.330	2.3750	5116128	KSEMP2375FDS56B1	24.000		3952347	SSF200FDS561020	3 x D	186	289
61.000	2.4020	5116129	KSEMP6100FDS56B1M	25.000		3794910	SSF200FDS561507	5 x D	310	413
62.000	2.4410	5116130	KSEMP6200FDS56B1M	26.000	3794911	SSF200FDS562240	8 x D	496	599	
					3794912	SSF200FDS562783	10 x D	620	723	
63.000	2.4800	5116131	KSEMP6300FDS63B1M	27.000	63	6123578	WD50FDS63154M	1.5 x D	107	190
63.500	2.5000	5116132	KSEMP2500FDS63B1	28.000		3950333	WD50FDS63289M	3 x D	210	325
64.000	2.5200	5116133	KSEMP6400FDS63B1M	28.000		3794454	WD50FDS63429M	5 x D	350	465
65.000	2.5590	5116134	KSEMP6500FDS63B1M	29.000		3794455	WD50FDS63639M	8 x D	560	675
66.000	2.5980	5116135	KSEMP6600FDS63B1M	30.000		3742296	WD50FDS63779M	10 x D	700	815
66.680	2.6250	5116136	KSEMP2625FDS63B1	31.000		6123589	SSF200FDS630606	1.5 x D	107	190
67.000	2.6380	5116137	KSEMP6700FDS63B1M	31.000		3952348	SSF200FDS631138	3 x D	210	325
68.000	2.6770	5116138	KSEMP6800FDS63B1M	32.000		3794913	SSF200FDS631688	5 x D	350	465
69.000	2.7170	5116139	KSEMP6900FDS63B1M	33.000	3794914	SSF200FDS632515	8 x D	560	675	
69.850	2.7500	5116140	KSEMP2750FDS63B1	34.000	3794915	SSF200FDS633066	10 x D	700	815	
70.000	2.7560	5116141	KSEMP7000FDS63B1M	34.000						

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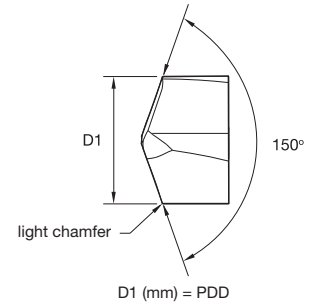
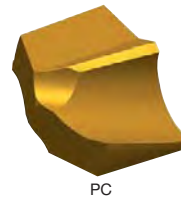
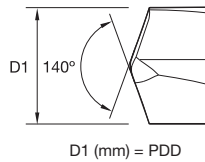
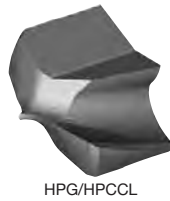
(KSEM PLUS Overview and Assembly for Systems Using B1 Heads — continued)



Modular Drills

D1		available KSEM PLUS heads		requested insert size reference per head		CSWS	available tool bodies per CSWS connecting size 3 x D, 5 x D, 8 x D, 10 x D (metric and inch bodies)						
mm	in	KSEM PLUS head order number	KSEM PLUS head ANSI catalog number	PDD (mm)	outboard insert Drill Fix™ DFC DPA guiding pads		KSEM PLUS body order number	KSEM PLUS body ANSI catalog number	L/D ratio	L4 assembly (mm)	L1 assembly (mm)		
71.000	2.7950	6041937	KSEMP7100FDS71B1M	26.000	DFC inserts 4x DFC06T312D36 DPA guiding pads DPA13T5D50	71	6123579	WD50FDS71172M	1.5 x D	127	216		
72.000	2.8350	6041797	KSEMP7200FDS71B1M	27.000			5397942	WD50FDS71292M	3 x D	240	332		
73.000	2.8740	6041938	KSEMP7300FDS71B1M	28.000			5397943	WD50FDS71452M	5 x D	400	492		
73.025	2.8750	6042002	KSEMP2875FDS71B1	28.000			6123590	SSF200FDS710677	1.5 x D	127	216		
74.000	2.9130	6041798	KSEMP7400FDS71B1M	29.000			5397948	SSF200FDS711150	3 x D	240	332		
75.000	2.9530	6041939	KSEMP7500FDS71B1M	30.000			5397949	SSF200FDS711780	5 x D	400	492		
76.000	2.9920	6041799	KSEMP7600FDS71B1M	31.000			DFC inserts 2x DFC06T312D36 & 2x DFC070416D45 DPA guiding pads DPA13T5D50	80	6123580	WD50FDS80192M	1.5 x D	144	246
77.000	3.0310	6041940	KSEMP7700FDS71B1M	32.000					5397944	WD50FDS80327M	3 x D	270	372
76.200	3.0000	5397562	KSEMP3000FDS71B1	31.000					5397945	WD50FDS80507M	5 x D	450	552
78.000	3.0710	6041800	KSEMP7800FDS71B1M	33.000					6123591	SSF200FDS800756	1.5 x D	144	246
79.000	3.1100	6041991	KSEMP7900FDS71B1M	34.000	5398010	SSF200FDS801287			3 x D	270	372		
79.375	3.1250	6042003	KSEMP3125FDS80B1	31.000	5398011	SSF200FDS801996			5 x D	450	552		
80.000	3.1500	6041881	KSEMP8000FDS80B1M	31.000	DFC inserts 4x DFC070416D45 DPA guiding pads DPA13T5D50	90			6123581	WD50FDS90212M	1.5 x D	158	270
81.000	3.1890	6041992	KSEMP8100FDS80B1M	32.000					5397946	WD50FDS90362M	3 x D	300	412
82.000	3.2280	6041882	KSEMP8200FDS80B1M	33.000					5397947	WD50FDS90562M	5 x D	500	612
82.550	3.2500	5397563	KSEMP3250FDS80B1	34.000					6123592	SSF200FDS900835	1.5 x D	158	270
83.000	3.2680	6041993	KSEMP8300FDS80B1M	34.000			5398012	SSF200FDS901425	3 x D	300	412		
84.000	3.3070	6041883	KSEMP8400FDS80B1M	35.000			5398013	SSF200FDS902213	5 x D	500	612		
85.000	3.3460	6041994	KSEMP8500FDS80B1M	36.000			DFC inserts 6x DFC06T312D36 DPA guiding pads DPA13T5D50	90	6123582	WD50FDS90212M	1.5 x D	158	270
85.725	3.3750	6042004	KSEMP3375FDS80B1	37.000					5397947	WD50FDS90562M	5 x D	500	612
86.000	3.3860	6041884	KSEMP8600FDS80B1M	37.000					6123592	SSF200FDS900835	1.5 x D	158	270
87.000	3.4250	6041995	KSEMP8700FDS80B1M	38.000					5398012	SSF200FDS901425	3 x D	300	412
88.000	3.4650	6041885	KSEMP8800FDS80B1M	39.000	5398013	SSF200FDS902213			5 x D	500	612		
88.900	3.5000	5397564	KSEMP3500FDS80B1	40.000	DFC inserts 6x DFC06T312D36 DPA guiding pads DPA13T5D50	90			6123583	WD50FDS90212M	1.5 x D	158	270
89.000	3.5040	6041996	KSEMP8900FDS80B1M	40.000					5397947	WD50FDS90562M	5 x D	500	612
90.000	3.5430	6041886	KSEMP9000FDS90B1M	37.000					6123592	SSF200FDS900835	1.5 x D	158	270
91.000	3.5830	6041997	KSEMP9100FDS90B1M	38.000					5398012	SSF200FDS901425	3 x D	300	412
92.000	3.6220	6041887	KSEMP9200FDS90B1M	39.000					5398013	SSF200FDS902213	5 x D	500	612
92.075	3.6250	6042005	KSEMP3625FDS90B1	39.000			DFC inserts 6x DFC06T312D36 DPA guiding pads DPA13T5D50	90	6123584	WD50FDS90212M	1.5 x D	158	270
93.000	3.6610	6041998	KSEMP9300FDS90B1M	40.000					5397947	WD50FDS90562M	5 x D	500	612
94.000	3.7010	6041888	KSEMP9400FDS90B1M	26.000					6123592	SSF200FDS900835	1.5 x D	158	270
95.000	3.7400	6041999	KSEMP9500FDS90B1M	27.000					5398012	SSF200FDS901425	3 x D	300	412
95.250	3.7500	5397565	KSEMP3750FDS90B1	27.000					5398013	SSF200FDS902213	5 x D	500	612
96.000	3.7800	6041889	KSEMP9600FDS90B1M	28.000	DFC inserts 6x DFC06T312D36 DPA guiding pads DPA13T5D50	90			6123585	WD50FDS90212M	1.5 x D	158	270
97.000	3.8190	6042000	KSEMP9700FDS90B1M	29.000					5397947	WD50FDS90562M	5 x D	500	612
98.000	3.8580	6041890	KSEMP9800FDS90B1M	30.000					6123592	SSF200FDS900835	1.5 x D	158	270
98.425	3.8750	6042006	KSEMP3875FDS90B1	31.000					5398012	SSF200FDS901425	3 x D	300	412
99.000	3.8980	6042001	KSEMP9900FDS90B1M	31.000					5398013	SSF200FDS902213	5 x D	500	612
100.000	3.9370	6041901	KSEMP10000FDS90B1M	32.000			DFC inserts 6x DFC06T312D36 DPA guiding pads DPA13T5D50	90	6123586	WD50FDS90212M	1.5 x D	158	270
101.600	4.0000	5397566	KSEMP4000FDS90B1	34.000					5397947	WD50FDS90562M	5 x D	500	612

- To ensure 100% system stability, KSEM™ inserts used for KSEM PLUS should not be reground.
- The callout D1 (mm) = PDD. PDD is used in reference to the KSEM PLUS heads.
- Please refer to KSEMP insert recommendation on page H116 to configure your insert setup depending on the application.



■ KSEM PLUS Center Inserts

P	●
M	●
K	○
N	○
S	○
H	○

P	○
M	○
K	●
N	○
S	○
H	○

P	○
M	●
K	○
N	○
S	●
H	●

- first choice
- alternate choice

			D1		seat size
			mm	in	
HPG • KC7315	HPCCL • KC7410	PC • KC7135			
KSEMP1300HPGM	KSEM1300HPCCLM	KSEM1300PCM	13,000	.5118	C
KSEMP1400HPGM	KSEM1400HPCCLM	KSEM1400PCM	14,000	.5512	B
KSEMP1500HPGM	KSEM1500HPCCLM	KSEM1500PCM	15,000	.5906	A
KSEMP1600HPGM	KSEM1600HPCCLM	KSEM1600PCM	16,000	.6299	1
KSEMP1700HPGM	KSEM1700HPCCLM	KSEM1700PCM	17,000	.6693	1
KSEMP1800HPGM	KSEM1800HPCCLM	KSEM1800PCM	18,000	.7087	1
KSEMP1900HPGM	KSEM1900HPCCLM	KSEM1900PCM	19,000	.7480	2
KSEMP2000HPGM	KSEM2000HPCCLM	KSEM2000PCM	20,000	.7874	3
KSEMP2100HPGM	KSEM2100HPCCLM	KSEM2100PCM	21,000	.8268	3
KSEMP2200HPGM	KSEM2200HPCCLM	KSEM2200PCM	22,000	.8661	3
KSEMP2300HPGM	KSEM2300HPCCLM	KSEM2300PCM	23,000	.9055	4
KSEMP2400HPGM	KSEM2400HPCCLM	KSEM2400PCM	24,000	.9449	4
KSEMP2500HPGM	KSEM2500HPCCLM	KSEM2500PCM	25,000	.9843	5
KSEMP2600HPGM	KSEM2600HPCCLM	KSEM2600PCM	26,000	1.0236	5
KSEMP2700HPGM	KSEM2700HPCCLM	KSEM2700PCM	27,000	1.0630	6
KSEMP2800HPGM	KSEM2800HPCCLM	KSEM2800PCM	28,000	1.1024	6
KSEMP2900HPGM	KSEM2900HPCCLM	KSEM2900PCM	29,000	1.1417	7
KSEMP3000HPGM	KSEM3000HPCCLM	KSEM3000PCM	30,000	1.1811	7
KSEMP3100HPGM	KSEM3100HPCCLM	KSEM3100PCM	31,000	1.2205	8
KSEMP3200HPGM	KSEM3200HPCCLM	KSEM3200PCM	32,000	1.2598	8
KSEMP3300HPGM	KSEM3300HPCCLM	KSEM3300PCM	33,000	1.2992	9
KSEMP3400HPGM	KSEM3400HPCCLM	KSEM3400PCM	34,000	1.3386	9
KSEMP3500HPGM	KSEM3500HPCCLM	KSEM3500PCM	35,000	1.3780	9
KSEMP3600HPGM	KSEM3600HPCCLM	KSEM3600PCM	36,000	1.4173	9
KSEMP3700HPGM	KSEM3700HPCCLM	KSEM3700PCM	37,000	1.4567	10
KSEMP3800HPGM	KSEM3800HPCCLM	KSEM3800PCM	38,000	1.4961	10
KSEMP3900HPGM	KSEM3900HPCCLM	KSEM3900PCM	39,000	1.5354	10
KSEMP4000HPGM	KSEM4000HPCCLM	KSEM4000PCM	40,000	1.5748	10

Tolerance KSEMP HPG • KSEM HPCCL • Metric

Tolerance KSEMP HPG • KSEM HPCCL • Inch

Tolerance KSEM PC • Metric

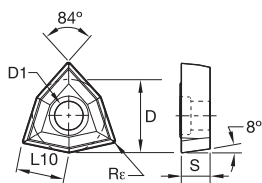
Tolerance KSEM PC • Inch

D1	tolerance h8
12,5-18	+0,000/-0,027
>18-30	+0,000/-0,033
>30-40	+0,000/-0,039

D1	tolerance h8
.500-.709	+0,000/-0,010
>.709-1.181	+0,000/-0,013
>1.181-1.575	+0,000/-0,015

D1 metric	tolerance k7
12,5-18	+0,001/+ 0,019
>18-30	+0,002/+ 0,023
>30-40	+0,002/+ 0,027

D1 inch	tolerance k7
.500-.709	+0,0000/+0,0008
>.709-1.181	+0,0000/+0,0009
>1.181-1.575	+0,0000/+0,0010

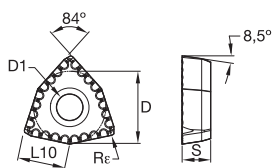
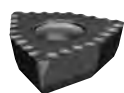


● first choice
○ alternate choice

P	●	●	●
M	○	○	○
K	●	○	○
N	○	○	○
S	○	○	●
H	○	○	○

■ DFT-HP

catalog number	L10		D		D1		S		Rε		KCU25	KCU40
	mm	in	mm	in	mm	in	mm	in	mm	in		
DFT05T308D32HP	5,29	.208	8,00	.315	3,40	.134	3,75	.148	0,80	.031	●	●
DFT05T308D33HP	5,29	.208	8,00	.315	3,40	.134	3,75	.148	0,80	.031	●	●
DFT06T308D36HP	6,62	.260	10,00	.394	4,40	.173	3,75	.148	0,80	.031	●	●
DFT06T308D39HP	6,62	.260	10,00	.394	4,40	.173	3,75	.148	0,80	.031	●	●
DFT06T308D44HP	6,62	.260	10,00	.394	4,40	.173	3,75	.148	0,80	.031	●	●
DFT070408D45HP	7,94	.313	12,00	.472	4,40	.173	4,75	.187	0,80	.031	●	●
DFT070408D50HP	7,94	.313	12,00	.472	4,40	.173	4,75	.187	0,80	.031	●	●
DFT090508D56HP	9,92	.391	15,00	.591	5,50	.217	5,25	.207	0,80	.031	●	●
DFT090508D63HP	9,92	.391	15,00	.591	5,50	.217	5,25	.207	0,80	.031	●	●

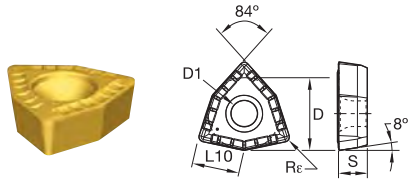


● first choice
○ alternate choice

P	●	○
M	○	○
K	○	○
N	○	○
S	○	○
H	○	○

■ DFT • DS

catalog number	L10		D		D1		S		Rε		KCU40
	mm	in	mm	in	mm	in	mm	in	mm	in	
DFT05T308D32DS	5,29	.208	8,00	.315	3,40	.134	3,75	.148	0,80	.031	●
DFT05T308D33DS	5,29	.208	8,00	.315	3,40	.134	3,75	.148	0,80	.031	●
DFT06T308D36DS	6,62	.260	10,00	.394	4,40	.173	3,75	.148	0,80	.031	●
DFT06T308D39DS	6,62	.260	10,00	.394	4,40	.173	3,75	.148	0,80	.031	●
DFT06T308D44DS	6,62	.260	10,00	.394	4,40	.173	3,75	.148	0,80	.031	●
DFT070408D45DS	7,94	.313	12,00	.472	4,40	.173	4,75	.187	0,80	.031	●
DFT070408D50DS	7,94	.313	12,00	.472	4,40	.173	4,75	.187	0,80	.031	●
DFT090508D56DS	9,92	.391	15,00	.591	5,50	.217	5,25	.207	0,80	.031	●
DFT090508D63DS	9,92	.391	15,00	.591	5,50	.217	5,25	.207	0,80	.031	●



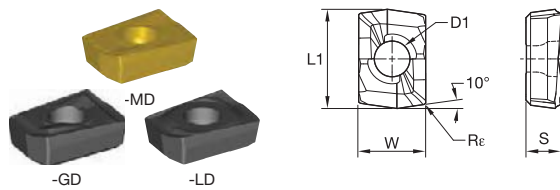
- first choice
- alternate choice

P	●
M	●
K	○
N	○
S	○
H	○

■ DFT-MD

catalog number	L10		D		D1		S		Rε		KC7140
	mm	in	mm	in	mm	in	mm	in	mm	in	
DFT05T308D32MD	5,29	.208	8,00	.315	3,40	.134	3,75	.148	0,80	.031	●
DFT05T308D33MD	5,29	.208	8,00	.315	3,40	.134	3,75	.148	0,80	.031	●
DFT06T308D36MD	6,62	.260	10,00	.394	4,40	.173	3,75	.148	0,80	.031	●
DFT06T308D39MD	6,62	.260	10,00	.394	4,40	.173	3,75	.148	0,80	.031	●
DFT06T308D44MD	6,62	.260	10,00	.394	4,40	.173	3,75	.148	0,80	.031	●
DFT070408D45MD	7,94	.313	12,00	.472	4,40	.173	4,75	.187	0,80	.031	●
DFT070408D50MD	7,94	.313	12,00	.472	4,40	.173	4,75	.187	0,80	.031	●
DFT090508D56MD	9,92	.391	15,00	.591	5,50	.217	5,25	.207	0,80	.031	●
DFT090508D63MD	9,92	.391	15,00	.591	5,50	.217	5,25	.207	0,80	.031	●

KSEM PLUS™ A1 Heads • Drill Fix™ DFR™ Inserts

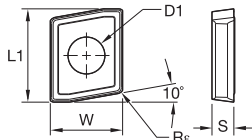
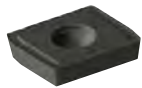


- first choice
- alternate choice

P	●	○	○	○
M	●	○	○	○
K	○	●	○	○
N	○	●	○	○
S	○	○	○	●
H	○	○	○	○

■ DFR-GD, -MD, -LD

catalog number	L1		W		D1		S		Rε		KC7140	KC7225	KCU25	KCU40
	mm	in	mm	in	mm	in	mm	in	mm	in				
DFR040304D28GD	10,76	.424	7,26	0.29	2,85	.112	3,79	.149	0,40	.016	—	—	●	●
DFR040304D28LD	10,76	.424	7,26	0.29	2,85	.112	3,78	.149	0,40	.016	—	●	—	—
DFR040304D28MD	10,76	.424	7,26	0.29	2,85	.112	3,79	.149	0,40	.016	●	—	—	—

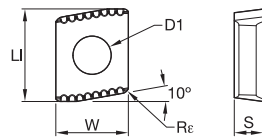


● first choice
○ alternate choice

P	●	○
M	○	○
K	○	○
N	○	○
S	○	○
H	○	○

■ DFC-HP

catalog number	LI		W		D1		S		Re		KCU25	KCU40
	mm	in	mm	in	mm	in	mm	in	mm	in		
DFC040310D28HP	10,00	.3940	7,60	.2990	2,85	.1120	3,18	.1250	0,50	.0200	●	●
DFC05T312D32HP	12,00	.4720	9,40	.3700	3,40	.1340	3,75	.1480	0,80	.0320	●	●
DFC06T312D36HP	16,00	.6300	12,40	.4880	4,40	.1730	3,75	.1480	0,80	.0320	●	●
DFC070416D45HP	18,00	.7090	14,50	.5710	4,40	.1730	4,75	.1870	0,80	.0320	●	●
DFC090520D56HP	24,00	.9450	19,00	.7480	5,50	.2170	5,25	.2070	0,80	.0310	●	●

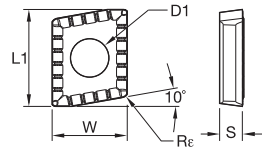
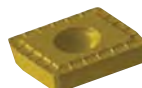


● first choice
○ alternate choice

P	●	○
M	○	○
K	○	○
N	○	○
S	○	○
H	○	○

■ DFC-DS

catalog number	LI		W		D1		S		Re		KCU40
	mm	in	mm	in	mm	in	mm	in	mm	in	
DFC040310D28DS	10,00	.394	7,60	.299	2,85	.112	3,18	.125	0,50	.020	●
DFC05T312D32DS	12,00	.472	9,40	.370	3,40	.134	3,75	.148	0,80	.031	●
DFC06T312D36DS	16,00	.630	12,40	.488	4,40	.173	3,75	.148	0,80	.031	●
DFC070416D45DS	18,00	.709	14,50	.571	4,40	.173	4,75	.187	0,80	.031	●
DFC090520D56DS	24,00	.945	19,00	.748	5,50	.217	5,25	.207	0,80	.031	●

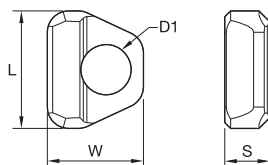
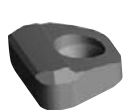


● first choice
○ alternate choice

P	●	○
M	○	○
K	○	○
N	○	○
S	○	○
H	○	○

■ DFC-MD

catalog number	LI		W		D1		S		Re		KC7140
	mm	in	mm	in	mm	in	mm	in	mm	in	
DFC040310D28MD	10,00	.3940	7,60	.2990	2,85	.1120	3,18	.1250	0,50	.0200	●
DFC05T312D32MD	12,00	.4720	9,40	.3700	3,40	.1340	3,75	.1480	0,80	.0310	●
DFC06T312D36MD	16,00	.6300	12,40	.4880	4,40	.1730	3,75	.1480	0,80	.0310	●
DFC070416D45MD	18,00	.7090	14,50	.5710	4,40	.1730	4,75	.1870	0,80	.0310	●
DFC090520D56MD	24,00	.9450	19,00	.7480	5,50	.2170	5,25	.2070	0,80	.0310	●



● first choice
○ alternate choice

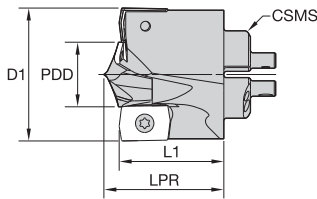
P	●	○
M	○	○
K	○	○
N	○	○
S	○	○
H	○	○

■ DPA Guiding Pads

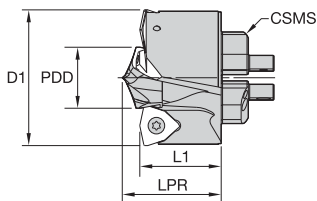
catalog number	L		W		D1		S		KCU40
	mm	in	mm	in	mm	in	mm	in	
DPA07T3D25	8,60	.3390	7,00	.2760	2,85	.1120	3,50	.1380	●
DPA09T4D32	11,00	.4330	9,00	.3540	3,40	.1340	4,20	.1650	●
DPA13T5D50	16,00	.6300	13,00	.5120	4,40	.1730	5,20	.2050	●



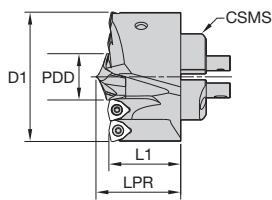
- To ensure 100% system stability, KSEM™ inserts used for KSEM PLUS should not be reground.
- KSEM PLUS heads are shipped with all insert screws.
- KSEM PLUS heads are shipped with two wrenches, one for the KSEM insert and one to be used for the DFT™/DFR™ inserts as well as for the assembly of the body to the head.
- Order KSEM PLUS shanks using connection coupling size (CSMS) to determine which heads go with each shank.
- PDD in the callout drawing refers to the D1 of the KSEM HPG and HPCCL inserts for use with KSEM PLUS.
- Order inserts (KSEM, DFT, and DFR) for KSEM PLUS separately.



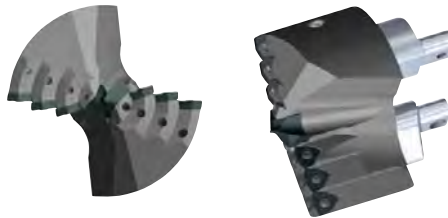
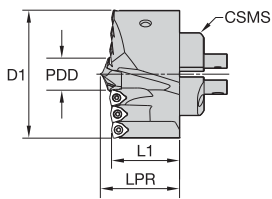
2 x DFR
diameter: 28–31,75mm



2 x DFT
diameter: 31,75–70,34mm



4 x DFT
diameter: 70,35–93,34mm



6 x DFT
diameter: 93,35–127mm

■ **KSEM PLUS A1 Heads 1.102–4" (28–101,60mm)**

order number	ISO catalog number	ANSI catalog number	D1		PDD		LPR		L1		CSMS system size
			mm	in	mm	in	mm	in	mm	in	
4000408	KSEMP2800FDS28A1M	KSEMP2800FDS28A1M	28,00	1.102	14,00	.5512	24,9	.980	22,0	.866	FDS28
4047811	KSEMP2858FDS28A1M	KSEMP1125FDS28A1	28,58	1.125	15,00	.5906	25,0	.984	22,0	.866	FDS28
4047812	KSEMP2900FDS28A1M	KSEMP2900FDS28A1M	29,00	1.142	15,00	.5906	25,0	.984	22,0	.866	FDS28
4047823	KSEMP2937FDS28A1M	KSEMP1156FDS28A1	29,36	1.156	16,00	.6299	25,2	.992	22,0	.866	FDS28
4047824	KSEMP3000FDS28A1M	KSEMP3000FDS28A1M	30,00	1.181	16,00	.6299	25,2	.992	22,0	.866	FDS28
4047825	KSEMP3017FDS28A1M	KSEMP1188FDS28A1	30,18	1.188	17,00	.6693	25,4	1.000	22,0	.866	FDS28
4047826	KSEMP3096FDS28A1M	KSEMP1219FDS28A1	30,96	1.219	17,00	.6693	25,4	1.000	22,0	.866	FDS28
4047827	KSEMP3100FDS28A1M	KSEMP3100FDS28A1M	31,00	1.221	17,00	.6693	25,4	1.000	22,0	.866	FDS28
3794916	KSEMP3175FDS32A1M	KSEMP1250FDS32A1	31,75	1.250	15,00	.5906	23,0	.907	20,0	.787	FDS32
3794291	KSEMP3200FDS32A1M	KSEMP3200FDS32A1M	32,00	1.260	15,00	.5906	23,0	.907	20,0	.787	FDS32
3742210	KSEMP3300FDS32A1M	KSEMP3300FDS32A1M	33,00	1.299	16,00	.6299	23,2	.913	20,0	.787	FDS32
3793949	KSEMP3320FDS32A1M	KSEMP3320FDS32A1M	33,20	1.307	16,00	.6299	23,2	.913	20,0	.787	FDS32
3794917	KSEMP3334FDS32A1M	KSEMP1313FDS32A1	33,35	1.313	17,00	.6693	23,4	.920	20,0	.787	FDS32
3794292	KSEMP3400FDS32A1M	KSEMP3400FDS32A1M	34,00	1.339	17,00	.6693	23,4	.920	20,0	.787	FDS32
3794918	KSEMP3493FDS32A1M	KSEMP1375FDS32A1	34,93	1.375	18,00	.7087	23,6	.928	20,0	.787	FDS32
3794393	KSEMP3500FDS32A1M	KSEMP3500FDS32A1M	35,00	1.378	18,00	.7087	23,6	.928	20,0	.787	FDS32

(continued)

(KSEM PLUS A1 Heads 1.102–4" (28–101,60mm) — continued)

Modular Drills

order number	ISO		ANSI		D1		PDD		LPR		L1		CSMS system size
	catalog number	catalog number	catalog number	catalog number	mm	in	mm	in	mm	in	mm	in	
3794394	KSEMP3600FDS36A1M	KSEMP3600FDS36A1M	KSEMP3600FDS36A1M	KSEMP3600FDS36A1M	36,00	1.417	13,00	.5118	22,7	.893	20,0	.787	FDS36
3794919	KSEMP3651FDS36A1M	KSEMP1438FDS36A1	KSEMP1438FDS36A1	KSEMP1438FDS36A1	36,53	1.438	14,00	.5512	22,9	.900	20,0	.787	FDS36
3794395	KSEMP3700FDS36A1M	KSEMP3700FDS36A1M	KSEMP3700FDS36A1M	KSEMP3700FDS36A1M	37,00	1.457	14,00	.5512	22,9	.900	20,0	.787	FDS36
3794427	KSEMP3750FDS36A1M	KSEMP3750FDS36A1M	KSEMP3750FDS36A1M	KSEMP3750FDS36A1M	37,50	1.476	15,00	.5906	23,0	.907	20,0	.787	FDS36
3794396	KSEMP3800FDS36A1M	KSEMP3800FDS36A1M	KSEMP3800FDS36A1M	KSEMP3800FDS36A1M	38,00	1.496	15,00	.5906	23,0	.907	20,0	.787	FDS36
3794920	KSEMP3810FDS36A1M	KSEMP1500FDS36A1	KSEMP1500FDS36A1	KSEMP1500FDS36A1	38,10	1.500	15,00	.5906	23,0	.907	20,0	.787	FDS36
3794397	KSEMP3900FDS36A1M	KSEMP3900FDS36A1M	KSEMP3900FDS36A1M	KSEMP3900FDS36A1M	39,00	1.535	16,00	.6299	23,2	.913	20,0	.787	FDS36
3793950	KSEMP3920FDS36A1M	KSEMP3920FDS36A1M	KSEMP3920FDS36A1M	KSEMP3920FDS36A1M	39,20	1.543	16,00	.6299	23,2	.913	20,0	.787	FDS36
3794921	KSEMP3970FDS36A1M	KSEMP1563FDS36A1	KSEMP1563FDS36A1	KSEMP1563FDS36A1	39,70	1.563	17,00	.6693	23,4	.920	20,0	.787	FDS36
3794398	KSEMP4000FDS40A1M	KSEMP4000FDS40A1M	KSEMP4000FDS40A1M	KSEMP4000FDS40A1M	40,00	1.575	17,00	.6693	28,6	1.125	25,0	.984	FDS40
3794399	KSEMP4100FDS40A1M	KSEMP4100FDS40A1M	KSEMP4100FDS40A1M	KSEMP4100FDS40A1M	41,00	1.614	18,00	.7087	28,8	1.132	25,0	.984	FDS40
3794922	KSEMP4128FDS40A1M	KSEMP1625FDS40A1	KSEMP1625FDS40A1	KSEMP1625FDS40A1	41,28	1.625	18,00	.7087	28,8	1.132	25,0	.984	FDS40
3794400	KSEMP4200FDS40A1M	KSEMP4200FDS40A1M	KSEMP4200FDS40A1M	KSEMP4200FDS40A1M	42,00	1.654	19,00	.7480	28,9	1.139	25,0	.984	FDS40
3794401	KSEMP4300FDS40A1M	KSEMP4300FDS40A1M	KSEMP4300FDS40A1M	KSEMP4300FDS40A1M	43,00	1.693	20,00	.7874	29,1	1.146	25,0	.984	FDS40
3794402	KSEMP4400FDS40A1M	KSEMP4400FDS40A1M	KSEMP4400FDS40A1M	KSEMP4400FDS40A1M	44,00	1.732	21,00	.8268	29,3	1.153	25,0	.984	FDS40
3794933	KSEMP4445FDS40A1M	KSEMP1750FDS40A1	KSEMP1750FDS40A1	KSEMP1750FDS40A1	44,45	1.750	22,00	.8661	29,5	1.160	25,0	.984	FDS40
3794403	KSEMP4500FDS45A1M	KSEMP4500FDS45A1M	KSEMP4500FDS45A1M	KSEMP4500FDS45A1M	45,00	1.772	18,00	.7087	28,8	1.132	25,0	.984	FDS45
3794404	KSEMP4600FDS45A1M	KSEMP4600FDS45A1M	KSEMP4600FDS45A1M	KSEMP4600FDS45A1M	46,00	1.811	19,00	.7480	28,9	1.139	25,0	.984	FDS45
3794405	KSEMP4700FDS45A1M	KSEMP4700FDS45A1M	KSEMP4700FDS45A1M	KSEMP4700FDS45A1M	47,00	1.850	20,00	.7874	29,1	1.146	25,0	.984	FDS45
3794934	KSEMP4763FDS45A1M	KSEMP1875FDS45A1	KSEMP1875FDS45A1	KSEMP1875FDS45A1	47,63	1.875	21,00	.8268	29,3	1.153	25,0	.984	FDS45
3794406	KSEMP4800FDS45A1M	KSEMP4800FDS45A1M	KSEMP4800FDS45A1M	KSEMP4800FDS45A1M	48,00	1.890	21,00	.8268	29,3	1.153	25,0	.984	FDS45
3794407	KSEMP4900FDS45A1M	KSEMP4900FDS45A1M	KSEMP4900FDS45A1M	KSEMP4900FDS45A1M	49,00	1.929	22,00	.8661	29,5	1.160	25,0	.984	FDS45
3742211	KSEMP5000FDS50A1M	KSEMP5000FDS50A1M	KSEMP5000FDS50A1M	KSEMP5000FDS50A1M	50,00	1.969	23,00	.9055	34,8	1.372	30,0	1.181	FDS50
3794935	KSEMP5080FDS50A1M	KSEMP2000FDS50A1	KSEMP2000FDS50A1	KSEMP2000FDS50A1	50,80	2.000	24,00	.9449	35,0	1.379	30,0	1.181	FDS50
3794408	KSEMP5100FDS50A1M	KSEMP5100FDS50A1M	KSEMP5100FDS50A1M	KSEMP5100FDS50A1M	51,00	2.008	24,00	.9449	35,0	1.379	30,0	1.181	FDS50
3794409	KSEMP5200FDS50A1M	KSEMP5200FDS50A1M	KSEMP5200FDS50A1M	KSEMP5200FDS50A1M	52,00	2.047	25,00	.9843	35,2	1.386	30,0	1.181	FDS50
3794410	KSEMP5300FDS50A1M	KSEMP5300FDS50A1M	KSEMP5300FDS50A1M	KSEMP5300FDS50A1M	53,00	2.087	26,00	1.0236	35,4	1.392	30,0	1.181	FDS50
3794936	KSEMP5398FDS50A1M	KSEMP2125FDS50A1	KSEMP2125FDS50A1	KSEMP2125FDS50A1	53,98	2.125	27,00	1.0630	35,6	1.399	30,0	1.181	FDS50
3794411	KSEMP5400FDS50A1M	KSEMP5400FDS50A1M	KSEMP5400FDS50A1M	KSEMP5400FDS50A1M	54,00	2.126	27,00	1.0630	35,6	1.399	30,0	1.181	FDS50
3794412	KSEMP5500FDS50A1M	KSEMP5500FDS50A1M	KSEMP5500FDS50A1M	KSEMP5500FDS50A1M	55,00	2.165	28,00	1.1024	35,7	1.406	30,0	1.181	FDS50
3794413	KSEMP5600FDS56A1M	KSEMP5600FDS56A1M	KSEMP5600FDS56A1M	KSEMP5600FDS56A1M	56,00	2.205	20,00	.7874	34,3	1.351	30,0	1.181	FDS56
3794414	KSEMP5700FDS56A1M	KSEMP5700FDS56A1M	KSEMP5700FDS56A1M	KSEMP5700FDS56A1M	57,00	2.244	21,00	.8268	34,5	1.358	30,0	1.181	FDS56
3794937	KSEMP5715FDS56A1M	KSEMP2250FDS56A1	KSEMP2250FDS56A1	KSEMP2250FDS56A1	57,15	2.250	21,00	.8268	34,5	1.358	30,0	1.181	FDS56
3794415	KSEMP5800FDS56A1M	KSEMP5800FDS56A1M	KSEMP5800FDS56A1M	KSEMP5800FDS56A1M	58,00	2.284	22,00	.8661	34,7	1.365	30,0	1.181	FDS56
3794416	KSEMP5900FDS56A1M	KSEMP5900FDS56A1M	KSEMP5900FDS56A1M	KSEMP5900FDS56A1M	59,00	2.323	23,00	.9055	34,8	1.372	30,0	1.181	FDS56
3794417	KSEMP6000FDS56A1M	KSEMP6000FDS56A1M	KSEMP6000FDS56A1M	KSEMP6000FDS56A1M	60,00	2.362	24,00	.9449	35,0	1.379	30,0	1.181	FDS56
3794938	KSEMP6033FDS56A1M	KSEMP2375FDS56A1	KSEMP2375FDS56A1	KSEMP2375FDS56A1	60,33	2.375	24,00	.9449	35,0	1.379	30,0	1.181	FDS56
3794418	KSEMP6100FDS56A1M	KSEMP6100FDS56A1M	KSEMP6100FDS56A1M	KSEMP6100FDS56A1M	61,00	2.402	25,00	.9843	35,2	1.386	30,0	1.181	FDS56
3794419	KSEMP6200FDS56A1M	KSEMP6200FDS56A1M	KSEMP6200FDS56A1M	KSEMP6200FDS56A1M	62,00	2.441	26,00	1.0236	35,4	1.392	30,0	1.181	FDS56
3794420	KSEMP6300FDS63A1M	KSEMP6300FDS63A1M	KSEMP6300FDS63A1M	KSEMP6300FDS63A1M	63,00	2.480	27,00	1.0630	41,8	1.643	36,0	1.417	FDS63
3794939	KSEMP6350FDS63A1M	KSEMP2500FDS63A1	KSEMP2500FDS63A1	KSEMP2500FDS63A1	63,50	2.500	28,00	1.1024	41,9	1.650	36,0	1.417	FDS63
3794421	KSEMP6400FDS63A1M	KSEMP6400FDS63A1M	KSEMP6400FDS63A1M	KSEMP6400FDS63A1M	64,00	2.520	28,00	1.1024	41,9	1.650	36,0	1.417	FDS63
3794422	KSEMP6500FDS63A1M	KSEMP6500FDS63A1M	KSEMP6500FDS63A1M	KSEMP6500FDS63A1M	65,00	2.559	29,00	1.1417	42,1	1.657	36,0	1.417	FDS63
3794423	KSEMP6600FDS63A1M	KSEMP6600FDS63A1M	KSEMP6600FDS63A1M	KSEMP6600FDS63A1M	66,00	2.598	30,00	1.1811	42,3	1.664	36,0	1.417	FDS63
3794940	KSEMP6668FDS63A1M	KSEMP2625FDS63A1	KSEMP2625FDS63A1	KSEMP2625FDS63A1	66,68	2.625	31,00	1.2205	42,5	1.671	36,0	1.417	FDS63
3794424	KSEMP6700FDS63A1M	KSEMP6700FDS63A1M	KSEMP6700FDS63A1M	KSEMP6700FDS63A1M	67,00	2.638	31,00	1.2205	42,5	1.671	36,0	1.417	FDS63
3794425	KSEMP6800FDS63A1M	KSEMP6800FDS63A1M	KSEMP6800FDS63A1M	KSEMP6800FDS63A1M	68,00	2.677	32,00	1.2598	42,6	1.678	36,0	1.417	FDS63
3794426	KSEMP6900FDS63A1M	KSEMP6900FDS63A1M	KSEMP6900FDS63A1M	KSEMP6900FDS63A1M	69,00	2.717	33,00	1.2992	42,8	1.685	36,0	1.417	FDS63
3794941	KSEMP6985FDS63A1M	KSEMP2750FDS63A1	KSEMP2750FDS63A1	KSEMP2750FDS63A1	69,85	2.750	34,00	1.3386	43,0	1.692	36,0	1.417	FDS63
3742212	KSEMP7000FDS63A1M	KSEMP7000FDS63A1M	KSEMP7000FDS63A1M	KSEMP7000FDS63A1M	70,00	2.756	34,00	1.3386	43,0	1.692	36,0	1.417	FDS63
6041904	KSEMP7100FDS71A1M	KSEMP7100FDS71A1M	KSEMP7100FDS71A1M	KSEMP7100FDS71A1M	71,00	2.795	26,00	1.0240	46,8	1.842	46,8	1.842	FDS71
5397513	KSEMP7200FDS71A1M	KSEMP7200FDS71A1M	KSEMP7200FDS71A1M	KSEMP7200FDS71A1M	72,00	2.835	27,00	1.0630	47,0	1.849	47,0	1.849	FDS71
6041906	KSEMP7300FDS71A1M	KSEMP7300FDS71A1M	KSEMP7300FDS71A1M	KSEMP7300FDS71A1M	73,00	2.874	28,00	1.1020	47,1	1.855	47,1	1.855	FDS71
6041931	KSEMP7303FDS71A1M	KSEMP2875FDS71A1	KSEMP2875FDS71A1	KSEMP2875FDS71A1	73,03	2.875	28,00	1.1020	47,1	1.855	47,1	1.855	FDS71
5397514	KSEMP7400FDS71A1M	KSEMP7400FDS71A1M	KSEMP7400FDS71A1M	KSEMP7400FDS71A1M	74,00	2.913	29,00	1.1420	47,3	1.863	47,3	1.863	FDS71
6041907	KSEMP7500FDS71A1M	KSEMP7500FDS71A1M	KSEMP7500FDS71A1M	KSEMP7500FDS71A1M	75,00	2.953	30,00	1.1810	47,5	1.869	47,5	1.869	FDS71

(continued)

(KSEM PLUS A1 Heads 1.102-4" (28-101,60mm) — continued)

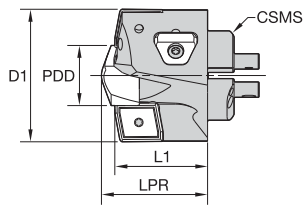
order number	ISO catalog number	ANSI catalog number	D1		PDD		LPR		L1		CSMS system size
			mm	in	mm	in	mm	in	mm	in	
5397515	KSEMP7600FDS71A1M	KSEMP7600FDS71A1M	76,00	2.992	31,00	1.2200	47,7	1.876	47,7	1.876	FDS71
5397516	KSEMP7620FDS71A1M	KSEMP3000FDS71A1	76,20	3.000	31,00	1.2200	47,7	1.876	47,7	1.876	FDS71
6041908	KSEMP7700FDS71A1M	KSEMP7700FDS71A1M	77,00	3.031	32,00	1.2600	47,8	1.883	47,8	1.883	FDS71
5397517	KSEMP7800FDS71A1M	KSEMP7800FDS71A1M	78,00	3.071	33,00	1.2990	48,0	1.890	48,0	1.890	FDS71
6041909	KSEMP7900FDS71A1M	KSEMP7900FDS71A1M	79,00	3.110	34,00	1.3390	48,2	1.897	48,2	1.897	FDS71
6041932	KSEMP7938FDS80A1M	KSEMP3125FDS80A1	79,38	3.125	31,00	1.2200	52,8	2.077	52,8	2.077	FDS80
5397518	KSEMP8000FDS80A1M	KSEMP8000FDS80A1M	80,00	3.150	31,00	1.2200	52,8	2.077	52,8	2.077	FDS80
6041910	KSEMP8100FDS80A1M	KSEMP8100FDS80A1M	81,00	3.189	32,00	1.2600	52,9	2.085	52,9	2.085	FDS80
5397519	KSEMP8200FDS80A1M	KSEMP8200FDS80A1M	82,00	3.228	33,00	1.2992	53,1	2.091	53,1	2.091	FDS80
5397550	KSEMP8255FDS80A1M	KSEMP3250FDS80A1	82,55	3.250	34,00	1.3386	53,3	2.098	53,3	2.098	FDS80
6041921	KSEMP8300FDS80A1M	KSEMP8300FDS80A1M	83,00	3.268	34,00	1.3390	53,3	2.098	53,3	2.098	FDS80
5397551	KSEMP8400FDS80A1M	KSEMP8400FDS80A1M	84,00	3.307	35,00	1.3780	53,5	2.105	53,5	2.105	FDS80
6041922	KSEMP8500FDS80A1M	KSEMP8500FDS80A1M	85,00	3.346	36,00	1.4170	53,6	2.112	53,6	2.112	FDS80
6041933	KSEMP8573FDS80A1M	KSEMP3375FDS80A1	85,73	3.375	37,00	1.4570	53,8	2.119	53,8	2.119	FDS80
5397552	KSEMP8600FDS80A1M	KSEMP8600FDS80A1M	86,00	3.386	37,00	1.4567	53,8	2.119	53,8	2.119	FDS80
6041923	KSEMP8700FDS80A1M	KSEMP8700FDS80A1M	87,00	3.425	38,00	1.4960	54,0	2.126	54,0	2.126	FDS80
5397553	KSEMP8800FDS80A1M	KSEMP8800FDS80A1M	88,00	3.465	39,00	1.5354	54,2	2.133	54,2	2.133	FDS80
5397554	KSEMP8890FDS80A1M	KSEMP3500FDS80A1	88,90	3.500	40,00	1.5748	54,3	2.140	54,3	2.140	FDS80
6041924	KSEMP8900FDS80A1M	KSEMP8900FDS80A1M	89,00	3.504	40,00	1.5750	54,3	2.140	54,3	2.140	FDS80
5397555	KSEMP9000FDS90A1M	KSEMP9000FDS90A1M	90,00	3.543	37,00	1.4567	59,2	2.332	59,2	2.332	FDS90
6041925	KSEMP9100FDS90A1M	KSEMP9100FDS90A1M	91,00	3.583	38,00	1.4960	59,4	2.339	59,4	2.339	FDS90
5397556	KSEMP9200FDS90A1M	KSEMP9200FDS90A1M	92,00	3.622	39,00	1.5354	59,6	2.346	59,6	2.346	FDS90
6041934	KSEMP9208FDS90A1M	KSEMP3625FDS90A1	92,08	3.625	39,00	1.5350	59,6	2.346	59,6	2.346	FDS90
6041926	KSEMP9300FDS90A1M	KSEMP9300FDS90A1M	93,00	3.661	40,00	1.5750	59,7	2.352	59,7	2.352	FDS90
5397557	KSEMP9400FDS90A1M	KSEMP9400FDS90A1M	94,00	3.701	26,00	1.0236	58,0	2.283	58,0	2.283	FDS90
6041927	KSEMP9500FDS90A1M	KSEMP9500FDS90A1M	95,00	3.740	27,00	1.0630	58,2	2.290	58,2	2.290	FDS90
5397558	KSEMP9525FDS90A1M	KSEMP3750FDS90A1	95,25	3.750	27,00	1.0630	58,3	2.297	58,3	2.297	FDS90
5397559	KSEMP9600FDS90A1M	KSEMP9600FDS90A1M	96,00	3.780	28,00	1.1024	58,3	2.297	58,3	2.297	FDS90
6041928	KSEMP9700FDS90A1M	KSEMP9700FDS90A1M	97,00	3.819	29,00	1.1420	58,5	2.304	58,5	2.304	FDS90
5397560	KSEMP9800FDS90A1M	KSEMP9800FDS90A1M	98,00	3.858	30,00	1.1811	58,7	2.311	58,7	2.311	FDS90
6041935	KSEMP9843FDS90A1M	KSEMP3875FDS90A1	98,43	3.875	31,00	1.2200	58,9	2.317	58,9	2.317	FDS90
6041929	KSEMP9900FDS90A1M	KSEMP9900FDS90A1M	99,00	3.898	31,00	1.2200	58,9	2.317	58,9	2.317	FDS90
6041930	KSEMP10000FDS90A1M	KSEMP10000FDS90A1M	100,00	3.937	32,00	1.2600	59,0	2.324	59,0	2.324	FDS90
5397561	KSEMP10160FDS90A1M	KSEMP4000FDS90A1	101,60	4.000	34,00	1.3390	59,4	2.338	59,4	2.338	FDS90



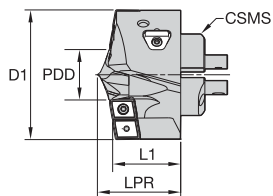


- To ensure 100% system stability, KSEM inserts used for KSEM PLUS should not be reground.
- KSEM PLUS heads are shipped with all insert screws.
- KSEM PLUS B1 heads are shipped with two or three wrenches, one for the KSEM insert, one for DFC™ inserts and DPA guiding pads, as well as for assembling the head onto the tool body. One additional wrench might be added depending on the size of the guiding pad.
- Order KSEM PLUS shanks using connection coupling size (CSMS) to determine which heads go with each shank.
- PDD in the callout drawing refers to the D1 of the KSEM, HPGM, and HPCM inserts for use with KSEM PLUS.
- Order inserts (KSEM, DFC) for KSEM PLUS separately.

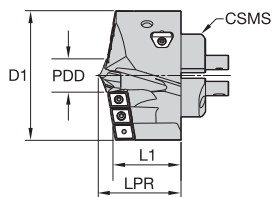
Modular Drills



2 x DFC
diameter: 28–70,34mm



4 x DFC
diameter: 70,35–93,34mm



6 x DFC
diameter: 93,35–127mm

■ KSEM PLUS B1 Heads 1.102–4" (28–101,60mm)

order number	ISO catalog number	ANSI catalog number	D1		PDD		LPR		L1		CSMS system size
			mm	in	mm	in	mm	in	mm	in	
5115736	KSEMP2800FDS28B1M	KSEMP2800FDS28B1M	28,00	1.102	14,00	.5512	28,1	1.105	25,0	.984	FDS28
5115737	KSEMP2858FDS28B1M	KSEMP1125FDS28B1	28,58	1.125	15,00	.5906	28,2	1.110	25,0	.984	FDS28
5115738	KSEMP2900FDS28B1M	KSEMP2900FDS28B1M	29,00	1.142	15,00	.5906	28,2	1.111	25,0	.984	FDS28
5115739	KSEMP2937FDS28B1M	KSEMP1156FDS28B1	29,36	1.156	16,00	.6299	28,4	1.118	25,0	.984	FDS28
5116010	KSEMP3000FDS28B1M	KSEMP3000FDS28B1M	30,00	1.181	16,00	.6299	28,4	1.118	25,0	.984	FDS28
5116011	KSEMP3017FDS28B1M	KSEMP1188FDS28B1	30,18	1.188	17,00	.6693	28,6	1.125	25,0	.984	FDS28
5116012	KSEMP3096FDS28B1M	KSEMP1219FDS28B1	30,96	1.219	17,00	.6693	28,6	1.125	25,0	.984	FDS28
5116013	KSEMP3100FDS28B1M	KSEMP3100FDS28B1M	31,00	1.220	17,00	.6693	28,6	1.125	25,0	.984	FDS28
5116014	KSEMP3175FDS32B1M	KSEMP1250FDS32B1	31,75	1.250	15,00	.5906	28,2	1.111	25,0	.984	FDS32
5116015	KSEMP3200FDS32B1M	KSEMP3200FDS32B1M	32,00	1.260	15,00	.5906	28,2	1.111	25,0	.984	FDS32
5116016	KSEMP3300FDS32B1M	KSEMP3300FDS32B1M	33,00	1.299	16,00	.6299	28,4	1.118	25,0	.984	FDS32
5116017	KSEMP3320FDS32B1M	KSEMP3320FDS32B1M	33,20	1.307	16,00	.6299	28,4	1.118	25,0	.984	FDS32
5116018	KSEMP3334FDS32B1M	KSEMP1313FDS32B1	33,35	1.313	17,00	.6693	28,6	1.125	25,0	.984	FDS32
5116019	KSEMP3400FDS32B1M	KSEMP3400FDS32B1M	34,00	1.339	17,00	.6693	28,6	1.125	25,0	.984	FDS32
5116030	KSEMP3493FDS32B1M	KSEMP1375FDS32B1	34,93	1.375	18,00	.7087	28,8	1.132	25,0	.984	FDS32
5116031	KSEMP3500FDS32B1M	KSEMP3500FDS32B1M	35,00	1.378	18,00	.7087	28,8	1.132	25,0	.984	FDS32
5116032	KSEMP3600FDS36B1M	KSEMP3600FDS36B1M	36,00	1.417	13,00	.5118	27,9	1.098	25,0	.984	FDS36
5116033	KSEMP3651FDS36B1M	KSEMP1438FDS36B1	36,53	1.438	14,00	.5512	28,1	1.105	25,0	.984	FDS36
5116034	KSEMP3700FDS36B1M	KSEMP3700FDS36B1M	37,00	1.457	14,00	.5512	28,1	1.105	25,0	.984	FDS36
5116035	KSEMP3750FDS36B1M	KSEMP3750FDS36B1M	37,50	1.476	15,00	.5906	28,2	1.111	25,0	.984	FDS36

(continued)

(KSEM PLUS B1 Heads 1.102–4" (28–101,60mm) — continued)

order number	ISO catalog number	ANSI catalog number	D1		PDD		LPR		L1		CSMS system size
			mm	in	mm	in	mm	in	mm	in	
5116036	KSEMP3800FDS36B1M	KSEMP3800FDS36B1M	38,00	1.496	15,00	.5906	28,2	1.111	25,0	.984	FDS36
5116037	KSEMP3810FDS36B1M	KSEMP1500FDS36B1	38,10	1.500	15,00	.5906	28,2	1.111	25,0	.984	FDS36
5116038	KSEMP3900FDS36B1M	KSEMP3900FDS36B1M	39,00	1.535	16,00	.6299	28,4	1.118	25,0	.984	FDS36
5116039	KSEMP3920FDS36B1M	KSEMP3920FDS36B1M	39,20	1.543	16,00	.6299	28,4	1.118	25,0	.984	FDS36
5116040	KSEMP3970FDS36B1M	KSEMP1563FDS36B1	39,70	1.563	17,00	.6693	28,6	1.125	25,0	.984	FDS36
5116041	KSEMP4000FDS40B1M	KSEMP4000FDS40B1M	40,00	1.575	17,00	.6693	33,8	1.330	30,0	1.181	FDS40
5116042	KSEMP4100FDS40B1M	KSEMP4100FDS40B1M	41,00	1.614	18,00	.7087	34,0	1.337	30,0	1.181	FDS40
5116043	KSEMP4128FDS40B1M	KSEMP1625FDS40B1	41,28	1.625	18,00	.7087	34,0	1.337	30,0	1.181	FDS40
5116044	KSEMP4200FDS40B1M	KSEMP4200FDS40B1M	42,00	1.654	19,00	.7480	34,1	1.344	30,0	1.181	FDS40
5116045	KSEMP4300FDS40B1M	KSEMP4300FDS40B1M	43,00	1.693	20,00	.7874	34,3	1.351	30,0	1.181	FDS40
5116046	KSEMP4400FDS40B1M	KSEMP4400FDS40B1M	44,00	1.732	21,00	.8268	34,5	1.358	30,0	1.181	FDS40
5116047	KSEMP4445FDS40B1M	KSEMP1750FDS40B1	44,45	1.750	22,00	.8661	34,7	1.365	30,0	1.181	FDS40
5116098	KSEMP4500FDS45B1M	KSEMP4500FDS45B1M	45,00	1.772	18,00	.7087	34,0	1.337	30,0	1.181	FDS45
5116099	KSEMP4600FDS45B1M	KSEMP4600FDS45B1M	46,00	1.811	19,00	.7480	34,1	1.344	30,0	1.181	FDS45
5116110	KSEMP4700FDS45B1M	KSEMP4700FDS45B1M	47,00	1.850	20,00	.7874	34,3	1.351	30,0	1.181	FDS45
5116111	KSEMP4763FDS45B1M	KSEMP1875FDS45B1	47,63	1.875	21,00	.8268	34,5	1.358	30,0	1.181	FDS45
5116112	KSEMP4800FDS45B1M	KSEMP4800FDS45B1M	48,00	1.890	21,00	.8268	34,5	1.358	30,0	1.181	FDS45
5116113	KSEMP4900FDS45B1M	KSEMP4900FDS45B1M	49,00	1.929	22,00	.8661	34,7	1.365	30,0	1.181	FDS45
5116114	KSEMP5000FDS50B1M	KSEMP5000FDS50B1M	50,00	1.969	23,00	.9055	40,0	1.577	35,0	1.378	FDS50
5116115	KSEMP5080FDS50B1M	KSEMP2000FDS50B1	50,80	2.000	24,00	.9449	40,2	1.584	35,0	1.378	FDS50
5116116	KSEMP5100FDS50B1M	KSEMP5100FDS50B1M	51,00	2.008	24,00	.9449	40,2	1.584	35,0	1.378	FDS50
5116117	KSEMP5200FDS50B1M	KSEMP5200FDS50B1M	52,00	2.047	25,00	.9843	40,4	1.590	35,0	1.378	FDS50
5116118	KSEMP5300FDS50B1M	KSEMP5300FDS50B1M	53,00	2.087	26,00	1.0236	40,6	1.597	35,0	1.378	FDS50
5116119	KSEMP5398FDS50B1M	KSEMP2125FDS50B1	53,98	2.125	27,00	1.0630	40,8	1.604	35,0	1.378	FDS50
5116120	KSEMP5400FDS50B1M	KSEMP5400FDS50B1M	54,00	2.126	27,00	1.0630	40,8	1.604	35,0	1.378	FDS50
5116121	KSEMP5500FDS50B1M	KSEMP5500FDS50B1M	55,00	2.165	28,00	1.1024	40,9	1.611	35,0	1.378	FDS50
5116122	KSEMP5600FDS56B1M	KSEMP5600FDS56B1M	56,00	2.205	20,00	.7874	39,5	1.556	35,0	1.378	FDS56
5116123	KSEMP5700FDS56B1M	KSEMP5700FDS56B1M	57,00	2.244	21,00	.8268	39,7	1.563	35,0	1.378	FDS56
5116124	KSEMP5715FDS56B1M	KSEMP2250FDS56B1	57,15	2.250	21,00	.8268	39,7	1.563	35,0	1.378	FDS56
5116125	KSEMP5800FDS56B1M	KSEMP5800FDS56B1M	58,00	2.283	22,00	.8661	39,9	1.570	35,0	1.378	FDS56
5116126	KSEMP5900FDS56B1M	KSEMP5900FDS56B1M	59,00	2.323	23,00	.9055	40,0	1.577	35,0	1.378	FDS56
5116127	KSEMP6000FDS56B1M	KSEMP6000FDS56B1M	60,00	2.362	24,00	.9449	40,2	1.584	35,0	1.378	FDS56
5116128	KSEMP6033FDS56B1M	KSEMP2375FDS56B1	60,33	2.375	24,00	.9449	40,2	1.584	35,0	1.378	FDS56
5116129	KSEMP6100FDS56B1M	KSEMP6100FDS56B1M	61,00	2.402	25,00	.9843	40,4	1.590	35,0	1.378	FDS56
5116130	KSEMP6200FDS56B1M	KSEMP6200FDS56B1M	62,00	2.441	26,00	1.0236	40,6	1.597	35,0	1.378	FDS56
5116131	KSEMP6300FDS63B1M	KSEMP6300FDS63B1M	63,00	2.480	27,00	1.0630	46,0	1.809	40,0	1.575	FDS63
5116132	KSEMP6350FDS63B1M	KSEMP2500FDS63B1	63,50	2.500	28,00	1.1024	46,1	1.816	40,0	1.575	FDS63
5116133	KSEMP6400FDS63B1M	KSEMP6400FDS63B1M	64,00	2.520	28,00	1.1024	46,1	1.816	40,0	1.575	FDS63
5116134	KSEMP6500FDS63B1M	KSEMP6500FDS63B1M	65,00	2.559	29,00	1.1417	46,3	1.823	40,0	1.575	FDS63
5116135	KSEMP6600FDS63B1M	KSEMP6600FDS63B1M	66,00	2.598	30,00	1.1811	46,5	1.830	40,0	1.575	FDS63
5116136	KSEMP6668FDS63B1M	KSEMP2625FDS63B1	66,68	2.625	31,00	1.2205	46,7	1.837	40,0	1.575	FDS63
5116137	KSEMP6700FDS63B1M	KSEMP6700FDS63B1M	67,00	2.638	31,00	1.2205	46,7	1.837	40,0	1.575	FDS63
5116138	KSEMP6800FDS63B1M	KSEMP6800FDS63B1M	68,00	2.677	32,00	1.2598	46,8	1.844	40,0	1.575	FDS63
5116139	KSEMP6900FDS63B1M	KSEMP6900FDS63B1M	69,00	2.717	33,00	1.2992	47,0	1.851	40,0	1.575	FDS63
5116140	KSEMP6985FDS63B1M	KSEMP2750FDS63B1	69,85	2.750	34,00	1.3386	47,2	1.858	40,0	1.575	FDS63
5116141	KSEMP7000FDS63B1M	KSEMP7000FDS63B1M	70,00	2.756	34,00	1.3386	47,2	1.858	40,0	1.575	FDS63
6041937	KSEMP7100FDS71B1M	KSEMP7100FDS71B1M	71,00	2.795	26,00	1.0240	47,9	1.885	40,0	1.575	FDS71
6041797	KSEMP7200FDS71B1M	KSEMP7200FDS71B1M	72,00	2.835	27,00	1.0630	48,1	1.892	40,0	1.575	FDS71
6041938	KSEMP7300FDS71B1M	KSEMP7300FDS71B1M	73,00	2.874	28,00	1.1020	48,2	1.899	40,0	1.575	FDS71
6042002	KSEMP7303FDS71B1M	KSEMP2875FDS71B1	73,03	2.875	28,00	1.1020	48,2	1.899	40,0	1.575	FDS71
6041798	KSEMP7400FDS71B1M	KSEMP7400FDS71B1M	74,00	2.913	29,00	1.1420	48,4	1.906	40,0	1.575	FDS71
6041939	KSEMP7500FDS71B1M	KSEMP7500FDS71B1M	75,00	2.953	30,00	1.1810	48,6	1.913	40,0	1.575	FDS71
6041799	KSEMP7600FDS71B1M	KSEMP7600FDS71B1M	76,00	2.992	31,00	1.2200	48,8	1.919	40,0	1.575	FDS71
5397562	KSEMP7620FDS71B1M	KSEMP3000FDS71B1	76,20	3.000	31,00	1.2200	48,8	1.919	48,8	1.919	FDS71
6041940	KSEMP7700FDS71B1M	KSEMP7700FDS71B1M	77,00	3.031	32,00	1.2600	48,9	1.927	40,0	1.575	FDS71
6041800	KSEMP7800FDS71B1M	KSEMP7800FDS71B1M	78,00	3.071	33,00	1.2990	49,1	1.933	40,0	1.575	FDS71

(continued)

(KSEM PLUS B1 Heads 1.102–4" (28–101,60mm) — continued)

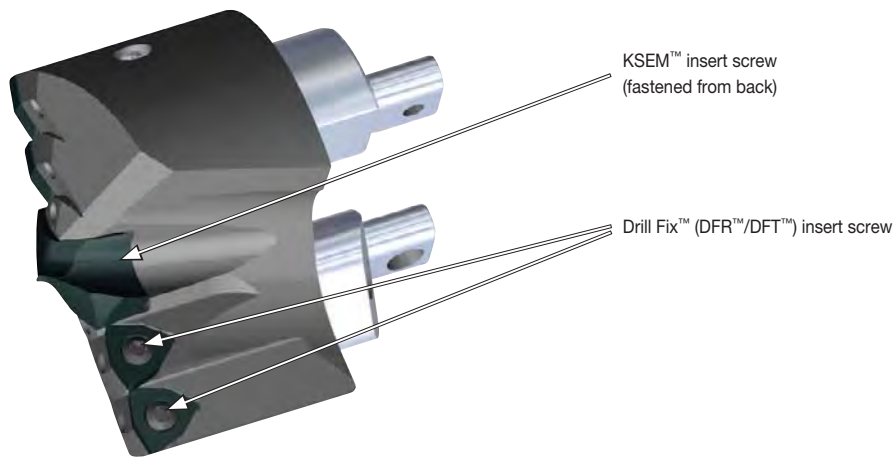
Modular Drills

order number	ISO catalog number	ANSI catalog number	D1		PDD		LPR		L1		CSMS system size
			mm	in	mm	in	mm	in	mm	in	
6041991	KSEMP7900FDS71B1M	KSEMP7900FDS71B1M	79,00	3.110	34,00	1.3390	49,3	1.940	40,0	1.575	FDS71
6042003	KSEMP7938FDS80B1M	KSEMP3125FDS80B1	79,38	3.125	31,00	1.2200	54,1	2.128	45,0	1.772	FDS80
6041881	KSEMP8000FDS80B1M	KSEMP8000FDS80B1M	80,00	3.150	31,00	1.2200	54,1	2.128	45,0	1.772	FDS80
6041992	KSEMP8100FDS80B1M	KSEMP8100FDS80B1M	81,00	3.189	32,00	1.2600	54,2	2.135	45,0	1.772	FDS80
6041882	KSEMP8200FDS80B1M	KSEMP8200FDS80B1M	82,00	3.228	33,00	1.2990	54,4	2.142	45,0	1.772	FDS80
5397563	KSEMP8255FDS80B1M	KSEMP3250FDS80B1	82,55	3.250	34,00	1.3386	54,6	2.149	54,6	2.149	FDS80
6041993	KSEMP8300FDS80B1M	KSEMP8300FDS80B1M	83,00	3.268	34,00	1.3390	54,6	2.149	45,0	1.772	FDS80
6041883	KSEMP8400FDS80B1M	KSEMP8400FDS80B1M	84,00	3.307	35,00	1.3780	54,8	2.156	45,0	1.772	FDS80
6041994	KSEMP8500FDS80B1M	KSEMP8500FDS80B1M	85,00	3.346	36,00	1.4170	54,9	2.163	45,0	1.772	FDS80
6042004	KSEMP8573FDS80B1M	KSEMP3375FDS80B1	85,73	3.375	37,00	1.4570	55,1	2.170	45,0	1.772	FDS80
6041884	KSEMP8600FDS80B1M	KSEMP8600FDS80B1M	86,00	3.386	37,00	1.4570	55,1	2.170	45,0	1.772	FDS80
6041995	KSEMP8700FDS80B1M	KSEMP8700FDS80B1M	87,00	3.425	38,00	1.4960	55,3	2.177	45,0	1.772	FDS80
6041885	KSEMP8800FDS80B1M	KSEMP8800FDS80B1M	88,00	3.465	39,00	1.5350	55,5	2.184	45,0	1.772	FDS80
5397564	KSEMP8890FDS80B1M	KSEMP3500FDS80B1	88,90	3.500	40,00	1.5748	55,6	2.190	55,6	2.190	FDS80
6041996	KSEMP8900FDS80B1M	KSEMP8900FDS80B1M	89,00	3.504	40,00	1.5750	55,6	2.190	45,0	1.772	FDS80
6041886	KSEMP9000FDS90B1M	KSEMP9000FDS90B1M	90,00	3.543	37,00	1.4570	60,3	2.375	50,0	1.969	FDS90
6041997	KSEMP9100FDS90B1M	KSEMP9100FDS90B1M	91,00	3.583	38,00	1.4960	60,5	2.382	50,0	1.969	FDS90
6041887	KSEMP9200FDS90B1M	KSEMP9200FDS90B1M	92,00	3.622	39,00	1.5350	60,7	2.389	50,0	1.969	FDS90
6042005	KSEMP9208FDS90B1M	KSEMP3625FDS90B1	92,08	3.625	39,00	1.5350	60,7	2.389	50,0	1.969	FDS90
6041998	KSEMP9300FDS90B1M	KSEMP9300FDS90B1M	93,00	3.661	40,00	1.5750	60,8	2.395	50,0	1.969	FDS90
6041888	KSEMP9400FDS90B1M	KSEMP9400FDS90B1M	94,00	3.701	26,00	1.0240	60,4	2.376	50,0	1.968	FDS90
6041999	KSEMP9500FDS90B1M	KSEMP9500FDS90B1M	95,00	3.740	27,00	1.0630	60,6	2.383	50,0	1.968	FDS90
5397565	KSEMP9525FDS90B1M	KSEMP3750FDS90B1	95,25	3.750	27,00	1.0630	60,6	2.383	60,6	2.383	FDS90
6041889	KSEMP9600FDS90B1M	KSEMP9600FDS90B1M	96,00	3.780	28,00	1.1020	60,7	2.390	50,0	1.968	FDS90
6042000	KSEMP9700FDS90B1M	KSEMP9700FDS90B1M	97,00	3.819	29,00	1.1420	60,9	2.398	50,0	1.968	FDS90
6041890	KSEMP9800FDS90B1M	KSEMP9800FDS90B1M	98,00	3.858	30,00	1.1810	61,1	2.404	50,0	1.968	FDS90
6042006	KSEMP9843FDS90B1M	KSEMP3875FDS90B1	98,43	3.875	31,00	1.2200	61,3	2.411	50,0	1.968	FDS90
6042001	KSEMP9900FDS90B1M	KSEMP9900FDS90B1M	99,00	3.898	31,00	1.2200	61,3	2.412	50,0	1.969	FDS90
6041901	KSEMP10000FDS90B1M	KSEMP10000FDS90B1M	100,00	3.937	32,00	1.2600	61,4	2.418	50,0	1.968	FDS90
5397566	KSEMP10160FDS90B1M	KSEMP4000FDS90B1	101,60	4.000	34,00	1.3390	61,8	2.432	61,8	2.432	FDS90

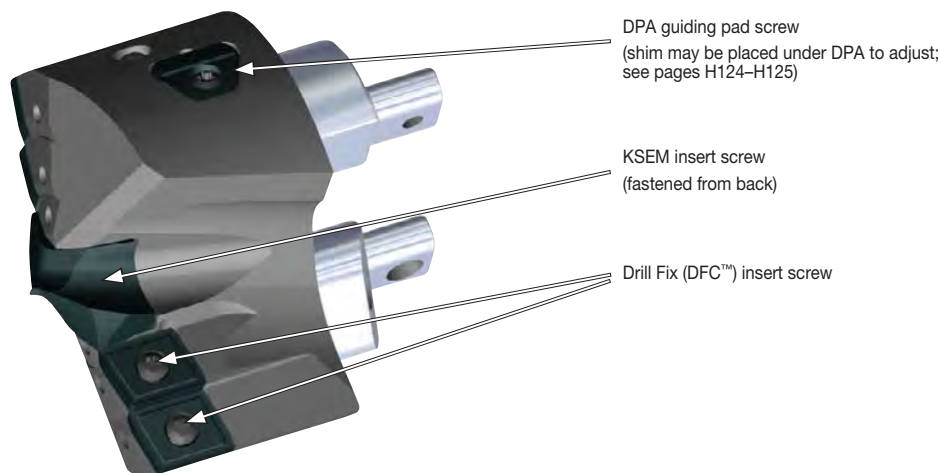
NOTE: When one screw is listed, it is for both insert and guiding pad. When two screws are listed, the first one is for the insert screw, and the second one is for the guiding pad. Find complete KSEM PLUS B1 product overview on pages H108–H110.

- The following pages consolidate required spare parts for KSEM PLUS heads.
- Tables show each spare part followed by required screw driver (if applicable).
- Adjustment shims for DPA guide pads on KSEM PLUS B1 heads come as easy-to-use shim packs.
- Please find reference for spare part location below.

KSEM PLUS A1 Heads • Spare Parts







KSEM PLUS B1 Heads • Spare Parts







■ KSEM PLUS A1 Heads 1.102–4" (28–101,60mm) • Spare Parts

Modular Drills

D1		PDD		CSMS system size				
mm	in	mm	in		KSEM insert screw	KSEM wrench	Drill Fix insert screw	Drill Fix wrench
28,00	1.102	14,00	.551	FDS28	364.016	170.350	192.432	170.352
28,58	1.125	15,00	.591	FDS28	364.016	170.350	192.432	170.352
29,00	1.142	15,00	.591	FDS28	364.016	170.350	192.432	170.352
29,36	1.156	16,00	.630	FDS28	364.010	170.345	192.432	170.352
30,00	1.181	16,00	.630	FDS28	364.010	170.345	192.432	170.352
30,18	1.188	17,00	.669	FDS28	364.010	170.345	192.432	170.352
30,96	1.219	17,00	.669	FDS28	364.010	170.345	192.432	170.352
31,00	1.221	17,00	.669	FDS28	364.010	170.345	192.432	170.352
31,75	1.250	15,00	.591	FDS32	364.016	170.350	191.924	170.353
32,00	1.260	15,00	.591	FDS32	364.016	170.350	191.924	170.353
33,00	1.299	16,00	.630	FDS32	364.010	170.345	191.924	170.353
33,20	1.307	16,00	.630	FDS32	364.010	170.345	191.924	170.353
33,35	1.313	17,00	.669	FDS32	364.010	170.345	191.924	170.353
34,00	1.339	17,00	.669	FDS32	364.010	170.345	191.924	170.353
34,93	1.375	18,00	.709	FDS32	364.010	170.345	191.924	170.353
35,00	1.378	18,00	.709	FDS32	364.010	170.345	191.924	170.353
36,00	1.417	13,00	.512	FDS36	364.016	170.350	191.916	170.355
36,53	1.438	14,00	.551	FDS36	364.016	170.350	191.916	170.355
37,00	1.457	14,00	.551	FDS36	364.016	170.350	191.916	170.355
37,50	1.476	15,00	.591	FDS36	364.016	170.350	191.916	170.355
38,00	1.496	15,00	.591	FDS36	364.016	170.350	191.916	170.355
38,10	1.500	15,00	.591	FDS36	364.016	170.350	191.916	170.355
39,00	1.535	16,00	.630	FDS36	364.010	170.345	191.916	170.355
39,20	1.543	16,00	.630	FDS36	364.010	170.345	191.916	170.355
39,70	1.563	17,00	.669	FDS36	364.010	170.345	191.916	170.355
40,00	1.575	17,00	.669	FDS40	364.010	170.345	191.916	170.355
41,00	1.614	18,00	.709	FDS40	364.010	170.345	191.916	170.355
41,28	1.625	18,00	.709	FDS40	364.010	170.345	191.916	170.355
42,00	1.654	19,00	.748	FDS40	364.010	170.345	191.916	170.355
43,00	1.693	20,00	.787	FDS40	364.011	170.346	191.916	170.355
44,00	1.732	21,00	.827	FDS40	364.011	170.346	191.916	170.355
44,45	1.750	22,00	.866	FDS40	364.011	170.346	191.916	170.355
45,00	1.772	18,00	.709	FDS45	364.010	170.345	191.698	170.355
46,00	1.811	19,00	.748	FDS45	364.010	170.345	191.698	170.355
47,00	1.850	20,00	.787	FDS45	364.011	170.346	191.698	170.355
47,63	1.875	21,00	.827	FDS45	364.011	170.346	191.698	170.355
48,00	1.890	21,00	.827	FDS45	364.011	170.346	191.698	170.355
49,00	1.929	22,00	.866	FDS45	364.011	170.346	191.698	170.355
50,00	1.969	23,00	.906	FDS50	364.011	170.346	191.698	170.355
50,80	2.000	24,00	.945	FDS50	364.011	170.346	191.698	170.355
51,00	2.008	24,00	.945	FDS50	364.011	170.346	191.698	170.355
52,00	2.047	25,00	.984	FDS50	364.012	170.347	191.698	170.355
53,00	2.087	26,00	1.024	FDS50	364.012	170.347	191.698	170.355
53,98	2.125	27,00	1.063	FDS50	364.012	170.347	191.698	170.355
54,00	2.126	27,00	1.063	FDS50	364.012	170.347	191.698	170.355
55,00	2.165	28,00	1.102	FDS50	364.012	170.347	191.698	170.355
56,00	2.205	20,00	.787	FDS56	364.011	170.346	191.726	170.356
57,00	2.244	21,00	.827	FDS56	364.011	170.346	191.726	170.356
57,15	2.250	21,00	.827	FDS56	364.011	170.346	191.726	170.356
58,00	2.284	22,00	.866	FDS56	364.011	170.346	191.726	170.356
59,00	2.323	23,00	.906	FDS56	364.011	170.346	191.726	170.356
60,00	2.362	24,00	.945	FDS56	364.011	170.346	191.726	170.356
60,33	2.375	24,00	.945	FDS56	364.011	170.346	191.726	170.356
61,00	2.402	25,00	.984	FDS56	364.012	170.347	191.726	170.356
62,00	2.441	26,00	1.024	FDS56	364.012	170.347	191.726	170.356
63,00	2.480	27,00	1.063	FDS63	364.012	170.347	191.726	170.356

(continued)

(KSEM PLUS A1 Heads 1.102–4" (28–101,60mm) • Spare Parts — continued)








D1		PDD							
mm	in	mm	in	CSMS system size	KSEM insert screw	KSEM wrench	Drill Fix insert screw	Drill Fix wrench	
63,50	2.500	28,00	1.102	FDS63	364.012	170.347	191.726	170.356	
64,00	2.520	28,00	1.102	FDS63	364.012	170.347	191.726	170.356	
65,00	2.559	29,00	1.142	FDS63	364.013	170.348	191.726	170.356	
66,00	2.598	30,00	1.181	FDS63	364.013	170.348	191.726	170.356	
66,68	2.625	31,00	1.221	FDS63	364.013	170.348	191.726	170.356	
67,00	2.638	31,00	1.221	FDS63	364.013	170.348	191.726	170.356	
68,00	2.677	32,00	1.260	FDS63	364.013	170.348	191.726	170.356	
69,00	2.717	33,00	1.299	FDS63	364.015	170.348	191.726	170.356	
69,85	2.750	34,00	1.339	FDS63	364.015	170.348	191.726	170.356	
70,00	2.756	34,00	1.339	FDS63	364.015	170.348	191.726	170.356	
71,00	2.795	26,00	1.024	FDS71	364.012	170.347	191.916	170.355	
72,00	2.835	27,00	1.063	FDS71	364.012	170.347	191.916	170.355	
73,00	2.874	28,00	1.102	FDS71	364.012	170.347	191.916	170.355	
73,03	2.875	28,00	1.102	FDS71	364.012	170.347	191.916	170.355	
74,00	2.913	29,00	1.142	FDS71	364.013	170.365	191.916	170.355	
75,00	2.953	30,00	1.181	FDS71	364.013	170.365	191.916	170.355	
76,00	2.992	31,00	1.220	FDS71	364.013	170.365	191.916	170.355	
76,20	3.000	31,00	1.220	FDS71	364.013	170.365	191.916	170.355	
77,00	3.031	32,00	1.260	FDS71	364.013	170.365	191.916	170.355	
78,00	3.071	33,00	1.299	FDS71	364.015	170.365	191.916	170.355	
79,00	3.110	34,00	1.339	FDS71	364.015	170.365	191.916	170.355	
79,38	3.125	31,00	1.220	FDS80	364.013	170.365	191.916	170.355	
80,00	3.150	31,00	1.220	FDS80	364.013	170.365	191.916	170.355	
81,00	3.189	32,00	1.260	FDS80	364.013	170.365	191.916	170.355	
82,00	3.228	33,00	1.299	FDS80	364.015	170.365	191.916	170.355	
82,55	3.250	34,00	1.339	FDS80	364.015	170.365	191.916	170.355	
83,00	3.268	34,00	1.339	FDS80	364.015	170.365	191.916	170.355	
84,00	3.307	35,00	1.378	FDS80	364.015	170.365	191.916	170.355	
85,00	3.346	36,00	1.417	FDS80	364.015	170.365	191.916	170.355	
85,73	3.375	37,00	1.457	FDS80	364.015	170.365	191.916	170.355	
86,00	3.386	37,00	1.457	FDS80	364.015	170.365	191.916	170.355	
87,00	3.425	38,00	1.496	FDS80	364.015	170.365	191.916	170.355	
88,00	3.465	39,00	1.535	FDS80	364.015	170.365	191.916	170.355	
88,90	3.500	40,00	1.575	FDS80	364.015	170.365	191.916	170.355	
89,00	3.504	40,00	1.575	FDS80	364.015	170.365	191.916	170.355	
90,00	3.543	37,00	1.457	FDS90	364.015	170.365	191.916	170.355	
91,00	3.583	38,00	1.496	FDS90	364.015	170.365	191.916	170.355	
92,00	3.622	39,00	1.535	FDS90	364.015	170.365	191.916	170.355	
92,08	3.625	39,00	1.535	FDS90	364.015	170.365	191.916	170.355	
93,00	3.661	40,00	1.575	FDS90	364.015	170.365	191.916	170.355	
94,00	3.701	26,00	1.024	FDS90	364.012	170.355	191.916	170.355	
95,00	3.740	27,00	1.063	FDS90	364.012	170.355	191.916	170.355	
95,25	3.750	27,00	1.063	FDS90	364.012	170.355	191.916	170.355	
96,00	3.780	28,00	1.102	FDS90	364.012	170.355	191.916	170.355	
97,00	3.819	29,00	1.142	FDS90	364.013	170.365	191.916	170.355	
98,00	3.858	30,00	1.181	FDS90	364.013	170.365	191.916	170.355	
98,43	3.875	31,00	1.220	FDS90	364.013	170.365	191.916	170.355	
99,00	3.898	31,00	1.220	FDS90	364.013	170.365	191.916	170.355	
100,00	3.937	32,00	1.260	FDS90	364.013	170.365	191.916	170.355	
101,60	4.000	34,00	1.339	FDS90	364.015	170.365	191.916	170.355	



Modular Drills








■ KSEM PLUS B1 Heads 1.102–4" (28–101,60mm) • Spare Parts

Modular Drills

D1		PDD										
mm	in	mm	in	CSMS system size	KSEM insert screw	Torx wrench	DFC insert screw	Torx wrench	DPA guiding pad screw	Torx wrench	shim pack	
28,00	1.102	14,00	.551	FDS28	364.016	170.350	192.432	170.352	192.432	170.352	193.554	
28,58	1.125	15,00	.591	FDS28	364.016	170.350	192.432	170.352	192.432	170.352	193.554	
29,00	1.142	15,00	.591	FDS28	364.016	170.350	192.432	170.352	192.432	170.352	193.554	
29,36	1.156	16,00	.630	FDS28	364.010	170.345	192.432	170.352	192.432	170.352	193.554	
30,00	1.181	16,00	.630	FDS28	364.010	170.345	192.432	170.352	192.432	170.352	193.554	
30,18	1.188	17,00	.669	FDS28	364.010	170.345	192.432	170.352	192.432	170.352	193.554	
30,96	1.219	17,00	.669	FDS28	364.010	170.345	192.432	170.352	192.432	170.352	193.554	
31,00	1.220	17,00	.669	FDS28	364.010	170.345	192.432	170.352	192.432	170.352	193.554	
31,75	1.250	15,00	.591	FDS32	364.016	170.350	191.924	170.353	191.924	170.353	193.555	
32,00	1.260	15,00	.591	FDS32	364.016	170.350	191.924	170.353	191.924	170.353	193.555	
33,00	1.299	16,00	.630	FDS32	364.010	170.345	191.924	170.353	191.924	170.353	193.555	
33,20	1.307	16,00	.630	FDS32	364.010	170.345	191.924	170.353	191.924	170.353	193.555	
33,35	1.313	17,00	.669	FDS32	364.010	170.345	191.924	170.353	191.924	170.353	193.555	
34,00	1.339	17,00	.669	FDS32	364.010	170.345	191.924	170.353	191.924	170.353	193.555	
34,93	1.375	18,00	.709	FDS32	364.010	170.345	191.924	170.353	191.924	170.353	193.555	
35,00	1.378	18,00	.709	FDS32	364.010	170.345	191.924	170.353	191.924	170.353	193.555	
36,00	1.417	13,00	.512	FDS36	364.016	170.350	191.916	170.355	191.924	170.353	193.555	
36,53	1.438	14,00	.551	FDS36	364.016	170.350	191.916	170.355	191.924	170.353	193.555	
37,00	1.457	14,00	.551	FDS36	364.016	170.350	191.916	170.355	191.924	170.353	193.555	
37,50	1.476	15,00	.591	FDS36	364.016	170.350	191.916	170.355	191.924	170.353	193.555	
38,00	1.496	15,00	.591	FDS36	364.016	170.350	191.916	170.355	191.924	170.353	193.555	
38,10	1.500	15,00	.591	FDS36	364.016	170.350	191.916	170.355	191.924	170.353	193.555	
39,00	1.535	16,00	.630	FDS36	364.010	170.345	191.916	170.355	191.924	170.353	193.555	
39,20	1.543	16,00	.630	FDS36	364.010	170.345	191.916	170.355	191.924	170.353	193.555	
39,70	1.563	17,00	.669	FDS36	364.010	170.345	191.916	170.355	191.924	170.353	193.555	
40,00	1.575	17,00	.669	FDS40	364.010	170.345	191.916	170.355	191.924	170.353	193.555	
41,00	1.614	18,00	.709	FDS40	364.010	170.345	191.916	170.355	191.924	170.353	193.555	
41,28	1.625	18,00	.709	FDS40	364.010	170.345	191.916	170.355	191.924	170.353	193.555	
42,00	1.654	19,00	.748	FDS40	364.010	170.345	191.916	170.355	191.924	170.353	193.555	
43,00	1.693	20,00	.787	FDS40	364.011	170.346	191.916	170.355	191.924	170.353	193.555	
44,00	1.732	21,00	.827	FDS40	364.011	170.346	191.916	170.355	191.924	170.353	193.555	
44,45	1.750	22,00	.866	FDS40	364.011	170.346	191.916	170.355	191.924	170.353	193.555	
45,00	1.772	18,00	.709	FDS45	364.010	170.345	191.916	170.355	191.924	170.353	193.555	
46,00	1.811	19,00	.748	FDS45	364.010	170.345	191.916	170.355	191.924	170.353	193.555	
47,00	1.850	20,00	.787	FDS45	364.011	170.346	191.916	170.355	191.924	170.353	193.555	
47,63	1.875	21,00	.827	FDS45	364.011	170.346	191.916	170.355	191.924	170.353	193.555	
48,00	1.890	21,00	.827	FDS45	364.011	170.346	191.916	170.355	191.924	170.353	193.555	
49,00	1.929	22,00	.866	FDS45	364.011	170.346	191.916	170.355	191.924	170.353	193.555	
50,00	1.969	23,00	.906	FDS50	364.011	170.346	191.916	170.355	191.916	170.355	193.556	
50,80	2.000	24,00	.945	FDS50	364.011	170.346	191.916	170.355	191.916	170.355	193.556	
51,00	2.008	24,00	.945	FDS50	364.011	170.346	191.916	170.355	191.916	170.355	193.556	
52,00	2.047	25,00	.984	FDS50	364.012	170.347	191.916	170.355	191.916	170.355	193.556	
53,00	2.087	26,00	1.024	FDS50	364.012	170.347	191.916	170.355	191.916	170.355	193.556	
53,98	2.125	27,00	1.063	FDS50	364.012	170.347	191.916	170.355	191.916	170.355	193.556	
54,00	2.126	27,00	1.063	FDS50	364.012	170.347	191.916	170.355	191.916	170.355	193.556	
55,00	2.165	28,00	1.102	FDS50	364.012	170.347	191.916	170.355	191.916	170.355	193.556	
56,00	2.205	20,00	.787	FDS56	364.011	170.346	191.726	170.356	191.916	170.355	193.556	
57,00	2.244	21,00	.827	FDS56	364.011	170.346	191.726	170.356	191.916	170.355	193.556	
57,15	2.250	21,00	.827	FDS56	364.011	170.346	191.726	170.356	191.916	170.355	193.556	
58,00	2.283	22,00	.866	FDS56	364.011	170.346	191.726	170.356	191.916	170.355	193.556	
59,00	2.323	23,00	.906	FDS56	364.011	170.346	191.726	170.356	191.916	170.355	193.556	
60,00	2.362	24,00	.945	FDS56	364.011	170.346	191.726	170.356	191.916	170.355	193.556	
60,33	2.375	24,00	.945	FDS56	364.011	170.346	191.726	170.356	191.916	170.355	193.556	
61,00	2.402	25,00	.984	FDS56	364.012	170.347	191.726	170.356	191.916	170.355	193.556	
62,00	2.441	26,00	1.024	FDS56	364.012	170.347	191.726	170.356	191.916	170.355	193.556	
63,00	2.480	27,00	1.063	FDS63	364.012	170.347	191.726	170.356	191.916	170.355	193.556	

(continued)

(KSEM PLUS B1 Heads 1.102–4" (28–101,60mm) • Spare Parts — continued)

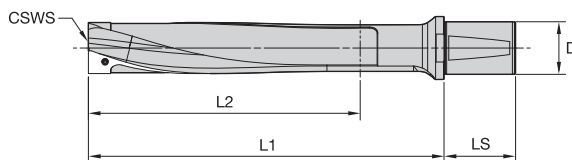
D1		PDD										
mm	in	mm	in	CSMS system size	KSEM insert screw	Torx wrench	DFC insert screw	Torx wrench	DPA guiding pad screw	Torx wrench	shim pack	
63,50	2.500	28,00	1.102	FDS63	364.012	170.347	191.726	170.356	191.916	170.355	193.556	
64,00	2.520	28,00	1.102	FDS63	364.012	170.347	191.726	170.356	191.916	170.355	193.556	
65,00	2.559	29,00	1.142	FDS63	364.013	170.348	191.726	170.356	191.916	170.355	193.556	
66,00	2.598	30,00	1.181	FDS63	364.013	170.348	191.726	170.356	191.916	170.355	193.556	
66,68	2.625	31,00	1.221	FDS63	364.013	170.348	191.726	170.356	191.916	170.355	193.556	
67,00	2.638	31,00	1.221	FDS63	364.013	170.348	191.726	170.356	191.916	170.355	193.556	
68,00	2.677	32,00	1.260	FDS63	364.013	170.348	191.726	170.356	191.916	170.355	193.556	
69,00	2.717	33,00	1.299	FDS63	364.015	170.348	191.726	170.356	191.916	170.355	193.556	
69,85	2.750	34,00	1.339	FDS63	364.015	170.348	191.726	170.356	191.916	170.355	193.556	
70,00	2.756	34,00	1.339	FDS63	364.015	170.348	191.726	170.356	191.916	170.355	193.556	
71,00	2.795	26,00	1.024	FDS71	364.012	170.347	191.916	170.356	191.916	170.355	193.556	
72,00	2.835	27,00	1.063	FDS71	364.012	170.347	191.916	170.356	191.916	170.355	193.556	
73,00	2.874	28,00	1.102	FDS71	364.012	170.347	191.916	170.356	191.916	170.355	193.556	
73,03	2.875	28,00	1.102	FDS71	364.012	170.347	191.916	170.356	191.916	170.355	193.556	
74,00	2.913	29,00	1.142	FDS71	364.013	170.365	191.916	170.356	191.916	170.355	193.556	
75,00	2.953	30,00	1.181	FDS71	364.013	170.365	191.916	170.356	191.916	170.355	193.556	
76,00	2.992	31,00	1.220	FDS71	364.013	170.365	191.916	170.356	191.916	170.355	193.556	
76,20	3.000	31,00	1.220	FDS71	364.013	170.365	191.916	170.355	191.916	170.356	193.556	
77,00	3.031	32,00	1.260	FDS71	364.013	170.365	191.916	170.355	191.916	170.356	193.556	
78,00	3.071	33,00	1.299	FDS71	364.015	170.365	191.916	170.355	191.916	170.356	193.556	
79,00	3.110	34,00	1.339	FDS71	364.015	170.365	191.916	170.355	191.916	170.356	193.556	
79,38	3.125	31,00	1.220	FDS80	364.013	170.365	191.916	170.355	191.916	170.356	193.556	
80,00	3.150	31,00	1.220	FDS80	364.013	170.365	191.916	170.355	191.916	170.356	193.556	
81,00	3.189	32,00	1.260	FDS80	364.013	170.365	191.916	170.355	191.916	170.356	193.556	
82,00	3.228	33,00	1.299	FDS80	364.015	170.365	191.916	170.355	191.916	170.356	193.556	
82,55	3.250	34,00	1.339	FDS80	364.015	170.355	191.916	170.355	191.916	170.356	193.556	
83,00	3.268	34,00	1.339	FDS80	364.015	170.355	191.916	170.355	191.916	170.356	193.556	
84,00	3.307	35,00	1.378	FDS80	364.015	170.355	191.916	170.355	191.916	170.356	193.556	
85,00	3.346	36,00	1.417	FDS80	364.015	170.355	191.916	170.355	191.916	170.356	193.556	
85,73	3.375	37,00	1.457	FDS80	364.015	170.355	191.916	170.355	191.916	170.356	193.556	
86,00	3.386	37,00	1.457	FDS80	364.015	170.355	191.916	170.355	191.916	170.356	193.556	
87,00	3.425	38,00	1.496	FDS80	364.015	170.355	191.916	170.355	191.916	170.356	193.556	
88,00	3.465	39,00	1.535	FDS80	364.015	170.355	191.916	170.355	191.916	170.356	193.556	
88,90	3.500	40,00	1.575	FDS80	364.015	170.355	191.916	170.355	191.916	170.356	193.556	
89,00	3.504	40,00	1.575	FDS80	364.015	170.355	191.916	170.355	191.916	170.356	193.556	
90,00	3.543	37,00	1.457	FDS90	364.015	170.355	191.916	170.355	191.916	170.356	193.556	
91,00	3.583	38,00	1.496	FDS90	364.015	170.355	191.916	170.355	191.916	170.356	193.556	
92,00	3.622	39,00	1.535	FDS90	364.015	170.355	191.916	170.355	191.916	170.356	193.556	
92,08	3.625	39,00	1.535	FDS90	364.015	170.355	191.916	170.355	191.916	170.356	193.556	
93,00	3.661	40,00	1.575	FDS90	364.015	170.355	191.916	170.355	191.916	170.356	193.556	
94,00	3.701	26,00	1.024	FDS90	364.012	170.355	191.916	170.355	191.916	170.356	193.556	
95,00	3.740	27,00	1.063	FDS90	364.012	170.355	191.916	170.355	191.916	170.356	193.556	
95,25	3.750	27,00	1.063	FDS90	364.012	170.355	191.916	170.355	191.916	170.356	193.556	
96,00	3.780	28,00	1.102	FDS90	364.012	170.355	191.916	170.355	191.916	170.356	193.556	
97,00	3.819	29,00	1.142	FDS90	364.013	170.355	191.916	170.355	191.916	170.356	193.556	
98,00	3.858	30,00	1.181	FDS90	364.013	170.355	191.916	170.355	191.916	170.356	193.556	
98,43	3.875	31,00	1.220	FDS90	364.013	170.355	191.916	170.355	191.916	170.356	193.556	
99,00	3.898	31,00	1.220	FDS90	364.013	170.355	191.916	170.355	191.916	170.356	193.556	
100,00	3.937	32,00	1.260	FDS90	364.013	170.355	191.916	170.355	191.916	170.356	193.556	
101,60	4.000	34,00	1.339	FDS90	364.015	170.365	191.916	170.355	191.916	170.356	193.556	

Modular Drills

- Order KSEM PLUS heads according to the connection coupling size (CSWS).
- Order KSEM PLUS heads separately; see page H115–H120.
- Wrench will be shipped with KSEM PLUS head.
- Custom solution for cast iron application with twisted flutes available.



Modular Drills



■ KSEM PLUS WD Shanks • 1.5 x D • Metric



1.5 x D catalog number	CSWS system size	D	L1	L2	LS	clamp screw
WD32FDS28076M	FDS28	32	76	32	58	193.537
WD32FDS32082M	FDS32	32	82	34	58	193.523
WD32FDS36092M	FDS36	32	92	40	58	193.524
WD50FDS40100M	FDS40	50	100	43	68	193.524
WD50FDS45112M	FDS45	50	112	50	68	193.525
WD50FDS50122M	FDS50	50	122	54	68	193.525
WD50FDS56140M	FDS56	50	140	65	68	193.526
WD50FDS63154M	FDS63	50	154	71	68	193.526
WD50FDS71172M	FDS71	50	172	80	68	193.526
WD50FDS80192M	FDS80	50	192	90	68	193.545
WD50FDS90212M	FDS90	50	212	100	68	193.545

■ KSEM PLUS WD Shanks • 3 x D • Metric



3 x D catalog number	CSWS system size	D	L1	L2	LS	clamp screw
WD32FDS28128M	FDS28	32	128	71	58	193.537
WD32FDS32146M	FDS32	32	146	85	58	193.523
WD32FDS36166M	FDS36	32	166	97	58	193.524
WD50FDS40183M	FDS40	50	183	107	68	193.524
WD50FDS45206M	FDS45	50	206	122	68	193.525
WD50FDS50228M	FDS50	50	228	135	68	193.525
WD50FDS56259M	FDS56	50	259	156	68	193.526
WD50FDS63289M	FDS63	50	289	174	68	193.526
WD50FDS71292M	FDS71	50	292	200	68	193.526
WD50FDS80327M	FDS80	50	327	225	68	193.545
WD50FDS90362M	FDS90	50	362	250	68	193.545

■ KSEM PLUS WD Shanks • 5 x D • Metric



5 x D catalog number	CSWS system size	D	L1	L2	LS	clamp screw
WD32FDS28190M	FDS28	32	190	133	58	193.537
WD32FDS32216M	FDS32	32	216	155	58	193.523
WD32FDS36244M	FDS36	32	244	175	58	193.524
WD50FDS40271M	FDS40	50	271	195	68	193.524
WD50FDS45304M	FDS45	50	304	220	68	193.525
WD50FDS50338M	FDS50	50	338	245	68	193.525
WD50FDS56383M	FDS56	50	383	280	68	193.526
WD50FDS63429M	FDS63	50	429	314	68	193.526
WD50FDS71452M	FDS71	50	452	360	68	193.526
WD50FDS80507M	FDS80	50	507	405	68	193.545
WD50FDS90562M	FDS90	50	562	450	68	193.545

■ KSEM PLUS WD Shanks • 8 x D • Metric



8 x D catalog number	CSWS system size	D	L1	L2	LS	clamp screw
WD32FDS28283M	FDS28	32	283	226	58	193.537
WD32FDS32321M	FDS32	32	321	260	58	193.523
WD32FDS36361M	FDS36	32	361	292	58	193.524
WD50FDS40403M	FDS40	50	403	327	68	193.524
WD50FDS45451M	FDS45	50	451	367	68	193.525
WD50FDS50503M	FDS50	50	503	410	68	193.525
WD50FDS56569M	FDS56	50	569	466	68	193.526
WD50FDS63639M	FDS63	50	639	524	68	193.526

■ KSEM PLUS WD Shanks • 10 x D • Metric

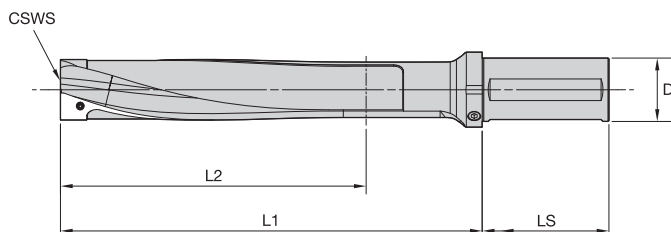


10 x D catalog number	CSWS system size	D	L1	L2	LS	clamp screw
WD32FDS28345M	FDS28	32	345	288	58	193.537
WD32FDS32391M	FDS32	32	391	330	58	193.523
WD32FDS36439M	FDS36	32	439	370	58	193.524
WD50FDS40491M	FDS40	50	491	415	68	193.524
WD50FDS45549M	FDS45	50	549	465	68	193.525
WD50FDS50613M	FDS50	50	613	520	68	193.525
WD50FDS56693M	FDS56	50	693	590	68	193.526
WD50FDS63779M	FDS63	50	779	664	68	193.526

- Order KSEM PLUS heads according to the connection coupling size (CSWS).
- Order KSEM PLUS heads separately; see pages H115–H120.
- Wrench will be shipped with KSEM PLUS head.
- Custom solution for cast iron application with twisted flutes available.



Modular Drills



■ KSEM PLUS SSF Shanks • 1.5 x D • Inch



1.5 x D catalog number	CSWS system size	D	L1	L2	LS	clamp screw	pipe plug
SSF150FDS280299	FDS28	1.5000	2.99	1.26	3.75	193.537	HSFS0125
SSF150FDS320323	FDS32	1.5000	3.23	1.34	3.75	193.523	HSFS0125
SSF150FDS360362	FDS36	1.5000	3.62	1.58	3.75	193.524	HSFS0125
SSF200FDS400394	FDS40	2.0000	3.94	1.69	4.00	193.524	HSFS0125
SSF200FDS450441	FDS45	2.0000	4.41	1.97	4.00	193.525	HSFS0125
SSF200FDS500480	FDS50	2.0000	4.80	2.13	4.00	193.525	HSFS0125
SSF200FDS560551	FDS56	2.0000	5.51	2.56	4.00	193.526	HSFS0125
SSF200FDS630606	FDS63	2.0000	6.06	2.80	4.00	193.526	HSFS0125
SSF200FDS710677	FDS71	2.0000	6.77	3.15	4.00	193.526	HSFS0500
SSF200FDS800756	FDS80	2.0000	7.56	3.54	4.00	193.545	HSFS0500
SSF200FDS900835	FDS90	2.0000	8.35	3.94	4.00	193.545	HSFS0500



■ KSEM PLUS SSF Shanks • 3 x D • Inch



3 x D catalog number	CSWS system size	D	L1	L2	LS	clamp screw	pipe plug
SSF150FDS280502	FDS28	1.5000	5.04	2.80	3.75	193.537	HSFS0125
SSF150FDS320573	FDS32	1.5000	5.75	3.35	3.75	193.523	HSFS0125
SSF150FDS360652	FDS36	1.5000	6.54	3.82	3.75	193.524	HSFS0125
SSF200FDS400721	FDS40	2.0000	7.20	4.21	3.75	193.524	HSFS0125
SSF200FDS450809	FDS45	2.0000	8.11	4.80	4.00	193.525	HSFS0125
SSF200FDS500896	FDS50	2.0000	8.98	5.32	4.00	193.525	HSFS0125
SSF200FDS561020	FDS56	2.0000	10.20	6.14	4.00	193.526	HSFS0125
SSF200FDS631138	FDS63	2.0000	11.38	6.85	4.00	193.526	HSFS0125
SSF200FDS711150	FDS71	2.0000	11.50	7.87	4.00	193.526	HSFS0500
SSF200FDS801287	FDS80	2.0000	12.87	8.86	4.00	193.545	HSFS0500
SSF200FDS901425	FDS90	2.0000	14.25	9.84	4.00	193.545	HSFS0500



■ KSEM PLUS SSF Shanks • 5 x D • Inch



5 x D catalog number	CSWS system size	D	L1	L2	LS	clamp screw	pipe plug
SSF150FDS280746	FDS28	1.5000	7.48	5.24	3.75	193.537	HSFS0125
SSF150FDS320850	FDS32	1.5000	8.50	6.10	3.75	193.523	HSFS0125
SSF150FDS360960	FDS36	1.5000	9.61	6.89	3.75	193.524	HSFS0125
SSF200FDS401066	FDS40	2.0000	10.67	7.68	4.00	193.524	HSFS0125
SSF200FDS451196	FDS45	2.0000	11.97	8.66	4.00	193.525	HSFS0125
SSF200FDS501330	FDS50	2.0000	13.31	9.65	4.00	193.525	HSFS0125
SSF200FDS561507	FDS56	2.0000	15.08	11.02	4.00	193.526	HSFS0125
SSF200FDS631688	FDS63	2.0000	16.89	12.36	4.00	193.526	HSFS0125
SSF200FDS711780	FDS71	2.0000	17.80	14.17	4.00	193.526	HSFS0500
SSF200FDS801996	FDS80	2.0000	19.96	15.95	4.00	193.545	HSFS0500
SSF200FDS902213	FDS90	2.0000	22.13	17.72	4.00	193.545	HSFS0500

■ KSEM PLUS SSF Shanks • 8 x D • Inch



8 x D catalog number	CSWS system size	D	L1	L2	LS	clamp screw	pipe plug
SSF150FDS281112	FDS28	1.5000	11.14	8.90	3.75	193.537	HSFS0125
SSF150FDS321263	FDS32	1.5000	12.64	10.24	3.75	193.523	HSFS0125
SSF150FDS361421	FDS36	1.5000	14.21	11.50	3.75	193.524	HSFS0125
SSF200FDS401586	FDS40	2.0000	15.87	12.87	4.00	193.524	HSFS0125
SSF200FDS451775	FDS45	2.0000	17.76	14.45	4.00	193.525	HSFS0125
SSF200FDS501980	FDS50	2.0000	19.80	16.14	4.00	193.525	HSFS0125
SSF200FDS562240	FDS56	2.0000	22.40	18.35	4.00	193.526	HSFS0125
SSF200FDS632515	FDS63	2.0000	25.16	20.63	4.00	193.526	HSFS0125

■ KSEM PLUS SSF Shanks • 10 x D • Inch



10 x D catalog number	CSWS system size	D	L1	L2	LS	clamp screw	pipe plug
SSF150FDS281356	FDS28	1.5000	13.58	11.34	3.75	193.537	HSFS0125
SSF150FDS321539	FDS32	1.5000	15.39	12.99	3.75	193.523	HSFS0125
SSF150FDS361728	FDS36	1.5000	17.28	14.57	3.75	193.524	HSFS0125
SSF200FDS401933	FDS40	2.0000	19.33	16.34	4.00	193.524	HSFS0125
SSF200FDS452161	FDS45	2.0000	21.61	18.31	4.00	193.525	HSFS0125
SSF200FDS502413	FDS50	2.0000	24.13	20.47	4.00	193.525	HSFS0125
SSF200FDS562783	FDS56	2.0000	27.28	23.23	4.00	193.526	HSFS0125
SSF200FDS633066	FDS63	2.0000	30.67	26.14	4.00	193.526	HSFS0125



■ KSEM PLUS Carbide Insert Recommendations

Modular Drills

Material Group	Outboard/ Inboard	Insert Style	Grade	Page(s)	Comments
P	O	DFR-GD	KCU25, KCU40	H113	Recommended outboard insert style for working in all P-materials. Start with KCU40™ and use KCU25™ in stable conditions to achieve higher tool life.
		DFC-/DFT-HP		H112, H114	
		DFC-/DFT-DS	KCU40	H112, H114	Reduce feed rate by 10% to further improve chip formation in long-chipping steels and low carbon steel.
	I	KSEMP-HPG	KC7315	H111	Must use KSEMP center inserts in P-materials to avoid excessive wear on head & inserts.
M	O	DFR-MD	KC7140	H113	Recommended outboard insert style for working in all M-materials.
		DFC-/DFT-MD		H113-H114	
		DFC-/DFT-DS	KCU40	H112, H114	Reduce feed rate by 20% to further improve chip formation and/or run with lower power consumption.
	I	KSEMP-HPG	KC7315	H111	Recommended inboard insert style for working in all M-materials.
		KSEM-PC	KC7135	H70, H111	For unstable conditions in stainless steel, use KSEM PC inserts.
		KSEM-HPL	KC7320	H62	If chip control issue resulting from center insert occurs in M-materials, use KSEM HPL insert inboard. Reduction of feed rate up to 20% is recommended.
K	O	DFR-LD	KCU25	H113	Recommended insert styles for working in all K-Materials.
		DFC-/DFT-HP		H112, H114	
	I	KSEM-HPCL	KC7410	H60, H111	
N	O	DFR-GD	KC7225	H113	Recommended outboard insert styles for working in all non-ferrous materials.
		DFC-/DFT-HP	KCU40	H112, H114	
		DFC-/DFT-DS	KCU40	H112, H114	Reduce feed rate by 15% for diameters <56mm and up to 50% for larger diameters to improve chip formation.
	I	DFR/DFT-ST	KD1425	J98	Use PCD tipped outboard when working with CFRP, CFRP/metal stacks and plastics (N3, N5, and N6).
		KSEMP-HPG	KC7315	H111	Recommended inboard insert style for working in all non-ferrous materials.
		KSEM-HPS	K715	—	This is a made-to-order item (uncoated/sharp) — use it to improve your results in N3, N5, and N6, if required.
S	O	DFR-GD	KC7140	H113	Recommended outboard insert style for working in all S-materials.
		DFC-/DFT-HP	KCU40	H112, H114	
		DFC-/DFT-DS	KCU40	H112, H114	Reduce feed rate by 20% to further improve chip formation and/or run with lower power consumption.
	I	KSEM-PC	KC7135	H70, H111	If center breakage is an issue in S-materials, use KSEM PC insert inboard.



Need help with bad chip formation?

Our new DS geometry for DFT™ and DFC™ inserts on KSEM PLUS helps you to improve your performance in long chipping materials.

If chip formation is an issue, you may use our new DFT and DFC DS style inserts with the recommendations for feed rate adjustments given as indicated.

Modular Drill • KSEM PLUS™ • Metric • A1 and B1 Style

		Metric									
Material Group	Condition	Cutting Speed – vc Range – m/min			Recommended Feed Rate (fz) by Diameter						
		min	Starting Value	max	Ø	KSEM 14....17 DFR/DFC04... 28,00–31,74	KSEM 15....18 DFT/DFC05... 31,74–35,99	KSEM 13....22 DFT/DFC06... 36,00–44,99	KSEM 18....28 DFT/DFC07... 45,00–55,99	KSEM 20....34 DFT/DFC09... 56,00–102,35	
P	1	S	115	235	290	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360
		U	90	160	215	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360
		I	65	100	140	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360
	2	S	90	190	230	mm/r	0,160–0,280	0,160–0,280	0,200–0,360	0,200–0,400	0,200–0,450
		U	71	130	170	mm/r	0,160–0,280	0,160–0,280	0,200–0,360	0,200–0,400	0,200–0,450
		I	50	80	110	mm/r	0,160–0,280	0,160–0,280	0,200–0,320	0,200–0,400	0,200–0,450
	3	S	90	180	230	mm/r	0,160–0,280	0,160–0,280	0,200–0,320	0,200–0,400	0,200–0,450
		U	70	120	170	mm/r	0,160–0,280	0,160–0,280	0,200–0,320	0,200–0,400	0,200–0,450
		I	50	70	106	mm/r	0,160–0,280	0,160–0,280	0,200–0,320	0,200–0,400	0,200–0,450
	4	S	90	140	220	mm/r	0,160–0,280	0,160–0,280	0,200–0,320	0,200–0,400	0,200–0,450
		U	70	110	160	mm/r	0,160–0,280	0,160–0,280	0,200–0,320	0,200–0,400	0,200–0,450
		I	50	80	110	mm/r	0,160–0,280	0,160–0,280	0,200–0,320	0,200–0,400	0,200–0,450
	5	S	90	130	210	mm/r	0,160–0,280	0,160–0,280	0,200–0,320	0,200–0,400	0,200–0,450
		U	70	100	150	mm/r	0,160–0,280	0,160–0,280	0,200–0,320	0,200–0,400	0,200–0,450
		I	50	70	100	mm/r	0,160–0,280	0,160–0,280	0,200–0,320	0,200–0,400	0,200–0,450
	6	S	70	90	180	mm/r	0,160–0,280	0,160–0,280	0,200–0,320	0,200–0,400	0,200–0,450
		U	50	75	120	mm/r	0,160–0,280	0,160–0,280	0,200–0,320	0,200–0,400	0,200–0,450
		I	40	60	100	mm/r	0,160–0,280	0,160–0,280	0,200–0,320	0,200–0,400	0,200–0,450
M	1	S	60	110	135	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360
		U	40	70	90	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360
		I	30	50	65	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360
	2	S	60	100	135	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360
		U	40	60	90	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360
		I	30	50	65	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360
3	S	50	90	135	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360	
	U	40	60	90	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360	
	I	25	40	65	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360	
K	1	S	90	170	230	mm/r	0,180–0,300	0,180–0,300	0,216–0,360	0,240–0,420	0,300–0,480
		U	60	120	160	mm/r	0,180–0,300	0,180–0,300	0,216–0,360	0,240–0,420	0,300–0,480
		I	40	70	90	mm/r	0,180–0,300	0,180–0,300	0,216–0,360	0,240–0,420	0,300–0,480
	2	S	90	160	220	mm/r	0,180–0,300	0,180–0,300	0,216–0,360	0,240–0,420	0,300–0,480
		U	60	110	160	mm/r	0,180–0,300	0,180–0,300	0,216–0,360	0,240–0,420	0,300–0,480
		I	40	70	100	mm/r	0,180–0,300	0,180–0,300	0,216–0,360	0,240–0,420	0,300–0,480
3	S	90	150	210	mm/r	0,180–0,300	0,180–0,300	0,216–0,360	0,240–0,420	0,300–0,480	
	U	60	100	150	mm/r	0,180–0,300	0,180–0,300	0,216–0,360	0,240–0,420	0,300–0,480	
	I	35	60	90	mm/r	0,180–0,300	0,180–0,300	0,216–0,360	0,240–0,420	0,300–0,480	
N	1	S	150	240	360	mm/r	0,120–0,200	0,120–0,200	0,144–0,280	0,160–0,320	0,200–0,400
		U	100	160	240	mm/r	0,120–0,200	0,120–0,200	0,144–0,280	0,160–0,320	0,200–0,400
		I	60	100	160	mm/r	0,120–0,200	0,120–0,200	0,144–0,280	0,160–0,320	0,200–0,400
	2	S	150	220	360	mm/r	0,120–0,200	0,120–0,200	0,144–0,280	0,160–0,320	0,200–0,400
		U	100	150	240	mm/r	0,120–0,200	0,120–0,200	0,144–0,280	0,160–0,320	0,200–0,400
		I	60	100	160	mm/r	0,120–0,200	0,120–0,200	0,144–0,280	0,160–0,320	0,200–0,400
	3	S	150	200	360	mm/r	0,120–0,200	0,120–0,200	0,144–0,280	0,160–0,320	0,200–0,400
		U	100	140	240	mm/r	0,120–0,200	0,120–0,200	0,144–0,280	0,160–0,320	0,200–0,400
		I	60	90	160	mm/r	0,120–0,200	0,120–0,200	0,144–0,280	0,160–0,320	0,200–0,400
	4	S	150	200	360	mm/r	0,120–0,200	0,120–0,200	0,144–0,280	0,160–0,320	0,200–0,400
		U	100	140	240	mm/r	0,120–0,200	0,120–0,200	0,144–0,280	0,160–0,320	0,200–0,400
		I	60	90	160	mm/r	0,120–0,200	0,120–0,200	0,144–0,280	0,160–0,320	0,200–0,400
	5	S	150	200	360	mm/r	0,120–0,200	0,120–0,200	0,144–0,280	0,160–0,320	0,200–0,400
		U	100	140	240	mm/r	0,120–0,200	0,120–0,200	0,144–0,280	0,160–0,320	0,200–0,400
		I	60	90	160	mm/r	0,120–0,200	0,120–0,200	0,144–0,280	0,160–0,320	0,200–0,400
	6	S	150	200	360	mm/r	0,120–0,200	0,120–0,200	0,144–0,280	0,160–0,320	0,200–0,400
		U	100	140	240	mm/r	0,120–0,200	0,120–0,200	0,144–0,280	0,160–0,320	0,200–0,400
		I	60	90	160	mm/r	0,120–0,200	0,120–0,200	0,144–0,280	0,160–0,320	0,200–0,400
7	S	110	220	260	mm/r	0,120–0,200	0,120–0,200	0,144–0,280	0,160–0,320	0,200–0,400	
	U	70	140	170	mm/r	0,120–0,200	0,120–0,200	0,144–0,280	0,160–0,320	0,200–0,400	
	I	45	90	110	mm/r	0,120–0,200	0,120–0,200	0,144–0,280	0,160–0,320	0,200–0,400	
S	1	S	25	50	75	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360
		U	20	40	60	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360
		I	15	30	50	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360
	2	S	20	40	60	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360
		U	15	30	45	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360
		I	12	25	35	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360
	3	S	20	40	60	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360
		U	15	30	45	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360
		I	12	25	40	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360
	4	S	20	40	60	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360
		U	15	30	45	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360
		I	12	25	40	mm/r	0,130–0,250	0,130–0,250	0,160–0,280	0,160–0,320	0,200–0,360



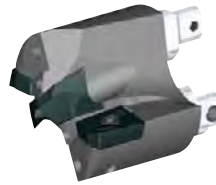
■ Modular Drill • KSEM PLUS™ • Inch • A1 and B1 Style

Modular Drills

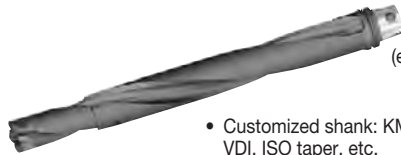
		Inch									
Material Group	Condition	Cutting Speed – vc Range – SFM			Ø	Recommended Feed Rate (fz) by Diameter					
		min	Starting Value	max		KSEM 14....17 DFR/DFC04... 1.102–1.249	KSEM 15....18 DFT/DFC05... 1.250–1.416	KSEM 13....22 DFT/DFC06... 1.417–1.771	KSEM 18....28 DFT/DFC07... 1.772–2.204	KSEM 20....34 DFT/DFC09... 2.205–4.0295	
P	1	S	370	775	944	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
		U	290	532	698	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
		I	205	327	451	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
	2	S	295	623	755	IPR	0.006–0.011	0.006–0.011	0.008–0.014	0.008–0.016	0.008–0.018
		U	233	427	558	IPR	0.006–0.011	0.006–0.011	0.008–0.014	0.008–0.016	0.008–0.018
		I	164	262	361	IPR	0.006–0.011	0.006–0.011	0.008–0.014	0.008–0.016	0.008–0.018
	3	S	295	591	755	IPR	0.006–0.011	0.006–0.011	0.008–0.014	0.008–0.016	0.008–0.018
		U	230	394	558	IPR	0.006–0.011	0.006–0.011	0.008–0.014	0.008–0.016	0.008–0.018
		I	164	230	361	IPR	0.006–0.011	0.006–0.011	0.008–0.014	0.008–0.016	0.008–0.018
	4	S	295	459	722	IPR	0.006–0.011	0.006–0.011	0.008–0.014	0.008–0.016	0.008–0.018
		U	230	361	525	IPR	0.006–0.011	0.006–0.011	0.008–0.014	0.008–0.016	0.008–0.018
		I	264	262	361	IPR	0.006–0.011	0.006–0.011	0.008–0.014	0.008–0.016	0.008–0.018
	5	S	295	427	689	IPR	0.006–0.011	0.006–0.011	0.008–0.014	0.008–0.016	0.008–0.018
		U	230	328	689	IPR	0.006–0.011	0.006–0.011	0.008–0.014	0.008–0.016	0.008–0.018
		I	164	230	492	IPR	0.006–0.011	0.006–0.011	0.008–0.014	0.008–0.016	0.008–0.018
	6	S	230	295	591	IPR	0.006–0.011	0.006–0.011	0.008–0.014	0.008–0.016	0.008–0.018
		U	164	246	394	IPR	0.006–0.011	0.006–0.011	0.008–0.014	0.008–0.016	0.008–0.018
		I	131	197	328	IPR	0.006–0.011	0.006–0.011	0.008–0.014	0.008–0.016	0.008–0.018
M	1	S	197	361	443	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
		U	131	230	295	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
		I	98	164	213	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
	2	S	197	328	443	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
		U	131	197	295	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
		I	98	164	213	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
	3	S	164	295	443	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
		U	131	197	295	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
		I	82	131	213	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
K	1	S	295	558	755	IPR	0.007–0.012	0.007–0.012	0.009–0.014	0.009–0.017	0.012–0.019
		U	197	394	525	IPR	0.007–0.012	0.007–0.012	0.009–0.014	0.009–0.017	0.012–0.019
		I	131	230	295	IPR	0.007–0.012	0.007–0.012	0.009–0.014	0.009–0.017	0.012–0.019
	2	S	295	525	722	IPR	0.007–0.012	0.007–0.012	0.009–0.014	0.009–0.017	0.012–0.019
		U	197	361	525	IPR	0.007–0.012	0.007–0.012	0.009–0.014	0.009–0.017	0.012–0.019
		I	131	230	328	IPR	0.007–0.012	0.007–0.012	0.009–0.014	0.009–0.017	0.012–0.019
	3	S	295	492	689	IPR	0.007–0.012	0.007–0.012	0.009–0.014	0.009–0.017	0.012–0.019
		U	197	328	492	IPR	0.007–0.012	0.007–0.012	0.009–0.014	0.009–0.017	0.012–0.019
		I	115	197	295	IPR	0.007–0.012	0.007–0.012	0.009–0.014	0.009–0.017	0.012–0.019
N	1	S	492	787	1181	IPR	0.005–0.008	0.005–0.008	0.006–0.011	0.006–0.013	0.008–0.016
		U	328	525	787	IPR	0.005–0.008	0.005–0.008	0.006–0.011	0.006–0.013	0.008–0.016
		I	197	328	525	IPR	0.005–0.008	0.005–0.008	0.006–0.011	0.006–0.013	0.008–0.016
	2	S	492	722	1181	IPR	0.005–0.008	0.005–0.008	0.006–0.011	0.006–0.013	0.008–0.016
		U	328	492	787	IPR	0.005–0.008	0.005–0.008	0.006–0.011	0.006–0.013	0.008–0.016
		I	197	328	525	IPR	0.005–0.008	0.005–0.008	0.006–0.011	0.006–0.013	0.008–0.016
	3	S	492	722	1181	IPR	0.005–0.008	0.005–0.008	0.006–0.011	0.006–0.013	0.008–0.016
		U	328	492	787	IPR	0.005–0.008	0.005–0.008	0.006–0.011	0.006–0.013	0.008–0.016
		I	197	328	525	IPR	0.005–0.008	0.005–0.008	0.006–0.011	0.006–0.013	0.008–0.016
	4	S	492	722	1181	IPR	0.005–0.008	0.005–0.008	0.006–0.011	0.006–0.013	0.008–0.016
		U	328	492	787	IPR	0.005–0.008	0.005–0.008	0.006–0.011	0.006–0.013	0.008–0.016
		I	197	328	525	IPR	0.005–0.008	0.005–0.008	0.006–0.011	0.006–0.013	0.008–0.016
	5	S	492	722	1181	IPR	0.005–0.008	0.005–0.008	0.006–0.011	0.006–0.013	0.008–0.016
		U	328	492	787	IPR	0.005–0.008	0.005–0.008	0.006–0.011	0.006–0.013	0.008–0.016
		I	197	328	525	IPR	0.005–0.008	0.005–0.008	0.006–0.011	0.006–0.013	0.008–0.016
	6	S	492	656	1181	IPR	0.005–0.008	0.005–0.008	0.006–0.011	0.006–0.013	0.008–0.016
		U	328	459	787	IPR	0.005–0.008	0.005–0.008	0.006–0.011	0.006–0.013	0.008–0.016
		I	197	295	525	IPR	0.005–0.008	0.005–0.008	0.006–0.011	0.006–0.013	0.008–0.016
7	S	361	722	853	IPR	0.005–0.008	0.005–0.008	0.006–0.011	0.006–0.013	0.008–0.016	
	U	230	459	558	IPR	0.005–0.008	0.005–0.008	0.006–0.011	0.006–0.013	0.008–0.016	
	I	148	295	361	IPR	0.005–0.008	0.005–0.008	0.006–0.011	0.006–0.013	0.008–0.016	
S	1	S	82	164	246	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
		U	66	131	197	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
		I	49	98	164	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
	2	S	66	131	197	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
		U	49	98	148	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
		I	39	82	115	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
	3	S	66	131	197	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
		U	49	98	148	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
		I	39	82	131	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
	4	S	66	131	197	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
		U	49	98	148	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014
		I	39	82	131	IPR	0.005–0.010	0.005–0.010	0.006–0.011	0.006–0.013	0.008–0.014



Application	Workpiece Shape	A1 Head	B1 Head
Flat Face		✓	✓
Cored Hole		✗	✓
Stacked Plates		✗	✓
Angled Exit (exit only!)		✓ <math><3^\circ</math>	✓ max 15°
Angled Entrance		✓ <math><3^\circ</math>	✓ <math><3^\circ</math>
Cross Holes		✗	✓ max 50% of D1

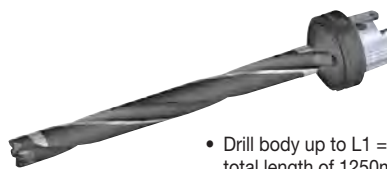
KSEM PLUS Customized Solution Capabilities:


- Intermediate head \varnothing .
- Custom head to use reground KSEM™ inserts.
- Heads for cross holes $\varnothing = d1$.



(example)

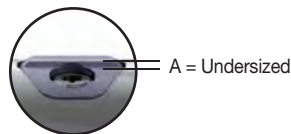
- Customized shank: KM™, HSK, VDI, ISO taper, etc.
- Customized flute helix.
- Step drill.



- Drill body up to L1 = 20 x D and total length of 1250mm.

Mounting DPA Guiding Pads on B1 Heads

All B1 heads are delivered with preset guiding pads.

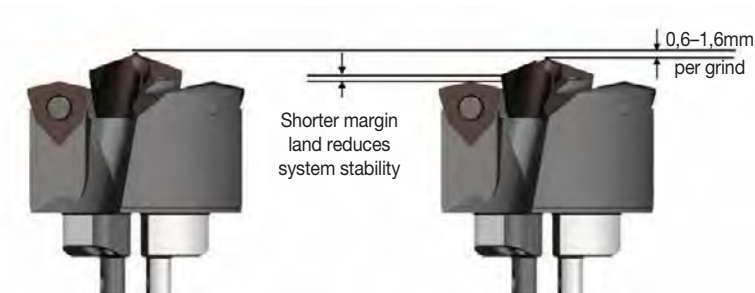


Measure radial undersize "A" of pad to cutting edge for both sides and adjust using shim set that comes with each head.

 NOTE: For best results with slanted exits and in cross hole drilling, we recommend guiding pads adjustment results in an undersize of A = 30 μ m (edge of guiding pads to cutting edges).

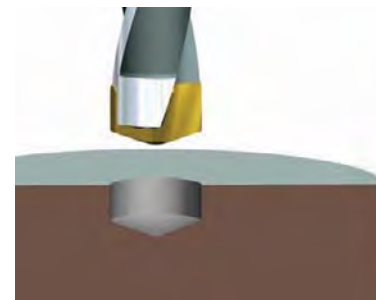
Coolant Recommendations


Internal coolant is recommended for optimum chip flow and tool life.

KSEM PLUS Piloting Insert SHOULD NOT Be Reground:


Only new KSEM PLUS inserts will provide consistency and process security on a KSEM PLUS modular drill system. If you want to reground, refer to our custom solution A1 and B1 heads.

NOTE: Reground KSEM PLUS inserts can be used in KSEM™ drills.

Piloting Instructions:





1. KSEM...PC Pilot drill \varnothing equal KSEMP \varnothing PDD
2. Drill 1mm deep from full diameter



Combination Tools

Tool Selection Guide	I2–I3
BF Combination Drilling System	I4–I20
B343_HPG Drill for BF.....	I8–I10
KenTIP for BF.....	I11–I13
BF Bodies	I14–I15
BF Inserts	I16–I17
SEFAS Combination Drilling System	I22–I30
SEFAS Bodies	I25–I28
SEFAS Hardware.....	I29
SEFAS Chamfering Inserts	I30



		standard						hole tolerance	standard range			customized solution range		
		P	M	K	N	S	H		diameter range		drilling depth L/D1	diameter range		drilling depth
									D1 mm min-max	D1 inch min-max		D1 mm min-max	D1 inch min-max	
	BF with Solid Carbide Drill Combination Tool	●		●				IT7-11	3,4-18 (B343 drill)	.134-.709 (B343 drill)	approx. 3 x D	3,4-22,5	.134-.70	.1-5 x D
	BF with KentIP™ Combination Tool	●	●	●				IT7-11	8-18,99	.313-.826	3 x D 4 x D 5 x D	8-25,99	.313-1.023	3-5 x D
	SEFAS™ Combination Tool	●	○	○	●	○		IT7-11	4-20	.157-.787	approx. 3 x D 5 x D 8 x D 12 x D	3,4-25	.134-1.039	1-5 x D

In regard to insert and drill coatings, anything is possible. If a specific insert or drill is not suitable for your workpiece material, please contact our Engineered Solutions Department for an offer about special coatings and edge preparations.

¹⁾ Other shank styles available as customized solution.

	coolant		<input checked="" type="checkbox"/> standard and <input type="checkbox"/> customized solution capabilities ¹⁾			<input checked="" type="checkbox"/> standard and <input type="checkbox"/> customized solution capabilities ¹⁾									page(s)
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	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>			<input type="checkbox"/>		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	125-130

➤ Combination Tools

Combination drilling tools are customizable using standard components and combine centering, drilling, and countersinking into a single operation to increase productivity by reducing cycle time and tool changes.

Both the BF and SEFAS™ combination systems provide high flexibility to adapt the tool to varying hole geometries and provide full through-coolant capabilities.

Features and Benefits

BF Combination Drilling System

- Drilling, chamfering, and countersinking in one tool.
- Uses solid carbide and modular KenTIP™ drills.
- Covered drill diameter range 3,4–18mm (.125–.750").
- A specific range of drill diameters can be applied for each drill body based upon drill shank size.
- Highly flexible system:
 - Chamfer insert with different angles.
 - Insert design enables special geometrical shapes.
 - Inserts can be easily interchanged.

NOTE: TF drills may be used with one insert in limited applications.
Consult your Kennametal Sales Representative for more information.

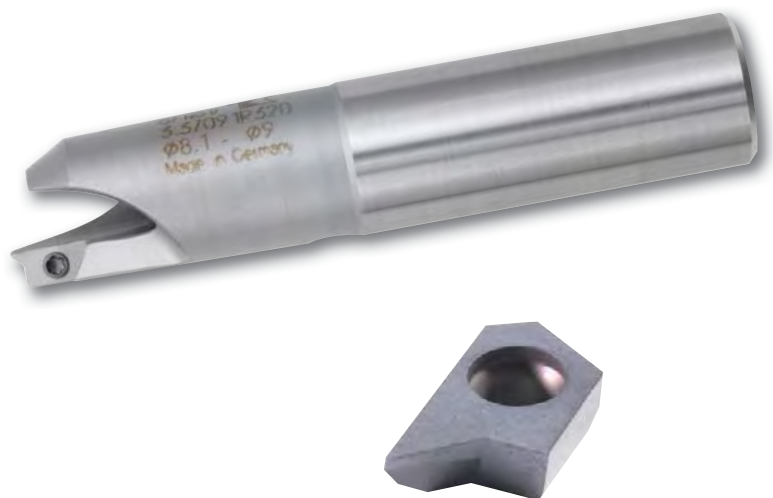


Provide high flexibility to adapt the tool to varying hole geometries.



SEFAS™ Combination Drilling System

- High-performance, self-centering drill and chamfer in one tool.
- Drill diameter range 4–18mm (.156–.750").
- Uses standard solid carbide drills in HP and TX styles as well as modular KenTIP™ drills.
- 90° and 82° angles available for chamfer inserts.
- Various shanks can be used with metric and inch diameter drills.



➤ BF Combination Drilling System

Primary Application

Combines centering, drilling, and countersinking into a single operation, increasing productivity by reducing cycle time and number of tool changes. The modular design provides flexibility to adapt the tool to varying hole geometries in small- and medium-lot-size manufacturing.

With its slim design and full-through-coolant capabilities, the BF combination system can be used in even deeper holes, in critical materials, and with restricted workspace.

Features and Benefits

Productivity

- Reduce the number of tool changes and cycle time by combining drilling and countersinking into one operation.
- Use high-performance solid carbide drills and KenTIP™ drill bodies to achieve high speeds and feeds.
- Avoid the need for reconditioning by using KenTIP blades.

Versatility

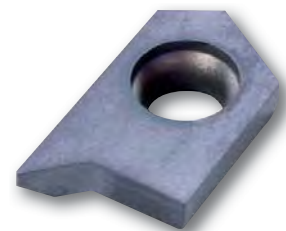
- Choose between solid carbide drills and KenTIP drill bodies.
- Various grades and insert styles.
- Flexible modular system for adjusting the drill length or insert style to manufacture different geometries.

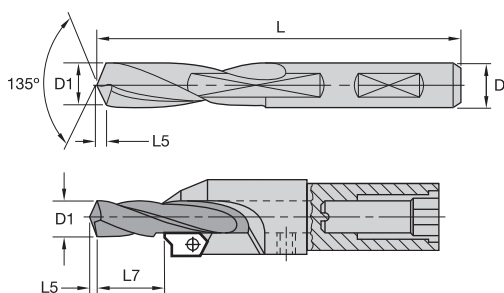
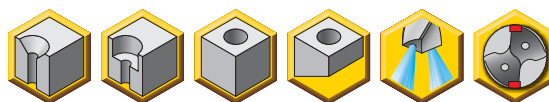
Choose between solid carbide drills and KenTIP™ drill bodies.



Customization

- Length variations available as engineered solutions.
- TX drills for aluminum available as engineered solutions.
- BF inserts can be customized to almost any geometry.





Combination Tools

B343_HPG



● first choice
○ alternate choice

KC7315	D1				D		L		L7 min		L7 max		L5	
	in	mm	fraction	wire size	mm	in	mm	in	mm	in	mm	in	mm	in
B343S03175HPG	.125	3,18	1/8	—	4	.158	55	2,2	1,0	.039	8,6	.339	0,60	.024
B343S03400HPG	.134	3,40	—	—	4	.158	55	2,2	1,0	.039	10,0	.394	0,63	.025
B343S03500HPG	.138	3,50	—	—	4	.158	55	2,2	1,6	.063	10,6	.417	0,65	.025
B343S03797HPG *	.150	3,80	—	25	4	.158	55	2,2	3,3	.130	12,3	.484	0,70	.028
B343S03800HPG	.150	3,80	—	—	4	.158	55	2,2	3,3	.130	12,3	.484	0,70	.028
B343S03970HPG	.156	3,97	5/32	—	4	.158	55	2,2	4,2	.165	13,2	.520	0,73	.029
B343S04000HPG	.158	4,00	—	—	4	.158	55	2,2	4,4	.173	13,4	.528	0,74	.029
B343S04100HPG	.161	4,10	—	—	5	.197	62	2,4	3,7	.146	13,7	.539	0,76	.030
B343S04200HPG	.165	4,20	—	—	5	.197	62	2,4	4,2	.165	14,2	.559	0,78	.031
B343S04300HPG	.169	4,30	—	—	5	.197	62	2,4	4,7	.185	14,7	.579	0,79	.031
B343S04500HPG	.177	4,50	—	—	5	.197	62	2,4	5,6	.221	15,6	.614	0,83	.033
B343S04600HPG *	.181	4,60	—	—	5	.197	62	2,4	5,8	.228	15,8	.622	0,85	.033
B343S04623HPG	.182	4,62	—	14	5	.197	62	2,4	5,9	.232	15,9	.626	0,85	.034
B343S04763HPG	.188	4,76	3/16	—	5	.197	62	2,4	6,6	.260	16,6	.654	0,88	.035
B343S04900HPG *	.193	4,90	—	—	5	.197	62	2,4	7,2	.284	17,2	.677	0,90	.036
B343S05000HPG	.197	5,00	—	—	5	.197	62	2,4	7,6	.299	17,6	.693	0,92	.036
B343S05100HPG	.201	5,10	—	—	6	.236	66	2,6	6,8	.268	17,8	.701	0,94	.037
B343S05200HPG	.205	5,20	—	—	6	.236	66	2,6	7,2	.284	18,2	.717	0,96	.038
B343S05300HPG	.209	5,30	—	—	6	.236	66	2,6	7,6	.299	18,6	.732	0,98	.039
B343S05400HPG	.213	5,40	—	—	6	.236	66	2,6	8,0	.315	19,0	.748	1,00	.039
B343S05410HPG	.213	5,41	—	—	6	.236	66	2,6	8,0	.315	19,0	.748	1,00	.039
B343S05500HPG	.217	5,50	—	—	6	.236	66	2,6	8,4	.331	19,4	.764	1,02	.040
B343S05550HPG	.219	5,55	—	—	6	.236	66	2,6	8,3	.327	19,3	.760	1,02	.040
B343S05558HPG *	.219	5,56	7/32	—	6	.236	66	2,6	8,4	.331	19,4	.764	1,03	.040
B343S05600HPG	.221	5,60	—	—	6	.236	66	2,6	8,5	.335	19,5	.768	1,03	.041
B343S05800HPG	.228	5,80	—	—	6	.236	66	2,6	9,3	.366	20,3	.799	1,07	.042
B343S06000HPG	.236	6,00	—	—	6	.236	66	2,6	10,0	.394	21,0	.827	1,11	.044
B343S06100HPG	.240	6,10	—	—	7	.276	74	2,9	9,1	.358	21,1	.831	1,13	.044
B343S06200HPG	.244	6,20	—	—	7	.276	74	2,9	9,5	.374	21,5	.847	1,14	.045
B343S06300HPG	.248	6,30	—	—	7	.276	74	2,9	9,8	.386	21,8	.858	1,16	.046
B343S06350HPG	.250	6,35	1/4	—	7	.276	74	2,9	10,0	.394	22,0	.866	1,17	.046
B343S06400HPG	.252	6,40	—	—	7	.276	74	2,9	10,2	.402	22,2	.874	1,18	.047
B343S06500HPG	.256	6,50	—	—	7	.276	74	2,9	10,5	.413	22,5	.886	1,20	.047
B343S06528HPG	.257	6,53	—	F	7	.276	74	2,9	10,6	.417	22,6	.890	1,21	.047
B343S06600HPG	.260	6,60	—	—	7	.276	74	2,9	10,9	.429	22,9	.902	1,22	.048
B343S06700HPG	.264	6,70	—	—	7	.276	74	2,9	11,2	.441	23,2	.913	1,24	.049

(continued)

(B343_HPG – continued)



● first choice
○ alternate choice

KC7315	D1				D		L		L7 min		L7 max		L5	
	in	mm	fraction	wire size	mm	in	mm	in	mm	in	mm	in	mm	in
B343S06746HPG	.266	6,75	17/64	—	7	.276	74	2.9	11,4	.449	23,4	.921	1,25	.049
B343S06800HPG	.268	6,80	—	—	7	.276	74	2.9	11,5	.453	23,5	.925	1,26	.049
B343S06900HPG	.272	6,90	—	—	7	.276	74	2.9	11,9	.469	23,9	.941	1,27	.050
B343S07000HPG	.276	7,00	—	—	7	.276	74	2.9	12,2	.480	24,2	.953	1,29	.051
B343S07145HPG	.281	7,14	9/32	—	8	.315	79	3.1	11,1	.437	24,1	.949	1,32	.052
B343S07300HPG	.287	7,30	—	—	8	.315	79	3.1	11,6	.457	24,6	.969	1,35	.053
B343S07400HPG	.291	7,40	—	—	8	.315	79	3.1	11,9	.469	24,9	.980	1,37	.054
B343S07500HPG	.295	7,50	—	—	8	.315	79	3.1	12,3	.484	25,3	.996	1,38	.055
B343S07541HPG *	.297	7,54	19/64	—	8	.315	79	3.1	12,4	.488	25,4	1.000	1,39	.055
B343S07800HPG	.307	7,80	—	—	8	.315	79	3.1	13,2	.520	26,2	1.032	1,44	.057
B343S07900HPG	.311	7,90	—	—	8	.315	79	3.1	13,5	.532	26,5	1.043	1,46	.057
B343S07938HPG	.313	7,94	5/16	—	8	.315	79	3.1	13,6	.535	26,6	1.047	1,47	.058
B343S08000HPG	.315	8,00	—	—	8	.315	79	3.1	13,8	.543	26,8	1.055	1,48	.058
B343S08100HPG	.319	8,10	—	—	9	.354	84	3.3	12,6	.496	26,6	1.047	1,50	.059
B343S08200HPG	.323	8,20	—	—	9	.354	84	3.3	12,8	.504	26,8	1.055	1,51	.060
B343S08300HPG	.327	8,30	—	—	9	.354	84	3.3	13,1	.516	27,1	1.067	1,53	.060
B343S08334HPG *	.328	8,33	21/64	—	9	.354	84	3.3	13,2	.520	27,2	1.071	1,54	.061
B343S08400HPG	.331	8,40	—	—	9	.354	84	3.3	13,4	.528	27,4	1.079	1,55	.061
B343S08433HPG *	.332	8,43	—	Q	9	.354	84	3.3	13,5	.532	27,5	1.083	1,56	.061
B343S08500HPG	.335	8,50	—	—	9	.354	84	3.3	13,7	.539	27,7	1.091	1,57	.062
B343S08600HPG	.339	8,60	—	—	9	.354	84	3.3	14,0	.551	28,0	1.102	1,59	.063
B343S08700HPG	.343	8,70	—	—	9	.354	84	3.3	14,3	.563	28,3	1.114	1,61	.063
B343S08733HPG *	.344	8,73	11/32	—	9	.354	84	3.3	14,4	.567	28,4	1.118	1,61	.064
B343S08800HPG	.347	8,80	—	—	9	.354	84	3.3	14,5	.571	28,5	1.122	1,62	.064
B343S09000HPG	.354	9,00	—	—	9	.354	84	3.3	15,1	.595	29,1	1.146	1,66	.065
B343S09100HPG	.358	9,10	—	—	10	.394	89	3.5	14,3	.563	28,8	1.134	1,68	.066
B343S09347HPG	.368	9,35	—	U	10	.394	89	3.5	15,0	.591	29,5	1.161	1,73	.068
B343S09400HPG *	.370	9,40	—	—	10	.394	89	3.5	15,1	.595	29,6	1.165	1,74	.068
B343S09500HPG *	.374	9,50	—	—	10	.394	89	3.5	15,4	.606	29,9	1.177	1,75	.069
B343S09525HPG *	.375	9,53	3/8	—	10	.394	89	3.5	15,4	.606	29,9	1.177	1,76	.069
B343S09700HPG *	.382	9,70	—	—	10	.394	89	3.5	15,9	.626	30,4	1.197	1,79	.071
B343S09800HPG	.386	9,80	—	—	10	.394	89	3.5	16,2	.638	30,7	1.209	1,81	.071
B343S09921HPG *	.391	9,92	25/64	—	10	.394	89	3.5	16,5	.650	31,0	1.221	1,83	.072
B343S10000HPG	.394	10,00	—	—	10	.394	89	3.5	16,7	.658	31,2	1.228	1,85	.073
B343S10100HPG	.398	10,10	—	—	11	.433	95	3.7	15,9	.630	30,9	1.220	1,86	.073
B343S10200HPG	.402	10,20	—	—	11	.433	95	3.7	16,2	.638	31,2	1.228	1,88	.074
B343S10300HPG	.406	10,30	—	—	11	.433	95	3.7	16,4	.646	31,4	1.236	1,90	.075
B343S10320HPG	.406	10,32	13/32	—	11	.433	95	3.7	16,5	.650	31,5	1.240	1,91	.075
B343S10400HPG	.409	10,40	—	—	11	.433	95	3.7	16,7	.658	31,7	1.248	1,92	.076
B343S10500HPG	.413	10,50	—	—	11	.433	95	3.7	16,9	.665	31,9	1.256	1,94	.076
B343S10600HPG	.417	10,60	—	—	11	.433	95	3.7	17,2	.677	32,2	1.268	1,96	.077
B343S10700HPG	.421	10,70	—	—	11	.433	95	3.7	17,4	.685	32,4	1.276	1,98	.078
B343S10710HPG	.422	10,71	27/64	—	11	.433	95	3.7	17,4	.685	32,4	1.276	1,98	.078
B343S10800HPG	.425	10,80	—	—	11	.433	95	3.7	17,7	.697	32,7	1.287	1,99	.079
B343S11000HPG	.433	11,00	—	—	11	.433	95	3.7	18,1	.713	33,1	1.303	2,03	.080
B343S11100HPG	.437	11,10	—	—	12	.472	102	4.0	17,4	.685	32,9	1.295	2,05	.081
B343S11110HPG	.438	11,11	7/16	—	12	.472	102	4.0	17,4	.685	32,9	1.295	2,05	.081
B343S11200HPG *	.441	11,20	—	—	12	.472	102	4.0	17,6	.693	33,1	1.303	2,07	.081
B343S11300HPG *	.445	11,30	—	—	12	.472	102	4.0	17,9	.705	33,4	1.315	2,09	.082
B343S11500HPG	.453	11,50	—	—	12	.472	102	4.0	18,3	.721	33,8	1.331	2,12	.084
B343S11508HPG *	.453	11,51	29/64	—	12	.472	102	4.0	18,3	.721	33,8	1.331	2,12	.084
B343S11700HPG	.461	11,70	—	—	12	.472	102	4.0	18,8	.740	34,3	1.350	2,16	.085

(continued)

(B343_HPG – continued)



● first choice
○ alternate choice

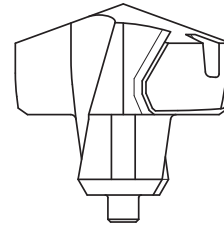
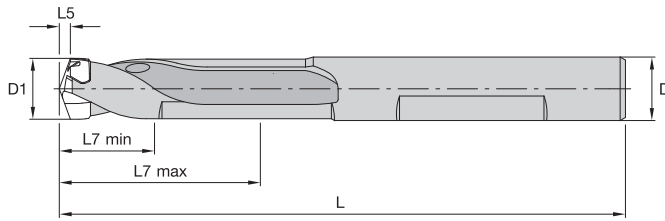
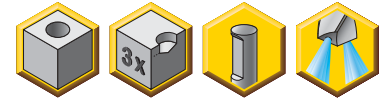
Combination Tools

KC7315	D1				D		L		L7 min		L7 max		L5	
	in	mm	fraction	wire size	mm	in	mm	in	mm	in	mm	in	mm	in
B343S11800HPG	.465	11,80	—	—	12	.472	102	4.0	19,0	.748	34,5	1.358	2,18	.086
B343S11900HPG	.469	11,90	15/32	—	12	.472	102	4.0	19,3	.760	34,8	1.370	2,20	.087
B343S12000HPG	.472	12,00	—	—	12	.472	102	4.0	19,5	.768	35,0	1.378	2,22	.087
B343S12200HPG	.480	12,20	—	—	13	.512	102	4.0	18,9	.744	34,9	1.374	2,25	.073
B343S12500HPG	.492	12,50	—	—	13	.512	102	4.0	19,6	.772	35,6	1.400	2,31	.089
B343S12700HPG *	.500	12,70	1/2	—	13	.512	102	4.0	20,1	.791	36,1	1.421	2,34	.091
B343S12800HPG	.504	12,80	—	—	13	.512	102	4.0	20,3	.799	36,3	1.429	2,36	.092
B343S13000HPG	.512	13,00	—	—	13	.512	102	4.0	20,7	.815	36,7	1.445	2,40	.093
B343S13200HPG	.520	13,20	—	—	14	.551	107	4.2	20,4	.803	36,9	1.453	2,44	.096
B343S13500HPG	.532	13,50	—	—	14	.551	107	4.2	21,1	.831	37,6	1.480	2,49	.098
B343S14000HPG	.551	14,00	—	—	14	.551	107	4.2	22,1	.870	38,6	1.520	2,58	.102
B343S14200HPG	.559	14,20	—	—	15	.591	111	4.4	21,5	.847	38,5	1.516	2,62	.103
B343S14280HPG	.563	14,28	9/16	—	15	.591	111	4.4	21,7	.854	38,7	1.524	2,64	.104
B343S15000HPG	.591	15,00	—	—	15	.591	111	4.4	23,2	.913	40,2	1.583	2,77	.109
B343S15500HPG	.610	15,50	—	—	16	.630	115	4.5	23,2	.913	40,7	1.602	2,86	.113
B343S15870HPG	.625	15,87	5/8	—	16	.630	115	4.5	23,9	.941	41,4	1.630	2,93	.115
B343S16000HPG	.630	16,00	—	—	16	.630	115	4.5	24,2	.953	41,7	1.642	2,95	.116
B343S16500HPG	.650	16,50	—	—	17	.669	115	4.5	24,2	.953	42,2	1.661	3,05	.120
B343S16670HPG *	.656	16,67	21/32	—	17	.669	115	4.5	24,5	.965	42,5	1.673	3,08	.121
B343S17000HPG	.669	17,00	—	—	17	.669	115	4.5	25,1	.988	43,1	1.697	3,14	.124
B343S17500HPG	.689	17,50	—	—	18	.709	117	4.6	25,1	.988	43,6	1.717	3,23	.127
B343S17700HPG	.697	17,70	—	—	18	.709	117	4.6	25,5	1.004	44,0	1.732	3,27	.129
B343S18000HPG	.709	18,00	—	—	18	.709	117	4.6	26,0	1.024	44,5	1.752	3,32	.131

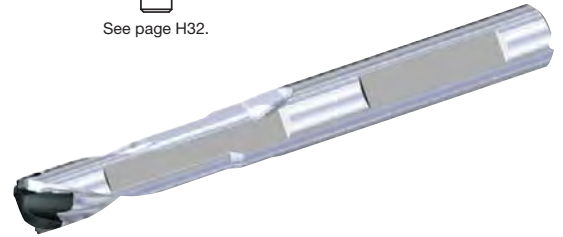
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Tolerance			
D1	tolerance h7	D	tolerance h6
>3-6	0,000/-0,012	6	0,000/-0,008
>6-10	0,000/-0,016	8-10	0,000/-0,009
>10-18	0,000/-0,018	12-18	0,000/-0,011

- Tool body with insert wrench included.
- Order KenTIP blades separately.



See page H32.

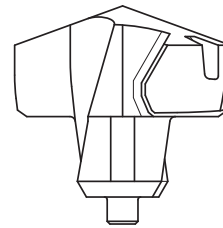
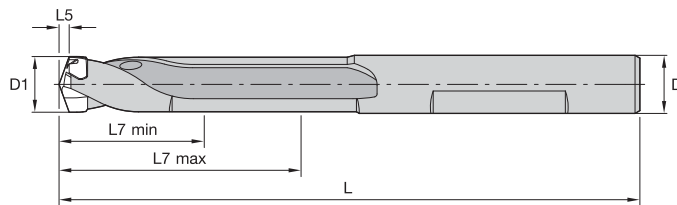
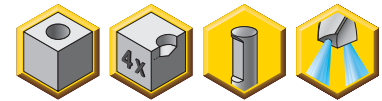


Combination Tools

■ KenTIP • 3 x D • Metric

catalog number	D1		D1 max		D		L		L7 min		L7 max		L5		insert blade seat size
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
KTIP080R3BF08M	8,00	.315	8,50	.335	8,0	.315	80,0	3.150	11,5	.453	25,5	1.004	1,4	.055	F
KTIP080R3BF09M	8,00	.315	8,50	.335	9,0	.354	81,0	3.189	11,5	.453	25,5	1.004	1,4	.055	F
KTIP085R3BF09M	8,50	.335	9,00	.354	9,0	.354	82,0	3.228	12,5	.492	27,0	1.063	1,5	.059	G
KTIP090R3BF09M	9,00	.354	9,50	.374	9,0	.354	82,0	3.228	13,5	.532	28,5	1.122	1,6	.063	H
KTIP090R3BF10M	9,00	.354	9,50	.374	10,0	.394	91,0	3.583	13,5	.532	28,5	1.122	1,6	.063	H
KTIP095R3BF10M	9,50	.374	10,00	.394	10,0	.394	92,0	3.622	15,0	.591	30,0	1.181	1,6	.063	I
KTIP100R3BF10M	10,00	.394	10,50	.413	10,0	.394	93,0	3.661	16,0	.630	31,5	1.240	1,7	.067	J
KTIP100R3BF11M	10,00	.394	10,50	.413	11,0	.433	94,0	3.701	16,0	.630	31,5	1.240	1,7	.067	J
KTIP105R3BF11M	10,50	.413	11,00	.433	11,0	.433	94,0	3.701	17,0	.669	33,0	1.299	1,8	.071	K
KTIP110R3BF11M	11,00	.433	11,50	.453	11,0	.433	96,0	3.780	18,5	.728	34,5	1.358	1,9	.075	L
KTIP110R3BF12M	11,00	.433	11,50	.453	12,0	.472	106,0	4.173	18,5	.728	34,5	1.358	1,9	.075	L
KTIP115R3BF12M	11,50	.453	12,00	.472	12,0	.472	107,0	4.213	19,5	.768	36,0	1.417	2,0	.079	M
KTIP120R3BF12M	12,00	.472	12,50	.492	12,0	.472	108,0	4.252	20,5	.787	37,5	1.476	2,1	.083	N
KTIP120R3BF13M	12,00	.472	12,50	.492	13,0	.512	108,0	4.252	20,5	.787	37,5	1.476	2,1	.083	N
KTIP125R3BF13M	12,50	.492	13,00	.512	13,0	.512	110,0	4.331	22,0	.866	39,0	1.535	2,2	.087	O
KTIP130R3BF13M	13,00	.512	13,50	.532	13,0	.512	111,0	4.370	23,0	.906	40,5	1.595	2,2	.087	P
KTIP130R3BF14M	13,00	.512	13,50	.532	14,0	.551	111,0	4.370	23,0	.906	40,5	1.595	2,2	.087	P
KTIP135R3BF14M	13,50	.532	14,00	.551	14,0	.551	112,0	4.409	24,5	.965	42,0	1.654	2,3	.091	Q
KTIP140R3BF14M	14,00	.551	14,50	.571	14,0	.551	113,0	4.449	25,5	1.000	43,5	1.713	2,4	.095	R
KTIP140R3BF15M	14,00	.551	14,50	.571	15,0	.591	118,0	4.646	25,5	1.004	43,5	1.713	2,4	.095	R
KTIP145R3BF15M	14,50	.571	15,00	.591	15,0	.591	118,0	4.646	26,5	1.043	45,0	1.772	2,5	.098	S
KTIP150R3BF15M	15,00	.591	16,00	.630	15,0	.591	121,0	4.764	29,0	1.142	48,0	1.890	2,6	.102	T
KTIP150R3BF16M	15,00	.591	16,00	.630	16,0	.630	121,0	4.764	29,0	1.142	48,0	1.890	2,6	.102	T
KTIP160R3BF16M	16,00	.630	17,00	.669	16,0	.630	123,0	4.843	31,5	1.240	51,0	2.008	2,8	.110	U
KTIP160R3BF17M	16,00	.630	17,00	.669	17,0	.669	124,0	4.882	31,5	1.240	51,0	2.008	2,8	.110	U
KTIP170R3BF17M	17,00	.669	18,00	.709	17,0	.669	127,0	5.000	34,0	1.339	54,0	2.126	2,9	.120	V
KTIP170R3BF18M	17,00	.669	18,00	.709	18,0	.709	127,0	5.000	34,0	1.339	54,0	2.126	2,9	.115	V
KTIP180R3BF18M	18,00	.709	19,00	.748	18,0	.709	130,0	5.118	36,5	1.437	57,0	2.244	3,1	.122	W

- Tool body with insert wrench included.
- Order KenTIP blades separately.



See page H32.

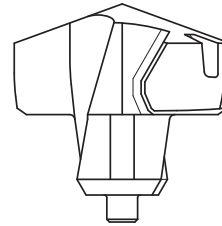
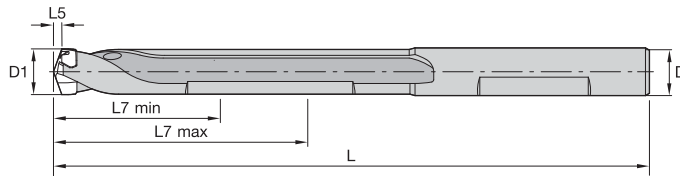
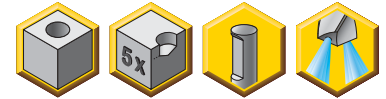


Combination Tools

■ KenTIP • 4 x D • Metric

catalog number	D1		D1 max		D		L		L7 min		L7 max		L5		insert blade seat size
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
KTIP080R4BF09M	8,00	.315	8,50	.335	9,0	.354	89,5	3.524	20,0	.787	34,0	1.339	1,4	.054	F
KTIP085R4BF09M	8,50	.335	9,00	.354	9,0	.354	91,0	3.583	21,5	.847	36,0	1.417	1,5	.058	G
KTIP090R4BF10M	9,00	.354	9,50	.374	10,0	.394	100,5	3.957	23,0	.906	38,0	1.496	1,6	.061	H
KTIP095R4BF10M	9,50	.374	10,00	.394	10,0	.394	102,0	4.016	25,0	.984	40,0	1.575	1,6	.065	I
KTIP100R4BF11M	10,00	.394	10,50	.413	11,0	.433	104,5	4.114	26,5	1.043	42,0	1.654	1,7	.068	J
KTIP105R4BF11M	10,50	.413	11,00	.433	11,0	.433	105,0	4.134	28,0	1.102	44,0	1.732	1,8	.071	K
KTIP110R4BF12M	11,00	.433	11,50	.453	12,0	.472	117,5	4.626	30,0	1.181	46,0	1.811	1,9	.075	L
KTIP115R4BF12M	11,50	.453	12,00	.472	12,0	.472	119,0	4.685	31,5	1.240	48,0	1.890	2,0	.078	M
KTIP120R4BF13M	12,00	.472	12,50	.492	13,0	.512	120,5	4.744	33,0	1.299	50,0	1.969	2,1	.083	N
KTIP125R4BF13M	12,50	.492	13,00	.512	13,0	.512	123,0	4.843	35,0	1.378	52,0	2.047	2,2	.087	O
KTIP130R4BF14M	13,00	.512	13,50	.532	14,0	.551	124,5	4.902	36,5	1.437	54,0	2.126	2,2	.087	P
KTIP135R4BF14M	13,50	.532	14,00	.551	14,0	.551	126,0	4.961	38,5	1.516	56,0	2.205	2,3	.091	Q
KTIP140R4BF15M	14,00	.551	14,50	.571	15,0	.591	132,5	5.217	40,0	1.575	58,0	2.284	2,4	.095	R
KTIP145R4BF15M	14,50	.571	15,00	.591	15,0	.591	133,0	5.236	41,5	1.634	60,0	2.362	2,5	.098	S
KTIP150R4BF16M	15,00	.591	16,00	.630	16,0	.630	137,0	5.394	45,0	1.772	64,0	2.520	2,6	.102	T
KTIP160R4BF17M	16,00	.630	17,00	.669	17,0	.669	141,0	5.551	48,5	1.909	68,0	2.677	2,8	.110	U
KTIP170R4BF18M	17,00	.669	18,00	.709	18,0	.709	145,0	5.709	52,0	2.047	72,0	2.835	2,9	.115	V
KTIP180R4BF18M	18,00	.709	19,00	.748	18,0	.709	149,0	5.866	55,5	2.185	76,0	2.992	3,1	.122	W

- Tool body with insert wrench included.
- Order KenTIP blades separately.



See page H32.

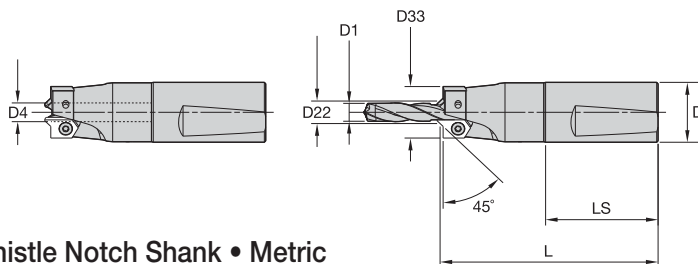


Combination Tools

■ KenTIP • 5 x D • Metric

catalog number	D1		D1 max		D		L		L7 min		L7 max		L5		insert blade seat size
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
KTIP080R5BF09M	8,00	.315	8,50	.335	9,0	.354	98,0	3.858	28,5	1.122	42,5	1.673	1,4	.054	F
KTIP085R5BF09M	8,50	.335	9,00	.354	9,0	.354	100,0	3.937	30,5	1.201	45,0	1.772	1,5	.059	G
KTIP090R5BF10M	9,00	.354	9,50	.374	10,0	.394	110,0	4.331	32,5	1.280	47,5	1.870	1,6	.061	H
KTIP095R5BF10M	9,50	.374	10,00	.394	10,0	.394	112,0	4.409	35,0	1.378	50,0	1.969	1,6	.065	I
KTIP100R5BF11M	10,00	.394	10,50	.413	11,0	.433	115,0	4.528	37,0	1.457	52,5	2.067	1,7	.068	J
KTIP105R5BF11M	10,50	.413	11,00	.433	11,0	.433	116,0	4.567	39,0	1.535	55,0	2.165	1,8	.071	K
KTIP110R5BF12M	11,00	.433	11,50	.453	12,0	.473	129,0	5.079	41,5	1.634	57,5	2.264	1,9	.075	L
KTIP115R5BF12M	11,50	.453	12,00	.472	12,0	.473	131,0	5.158	43,5	1.713	60,0	2.362	2,0	.078	M
KTIP120R5BF13M	12,00	.472	12,50	.492	13,0	.512	133,0	5.236	45,5	1.791	62,5	2.461	2,1	.083	N
KTIP125R5BF13M	12,50	.492	13,00	.512	13,0	.512	136,0	5.354	48,0	1.890	65,0	2.559	2,2	.087	O
KTIP130R5BF14M	13,00	.512	13,50	.532	14,0	.551	138,0	5.433	50,0	1.969	67,5	2.658	2,2	.087	P
KTIP135R5BF14M	13,50	.532	14,00	.551	14,0	.551	140,0	5.512	52,5	2.067	70,0	2.756	2,3	.091	Q
KTIP140R5BF15M	14,00	.551	14,50	.571	15,0	.591	147,0	5.787	54,5	2.146	72,5	2.854	2,4	.095	R
KTIP145R5BF15M	14,50	.571	15,00	.591	15,0	.591	148,0	5.827	56,5	2.244	75,0	2.953	2,5	.098	S
KTIP150R5BF16M	15,00	.591	16,00	.630	16,0	.630	153,0	6.024	61,0	2.402	80,0	3.150	2,6	.102	T
KTIP160R5BF17M	16,00	.630	17,00	.669	17,0	.669	158,0	6.221	65,5	2.579	85,0	3.347	2,8	.110	U
KTIP170R5BF18M	17,00	.669	18,00	.709	18,0	.709	163,0	6.417	70,0	2.756	90,0	3.543	2,9	.115	V
KTIP180R5BF18M	18,00	.709	19,00	.748	18,0	.709	168,0	6.614	74,5	2.933	95,0	3.740	3,1	.122	W

- Drill body shipped with all screws and wrenches.
- Order the inserts and drills separately.
- Drills with shanks up to and including 9,10mm use only one insert.



■ Round Shank • 2° Whistle Notch Shank • Metric



DIN 1835 Form A	DIN 1835 Form E	D1	D1 max	D4	D	D22	D33	L	LS	insert
3.37042R320	3.37042R820	3,40	4,00	4,00	20,0	9,0	14,9	87,5	50,0	3.41020..
3.37051R320	3.37051R820 *	4,10	4,50	5,00	20,0	9,5	15,4	87,5	50,0	3.41020..
3.37052R320	3.37052R820	4,60	5,00	5,00	20,0	10,0	15,9	87,5	50,0	3.41020..
3.37061R320	3.37061R820	5,10	5,50	6,00	20,0	10,5	16,4	87,5	50,0	3.41020..
3.37062R320	3.37062R820	5,55	6,00	6,00	20,0	11,0	16,9	87,5	50,0	3.41020..
3.37071R320	3.37071R820	6,10	7,00	7,00	20,0	11,5	17,4	97,3	50,0	3.41020..
3.37081R320	3.37081R820	7,30	8,00	8,00	20,0	12,6	18,4	97,3	50,0	3.41020..
3.37091R320	3.37091R820	8,10	9,00	9,00	20,0	13,6	19,4	97,3	50,0	3.41020..
3.37092R320	3.37092R820	8,10	9,00	9,00	20,0	13,7	19,4	97,3	50,0	3.41020..
3.37101R332	3.37101R832	9,10	10,00	10,00	32,0	14,7	27,9	117,4	60,0	3.41220..
3.37111R332	3.37111R832	10,10	11,00	11,00	32,0	15,7	28,9	117,4	60,0	3.41220..
3.37121R332	3.37121R832	11,10	12,00	12,00	32,0	16,7	29,9	127,4	60,0	3.41220..
3.37131R332	3.37131R832	12,20	13,00	13,00	32,0	17,7	31,0	127,4	60,0	3.41220..
3.37141R332	—	13,10	14,00	14,00	32,0	18,2	31,5	127,1	60,0	3.41220..
—	3.37141R832	13,10	14,00	14,00	32,0	18,2	31,5	127,4	60,0	3.41220..
3.37151R332	—	14,10	15,00	15,00	32,0	19,3	32,5	127,4	60,0	3.41220..
—	3.37151R832	14,10	15,00	15,00	32,0	19,3	32,5	127,1	60,0	3.41220..
3.37161R332	3.37161R832	15,50	16,00	16,00	32,0	20,3	33,5	127,1	60,0	3.41220..
3.37171R332 *	3.37171R832	16,50	17,00	17,00	32,0	21,3	34,5	127,1	60,0	3.41220..
3.37181R332	3.37181R832	17,50	18,00	18,00	32,0	22,3	35,5	127,1	60,0	3.41220..

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

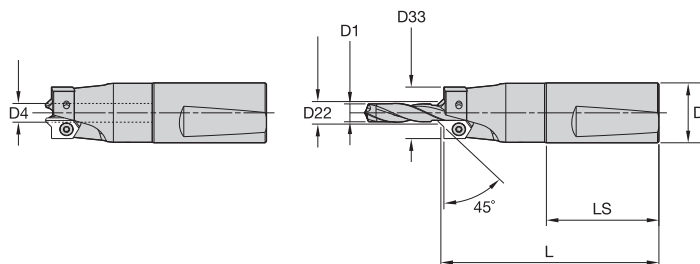
■ Spare Parts



D1	back-up screw	drill clamp screw	hex wrench	insert screw	wrench
3,40	192.888	192.718	170.003	192.432	170.028
4,10	192.888	192.718	170.003	192.432	170.028
4,60	192.888	192.718	170.003	192.432	170.028
5,10	192.888	192.718	170.003	192.432	170.028
5,55	192.888	192.718	170.003	192.432	170.028
6,10	192.888	192.718	170.003	192.432	170.028
7,30	192.888	192.718	170.003	192.432	170.028
8,10	192.888	192.718	170.003	192.432	170.028
9,10	192.889	192.720	170.005	191.725	170.025
10,10	192.889	192.720	170.005	191.725	170.025
11,10	192.889	192.720	170.005	191.725	170.025
12,20	192.889	192.720	170.005	191.725	170.025
13,10	192.889	192.720	170.005	191.725	170.025
14,10	192.889	192.720	170.005	191.725	170.025
15,50	192.889	192.720	170.005	191.725	170.025
16,50	192.889	192.720	170.005	191.725	170.025
17,50	192.889	192.720	170.005	191.725	170.025

NOTE: Dimensions are factored with a 45° insert positioned in insert pocket.

- Drill body shipped with all screws and wrenches.
- Order the inserts and drills separately.
- Drills up to and including .359" shanks use only one insert.



■ Round Shank • Inch



catalog number	D1	D1 max	D4	D	D22	D33	L	LS	insert
KBF14	.125	.156	4,0	.75	.36	.59	3.44	1.97	3.41020..
KBF15B	.182	.188	5,0	.75	.40	.62	3.44	1.97	3.41020..
KBF16B	.213	.230	6,0	.75	.44	.66	3.44	1.97	3.41020..
KBF17	.250	.266	7,0	.75	.46	.68	3.83	1.97	3.41020..
KBF18	.281	.313	8,0	.75	.50	.72	3.83	1.97	3.41020..
KBF19	.328	.344	9,0	1.00	.54	.76	4.31	2.20	3.41020..
KBF110	.359	.391	10,0	1.00	.58	1.10	4.62	2.20	3.41220..
KBF111	.406	.430	11,0	1.00	.62	1.14	4.62	2.20	3.41220..
KBF112 *	.438	.469	12,0	1.00	.66	1.18	5.02	2.20	3.41220..
KBF113	.484	.510	13,0	1.00	.70	1.22	5.02	2.20	3.41220..
KBF114	.516	.550	14,0	1.25	.72	1.24	5.00	2.40	3.41220..
KBF115	.563	.590	15,0	1.25	.76	1.28	5.00	2.36	3.41220..
KBF116	.625	.630	16,0	1.25	.80	1.32	5.14	2.36	3.41220..
KBF117	.656	.670	17,0	1.25	.84	1.36	5.00	2.40	3.41220..
KBF118	.688	.700	18,0	1.25	.88	1.40	5.00	2.36	3.41220..

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

■ Spare Parts



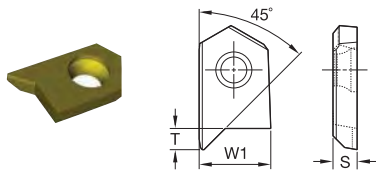
D1	back-up screw	drill clamp screw	insert screw	wrench
.125	192.888	192.718	192.432	170.028
.182	192.888	192.718	192.432	170.028
.213	192.888	192.718	192.432	170.028
.250	192.888	192.718	192.432	170.028
.281	192.888	192.718	192.432	170.028
.328	192.889	192.718	192.432	170.028
.359	192.889	192.720	191.725	170.025
.406	192.889	192.720	191.725	170.025
.438	192.889	192.720	191.725	170.025
.484	192.889	192.720	191.725	170.025
.516	192.889	192.720	191.725	170.025
.563	192.889	192.720	191.725	170.025
.625	192.889	192.720	191.725	170.025
.656	192.889	192.720	191.725	170.025
.688	192.889	192.720	191.725	170.025

NOTE: Dimensions are factored with a 45° insert positioned in insert pocket.

- Standard steel drill bodies are designed for inserts with 41° and 45° chamfers.

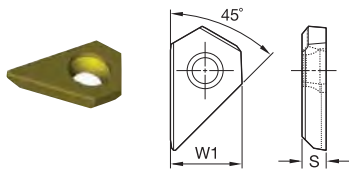
P	●	●
M	●	●
K	●	●
N	○	○
S	○	○
H	○	○

- first choice
- alternate choice



■ BF Insert R901 • 45° with Spot Face

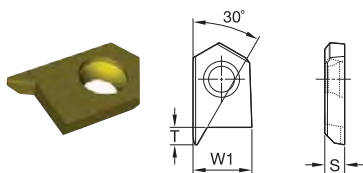
catalog number	S		W1		T		CS5	KC7315
	mm	in	mm	in	mm	in		
3.41020R901	3,00	.118	6,10	.240	2,90	.114	●	●
3.41220R901	3,50	.138	10,10	.398	3,05	.120	●	●



■ BF Insert R902 • 45°

catalog number	S		W1		CS5	KC7315
	mm	in	mm	in		
3.41020R902	3,00	.118	6,10	.240	●	●
3.41220R902	3,50	.138	10,10	.398	●	●

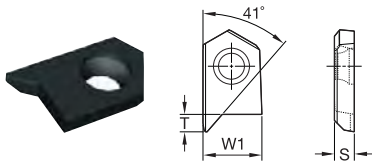
- When using the 60° insert or special insert, the assembled tool should be inspected.
- These insert combinations require that the steel body be altered to provide insert coverage.



■ BF Insert R903 • 60° with Spot Face

catalog number	S		W1		T		CS5	KC7315
	mm	in	mm	in	in	mm		
3.41020R903	3,00	.118	6,10	.240	0,114	2,90	●	●
3.41220R903	3,50	.138	10,10	.398	0,120	3,05	●	●

- Standard steel drill bodies are designed for inserts with 41° and 45° chamfers.

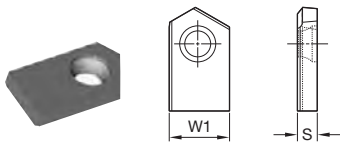


- first choice
- alternate choice

P	●
M	●
K	●
N	●
S	●
H	●

■ BF Insert R904 • 41° with Spot Face

catalog number	S		W1		T		KC7315
	mm	in	mm	in	mm	in	
3.41020R904	3,00	.118	6,10	.240	2,90	.114	●
3.41220R904	3,50	.138	10,10	.398	3,05	.120	●

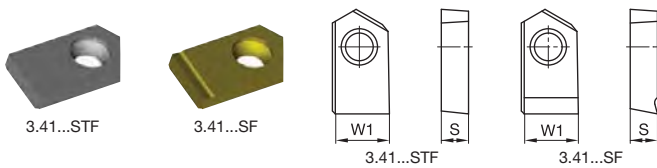


- first choice
- alternate choice

P	●
M	●
K	○
N	●
S	●
H	●

■ BF Insert R900 • Semi-Finished

catalog number	S		W1		KMF
	mm	in	mm	in	
3.41020R900	3,00	.118	6,10	.240	●
3.41220R900	3,50	.138	10,10	.398	●



- first choice
- alternate choice

P	●
M	●
K	○
N	●
S	●
H	●

■ BF Insert R900 S(T)F • Semi-Finished

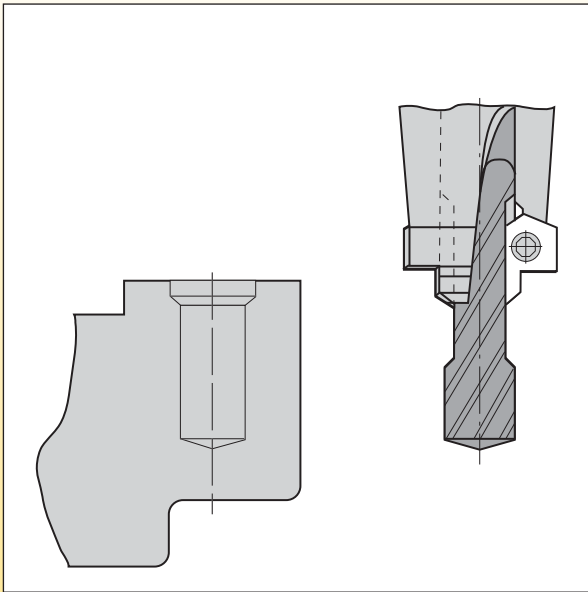
catalog number	S		W1		CS5	KMF
	mm	in	mm	in		
3.41020R900STF	3,00	.118	6,10	.240	●	—
3.41220R900SF	3,50	.138	10,10	.398	—	●
3.41220R900STF	3,50	.138	10,10	.398	●	—



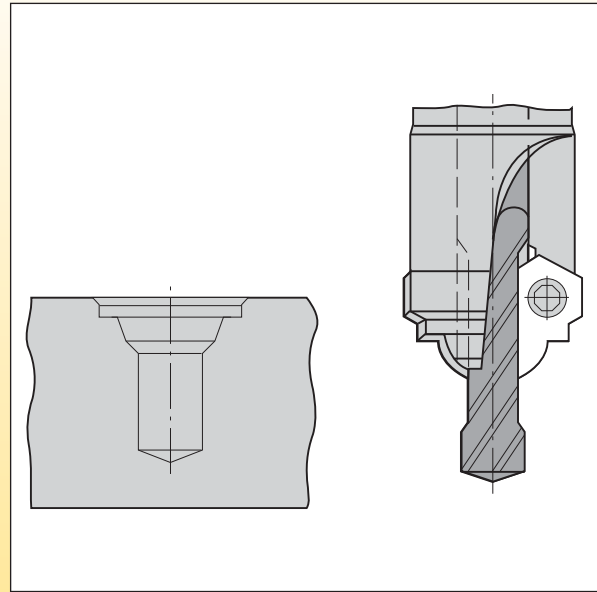
Engineered Solutions Available!



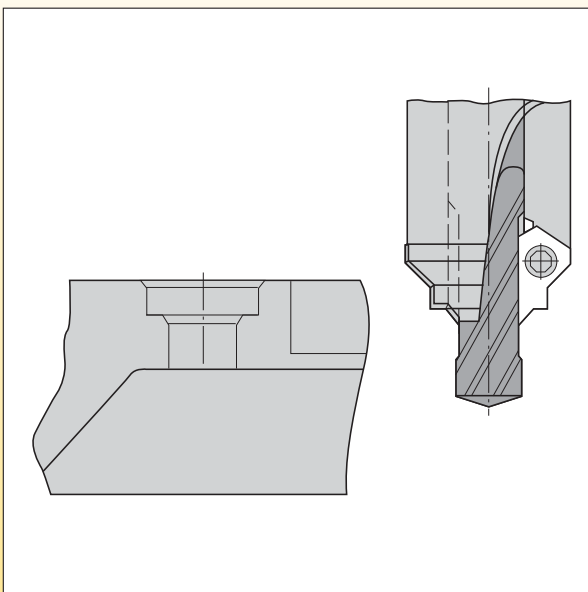
Tapped Hole with Protection Countersinking



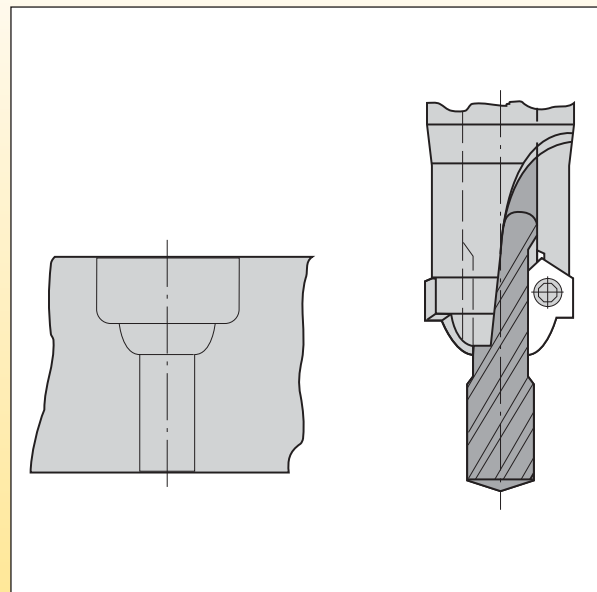
Countersinking for Round Sealing Rings



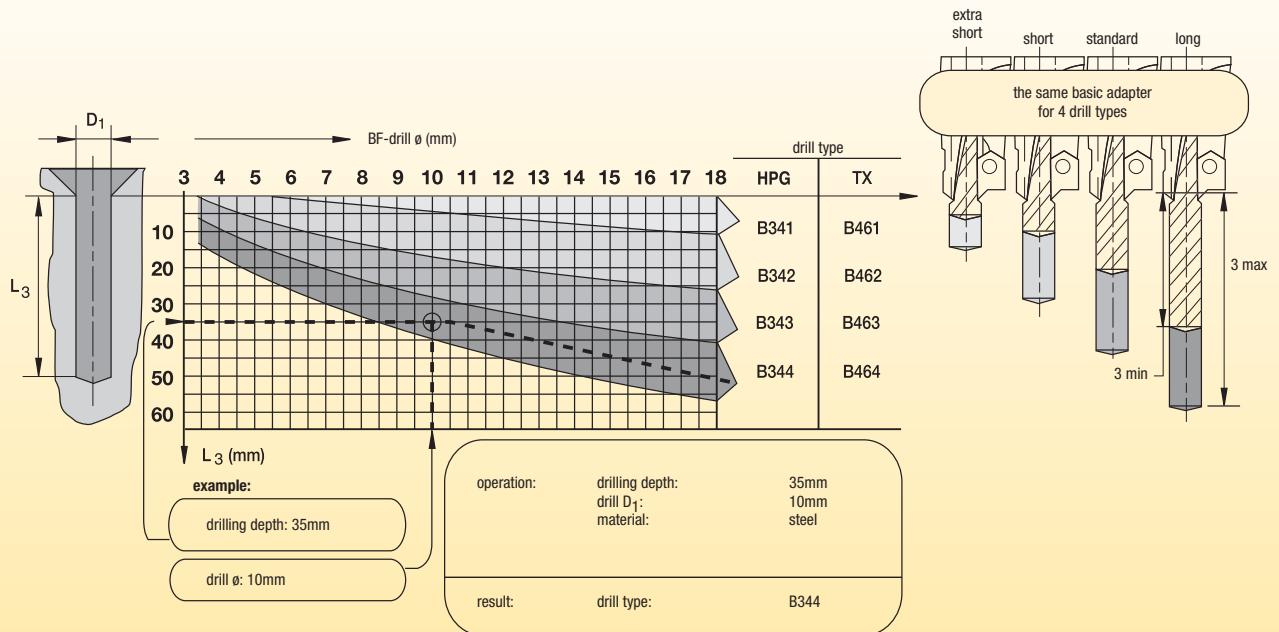
Countersinking for Countersunk Head Screws



Countersinking for Aluminum Rim



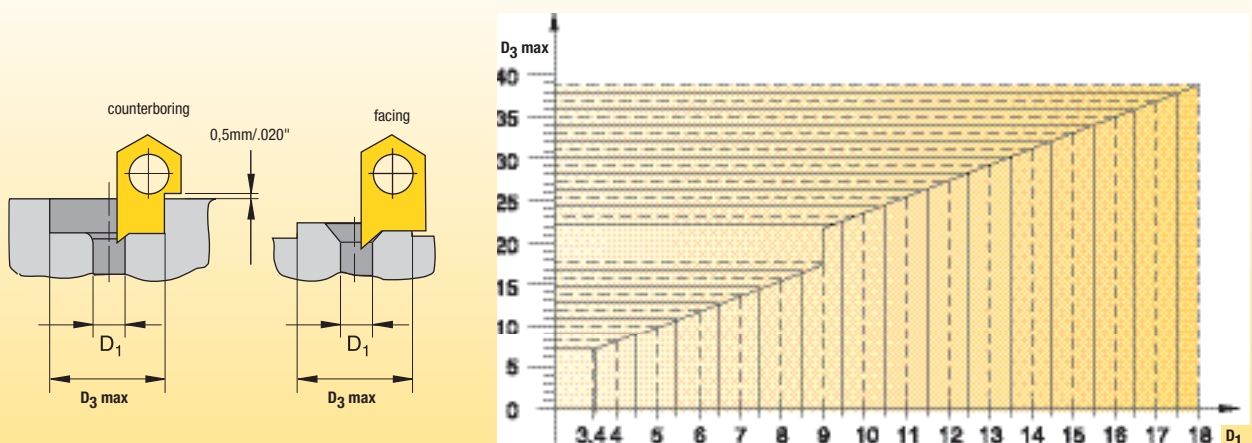
■ Possible Drilling Depths • Semi-Standard Series



■ Possible Facing and Counterboring Diameters

90° insert blanks are available to grind special geometry forms for other multiprofile applications. Contact your local Kennametal Representative for special insert profile designs and quoting. Use the table below to determine the maximum facing or counterboring diameter for a given BF drill diameter. Reference your chosen drill diameter across the bottom axis of the table and then read up and across to the left axis to find the maximum facing or counterboring diameter.

■ Possible Facing and Countersinking Diameter • Machining Steel



■ HP Drills • B343HPG Series • Grade KC7315™ • Through Coolant • Metric

		Cutting Speed – vc			Metric								
		Range – m/min			Recommended Feed Rate (f) by Diameter								
Material Group		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	18,0
P	1	100	140	180	mm/r	0,07–0,16	0,08–0,19	0,10–0,23	0,13–0,29	0,15–0,33	0,17–0,37	0,19–0,44	0,22–0,44
	2	90	115	140	mm/r	0,07–0,13	0,08–0,17	0,10–0,19	0,13–0,23	0,15–0,27	0,17–0,30	0,19–0,35	0,22–0,39
	3	80	100	120	mm/r	0,10–0,16	0,11–0,19	0,13–0,23	0,16–0,29	0,19–0,33	0,21–0,37	0,25–0,44	0,28–0,49
	4	70	90	110	mm/r	0,08–0,16	0,10–0,19	0,11–0,22	0,12–0,25	0,14–0,29	0,16–0,32	0,21–0,41	0,24–0,46
	5	70	85	110	mm/r	0,07–0,12	0,08–0,14	0,10–0,16	0,12–0,20	0,14–0,23	0,16–0,26	0,18–0,31	0,21–0,34
K	1	100	120	140	mm/r	0,09–0,17	0,10–0,21	0,12–0,25	0,15–0,31	0,17–0,35	0,20–0,39	0,23–0,46	0,26–0,52
	2	80	105	130	mm/r	0,09–0,15	0,10–0,18	0,12–0,21	0,15–0,26	0,18–0,30	0,20–0,33	0,23–0,39	0,26–0,44
	3	70	85	100	mm/r	0,08–0,13	0,10–0,15	0,11–0,19	0,14–0,23	0,16–0,26	0,18–0,30	0,21–0,35	0,23–0,39

■ HP Drills • B343HPG Series • Grade KC7315 • Through Coolant • Inch

		Cutting Speed – vc			Inch								
		Range – SFM			Recommended Feed Rate (f) by Diameter								
Material Group		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
P	1	328	459	591	IPR	.003–.006	.003–.007	.004–.009	.005–.011	.006–.013	.007–.015	.007–.017	.009–.017
	2	295	377	459	IPR	.003–.005	.003–.007	.004–.007	.005–.009	.006–.011	.007–.012	.007–.014	.009–.017
	3	262	328	394	IPR	.004–.006	.004–.007	.005–.009	.006–.011	.007–.013	.008–.015	.010–.017	.011–.019
	4	230	295	361	IPR	.003–.006	.004–.007	.004–.009	.005–.010	.006–.011	.006–.013	.008–.016	.009–.018
	5	230	279	361	IPR	.003–.005	.003–.006	.004–.006	.005–.008	.006–.009	.006–.010	.007–.012	.008–.013
K	1	328	394	459	IPR	.004–.007	.004–.008	.005–.011	.005–.010	.007–.014	.008–.015	.009–.018	.010–.020
	2	262	345	427	IPR	.004–.006	.004–.007	.005–.008	.006–.010	.007–.012	.008–.013	.009–.015	.010–.017
	3	230	279	328	IPR	.003–.005	.004–.006	.004–.007	.006–.009	.006–.010	.007–.012	.008–.014	.009–.015

Combination Tools

Centering | Drilling | Chamfering

Three Applications, One Tool

Centering, drilling, and chamfering in a single operation with Kennametal SEFAS™

- Reduce the number of tool changes and cycle time by combining centering, drilling, and chamfering into one operation.
- Uses standard solid carbide drills in HP and TX styles as well as modular KentIP™ drills.
- Range of insert styles for use in most workpiece materials.



Experience the advantages at your Authorized Kennametal Distributor or at kennametal.com.



kennametal.com

➤ SEFAS™ Combination Drilling System

Primary Application

Combines centering, drilling, and chamfering into a single operation, increasing productivity by reducing cycle time and number of tool changes.

Achieve productivity gains by still using standard solid carbide or KenTIP™ drills. The SEFAS system provides full through coolant capabilities.



Features and Benefits

Productivity

- Reduce the number of tool changes and cycle time by combining drilling and countersinking into one operation.
- Achieve highest metal removal rates by applying an HP-style drill.
- Reduce inventory and avoid reconditioning by using KenTIP blades.
- Easily change tool within the machine by using KenTIP.

Versatility

- Any style of standard HP drill can be used for highest metal removal rates.
- Use TX drills to achieve excellent hole quality and tool life in non-ferrous materials.
- For increased accuracy and tool life, use the Kennametal hydraulic chuck recommended for cylindrical tool shanks.
- Range of insert styles for use in most workpiece materials.

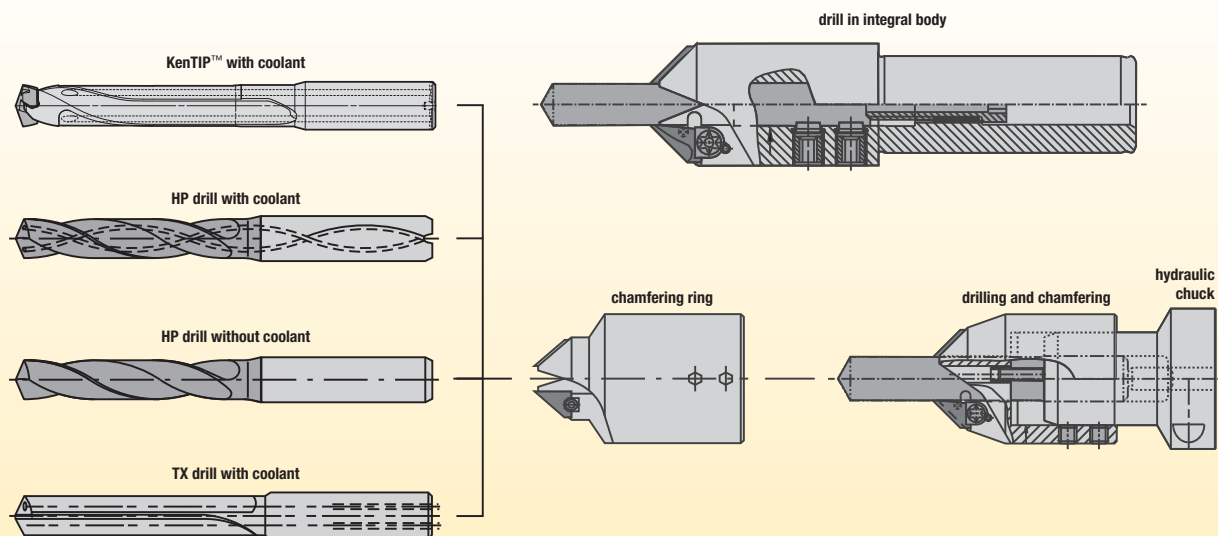
Reduce the number of tool changes and cycle time by combining drilling and countersinking into one operation.



Customization

- Length variations available as engineered solutions.



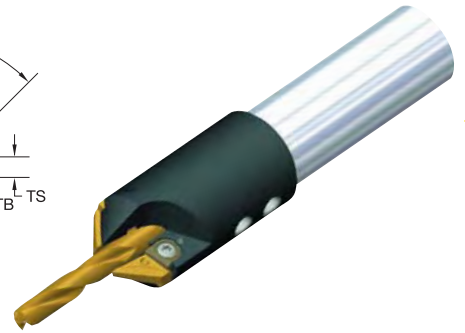
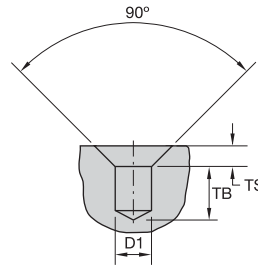
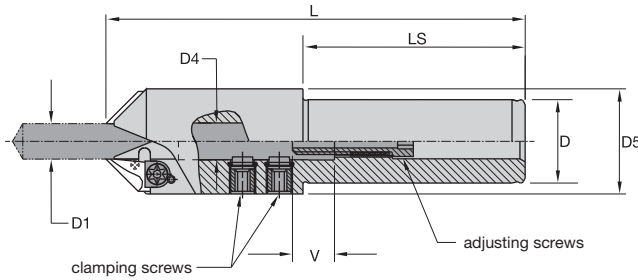
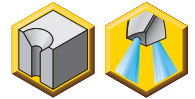


The SEFAS combination drilling system may be used in most workpiece materials. The design and flexibility of the system can be used with a wide variety of solid carbide drills.

Three types of SEFAS chamfering tools are offered: (1) integral bodies with a compact design that provides additional workpiece and work-holding clearance; (2) chamfering rings that may be mounted to Kennametal hydraulic chucks for optimal drill performance and increased productivity; and (3) high-performance HSK bodies (available as customized solutions) for new machine spindles and high-output applications.



- Drill body shipped with all screws, clamps, and wrenches.
- Order the inserts and drills separately.
- Two chamfer inserts required per body.

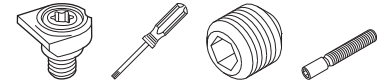


Combination Tools

■ Round Shank • For Use with Inch Drills • Inch



catalog number	D1	D1 max	D	D4	D5	L	LS	V	gage insert	insert clamp	Torx wrench	drill clamp screw	adjusting screw
SEF156187RSS075	0.1560	.188	.75	.19	.94	4.06	2.00	.71	3.42805..	360.550	170.024	360.650	360.516
SEF218250RSS075	>0.1880	.250	.75	.25	.97	4.13	2.00	.71	3.42805..	360.550	170.024	360.651	360.510
SEF265312RSS075	>0.2500	.313	.75	.31	1.03	4.31	2.00	.71	3.42805..	360.550	170.024	360.652	360.510
SEF328375RSS075	>0.3130	.375	.75	.38	1.16	4.63	2.00	.67	3.42805..	360.550	170.024	360.653	360.510
SEF390437RSS100	>0.3750	.438	1.00	.44	1.47	5.75	3.00	.75	3.42807..	360.551	170.025	360.654	360.513
SEF453500RSS100	>0.4380	.500	1.00	.50	1.53	5.88	3.00	.83	3.42807..	360.551	170.025	360.655	360.513
SEF500562RSS100	>0.5000	.563	1.00	.56	1.59	6.06	3.00	.63	3.42807..	360.551	170.025	360.656	360.511
SEF562625RSS125	>0.5630	.625	1.25	.63	1.66	6.44	3.25	.75	3.42807..	360.551	170.025	360.657	360.511
SEF625687RSS125 *	>0.6250	.688	1.25	.69	1.81	6.50	3.25	.59	3.42807..	360.551	170.025	360.658	360.511
SEF687750RSS125	>0.6880	.750	1.25	.75	1.88	6.56	3.25	.67	3.42807..	360.551	170.025	360.659	360.511
SEF750812RSS125	>0.7500	.813	1.25	.81	1.94	6.63	3.25	.67	3.42807..	360.551	170.025	360.679	360.511
SEF812875RSS150	>0.8130	.875	1.50	.88	2.09	7.25	3.75	.63	3.42807..	360.551	170.025	360.680	360.511
SEF875937RSS150 *	>0.8750	.938	1.50	.94	2.16	7.38	3.75	.71	3.42807..	360.551	170.025	360.681	360.511
SEF9371010RSS150	>0.9380	1.010	1.50	1.00	2.25	7.50	3.75	.71	3.42807..	360.551	170.025	360.682	360.511



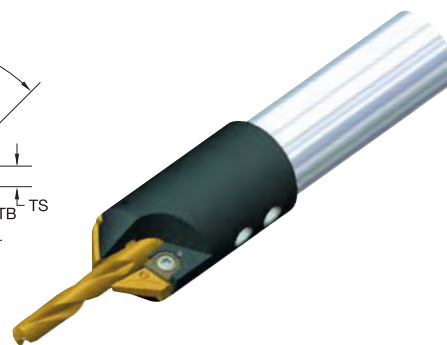
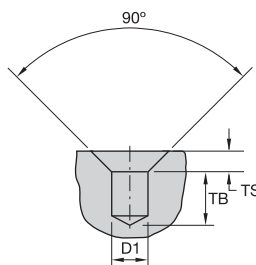
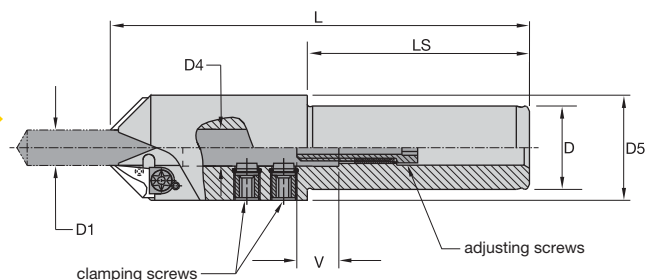
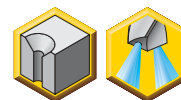
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

■ Achievable Drilling (TB) and Sink Depths (TS)

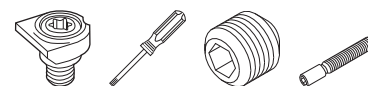
drill diameter D1	K210, K254, K284		K211, K222, K255, K285, K411		K212, K256		unalloyed and low-alloy steel, unalloyed and alloy steel, and cast iron, high-alloy steel and stainless steel		
	TB _{min}	TB _{max}	TB _{min}	TB _{max}	TB _{min}	TB _{max}	TS ₁₀₀	TS ₈₀	TS _{max}
.156-.188	.236	.866	.472	1.102	.866	1.102	.047	.071	.098
>.188-.250	.354	1.024	.709	1.378	1.220	1.890	.059	.087	.118
>.250-.266	.433	1.102	.906	1.575	1.654	2.323	.079	.118	.157
>.266-.313	.433	1.102	.906	1.575	1.654	2.323	.098	.157	.197
>.313-.375	.512	1.142	1.063	1.693	1.929	2.559	.118	.197	.236
>.375-.438	.551	1.260	1.142	1.850	2.008	2.717	.138	.197	.276
>.438-.500	.591	1.378	1.220	2.008	2.205	2.992	.157	.236	.315
>.500-.563	.827	1.417	1.496	2.087	2.717	3.307	.157	.236	.315
>.563-.625	.866	1.575	1.575	2.283	3.071	3.780	.157	.236	.315
>.625-.688	1.299	1.850	2.087	2.638	3.740	4.291	.157	.236	.315
>.688-.750	1.378	2.008	2.126	2.756	4.055	4.685	.157	.236	.315
>.750-.813	1.552	2.181	2.260	2.890	4.386	5.016	.157	.236	.315
>.813-.875	1.702	2.293	2.726	3.317	4.694	5.285	.157	.236	.315
>.875-.938	1.735	2.404	2.876	3.546	4.884	5.554	.157	.236	.315
>.938-1.010	1.846	2.515	3.067	3.736	5.193	5.862	.157	.236	.315

NOTE: TS₁₀₀: maximum sink depths at which the full feed values can be maintained during chamfering and sinking.
 TS₈₀: maximum sink depths that can be achieved without chipbreak cycles and at a 20% feed reduction.
 TS_{max}: maximum sink depths that can be achieved without chipbreak cycles and at a 50% feed reduction.

- Drill body shipped with all screws, clamps, and wrenches.
- Order the inserts and drills separately.
- Two chamfer inserts required per body.



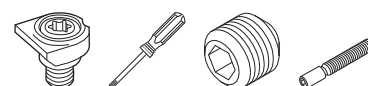
■ Round Shank • For Use with Metric Drills • Metric



catalog number	D1	D1 max	D	D4	D5	L	LS	V	gage insert	insert clamp	Torx wrench	drill clamp screw	adjusting screw
SEF040060RSS075M	4,000	6,0	19,1	6,0	24,0	103,1	50,8	18,0	3.42805..	360.550	170.024	360.630	360.510
SEF060080RSS075M	>6,000	8,0	19,1	8,0	26,0	109,5	50,8	18,0	3.42805..	360.550	170.024	360.634	360.510
SEF080100RSS100M	>8,000	10,0	25,4	10,0	29,0	143,0	76,2	17,0	3.42805..	360.550	170.024	360.631	360.510
SEF100120RSS125M	>10,000	12,0	31,8	12,0	38,0	155,7	82,6	21,0	3.42807..	360.551	170.025	360.635	360.513
SEF120140RSS125M	>12,000	14,0	31,8	14,0	40,0	160,3	82,6	16,0	3.42807..	360.551	170.025	360.636	360.511
SEF140160RSS125M	>14,000	16,0	31,8	16,0	41,5	163,6	82,6	19,0	3.42807..	360.551	170.025	360.632	360.511
SEF160180RSS125M	>16,000	18,0	31,8	18,0	47,0	166,4	82,6	15,0	3.42807..	360.551	170.025	360.633	360.511
SEF180200RSS125M *	>18,000	20,0	31,8	20,0	49,0	170,0	82,6	17,0	3.42807..	360.551	170.025	360.637	360.511

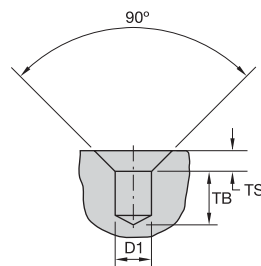
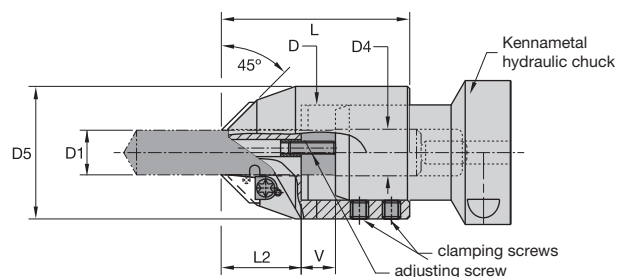
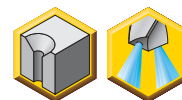
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

■ 2° Whistle Notch (WN) Shank • For Use with Metric Drills • Metric



catalog number	D1	D1 max	D	D4	D5	L	LS	V	gage insert	insert clamp	Torx wrench	drill clamp screw	adjusting screw
3.37060R720	4,000	6,0	20,0	6,0	24,0	102,0	52,0	18,0	3.42805..	360.550	170.024	360.630	360.510
3.37080R720	>6,000	8,0	20,0	8,0	26,0	108,0	52,0	18,0	3.42805..	360.550	170.024	360.634	360.510
3.37100R720	>8,000	10,0	20,0	10,0	29,0	122,0	52,0	17,0	3.42805..	360.550	170.024	360.631	360.510
3.37120R732	>10,000	12,0	32,0	12,0	38,0	133,0	62,0	21,0	3.42807..	360.551	170.025	360.635	360.513
3.37140R732	>12,000	14,0	32,0	14,0	40,0	137,0	62,0	16,0	3.42807..	360.551	170.025	360.636	360.511
3.37160R732	>14,000	16,0	32,0	16,0	41,5	141,0	62,0	19,0	3.42807..	360.551	170.025	360.632	360.511
3.37180R732	>16,000	18,0	32,0	18,0	47,0	144,0	62,0	15,0	3.42807..	360.551	170.025	360.633	360.511

- Drill body shipped with all screws, clamps, and wrenches.
- Order the inserts and drills separately.
- Use only with hydraulic chucks.



Combination Tools

■ Chamfer Rings • For Use with Metric Kennametal Hydraulic Chucks • For Use with Inch or Metric Drills

catalog number	D1	D1 max	D	D4	D5	L	L2	V						
									gage insert	insert clamp	Torx wrench	drill clamp screw	adjusting screw	adjusting screw
3.37526R006	4,000	6,0	25,70	6,00	38,00	49,50	21,00	5,00	3.42805..	360.550	170.024	190.195	—	192.057
3.37528R008	>6,000	8,0	27,70	8,00	40,00	50,00	21,00	6,00	3.42805..	360.550	170.024	190.195	190.371	—
3.37530R010	>8,000	10,0	29,70	10,00	41,50	56,50	22,00	8,00	3.42805..	360.550	170.024	190.195	193.113	—
3.37532R012	>10,000	12,0	31,60	12,00	48,00	68,00	29,00	12,00	3.42807..	360.551	170.025	190.076	193.114	—
3.37534R014	>12,000	14,0	33,60	14,00	50,00	70,50	29,00	12,00	3.42807..	360.551	170.025	190.076	193.114	—
3.37538R016	>14,000	16,0	37,60	16,00	54,00	78,00	32,00	12,00	3.42807..	360.551	170.025	190.076	193.115	—
3.37540R018	>16,000	18,0	39,60	18,00	56,00	80,50	34,00	15,00	3.42807..	360.551	170.025	190.076	193.116	—
3.37542R020	>18,000	20,0	41,60	20,00	58,00	82,50	35,00	15,00	3.42807..	360.551	170.025	190.076	193.116	—

■ Achievable Drilling (TB) and Sink Depths (TS)

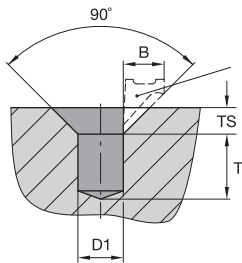
drill diameter D1	 B210, B221, B224, B254, B284, B291, B707, B966, B976		 B211, B222, B225, B285, B292, B411, B708, B977		 B212, B256, B709, B978		 B269		unalloyed and low-alloy steel; unalloyed and alloy steel, and cast iron, high-alloy steel and stainless steel		
	TB _{min}	TB _{max}	TB _{min}	TB _{max}	TB _{min}	TB _{max}	TB _{min}	TB _{max}	TS ₁₀₀	TS ₈₀	TS _{max}
4,0–4,7	4	17	12	29	20	36	45	62	1,2	1,8	2,5
>4,7–6,0	4	20	20	35	27	43	63	80	1,5	2,2	3,0
>6,0–7,0	11	24	23	40	32	49	71	88	2	3,0	4,0
>7,0–8,0	11	28	23	40	42	59	85	102	2,5	4,0	5,0
>8,0–10,0	13	29	27	43	46	62	109	125	2,5	4,0	5,0
>10,0–12,0	15	35	31	51	54	74	131	151	3,5	5,0	7,0
>12,0–14,0	21	36	38	53	69	84	160	175	4,0	6,0	8,0
>14,0–16,0	22	40	40	58	78	96	184	202	4,0	6,0	8,0
>16,0–18,0	31	45	51	65	93	107	213	227	4,0	6,0	8,0
>18,0–20,0	34	50	56	72	103	119	237	253	4,0	6,0	8,0

(continued)

(Achievable Drilling (TB) and Sink Depths (TS) — continued)

drill diameter D1	K210, K254, K284		K211, K222, K255, K285, K411		K212, K256		unalloyed and low-alloy steel, unalloyed and alloy steel, and cast iron, high-alloy steel and stainless steel		
	TB _{min}	TB _{max}	TB _{min}	TB _{max}	TB _{min}	TB _{max}	TS ₁₀₀	TS ₈₀	TS _{max}
.156-.250	not applicable (drill shank diameter > chamfer ring inside diameter), not applicable (metric ring and hydraulic chuck are not interchangeable)								
>.250-.313	not applicable (drill shank diameter > chamfer ring inside diameter), not applicable (metric ring and hydraulic chuck are not interchangeable)								
>.313-.375	.748	1.339	1.229	1.890	2.165	2.756	.098	.157	.197
>.375-.500	not applicable (drill shank diameter > chamfer ring inside diameter), not applicable (metric ring and hydraulic chuck are not interchangeable)								
>.500-.563	not applicable (drill shank diameter > chamfer ring inside diameter), not applicable (metric ring and hydraulic chuck are not interchangeable)								
>.563-.625	.906	1.732	1.614	2.441	3.110	3.937	.157	.236	.315
>.625-.709	not applicable (metric ring and hydraulic chuck are not interchangeable)								
>.709-.750	1.142	2.087	1.890	2.835	3.819	4.764	.157	.236	.315

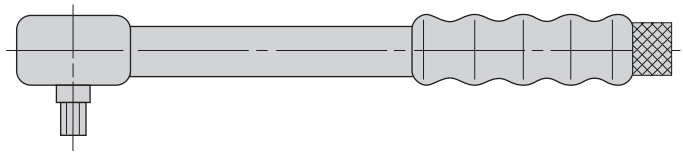
NOTE: TS₁₀₀: maximum sink depths at which the full feed values can be maintained during chamfering and sinking.
 TS₈₀: maximum sink depths that can be achieved without chipbreak cycles and at a 20% feed reduction.
 TS_{max}: maximum sink depths that can be achieved without chipbreak cycles and at a 50% feed reduction.
 When using SEFAS with G0Drill™, please contact your Kennametal Representative for application support.



■ Achievable Drilling (T) and Sink Depths (TS) with KenTIP Tool Bodies

D1		drilling depths (T) with SEFAS compact tools						drilling depths (T) with SEFAS chamfer rings						sink depths (TS)				
		3x		5x		8x		3x		5x		8x		TS ₁₀₀	TS ₈₀	TS _{max}		
mm	in	T	T _{max}	T	T _{max}	T	T _{max}	T	T _{max}	T	T _{max}	T	T _{max}	T	T _{max}	TS ₁₀₀	TS ₈₀	TS _{max}
8,00-8,49	.3125-.3343	11	19	21	37	47	63	11	22	22	40	48	66	2,5	4,0	5,0		
8,50-8,99	.3346-.3539	12	21	24	40	51	67	12	24	25	43	52	70	2,5	4,0	5,0		
9,00-9,49	.3543-.3736	12	23	27	43	56	72	12	26	28	46	57	75	2,5	4,0	5,0		
9,50-9,99	.3740-.3933	13	25	31	47	61	77	13	28	32	50	62	80	2,5	4,0	5,0		
10,00-10,49	.3937-.4130	13	26	28	49	60	81	13	28	29	51	61	83	3,5	5,0	7,0		
10,50-10,99	.4134-.4327	14	28	31	52	64	85	14	30	32	54	65	87	3,5	5,0	7,0		
11,00-11,49	.4331-.4524	14	30	34	55	69	90	14	32	35	57	70	92	3,5	5,0	7,0		
11,50-11,99	.4528-.4720	15	32	37	58	73	94	15	34	38	60	74	96	3,5	5,0	7,0		
12,00-12,49	.4724-.4917	15	30	41	56	79	94	15	32	36	58	74	96	4,0	6,0	8,0		
12,50-12,99	.4921-.5114	17	32	44	59	83	98	16	34	39	61	78	100	4,0	6,0	8,0		
13,00-13,49	.5118-.5311	19	34	47	62	88	103	16	36	42	64	83	105	4,0	6,0	8,0		
13,50-13,99	.5315-.5508	21	36	51	66	93	108	17	38	46	68	88	110	4,0	6,0	8,0		
14,00-14,49	.5512-.5705	19	37	50	68	94	112	18	40	49	71	93	115	4,0	6,0	8,0		
14,50-14,99	.5709-.5902	21	39	53	71	98	116	20	42	52	74	97	119	4,0	6,0	8,0		
15,00-15,99	.5906-.6295	25	43	59	77	107	125	24	46	58	80	106	128	4,0	6,0	8,0		
16,00-16,99	.6299-6689	29	47	65	83	117	135	28	50	64	85	115	136	4,0	6,0	8,0		
17,00-17,99	.6693-.7083	35	49	73	87	127	141	30	54	68	92	122	146	4,0	6,0	8,0		
18,00-18,99	.7087-.7476	36	52	76	92	133	149	33	57	73	97	130	154	4,0	6,0	8,0		
19,00-19,99	.7480-.7870	40	56	82	98	142	158	37	61	79	103	139	163	4,0	6,0	8,0		

NOTE: TS₁₀₀: maximum sink depths at which the full feed values can be maintained during chamfering and sinking.
 TS₈₀: maximum sink depths that can be achieved without chipbreak cycles and at a 20% feed reduction.
 TS_{max}: maximum sink depths that can be achieved without chipbreak cycles and at a 50% feed reduction.
 T: minimum drilling depth that can be achieved due to the protruded length of the drill.
 T_{max}: maximum drilling depth that can be achieved due to the protruded length of the drill.

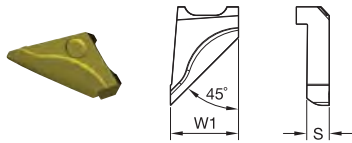

■ Torque Wrench • Metric

drill diameter D1	torque wrench	tightening torque Nm	SW	drill clamp screw	wrench adapter
4,0–6,0	170.190	7	3	360.630	170.240
>6,0–8,0	170.190	8	3	360.635	170.240
>8,0–10,0	170.190	10	4	360.631	170.232
>10,0–12,0	170.190	15	4	360.635	170.232
>12,0–14,0	170.190	20	5	360.636	170.233
>14,0–16,0	170.190	30	5	360.632	170.233
>16,0–18,0	170.190	45	6	360.633	170.234
>18,0–20,0	170.190	45	6	360.637	170.234


■ Torque Wrench • Inch

drill diameter D1	torque wrench	tightening torque ft. lbs.	SW	drill clamp screw	wrench adapter
.156–.188	170.190	5.2	3	360.650	170.240
>.188–.250	170.190	5.9	3	360.651	170.240
>.250–.313	170.190	5.9	3	360.652	170.240
>.313–.375	170.190	7.4	4	360.653	170.232
>.375–.438	170.190	11.1	4	360.654	170.232
>.438–.500	170.190	11.1	4	360.655	170.232
>.500–.563	170.190	14.8	5	360.656	170.233
>.563–.625	170.190	22.1	5	360.657	170.233
>.625–.688	170.190	33.2	6	360.658	170.234
>.688–.750	170.190	33.2	6	360.659	170.234
>.750–.813	170.190	35.4	6	360.679	170.234
>.813–.875	170.190	44.3	8	360.680	170.229
>.875–.938	170.190	47.9	8	360.681	170.229
>.938–1.010	170.190	51.6	8	360.682	170.229



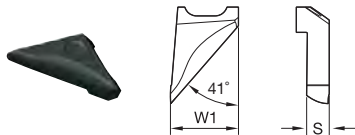


● first choice
○ alternate choice

P	●			
M				
K	●	●		
N		●	●	
S				
H				

■ SEFAS Chamfering Inserts for Solid Carbide Drills • 45°

catalog number	angle	S		W1		CS5	KC7215	KMF
		mm	in	mm	in			
3.42805R001	45	2,83	.111	8,00	.315	●	●	●
3.42807R001	45	3,98	.157	12,00	.472	●	●	●

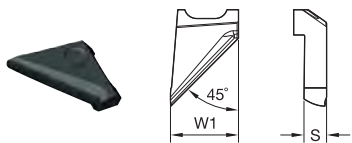


● first choice
○ alternate choice

P				
M				
K	●			
N		●		
S				
H				

■ SEFAS Chamfering Inserts for Solid Carbide Drills • 41°

catalog number	angle	S		W1		KC7215
		mm	in	mm	in	
3.42805R081	41	2,83	.111	8,00	.315	●
3.42807R081	41	3,98	.157	12,00	.472	●



● first choice
○ alternate choice

P	●				●
M			●		
K	●	●	●		
N			●		●
S					
H					

■ SEFAS Chamfering Inserts for KentTIP™ Drills • 45°

catalog number	angle	S		W1		CS5	KC7015	KC7215	KC7315	KMF
		mm	in	mm	in					
3.42805R001	45	2,83	.111	8,00	.315	●	-	-	-	●
3.42805R021	45	2,83	.111	8,00	.315	-	●	-	-	-
3.42807R001	45	3,98	.157	12,00	.472	●	-	●	-	●
3.42807R021	45	3,98	.157	12,00	.472	-	●	-	-	-

Cost Reduction Targets Giving You Headaches?

Save time and money with Kennametal SEFAS™ COMBINATION DRILLING SYSTEM:

- Combine centering, drilling, and chamfering into a single operation, increasing productivity by reducing cycle time and number of tool changes.
- Reduce inventory and avoid reconditioning by using KenTIP™ blades.
- Easily change tool within the machine by using KenTIP drills.



Experience the advantages at your Authorized
Kennametal Distributor or at kennametal.com.



Indexable Drills

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Drill Fix DFR, DFSP, and DFT	J4–J59
Drill Fix DFR.....	J4, J8–J21
Drill Fix DFSP	J4, J22–J45
Drill Fix DFT	J5, J46–J59
HTS Series Indexable Deep-Hole Drilling System	J60–J96
HTS and HTS-R Indexable Drill System	J60–J96
Indexable Drill Inserts	J97–J111
Drill Fix DFR Inserts	J97–J99
Drill Fix DFT Inserts.....	J98, J100–J102
Drill Fix DFSP Inserts	J103–J104
CTR Counterboring Tools	J112–J117
Counterboring Inserts	J115–J117



		standard						hole tolerance	standard range			customized solution range		
									diameter range			diameter range		
		● first choice ○ alternate choice							D1 mm min-max	D1 inch min-max	drilling depth L/D1	D1 mm min-max	D1 inch min-max	drilling depth
		P	M	K	N	S	H							
	DFR™ Indexable Drill Body Short-Hole Drilling	●	●	●	●	●		IT9-11	12,5-25	.500-1.039	2 x D 3 x D 4 x D	12,5-26	.500-1.023	1-5 x D
	DFSP™ Indexable Drill Body Short-Hole Drilling	●	●	●	●	●		IT9-11	14-55	.551-2.165	2 x D 3 x D 4 x D 5 x D	14-85	.551-3.350	1-5 x D
	DFT™ Indexable Drill Body Short-Hole Drilling	●	●	●	●	●		IT9-11	16-83	.625-3.250	2.5 x D 4 x D	15,8-83	.622-3.350	1-5 x D
	HTS-R Indexable Drilling Tool Deep-Hole Drilling	●	●	●	●	●		IT9-11	40-55	1.574-2.165	10 x D	40-55	1.574-2.165	1-10 x D
	HTS Indexable Drilling Tool Deep-Hole Drilling	●	●	●	●	●		IT9-11	45-270	1.772-10.630	10 x D	45-540	1.772-21.259	1-10 x D
	S2 S Countersinking Countersinking Tool	●	●	●	●	●		IT9-11	15,1-46,2	.813-3.125	1 x D	11,5-150	.451-5.905	1-5 x D

In regard to insert and drill coatings, anything is possible. If a specific insert or drill is not suitable for your workpiece material, please contact our Engineered Solutions Department for an offer about special coatings and edge preparations.

* Except for L/D 5 x D.

¹⁾ Other shank styles available as customized solution.

	coolant		■ standard capabilities ¹⁾						■ standard and □ customized solution capabilities								page(s)	
		■		■ ■	■				■	■	■	■	■	□	□			J10–J21
		■		■ ■	■	■			■	■	■	■	■	□	□		□	J24–J45
		■		■ ■	■	■			■	■	■	■	■	□	□			J48–J59
		■			■		■	■	■									J75–J80
		■			■		■	■	■									J82–J96
		■	■											■	□			J114–J117

➤ Drill Fix™ DFR™, DFSP™, and DFT™

Primary Application

Drill short holes up to 5 x D with DFR, DFSP, and DFT indexable drills in steel, cast iron, ductile iron, stainless steel, and non-ferrous materials. The Drill Fix portfolio covers the diameter range 12,5–85mm (.500–3.250").

Features and Benefits

Drill Fix DFR

- Diameter range of 12,5–24mm (.500–1.000") in 2 x D, 3 x D, and 4 x D.
- Rectangular-shaped inserts offer the highest stability and feed rates at smaller sizes.
- Long tool life due to soft starting cut, short chips, and low cutting forces.
- X-offset design to adjust diameter size on turning machines and optimize tolerances on machining centers.

Drill Fix DFSP

- Combines the benefits of a trigon-style DFT inboard and a square-style SP.X outboard insert.
- Standard diameter range from 14–55mm (.551–2.125") in 2 x D, 3 x D, 4 x D, and new 5 x D.
- Squared-outboard insert has four economic cutting edges.
- Highest feed rates and cutting speeds due to highly stable tool body design.
- X-offset design to adjust diameter size on turning machines and optimize tolerances on machining centers.
- Beyond™ grades to achieve highest productivity and outstanding results in steel, stainless steel, and cast iron.

Use where speed and economy
are prime considerations.

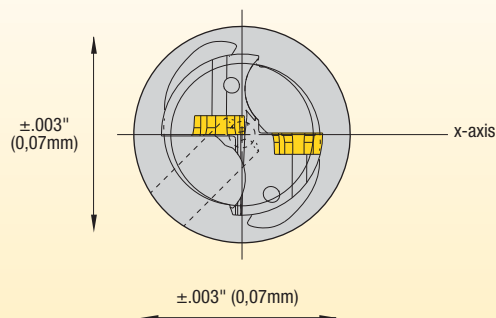


Drill Fix™ DFT™

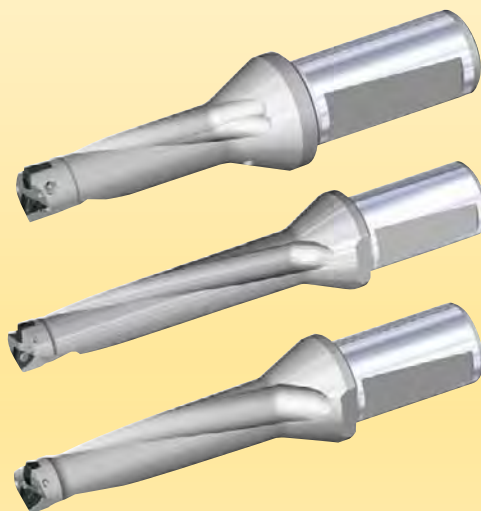
- One drill system that covers a large diameter range, from 24–82mm (1.000–3.250") in 2.5 x D and 4 x D.
- Best centering capabilities due to trigon-shaped inserts used as inboard and outboard inserts.
- Various insert grades and geometries available.
- Balanced cutting forces in the shank center for highest tool body stability.
- X-offset design to adjust diameter size on turning machines and optimize tolerances on machining centers.
- The Drill Fix DFT system has an inner insert for best centering capabilities.

■ **Stationary Applications**

Metric Drill Bodies with 2° Whistle Notch



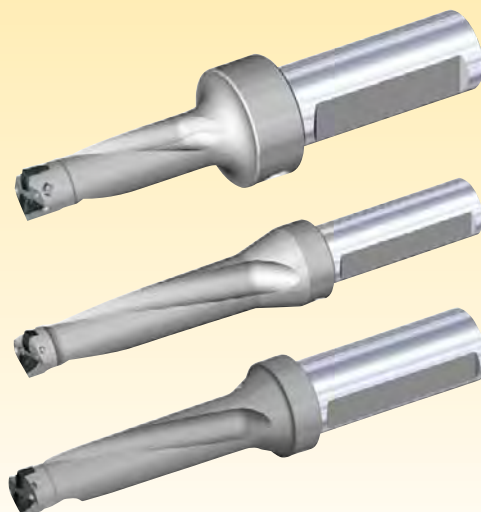
Metric shank drills with a 2° Whistle Notch shank are easily mounted into inch turrets using a WD adapter. Align the X-axis of the drill with the X-axis of the machine tool as described above. Accurate alignment is absolutely essential for good performance. The drill must be on center within the tolerance shown above. Angularity must not exceed .003" (0,07mm).



■ **Inch Bodies • Flange**

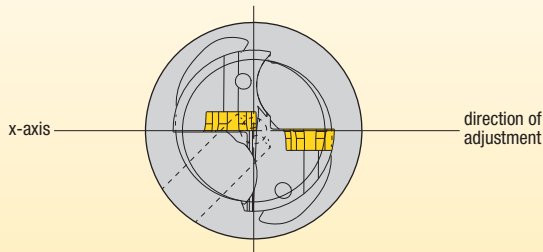
Drill Fix™ inch drills, with a flange, were designed for use on lathes or any machine where the tool remains stationary and the workpiece rotates. An "x" is marked on the flat of the X-axis of the drill to aid insert orientation on the machine tool.

It is important to align the X-axis of the drill with the X-axis on the machine tool. Accurate alignment is absolutely essential for good performance. The drill must be on center, within the tolerance shown here. Angularity must not exceed .003" (0,07mm) within the designated drill depth.



■ **Drill Fix™ X-Adjustment**

Application Examples

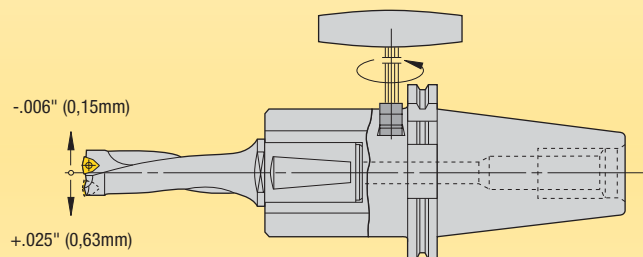


Stationary Tool

The X-adjustment must be made at the outer cutting edge, parallel to the surface of the outer insert when the turret of the turning machine is offset along the X-axis.

Rotating Tool • Straight Shank

Use an adjustable eccentric chuck with a steep taper to help offset the drill along the X-axis when machining with a rotating tool on a machining center.

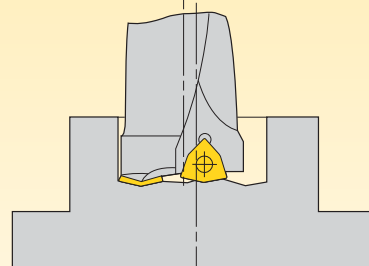
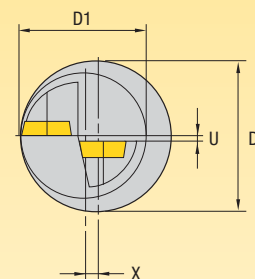


X-Adjustment Description

Different diameter holes can be drilled using the same Drill Fix drill. Holes with a diameter greater than the nominal diameter can be drilled directly into a solid. Intermediate dimensions are produced by means of the X-adjustment.

Benefits

- Eliminates the need for special tools for intermediate dimensions.
- Just a few drills cover a wide application range.
- Once precise adjustment of the desired diameter is made, tolerances of $\pm .002"$ (0,05mm) are achieved.



Additional information on X-adjustment, as well as additional information on Drill Fix tools, is available on the Kennametal website, kennametal.com.

➤ Drill Fix™ DFR™

The Drill Fix DFR platform offers maximum feed rates at a diameter range of 12,5–24mm (.500–1.000") for 2 x D, 3 x D, and 4 x D applications. Using rectangular-shaped inboard and outboard inserts enables soft starting cuts, short chips, and higher feed rates compared to small-size symmetrical-trigon or square inserts. The Drill Fix DFR platform's low cutting forces provide long tool life and high stability at the smallest diameters.

Features and Benefits

Productivity and Profitability

- Achieve high feed rates with rectangular-shaped inserts that offer a soft starting cut and greater stability.
- Use X-offset on turning machines to adjust drill, and eliminate the need for specials in many applications, and on machining centers to reach tolerance optimization.
- Same insert size is used in each pocket, reducing inventory costs.

Versatility

- Diameter range covering 12,5–24mm (.500–1.000").
- 2 x D, 3 x D, and 4 x D L/D ratios as standard.
- Various shanks as standard available: WD, SSF, and new WB, a Weldon® shank.
- Multiple insert grades and geometries available.
- Use where feed rates are the limiting factor.
- Apply in straight holes, inclined entries and exits, interrupted cuts, and rough or welded entry surfaces.
- Eccentric chuck available as standard.

Low cutting forces provide long tool body life and high stability at the smallest diameters.



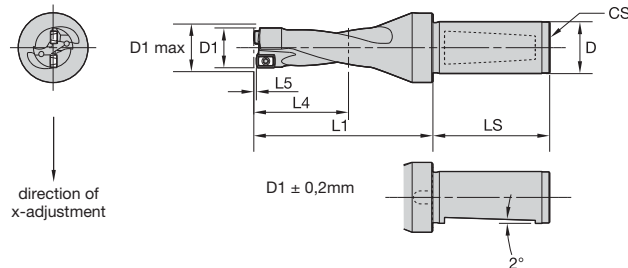
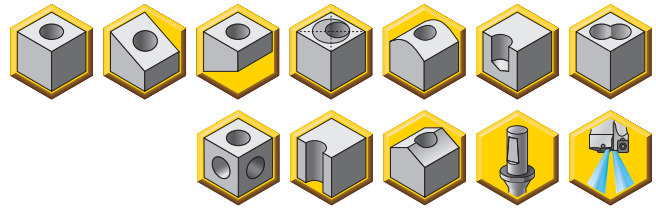
Reliability

- High stability in smaller sizes due to rectangular-shaped insert.
- Same insert can be used as inboard or outboard insert. No risk of mixing up inner and outer inserts.
- Low cutting forces result in long body tool life.

Customization

- Intermediate diameters available as semi-standards.
- Engineered solutions available.
- Multistep drills available upon request.
- Left-hand version available.

- Drill shipped with insert screws and Torx wrench.
- See pages J97–J98 for inserts.



Indexable Drills

■ WN/WD Shank • 2 x D • Metric

	D		D1			L1	L4 max	L5	gage insert
	20	32	mm	in	D1 max				
DFR125R2WD20M	—	—	12,50	.492	13,50	47,4	25,0	0,5	DFR0202..
DFR127R2WD20M	—	—	12,70	.500	13,70	47,8	25,4	0,5	DFR0202..
DFR130R2WD20M	—	—	13,00	.512	14,00	48,4	26,0	0,5	DFR0202..
DFR135R2WD20M	—	—	13,50	.532	14,50	49,4	27,0	0,5	DFR0202..
DFR140R2WD20M	—	—	14,00	.551	15,00	50,4	28,0	0,5	DFR0202..
DFR145R2WD20M	—	—	14,50	.571	15,50	53,4	29,0	0,5	DFR0202..
DFR150R2WD20M	—	—	15,00	.591	16,00	54,4	30,0	0,5	DFR0202..
DFR155R2WD20M	—	—	15,50	.610	16,50	55,4	31,0	0,5	DFR0202..
DFR160R2WD20M	—	—	16,00	.630	17,00	56,4	32,0	0,5	DFR0202..
—	—	DFR165R2WD32M	16,50	.650	17,50	62,4	33,0	0,6	DFR0302..
—	—	DFR170R2WD32M	17,00	.669	18,00	63,4	34,0	0,6	DFR0302..
—	—	DFR175R2WD32M	17,50	.689	18,50	64,4	35,0	0,6	DFR0302..
—	—	DFR180R2WD32M	18,00	.709	19,00	65,4	36,0	0,6	DFR0302..
—	—	DFR185R2WD32M	18,50	.728	19,50	66,4	37,0	0,6	DFR0302..
—	—	DFR190R2WD32M	19,00	.748	20,00	67,4	38,0	0,6	DFR0302..
—	—	DFR195R2WD32M	19,50	.768	20,50	68,4	39,0	0,6	DFR0302..
—	—	DFR200R2WD32M	20,00	.787	21,00	72,4	40,0	0,6	DFR0302..
—	—	DFR205R2WD32M	20,50	.807	21,50	73,6	41,0	0,8	DFR0403..
—	—	DFR210R2WD32M	21,00	.827	22,00	74,6	42,0	0,8	DFR0403..
—	—	DFR220R2WD32M	22,00	.866	23,00	76,6	44,0	0,8	DFR0403..
—	—	DFR230R2WD32M	23,00	.906	24,00	78,6	46,0	0,8	DFR0403..
—	—	DFR240R2WD32M	24,00	.945	25,00	80,6	48,0	0,8	DFR0403..

WARNING

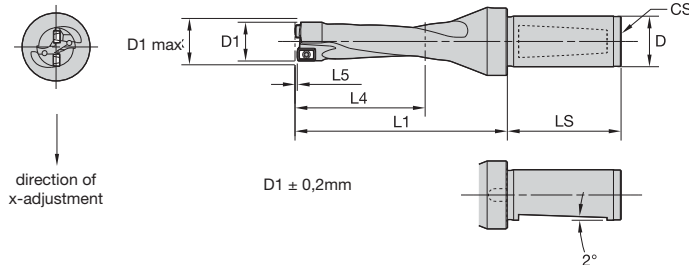
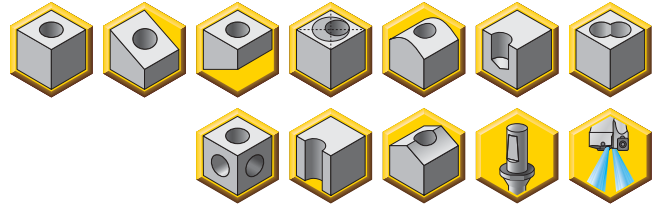
During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.



gage insert	insert screw	Torx wrench	Torx size
DFR0202..	193.281	170.027	6
DFR0302..	192.416	170.023	7
DFR0403..	192.432	170.028	8

D	LS	CS
20	45	R 1/8 BSP
32	58	R 1/4 BSP

- Drill shipped with insert screws and Torx wrench.
- See pages J97–J98 for inserts.



Indexable Drills

■ WN/WD Shank • 3 x D • Metric

	D		D1			L1	L4 max	L5	gage insert	
	20	25	32	mm	in					D1 max
DFR125R3WD20M	—	—	—	12,50	.492	13,50	59,9	37,5	0,5	DFR0202..
DFR127R3WD20M	—	—	—	12,70	.500	13,70	60,5	38,1	0,5	DFR0202..
DFR130R3WD20M	—	—	—	13,00	.512	14,00	61,4	39,0	0,5	DFR0202..
DFR135R3WD20M	—	—	—	13,50	.532	14,50	62,9	40,5	0,5	DFR0202..
DFR140R3WD20M	—	—	—	14,00	.551	15,00	64,4	42,0	0,5	DFR0202..
DFR145R3WD20M	—	—	—	14,50	.571	15,50	67,9	43,5	0,5	DFR0202..
DFR150R3WD20M	—	—	—	15,00	.591	16,00	69,4	45,0	0,5	DFR0202..
DFR155R3WD20M	—	—	—	15,50	.610	16,50	70,9	46,5	0,5	DFR0202..
DFR160R3WD20M	—	—	—	16,00	.630	17,00	72,4	48,0	0,5	DFR0202..
—	—	—	DFR165R3WD32M	16,50	.650	17,50	78,9	49,5	0,6	DFR0302..
—	—	—	DFR170R3WD32M	17,00	.669	18,00	80,4	51,0	0,6	DFR0302..
—	DFR175R3WD25M	—	DFR175R3WD32M	17,50	.689	18,50	81,9	52,5	0,6	DFR0302..
—	DFR180R3WD25M	—	DFR180R3WD32M	18,00	.709	19,00	83,4	54,0	0,6	DFR0302..
—	DFR185R3WD25M	—	DFR185R3WD32M	18,50	.728	19,50	84,9	55,5	0,6	DFR0302..
—	DFR190R3WD25M	—	DFR190R3WD32M	19,00	.748	20,00	86,4	57,0	0,6	DFR0302..
—	DFR195R3WD25M	—	DFR195R3WD32M	19,50	.768	20,50	87,9	58,5	0,6	DFR0302..
—	DFR200R3WD25M	—	DFR200R3WD32M	20,00	.787	21,00	92,4	60,0	0,6	DFR0302..
—	DFR205R3WD25M	—	DFR205R3WD32M	20,50	.807	21,50	94,1	61,5	0,8	DFR0403..
—	DFR210R3WD25M	—	DFR210R3WD32M	21,00	.827	22,00	95,6	63,0	0,8	DFR0403..
—	DFR220R3WD25M	—	DFR220R3WD32M	22,00	.866	23,00	98,6	66,0	0,8	DFR0403..
—	DFR230R3WD25M	—	DFR230R3WD32M	23,00	.906	24,00	101,6	69,0	0,8	DFR0403..
—	DFR240R3WD25M	—	DFR240R3WD32M	24,00	.945	25,00	104,6	72,0	0,8	DFR0403..

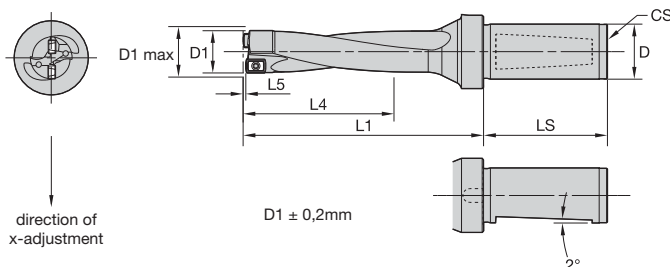
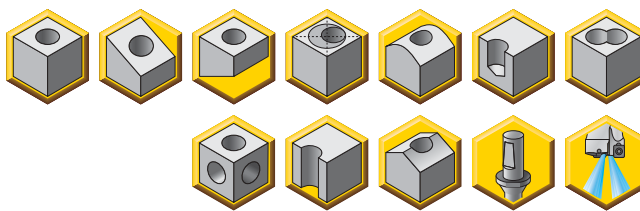
WARNING

During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.



gage insert	insert screw	Torx wrench	Torx size	D	LS	CS
DFR0202..	193.281	170.027	6	20	45	R 1/8 BSP
DFR0302..	192.416	170.023	7	25	45	R 1/4 BSP
DFR0403..	192.432	170.028	8	32	58	R 1/4 BSP

- Drill shipped with insert screws and Torx wrench.
- See pages J97–J98 for inserts.



Indexable Drills

■ WN/WD Shank • 4 x D • Metric

D		D1			L1	L4 max	L5	gage insert
20	32	mm	in	D1 max				
DFR125R4WD20M	—	12,50	.492	13,50	72,4	50,0	0,5	DFR0202..
DFR127R4WD20M	—	12,70	.500	13,70	73,2	50,8	0,5	DFR0202..
DFR130R4WD20M	—	13,00	.512	14,00	74,4	52,0	0,5	DFR0202..
DFR135R4WD20M	—	13,50	.532	14,50	76,4	54,0	0,5	DFR0202..
DFR140R4WD20M	—	14,00	.551	15,00	78,4	56,0	0,5	DFR0202..
DFR145R4WD20M	—	14,50	.571	15,50	82,4	58,0	0,5	DFR0202..
DFR150R4WD20M	—	15,00	.591	16,00	84,4	60,0	0,5	DFR0202..
DFR155R4WD20M	—	15,50	.610	16,50	86,4	62,0	0,5	DFR0202..
DFR160R4WD20M	—	16,00	.630	17,00	88,4	64,0	0,5	DFR0202..
—	DFR165R4WD32M	16,50	.650	17,50	95,4	66,0	0,6	DFR0302..
—	DFR170R4WD32M	17,00	.669	18,00	97,4	68,0	0,6	DFR0302..
—	DFR175R4WD32M	17,50	.689	18,50	99,4	70,0	0,6	DFR0302..
—	DFR180R4WD32M	18,00	.709	19,00	101,4	72,0	0,6	DFR0302..
—	DFR185R4WD32M	18,50	.728	19,50	103,4	74,0	0,6	DFR0302..
—	DFR190R4WD32M	19,00	.748	20,00	105,4	76,0	0,6	DFR0302..
—	DFR195R4WD32M	19,50	.768	20,50	107,4	78,0	0,6	DFR0302..
—	DFR200R4WD32M	20,00	.787	21,00	109,4	80,0	0,6	DFR0302..
—	DFR205R4WD32M	20,50	.807	21,50	111,6	82,0	0,8	DFR0403..
—	DFR210R4WD32M	21,00	.827	22,00	113,6	84,0	0,8	DFR0403..
—	DFR220R4WD32M	22,00	.866	23,00	117,6	88,0	0,8	DFR0403..
—	DFR230R4WD32M	23,00	.906	24,00	121,6	92,0	0,8	DFR0403..
—	DFR240R4WD32M	24,00	.945	25,00	125,6	96,0	0,8	DFR0403..

WARNING

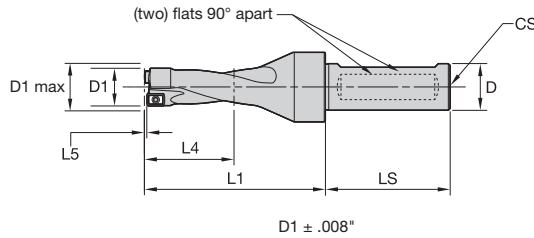
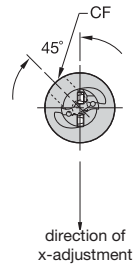
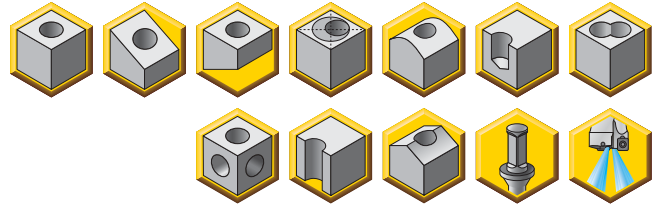
During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.



gage insert	insert screw	Torx wrench	Torx size
DFR0202..	193.281	170.027	6
DFR0302..	192.416	170.023	7
DFR0403..	192.432	170.028	8

D	LS	CS
20	45	R 1/8 BSP
32	58	R 1/4 BSP

- Drill shipped with insert screws, side pipe plug, and Torx wrench.
- See pages J97–J98 for inserts.



Indexable Drills

■ Flange Shank • 2 x D • Inch

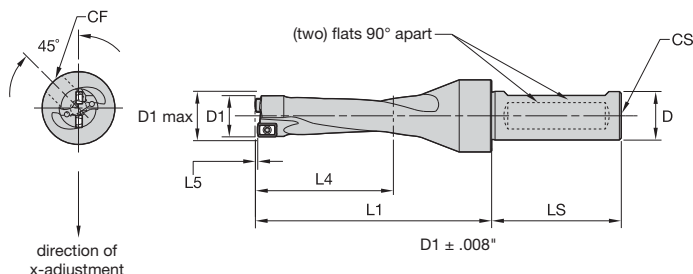
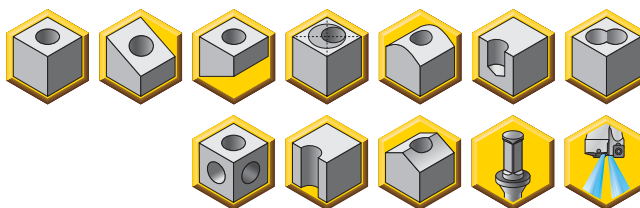
	D	D1 diameter			L1	L4 max	L5	gage insert
		mm	in	D1 max				
	0.750							
	1.000							
DFR0500R2SSF075	—	12,70	.500	.539	1.95	1.00	.02	DFR0202..
DFR0563R2SSF075	—	14,30	.563	.602	2.08	1.13	.02	DFR0202..
DFR0625R2SSF075	—	15,88	.625	.664	2.20	1.25	.02	DFR0202..
DFR0688R2SSF075	—	17,48	.688	.727	2.33	1.38	.02	DFR0302..
—	DFR0750R2SSF100	19,05	.750	.789	2.52	1.50	.02	DFR0302..
—	DFR0813R2SSF100	20,65	.813	.852	2.65	1.63	.03	DFR0403..
—	DFR0875R2SSF100	22,23	.875	.914	2.87	1.75	.03	DFR0403..
—	DFR0938R2SSF100	23,83	.938	.977	2.99	1.88	.03	DFR0403..
—	DFR1000R2SSF100	25,40	1.000	1.039	3.12	2.00	.03	DFR0403..

WARNING

During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.

gage insert	insert screw	Torx wrench	Torx size	D	LS	CF	CS	pipe plug
DFR0202..	193.281	170.027	6	0.75	2.00	1/8-27 NPT	1/8-27 NPT	HSFS0125
DFR0302..	192.416	170.023	7	1.00	3.00	1/8-27 NPT	1/4-18 NPT	HSFS0125

- Drill shipped with insert screws, side pipe plug, and Torx wrench.
- See pages J97–J98 for inserts.



Indexable Drills

■ Flange Shank • 3 x D • Inch

	D		D1 diameter			L1	L4 max	L5	gage insert	
	0.750	1.000	1.250	mm	in					D1 max
DFR0500R3SSF075	—	—	—	12,70	.500	.539	2.44	1.59	.02	DFR0202..
DFR0531R3SSF075	—	—	—	13,49	.531	.570	2.50	1.69	.02	DFR0202..
DFR0563R3SSF075	—	—	—	14,30	.563	.602	2.64	1.69	.02	DFR0202..
DFR0594R3SSF075	—	—	—	15,09	.594	.633	2.70	1.78	.02	DFR0202..
DFR0625R3SSF075	DFR0625R3SSF100	—	—	15,88	.625	.664	2.83	1.88	.02	DFR0202..
DFR0656R3SSF075	DFR0656R3SSF100	—	—	16,66	.656	.695	2.92	1.97	.02	DFR0302..
DFR0688R3SSF075	DFR0688R3SSF100	—	—	17,48	.688	.727	3.02	2.06	.02	DFR0302..
DFR0703R3SSF075	DFR0703R3SSF100	—	—	17,86	.703	.742	3.13	2.11	.02	DFR0302..
DFR0734R3SSF075	DFR0734R3SSF100	—	—	18,64	.734	.773	3.22	2.20	.02	DFR0302..
DFR0750R3SSF075	DFR0750R3SSF100	—	—	19,05	.750	.789	3.27	2.25	.02	DFR0302..
DFR0781R3SSF075	DFR0781R3SSF100	—	—	19,84	.781	.820	3.36	2.34	.02	DFR0302..
DFR0813R3SSF075	DFR0813R3SSF100	—	—	20,65	.813	.852	3.46	2.44	.03	DFR0403..
DFR0844R3SSF075 *	DFR0844R3SSF100	—	—	21,44	.844	.883	3.65	2.53	.03	DFR0403..
DFR0875R3SSF075	DFR0875R3SSF100	—	—	22,23	.875	.914	3.74	2.63	.03	DFR0403..
—	DFR0906R3SSF100	—	—	23,01	.906	.945	3.83	2.72	.03	DFR0403..
—	DFR0938R3SSF100	—	—	23,83	.938	.977	3.93	2.81	.03	DFR0403..
—	DFR0969R3SSF100	—	—	24,61	.969	1.008	4.02	2.91	.03	DFR0403..
—	DFR0984R3SSF100	—	—	24,99	.984	1.023	4.07	2.95	.03	DFR0403..
—	DFR1000R3SSF100	DFR1000R3SSF125	—	25,40	1.000	1.039	4.12	3.00	.03	DFR0403..

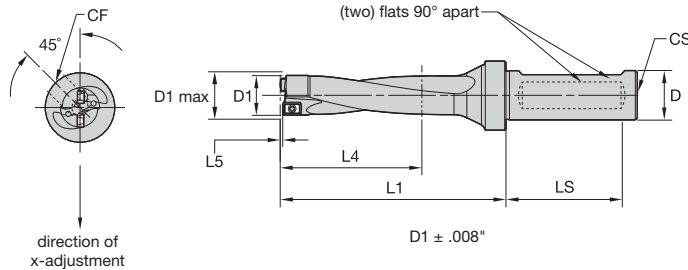
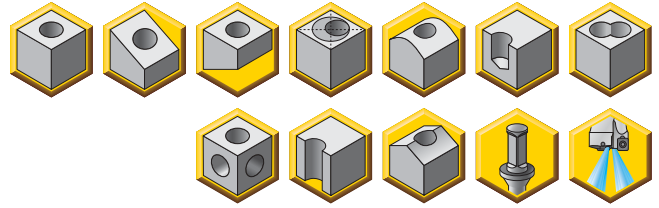
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

WARNING

During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.

gage insert	insert screw	Torx wrench	Torx size	D	LS	CF	CS	pipe plug	
				0.75	1.00	1.25	2.00		3.00
DFR0202..	193.281	170.027	6	0.75	2.00	1/8-27 NPT	1/8-27 NPT	HSFS0125	
DFR0302..	192.416	170.023	7	1.00	3.00	1/8-27 NPT	1/4-18 NPT	HSFS0125	
DFR0403..	192.432	170.028	8	1.25	3.25	1/8-27 NPT	1/4-18 NPT	HSFS0125	

- Drill shipped with insert screws, side pipe plug, and Torx wrench.
- See pages J97–J98 for inserts.



Indexable Drills

■ **Flange Shank • 4 x D • Inch**

	D		D1 diameter			L1	L4 max	L5	gage insert	
	0.750	1.000	1.250	mm	in					D1 max
DFR0500R4SSF075	—	—	—	12,70	.500	.540	2.95	2.00	.02	DFR0202..
DFR0531R4SSF075	—	—	—	13,49	.531	.571	3.05	2.12	.02	DFR0202..
DFR0563R4SSF075	—	—	—	14,30	.563	.603	3.21	2.25	.02	DFR0202..
DFR0594R4SSF075	—	—	—	15,09	.594	.633	3.30	2.38	.02	DFR0202..
DFR0625R4SSF075	DFR0625R4SSF100	—	—	15,88	.625	.664	3.45	2.50	.02	DFR0202..
—	DFR0656R4SSF100	—	—	16,66	.656	.695	3.58	2.62	.02	DFR0302..
—	DFR0688R4SSF100	—	—	17,48	.688	.727	3.71	2.75	.02	DFR0302..
—	DFR0703R4SSF100	—	—	17,86	.703	.742	3.83	2.81	.02	DFR0302..
—	DFR0734R4SSF100	—	—	18,64	.734	.773	3.95	2.94	.02	DFR0302..
—	DFR0750R4SSF100	—	—	19,05	.750	.789	4.02	3.00	.02	DFR0302..
—	DFR0781R4SSF100	—	—	19,84	.781	.820	4.14	3.12	.02	DFR0302..
—	DFR0813R4SSF100	—	—	20,65	.813	.852	4.27	3.25	.03	DFR0403..
—	DFR0844R4SSF100	—	—	21,44	.844	.883	4.49	3.38	.03	DFR0403..
—	DFR0875R4SSF100	—	—	22,23	.875	.914	4.62	3.50	.03	DFR0403..
—	DFR0906R4SSF100	—	—	23,01	.906	.945	4.74	3.62	.03	DFR0403..
—	DFR0938R4SSF100	—	—	23,83	.938	.977	4.87	3.75	.03	DFR0403..
—	DFR0969R4SSF100	—	—	24,61	.969	1.008	4.99	3.88	.03	DFR0403..
—	DFR0984R4SSF100	—	—	24,99	.984	1.023	5.05	3.84	.03	DFR0403..
—	DFR1000R4SSF100	DFR1000R4SSF125	—	25,40	1.000	1.039	5.12	4.00	.03	DFR0403..

WARNING

During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.

gage insert	insert screw	Torx wrench	Torx size	D	LS	CF	CS	pipe plug
DFR0202..	193.281	170.027	6	0.75	2.00	1/8-27 NPT	1/8-27 NPT	HSFS0125
DFR0302..	192.416	170.023	7	1.00	3.00	1/8-27 NPT	1/4-18 NPT	HSFS0125
DFR0403..	192.432	170.028	8	1.25	3.25	1/8-27 NPT	1/4-18 NPT	HSFS0125

Drill Fix™ DFR™ • Metric

Indexable Drills

					Metric							
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (fz) by Diameter				
					Range – m/min			Ø	DFR02... 12,50–16,00mm	DFR03... 16,50–20,00mm	DFR04... 20,50–24,00mm	
					min	Starting Value	max					
P	1	S	O	MD	KCU25	310	325	360	mm/r	0,09–0,15	0,11–0,18	0,15–0,25
			I	MD	KC7140							
		U	O	MD	KCU40	200	215	230	mm/r	0,09–0,15	0,11–0,18	0,15–0,25
			I	MD	KC7140							
		I	O	MD	KC7140	130	135	150	mm/r	0,09–0,15	0,11–0,18	0,15–0,25
			I	MD	KC7140							
	2	S	O	GD	KCPK10	310	325	360	mm/r	0,09–0,15	0,11–0,18	0,15–0,25
			I	LD	KC7140							
		U	O	GD	KCU40	200	215	230	mm/r	0,09–0,15	0,11–0,18	0,15–0,25
			I	LD	KC7140							
		I	O	MD	KC7140	130	135	150	mm/r	0,09–0,15	0,11–0,18	0,15–0,25
			I	LD	KC7140							
	3	S	O	GD	KCPK10	260	285	320	mm/r	0,09–0,15	0,11–0,18	0,15–0,25
			I	LD	KC7140							
		U	O	GD	KCU40	180	195	220	mm/r	0,09–0,15	0,11–0,18	0,15–0,25
			I	LD	KC7140							
		I	O	GD	KC7140	110	120	140	mm/r	0,09–0,15	0,11–0,18	0,15–0,25
			I	LD	KC7140							
	4	S	O	GD	KCU25	220	250	300	mm/r	0,09–0,15	0,11–0,18	0,15–0,25
			I	LD	KC7140							
		U	O	GD	KCU40	150	180	220	mm/r	0,09–0,15	0,11–0,18	0,15–0,25
			I	LD	KC7140							
		I	O	GD	KC7140	90	110	140	mm/r	0,09–0,15	0,11–0,18	0,15–0,25
			I	LD	KC7140							
5	S	O	GD	KCU25	180	200	220	mm/r	0,07–0,13	0,09–0,15	0,11–0,18	
		I	LD	KC7140								
	U	O	GD	KCU40	120	135	150	mm/r	0,07–0,13	0,09–0,15	0,11–0,18	
		I	LD	KC7140								
	I	O	GD	KC7140	70	85	100	mm/r	0,07–0,13	0,09–0,15	0,11–0,18	
		I	LD	KC7140								
6	S	O	GD	KCU25	180	200	220	mm/r	0,07–0,13	0,09–0,15	0,11–0,18	
		I	LD	KC7140								
	U	O	GD	KCU40	120	135	150	mm/r	0,07–0,13	0,09–0,15	0,11–0,18	
		I	LD	KC7140								
	I	O	GD	KC7140	70	85	100	mm/r	0,07–0,13	0,09–0,15	0,11–0,18	
		I	LD	KC7140								
M	1	S	O	MD	KC7140	150	190	230	mm/r	0,07–0,13	0,08–0,16	0,10–0,18
			I	MD	KC7140							
		U	O	MD	KC7140	100	130	160	mm/r	0,07–0,13	0,08–0,16	0,10–0,18
			I	MD	KC7140							
		I	O	MD	KC7140	60	80	100	mm/r	0,07–0,13	0,08–0,16	0,10–0,18
			I	MD	KC7140							
	2	S	O	MD	KC7140	150	180	210	mm/r	0,07–0,13	0,08–0,16	0,10–0,18
			I	MD	KC7140							
		U	O	MD	KC7140	100	130	160	mm/r	0,07–0,13	0,08–0,16	0,10–0,18
			I	MD	KC7140							
		I	O	MD	KC7140	60	80	100	mm/r	0,07–0,13	0,08–0,16	0,10–0,18
			I	MD	KC7140							
3	S	O	MD	KC7140	100	130	160	mm/r	0,07–0,13	0,08–0,16	0,10–0,18	
		I	MD	KC7140								
	U	O	MD	KC7140	80	110	140	mm/r	0,07–0,13	0,08–0,16	0,10–0,18	
		I	MD	KC7140								
	I	O	MD	KC7140	50	70	90	mm/r	0,07–0,13	0,08–0,16	0,10–0,18	
		I	MD	KC7140								

Condition: S = Stable cutting conditions;
 U = Unstable cutting conditions;
 I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
 O = Outboard insert

Drill Fix™ DFR™ • Metric

Metric												
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc Range – m/min			Recommended Feed Rate (fz) by Diameter				
					min	Starting Value	max	Ø	DFR02... 12,50–16,00mm	DFR03... 16,50–20,00mm	DFR04... 20,50–24,00mm	
K	1	S	O	GD	KCPK10	200	240	300	mm/r	0,10–0,18	0,12–0,20	0,14–0,24
			I	LD	KCU40							
		U	O	GD	KCU25	120	155	200	mm/r	0,10–0,18	0,12–0,20	0,14–0,24
			I	LD	KC7140							
		I	O	GD	KCU40	80	100	125	mm/r	0,10–0,18	0,12–0,20	0,14–0,24
			I	LD	KC7140							
	2	S	O	GD	KCPK10	180	220	260	mm/r	0,10–0,18	0,12–0,20	0,14–0,24
			I	LD	KCU40							
		U	O	GD	KCU25	110	140	170	mm/r	0,10–0,18	0,12–0,20	0,14–0,24
			I	LD	KC7140							
		I	O	GD	KCU40	80	100	120	mm/r	0,10–0,18	0,12–0,20	0,14–0,24
			I	LD	KC7140							
3	S	O	GD	KCPK10	180	220	260	mm/r	0,10–0,18	0,12–0,20	0,14–0,24	
		I	LD	KCU40								
	U	O	GD	KCU25	110	140	170	mm/r	0,10–0,18	0,12–0,20	0,14–0,24	
		I	LD	KC7140								
	I	O	GD	KCU40	80	100	120	mm/r	0,10–0,18	0,12–0,20	0,14–0,24	
		I	LD	KC7140								
N	1	S	O	ST	KD1425	400	600	800	mm/r	0,07–0,09	0,10–0,14	0,12–0,16
			I	ST	KD1425							
		U	O	LD	KCU40	300	400	500	mm/r	0,07–0,09	0,10–0,14	0,12–0,16
			I	LD	KCU40							
		I	O	LD	KCU40	200	300	400	mm/r	0,07–0,09	0,10–0,14	0,12–0,16
			I	LD	KCU40							
	2	S	O	ST	KD1425	375	550	775	mm/r	0,07–0,09	0,10–0,14	0,12–0,16
			I	ST	KD1425							
		U	O	LD	KCU40	250	350	450	mm/r	0,07–0,09	0,10–0,14	0,12–0,16
			I	LD	KCU40							
		I	O	LD	KCU40	175	250	325	mm/r	0,07–0,09	0,10–0,14	0,12–0,16
			I	LD	KCU40							
	3	S	O	ST	KD1425	350	500	650	mm/r	0,07–0,09	0,10–0,14	0,12–0,16
			I	ST	KD1425							
		U	O	LD	KCU40	250	350	450	mm/r	0,07–0,09	0,10–0,14	0,12–0,16
			I	LD	KCU40							
		I	O	LD	KCU40	150	250	350	mm/r	0,07–0,09	0,10–0,14	0,12–0,16
			I	LD	KCU40							
	4	S	O	ST	KD1425	400	600	800	mm/r	0,07–0,09	0,10–0,14	0,12–0,16
			I	ST	KD1425							
		U	O	LD	KCU40	250	350	450	mm/r	0,07–0,09	0,10–0,14	0,12–0,16
			I	LD	KCU40							
		I	O	LD	KCU40	200	300	400	mm/r	0,07–0,09	0,10–0,14	0,12–0,16
			I	LD	KCU40							
5	S	O	ST	KD1425	400	600	800	mm/r	0,07–0,09	0,10–0,14	0,12–0,16	
		I	ST	KD1425								
	U	O	LD	KCU40	250	350	450	mm/r	0,07–0,09	0,10–0,14	0,12–0,16	
		I	LD	KCU40								
	I	O	LD	KCU40	200	300	400	mm/r	0,07–0,09	0,10–0,14	0,12–0,16	
		I	LD	KCU40								
6	S	O	ST	KD1425	400	600	800	mm/r	0,07–0,09	0,10–0,14	0,12–0,16	
		I	ST	KD1425								
	U	O	GD	KCU40	250	350	450	mm/r	0,07–0,09	0,10–0,14	0,12–0,16	
		I	GD	KCU40								
	I	O	GD	KMF	200	300	400	mm/r	0,07–0,09	0,10–0,14	0,12–0,16	
		I	GD	KMF								

Condition: S = Stable cutting conditions;
 U = Unstable cutting conditions;
 I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
 O = Outboard insert



■ Drill Fix™ DFR™ • Metric

Indexable Drills

Metric												
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (fz) by Diameter				
					Range – m/min			Ø	DFR02... 12,50–16,00mm	DFR03... 16,50–20,00mm	DFR04... 20,50–24,00mm	
					min	Starting Value	max					
S	1	S	O	GD	KCU40	60	70	75	mm/r	0,04–0,06	0,05–0,08	0,06–0,10
			I	LD	KCU40							
	U	O	GD	KCU40	40	50	60	mm/r	0,04–0,06	0,05–0,08	0,06–0,10	
		I	LD	KC7140								
	I	O	MD	KC7140	25	30	40	mm/r	0,04–0,06	0,05–0,08	0,06–0,10	
		I	MD	KC7140								
	2	S	O	GD	KCU40	50	60	70	mm/r	0,04–0,06	0,05–0,08	0,06–0,10
			I	LD	KCU40							
		U	O	GD	KCU40	30	40	50	mm/r	0,04–0,06	0,05–0,08	0,06–0,10
			I	LD	KC7140							
		I	O	MD	KC7140	25	30	40	mm/r	0,04–0,06	0,05–0,08	0,06–0,10
			I	MD	KC7140							
	3	S	O	GD	KCU40	70	80	90	mm/r	0,05–0,08	0,06–0,10	0,06–0,10
			I	LD	KCU40							
		U	O	GD	KCU40	50	60	70	mm/r	0,05–0,08	0,06–0,10	0,06–0,10
			I	LD	KC7140							
		I	O	MD	KC7140	30	40	50	mm/r	0,05–0,08	0,06–0,10	0,06–0,10
			I	MD	KC7140							
	4	S	O	GD	KCU40	70	80	90	mm/r	0,05–0,08	0,06–0,10	0,06–0,10
			I	LD	KCU40							
		U	O	GD	KCU40	50	60	70	mm/r	0,05–0,08	0,06–0,10	0,06–0,10
			I	LD	KC7140							
		I	O	MD	KC7140	30	40	50	mm/r	0,05–0,08	0,06–0,10	0,06–0,10
			I	MD	KC7140							

Condition: S = Stable cutting conditions;
 U = Unstable cutting conditions;
 I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
 O = Outboard insert

Drill Fix™ DFR™ • Inch

Material Group	Condition	Pocket Seat	Geometry	Grade	Inch							
					Cutting Speed – vc			Recommended Feed Rate (fz) by Diameter				
					Range – SFM			Ø	DFR02... .500–.625"	DFR03... .688–.750"	DFR04... .813–1.00"	
					min	Starting Value	max					
P	1	S	O	MD	KCU25	1017	1066	1181	SFM	.004–.006	.004–.007	.006–.010
			I	MD	KC7140							
		U	O	MD	KCU40	656	705	754	SFM	.004–.006	.004–.007	.006–.010
			I	MD	KC7140							
	2	S	O	GD	KCPK10	1017	1066	1181	SFM	.004–.006	.004–.007	.006–.010
			I	LD	KC7140							
		U	O	GD	KCU40	656	705	754	SFM	.004–.006	.004–.007	.006–.010
			I	LD	KC7140							
	3	S	O	GD	KCPK10	853	935	1050	SFM	.004–.006	.004–.007	.006–.010
			I	LD	KC7140							
		U	O	GD	KCU40	590	640	722	SFM	.004–.006	.004–.007	.006–.010
			I	LD	KC7140							
	4	S	O	GD	KCU25	722	820	984	SFM	.004–.006	.004–.007	.006–.010
			I	LD	KC7140							
		U	O	GD	KCU40	492	590	722	SFM	.004–.006	.004–.007	.006–.010
			I	LD	KC7140							
	5	S	O	GD	KCU25	590	656	722	SFM	.003–.005	.004–.006	.004–.007
			I	LD	KC7140							
		U	O	GD	KCU40	394	443	492	SFM	.003–.005	.004–.006	.004–.007
			I	LD	KC7140							
	6	S	O	GD	KCU25	590	656	722	SFM	.004–.006	.004–.007	.006–.010
			I	LD	KC7140							
		U	O	GD	KCU40	394	443	492	SFM	.004–.006	.004–.007	.006–.010
			I	LD	KC7140							
M	1	S	O	MD	KC7140	492	623	754	SFM	.003–.005	.003–.006	.004–.007
			I	MD	KC7140							
		U	O	MD	KC7140	328	426	525	SFM	.003–.005	.003–.006	.004–.007
			I	MD	KC7140							
	2	S	O	MD	KC7140	492	590	689	SFM	.003–.005	.003–.006	.004–.007
			I	MD	KC7140							
		U	O	MD	KC7140	328	426	525	SFM	.003–.005	.003–.006	.004–.007
			I	MD	KC7140							
	3	S	O	MD	KC7140	328	426	525	SFM	.003–.005	.003–.006	.004–.007
			I	MD	KC7140							
		U	O	MD	KC7140	262	361	459	SFM	.003–.005	.003–.006	.004–.007
			I	MD	KC7140							
3	S	O	MD	KC7140	328	426	525	SFM	.003–.005	.003–.006	.004–.007	
		I	MD	KC7140								
	U	O	MD	KC7140	262	361	459	SFM	.003–.005	.003–.006	.004–.007	
		I	MD	KC7140								
3	S	O	MD	KC7140	164	230	295	SFM	.003–.005	.003–.006	.004–.007	
		I	MD	KC7140								
	U	O	MD	KC7140	164	230	295	SFM	.003–.005	.003–.006	.004–.007	
		I	MD	KC7140								

Condition: S = Stable cutting conditions;
 U = Unstable cutting conditions;
 I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
 O = Outboard insert



Drill Fix™ DFR™ • Inch

Indexable Drills

		Inch										
Material Group	Pocket Seat	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (fz) by Diameter				
					Range – SFM			Ø	DFR02... .500–.625"	DFR03... .688–.750"	DFR04... .813–1.00"	
					min	Starting Value	max					
K	1	S	O	GD	KCPK10	656	787	984	SFM	.004–.007	.005–.008	.006–.009
			I	LD	KCU40							
		U	O	GD	KCU25	394	508	656	SFM	.004–.007	.005–.008	.006–.009
			I	LD	KC7140							
		I	O	GD	KCU40	262	328	410	SFM	.004–.007	.005–.008	.005–.009
			I	LD	KC7140							
	2	S	O	GD	KCPK10	590	722	853	SFM	.004–.007	.005–.008	.006–.009
			I	LD	KCU40							
		U	O	GD	KCU25	361	459	558	SFM	.004–.007	.005–.008	.005–.009
			I	LD	KC7140							
		I	O	GD	KCU40	262	328	394	SFM	.004–.007	.005–.008	.006–.009
			I	LD	KC7140							
3	S	O	GD	KCPK10	590	722	853	SFM	.004–.007	.005–.008	.005–.009	
		I	LD	KCU40								
	U	O	GD	KCU25	361	459	558	SFM	.004–.007	.005–.008	.006–.009	
		I	LD	KC7140								
	I	O	GD	KCU40	262	328	394	SFM	.004–.007	.005–.008	.005–.009	
		I	LD	KC7140								
N	1	S	O	ST	KD1425	1312	1968	2624	SFM	.003–.004	.004–.006	.005–.006
			I	ST	KD1425							
		U	O	LD	KCU40	984	1312	1640	SFM	.003–.004	.004–.006	.005–.006
			I	LD	KCU40							
		I	O	LD	KCU40	656	984	1312	SFM	.003–.004	.004–.006	.005–.006
			I	LD	KCU40							
	2	S	O	ST	KD1425	1230	1804	2542	SFM	.003–.004	.004–.006	.005–.006
			I	ST	KD1425							
		U	O	LD	KCU40	820	1148	1476	SFM	.003–.004	.004–.006	.005–.006
			I	LD	KCU40							
		I	O	LD	KCU40	574	820	1066	SFM	.003–.004	.004–.006	.005–.006
			I	LD	KCU40							
	3	S	O	ST	KD1425	1148	1640	2132	SFM	.003–.004	.004–.006	.005–.006
			I	ST	KD1425							
		U	O	LD	KCU40	820	1148	1476	SFM	.003–.004	.004–.006	.005–.006
			I	LD	KCU40							
		I	O	LD	KCU40	492	820	1148	SFM	.003–.004	.004–.006	.005–.006
			I	LD	KCU40							
	4	S	O	ST	KD1425	1312	1968	2624	SFM	.003–.004	.004–.006	.005–.006
			I	ST	KD1425							
		U	O	LD	KCU40	820	1148	1486	SFM	.003–.004	.004–.006	.005–.006
			I	LD	KCU40							
		I	O	LD	KCU40	656	984	1312	SFM	.003–.004	.004–.006	.005–.006
			I	LD	KCU40							
5	S	O	HP	KD1425	1312	1968	2624	SFM	.003–.004	.004–.006	.005–.006	
		I	HP	KD1425								
	U	O	HP	KCU40	820	1148	1476	SFM	.003–.004	.004–.006	.005–.006	
		I	HP	KCU40								
	I	O	HP	KCU40	656	984	1312	SFM	.003–.004	.004–.006	.005–.006	
		I	HP	KCU40								
6	S	O	ST	KD1425	1312	1968	2624	SFM	.003–.004	.004–.006	.005–.006	
		I	ST	KD1425								
	U	O	GD	KCU40	820	1148	1476	SFM	.003–.004	.004–.006	.005–.006	
		I	GD	KCU40								
	I	O	GD	KMF	656	984	1312	SFM	.003–.004	.004–.006	.005–.006	
		I	GD	KMF								

Condition: S = Stable cutting conditions;
 U = Unstable cutting conditions;
 I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
 O = Outboard insert

■ Drill Fix™ DFR™ • Inch

Inch												
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (fz) by Diameter				
					Range – SFM			Ø	DFR02... .500–.625"	DFR03... .688–.750"	DFR04... .813–1.00"	
					min	Starting Value	max					
S	1	S	O	GD	KCU40	197	230	246	SFM	.002–.002	.002–.003	.002–.004
			I	LD	KCU40							
		U	O	GD	KCU40	131	164	197	SFM	.002–.002	.002–.003	.002–.004
			I	LD	KC7140							
		I	O	MD	KC7140	82	98	131	SFM	.002–.002	.002–.003	.002–.004
			I	MD	KC7140							
	2	S	O	GD	KCU40	164	197	230	SFM	.002–.002	.002–.003	.002–.004
			I	LD	KCU40							
		U	O	GD	KCU40	98	131	164	SFM	.002–.002	.002–.003	.002–.004
			I	LD	KC7140							
		I	O	MD	KC7140	82	98	131	SFM	.002–.002	.002–.003	.002–.004
			I	MD	KC7140							
	3	S	O	GD	KCU40	230	262	295	SFM	.002–.004	.002–.003	.002–.004
			I	LD	KCU40							
		U	O	GD	KCU40	164	197	230	SFM	.002–.003	.002–.004	.002–.004
			I	LD	KC7140							
		I	O	MD	KC7140	98	131	164	SFM	.002–.003	.002–.004	.002–.004
			I	MD	KC7140							
	4	S	O	GD	KCU40	230	262	295	SFM	.002–.003	.002–.004	.002–.004
			I	LD	KCU40							
U		O	GD	KCU40	164	197	230	SFM	.002–.003	.002–.004	.002–.004	
		I	LD	KC7140								
I		O	MD	KC7140	98	131	164	SFM	.002–.003	.002–.004	.002–.004	
		I	MD	KC7140								

Condition: S = Stable cutting conditions;
U = Unstable cutting conditions;
I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
O = Outboard insert



Indexable Drills

➤ Drill Fix™ DFSP™

DFSP is the new name of the now-extended Drill Fix DFS" indexable drilling platform. The standard diameter range is now expanded starting from 14–55mm (.551–2.125") in L/D ratios 2 x D, 3 x D, 4 x D, and 5 x D. Like the DFS platform, the DFSP platform combines the economically squared outboard insert with the superior centering capabilities of the trigon inboard insert. DFSP indexable drills offer increased metal removal rates combined with high surface quality and hole straightness.

Boost your productivity even further and achieve outstanding results in steel, stainless steel, and cast iron with the latest Beyond™ insert grades.

Features and Benefits

Higher Productivity and Profitability

- Achieve highest metal removal rates and excellent chip evacuation from advanced chip flutes and non-central and increased cooling channels.
- Squared outboard inserts offer four economic cutting edges.
- Complete product portfolio offers standard L/D ratios up to 5 x D.

Versatility

- Drill holes up to 5 x D in steel, cast iron, ductile iron, stainless steel, and non-ferrous materials.
- Use where speed and economy are prime considerations.
- Use DFSP drills in straight holes, inclined entries and exits, interrupted cuts, and rough or welded entry surfaces.
- Use X-offset on turning machines to adjust the drill diameter and eliminate the need for specials in many applications, and on machining centers to reach tolerance optimization.
- Eccentric chuck available as standard.
- Quick and easy insert grade and/or geometry change to address material and application changes.

Boost your productivity even further with the latest Beyond™ insert grades.



Reliability

- High accuracy holes in any feed rates.
- Gain outstanding results using Beyond grades for DFT™ and SPGX/SPPX inserts.
- High wear resistance in interrupted cuts due to squared outboard insert.

Customization

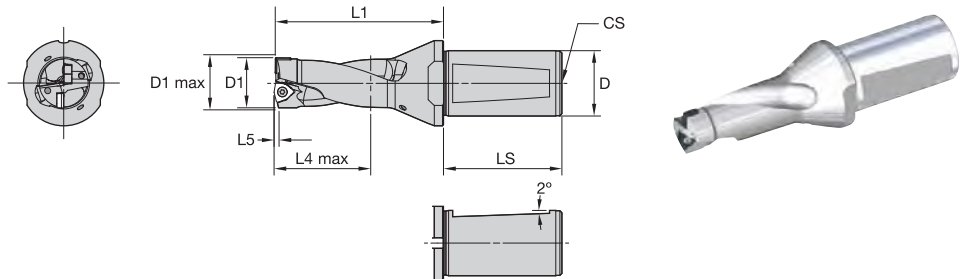
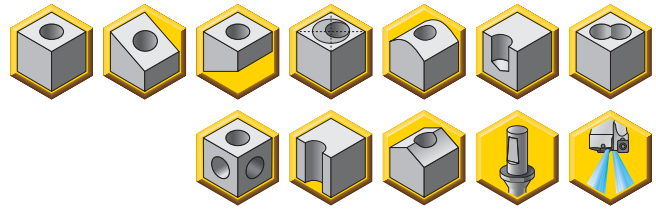
- Use DFSP cartridges to extend diameter range up to 85mm (3.35") in L/D ratios up to 5 x D.
- Intermediate diameters, multistep drills, and other non-standard shanks are available.
- Contact our engineered solutions team for recommendations.

Indexable Drills

Drill Fix™ DFSP™ Bodies



- DFSP combines the economical squared outboard insert with the superior centering capabilities of the trigon inboard insert.
- Drill shipped with insert screws and Torx wrench.
- Order inserts for DFSP separately. See pages J103–J104 for inserts.



Indexable Drills

■ WD Shank • 2 x D • Metric

	D			D1 diameter			L1	L4 max	L5	gage insert outside	gage insert inside	
	20	32	40	50	mm	in						D1 max
DFSP140R2WD20M	—	—	—	—	14,00	.550	15,00	50,0	28,0	0,3	SPGX0502..	DFTX202..
DFSP145R2WD20M *	—	—	—	—	14,50	.570	15,50	53,0	29,0	0,4	SPGX0502..	DFTX202..
DFSP150R2WD20M	—	—	—	—	15,00	.590	16,00	54,0	30,0	0,4	SPGX0502..	DFTX202..
DFSP155R2WD20M	—	—	—	—	15,50	.610	16,50	55,0	31,0	0,4	SPGX0502..	DFTX202..
DFSP160R2WD20M	—	—	—	—	16,00	.630	17,00	56,0	32,0	0,4	SPGX0502..	DFTX202..
—	DFSP165R2WD32M	—	—	—	16,50	.650	17,50	62,0	33,0	0,5	SPGX0502..	DFTX202..
—	DFSP170R2WD32M	—	—	—	17,00	.670	18,00	63,0	34,0	0,5	SPGX0502..	DFTX202..
—	DFSP175R2WD32M	—	—	—	17,50	.690	18,50	64,0	35,0	0,5	SPGX0603..	DFT0303..
—	DFSP180R2WD32M	—	—	—	18,00	.710	19,00	65,0	36,0	0,5	SPGX0603..	DFT0303..
—	DFSP185R2WD32M	—	—	—	18,50	.730	19,50	66,0	37,0	0,6	SPGX0603..	DFT0303..
—	DFSP190R2WD32M	—	—	—	19,00	.750	20,00	67,0	38,0	0,6	SPGX0603..	DFT0303..
—	DFSP195R2WD32M	—	—	—	19,50	.770	20,50	68,0	39,0	0,6	SPGX0603..	DFT0303..
—	DFSP200R2WD32M	—	—	—	20,00	.790	21,00	72,0	40,0	0,6	SPGX0603..	DFT0303..
—	DFSP210R2WD32M	—	—	—	21,00	.830	22,00	74,0	42,0	0,7	SPGX0603..	DFT0303..
—	DFSP220R2WD32M	—	—	—	22,00	.870	23,00	76,0	44,0	0,5	SPGX0703..	DFT05T3..
—	DFSP230R2WD32M	—	—	—	23,00	.910	24,00	78,0	46,0	0,6	SPGX0703..	DFT05T3..
—	DFSP240R2WD32M	—	—	—	24,00	.945	25,00	80,0	48,0	0,6	SPGX0703..	DFT05T3..
—	DFSP250R2WD32M	—	—	—	25,00	.984	26,00	83,0	50,0	0,7	SPGX0703..	DFT05T3..
—	DFSP260R2WD32M	—	—	—	26,00	1.024	27,00	86,0	52,0	0,7	SPPX09T3..	DFT05T3..
—	DFSP265R2WD32M	—	—	—	26,50	1.043	27,50	87,0	53,0	0,7	SPPX09T3..	DFT05T3..
—	DFSP270R2WD32M	—	—	—	27,00	1.063	28,00	89,0	54,0	0,8	SPPX09T3..	DFT05T3..
—	DFSP280R2WD32M	—	—	—	28,00	1.102	29,00	91,0	56,0	0,8	SPPX09T3..	DFT05T3..
—	DFSP290R2WD32M	—	—	—	29,00	1.142	30,00	94,0	58,0	0,9	SPPX09T3..	DFT05T3..
—	DFSP300R2WD32M	—	—	—	30,00	1.181	31,00	97,0	60,0	0,9	SPPX09T3..	DFT05T3..
—	DFSP310R2WD32M	—	—	—	31,00	1.221	32,00	100,0	62,0	0,9	SPPX09T3..	DFT05T3..
—	DFSP320R2WD32M	—	—	—	32,00	1.260	33,00	103,0	64,0	1,0	SPPX09T3..	DFT05T3..
—	DFSP330R2WD32M	—	—	—	33,00	1.299	34,00	105,0	66,0	0,9	SPPX1204..	DFT06T3..
—	DFSP340R2WD32M	—	—	—	34,00	1.339	35,00	108,0	68,0	0,9	SPPX1204..	DFT06T3..
—	DFSP350R2WD32M	—	—	—	35,00	1.378	36,00	111,0	70,0	1,0	SPPX1204..	DFT06T3..
—	DFSP360R2WD32M	—	—	—	36,00	1.417	37,00	114,0	72,0	1,0	SPPX1204..	DFT06T3..
—	DFSP370R2WD32M	—	—	—	37,00	1.457	38,00	117,0	74,0	1,1	SPPX1204..	DFT06T3..
—	DFSP375R2WD32M *	—	—	—	37,50	1.476	38,50	118,0	75,0	1,1	SPPX1204..	DFT06T3..
—	DFSP380R2WD32M	—	—	—	38,00	1.496	39,00	119,0	76,0	1,1	SPPX1204..	DFT06T3..
—	DFSP390R2WD32M	—	—	—	39,00	1.535	40,00	122,0	78,0	1,2	SPPX1204..	DFT06T3..
—	DFSP400R2WD32M	—	—	—	40,00	1.575	41,00	125,0	80,0	1,2	SPPX1204..	DFT06T3..
—	DFSP410R2WD32M	—	—	—	41,00	1.614	42,00	128,0	82,0	1,2	SPPX1204..	DFT0704..

(continued)

(WD Shank • 2 x D • Metric — continued)

20	D			D1 diameter			L1	L4 max	L5	gage insert outside	gage insert inside
	32	40	50	mm	in	D1 max					
—	DFSP420R2WD32M	—	—	42,00	1.654	43,00	131,0	84,0	1,3	SPPX1204..	DFT0704..
—	DFSP430R2WD32M	—	—	43,00	1.693	44,00	133,0	86,0	1,3	SPPX1204..	DFT0704..
—	DFSP440R2WD32M	—	—	44,00	1.732	45,00	135,0	88,0	1,4	SPPX15T5..	DFT0704..
—	—	DFSP450R2WD40M	—	45,00	1.772	46,00	137,0	90,0	1,4	SPPX15T5..	DFT0704..
—	—	DFSP460R2WD40M	—	46,00	1.811	47,00	140,0	92,0	1,5	SPPX15T5..	DFT0704..
—	—	DFSP470R2WD40M	—	47,00	1.850	48,00	142,0	94,0	1,5	SPPX15T5..	DFT0704..
—	—	DFSP480R2WD40M	—	48,00	1.890	49,00	144,0	96,0	1,5	SPPX15T5..	DFT0704..
—	—	DFSP490R2WD40M	—	49,00	1.929	50,00	146,0	98,0	1,4	SPPX15T5..	DFT0905..
—	—	DFSP500R2WD40M	—	50,00	1.969	51,00	148,0	100,0	1,5	SPPX15T5..	DFT0905..
—	—	DFSP505R2WD40M	—	50,50	1.988	51,50	148,0	100,0	1,5	SPPX15T5..	DFT0905..
—	—	DFSP510R2WD40M	—	51,00	2.008	52,00	150,0	102,0	1,6	SPPX15T5..	DFT0905..
—	—	DFSP520R2WD40M	—	52,00	2.047	53,00	152,0	104,0	1,6	SPPX15T5..	DFT0905..
—	—	DFSP530R2WD40M	—	53,00	2.087	54,00	154,0	106,0	1,7	SPPX15T5..	DFT0905..
—	—	DFSP540R2WD40M	—	54,00	2.126	55,00	156,0	108,0	1,7	SPPX15T5..	DFT0905..
—	—	—	DFSP550R2WD50M	55,00	2.165	56,00	158,0	110,0	1,8	SPPX15T5..	DFT0905..

NOTE for D1 max: Diameter can be adjusted. It is highly recommended to not adjust the diameter more than +.039" (+1mm).
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

■ Spare Parts



diameter range	gage insert inside	inboard insert screw	tightening torque Nm	tightening torque ft. lbs	gage insert outside	outboard insert screw	tightening torque Nm	tightening torque ft. lbs	Torx driver	Torx size
14.00–17.00	DFTX202..	193.281	0,6	.44	SPGX0502..	193.281	0,6	.44	170.370	T6
17.50–21.00	DFT0303..	MS1152	0,9	.66	SPGX0603..	MS1152	0,9	.66	170.023	T7
22.00–25.00	DFT05T3..	193.491	2,1	1.55	SPGX0703..	192.432	1,3	.96	170.028	T8
26.00–32.00	DFT05T3..	191.924	2,1	1.55	SPPX09T3..	191.924	2,1	1.55	170.024	T9
33.00–40.00	DFT06T3..	191.916	4	2.95	SPPX1204..	191.916	4	2.95	170.025	T15
41.00–43.00	DFT0704..	191.916	6	4.43	SPPX1204..	191.916	3	2.21	170.025	T15
44.00–48.00	DFT0704..	191.698	6	4.43	SPPX15T5..	192.433	3	2.21	170.025	T15
49.00–55.00	DFT0905..	192.433	6	4.43	SPPX15T5..	192.433	6	4.43	170.025	T15

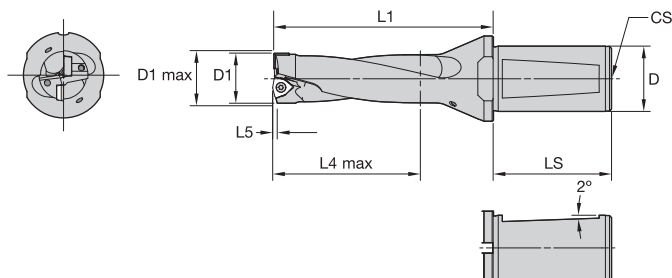
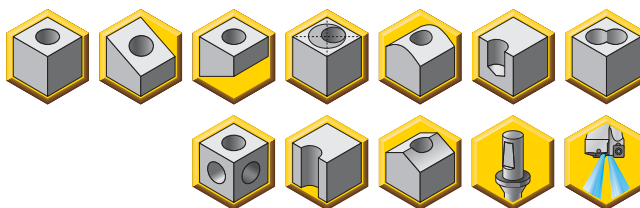
NOTE: To ensure proper clamping, two different screws for DFT™ inserts with different threads for diameter ranges .875–1.000" (22–25,5mm) and 1.750–1.875" (41–48mm) are necessary. Both screws have the same Torx size.

WARNING
During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.

D	LS	CS
20	45	—
32	58	R 1/4 BSP
40	68	R 1/4 BSP
50	68	R 1/4 BSP



- DFSP combines the economical squared outboard insert with the superior centering capabilities of the trigon inboard insert.
- Drill shipped with insert screws and Torx wrench.
- Order inserts for DFSP separately.
See pages J103–J104 for inserts.



Indexable Drills

■ WD Shank • 3 x D • Metric

	D			D1 diameter			L1	L4 max	L5	gage insert outside	gage insert inside	
	20	32	40	50	mm	in						D1 max
DFSP140R3WD20M	—	—	—	—	14,00	.550	15,00	64,0	42,0	0,3	SPGX0502..	DFTX202..
DFSP145R3WD20M	—	—	—	—	14,50	.570	15,50	67,5	43,5	0,4	SPGX0502..	DFTX202..
DFSP150R3WD20M	—	—	—	—	15,00	.590	16,00	69,0	45,0	0,4	SPGX0502..	DFTX202..
DFSP155R3WD20M	—	—	—	—	15,50	.610	16,50	70,5	46,5	0,4	SPGX0502..	DFTX202..
DFSP160R3WD20M	—	—	—	—	16,00	.630	17,00	72,0	48,0	0,4	SPGX0502..	DFTX202..
—	DFSP165R3WD32M	—	—	—	16,50	.650	17,50	78,5	49,5	0,5	SPGX0502..	DFTX202..
—	DFSP170R3WD32M	—	—	—	17,00	.670	18,00	80,0	51,0	0,5	SPGX0502..	DFTX202..
—	DFSP175R3WD32M	—	—	—	17,50	.690	18,50	81,5	52,5	0,5	SPGX0603..	DFT0303..
—	DFSP180R3WD32M	—	—	—	18,00	.710	19,00	83,0	54,0	0,5	SPGX0603..	DFT0303..
—	DFSP185R3WD32M	—	—	—	18,50	.730	19,50	84,5	55,5	0,6	SPGX0603..	DFT0303..
—	DFSP190R3WD32M	—	—	—	19,00	.750	20,00	86,0	57,0	0,6	SPGX0603..	DFT0303..
—	DFSP195R3WD32M	—	—	—	19,50	.770	20,50	87,5	58,5	0,6	SPGX0603..	DFT0303..
—	DFSP200R3WD32M	—	—	—	20,00	.790	21,00	92,0	60,0	0,6	SPGX0603..	DFT0303..
—	DFSP210R3WD32M	—	—	—	21,00	.830	22,00	95,0	63,0	0,7	SPGX0603..	DFT0303..
—	DFSP220R3WD32M	—	—	—	22,00	.870	23,00	98,0	66,0	0,5	SPGX0703..	DFT05T3..
—	DFSP230R3WD32M	—	—	—	23,00	.910	24,00	101,0	69,0	0,6	SPGX0703..	DFT05T3..
—	DFSP240R3WD32M	—	—	—	24,00	.945	25,00	104,0	72,0	0,6	SPGX0703..	DFT05T3..
—	DFSP250R3WD32M	—	—	—	25,00	.984	26,00	108,0	75,0	0,7	SPGX0703..	DFT05T3..
—	DFSP260R3WD32M	—	—	—	26,00	1.024	27,00	112,0	78,0	0,7	SPPX09T3..	DFT05T3..
—	DFSP265R3WD32M	—	—	—	26,50	1.043	27,50	113,5	79,5	0,7	SPPX09T3..	DFT05T3..
—	DFSP270R3WD32M	—	—	—	27,00	1.063	28,00	116,0	81,0	0,8	SPPX09T3..	DFT05T3..
—	DFSP280R3WD32M	—	—	—	28,00	1.102	29,00	119,0	84,0	0,8	SPPX09T3..	DFT05T3..
—	DFSP290R3WD32M	—	—	—	29,00	1.142	30,00	123,0	87,0	0,9	SPPX09T3..	DFT05T3..
—	DFSP300R3WD32M	—	—	—	30,00	1.181	31,00	127,0	90,0	0,9	SPPX09T3..	DFT05T3..
—	DFSP310R3WD32M	—	—	—	31,00	1.221	32,00	131,0	93,0	0,9	SPPX09T3..	DFT05T3..
—	DFSP320R3WD32M	—	—	—	32,00	1.260	33,00	135,0	96,0	1,0	SPPX09T3..	DFT05T3..
—	DFSP330R3WD32M	—	—	—	33,00	1.299	34,00	138,0	99,0	0,9	SPPX1204..	DFT06T3..
—	DFSP340R3WD32M	—	—	—	34,00	1.339	35,00	142,0	102,0	0,9	SPPX1204..	DFT06T3..
—	DFSP350R3WD32M	—	—	—	35,00	1.378	36,00	146,0	105,0	1,0	SPPX1204..	DFT06T3..
—	DFSP360R3WD32M	—	—	—	36,00	1.417	37,00	150,0	108,0	1,0	SPPX1204..	DFT06T3..
—	DFSP370R3WD32M	—	—	—	37,00	1.457	38,00	154,0	111,0	1,1	SPPX1204..	DFT06T3..
—	DFSP375R3WD32M	—	—	—	37,50	1.476	38,50	155,5	112,5	1,1	SPPX1204..	DFT06T3..
—	DFSP380R3WD32M	—	—	—	38,00	1.496	39,00	157,0	114,0	1,1	SPPX1204..	DFT06T3..
—	DFSP390R3WD32M	—	—	—	39,00	1.535	40,00	161,0	117,0	1,2	SPPX1204..	DFT06T3..
—	DFSP400R3WD32M	—	—	—	40,00	1.575	41,00	165,0	120,0	1,2	SPPX1204..	DFT06T3..
—	DFSP410R3WD32M	—	—	—	41,00	1.614	42,00	169,0	123,0	1,2	SPPX1204..	DFT0704..

(continued)

(WD Shank • 3 x D • Metric — continued)

20	D			D1 diameter			L1	L4 max	L5	gage insert outside	gage insert inside
	32	40	50	mm	in	D1 max					
—	DFSP420R3WD32M	—	—	42,00	1.654	43,00	173,0	126,0	1,3	SPPX1204..	DFT0704..
—	DFSP430R3WD32M	—	—	43,00	1.693	44,00	176,0	129,0	1,3	SPPX1204..	DFT0704..
—	DFSP440R3WD32M	—	—	44,00	1.732	45,00	179,0	132,0	1,4	SPPX15T5..	DFT0704..
—	—	DFSP450R3WD40M	—	45,00	1.772	46,00	182,0	135,0	1,4	SPPX15T5..	DFT0704..
—	—	DFSP460R3WD40M	—	46,00	1.811	47,00	186,0	138,0	1,5	SPPX15T5..	DFT0704..
—	—	DFSP470R3WD40M	—	47,00	1.850	48,00	189,0	141,0	1,5	SPPX15T5..	DFT0704..
—	—	DFSP480R3WD40M	—	48,00	1.890	49,00	192,0	144,0	1,5	SPPX15T5..	DFT0704..
—	—	DFSP490R3WD40M	—	49,00	1.929	50,00	195,0	147,0	1,4	SPPX15T5..	DFT0905..
—	—	DFSP500R3WD40M	—	50,00	1.969	51,00	198,0	150,0	1,5	SPPX15T5..	DFT0905..
—	—	DFSP505R3WD40M	—	50,50	1.988	51,50	199,5	151,5	1,5	SPPX15T5..	DFT0905..
—	—	DFSP510R3WD40M	—	51,00	2.008	52,00	201,0	153,0	1,6	SPPX15T5..	DFT0905..
—	—	DFSP520R3WD40M	—	52,00	2.047	53,00	204,0	156,0	1,6	SPPX15T5..	DFT0905..
—	—	DFSP530R3WD40M	—	53,00	2.087	54,00	207,0	159,0	1,7	SPPX15T5..	DFT0905..
—	—	DFSP540R3WD40M	—	54,00	2.126	55,00	210,0	162,0	1,7	SPPX15T5..	DFT0905..
—	—	—	DFSP550R3WD50M	55,00	2.165	56,00	213,0	165,0	1,8	SPPX15T5..	DFT0905..

NOTE for D1 max: Diameter can be adjusted. It is highly recommended to not adjust the diameter more than +.039" (+1mm).

■ Spare Parts



diameter range	gage insert inside	inboard insert screw	tightening torque Nm	tightening torque ft. lbs	gage insert outside	outboard insert screw	tightening torque Nm	tightening torque ft. lbs	Torx driver	Torx size
14.00–17.00	DFTX202..	193.281	0,6	.44	SPGX0502..	193.281	0,6	.44	170.370	T6
17.50–21.00	DFT0303..	MS1152	0,9	.66	SPGX0603..	MS1152	0,9	.66	170.023	T7
22.00–25.00	DFT05T3..	193.491	2,1	1.55	SPGX0703..	192.432	1,3	.96	170.028	T8
26.00–32.00	DFT05T3..	191.924	2,1	1.55	SPPX09T3..	191.924	2,1	1.55	170.024	T9
33.00–40.00	DFT06T3..	191.916	4	2.95	SPPX1204..	191.916	4	2.95	170.025	T15
41.00–43.00	DFT0704..	191.916	6	4.43	SPPX1204..	191.916	3	2.21	170.025	T15
44.00–48.00	DFT0704..	191.698	6	4.43	SPPX15T5..	192.433	3	2.21	170.025	T15
49.00–55.00	DFT0905..	192.433	6	4.43	SPPX15T5..	192.433	6	4.43	170.025	T15

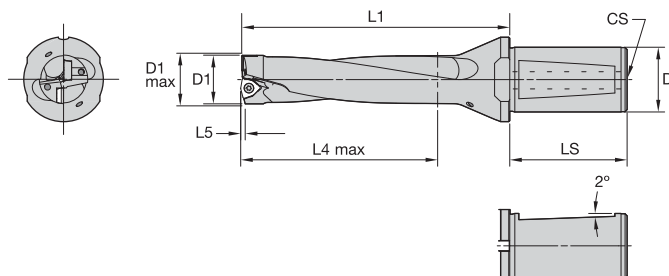
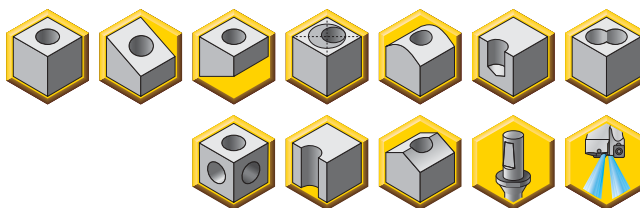
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During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.

D	LS	CS
20	45	—
32	58	R 1/4 BSP
40	68	R 1/4 BSP
50	68	R 1/4 BSP

- DFSP combines the economical squared outboard insert with the superior centering capabilities of the trigon inboard insert.
- Drill shipped with insert screws and Torx wrench.
- Order inserts for DFSP separately.
See pages J103–J104 for inserts.



■ WD Shank • 4 x D • Metric

	D				D1 diameter			L1	L4 max	L5	gage insert outside	gage insert inside
	20	32	40	50	mm	in	D1 max					
DFSP140R4WD20M	—	—	—	—	14,00	.551	15,00	78,0	56,0	0,3	SPGX0502..	DFTX202..
DFSP145R4WD20M	—	—	—	—	14,50	.571	15,50	82,0	58,0	0,4	SPGX0502..	DFTX202..
DFSP150R4WD20M	—	—	—	—	15,00	.591	16,00	84,0	60,0	0,4	SPGX0502..	DFTX202..
DFSP155R4WD20M *	—	—	—	—	15,50	.610	16,50	86,0	62,0	0,4	SPGX0502..	DFTX202..
DFSP160R4WD20M	—	—	—	—	16,00	.630	17,00	88,0	64,0	0,4	SPGX0502..	DFTX202..
DFSP165R4WD20M *	—	—	—	—	16,50	.650	17,50	95,0	66,0	0,5	SPGX0502..	DFTX202..
DFSP170R4WD20M	—	—	—	—	17,00	.669	18,00	97,0	68,0	0,5	SPGX0502..	DFTX202..
—	DFSP175R4WD32M	—	—	—	17,50	.690	18,50	99,0	70,0	0,5	SPGX0603..	DFT0303..
—	DFSP180R4WD32M	—	—	—	18,00	.710	19,00	101,0	72,0	0,5	SPGX0603..	DFT0303..
—	DFSP185R4WD32M	—	—	—	18,50	.730	19,50	103,0	74,0	0,6	SPGX0603..	DFT0303..
—	DFSP190R4WD32M	—	—	—	19,00	.750	20,00	105,0	76,0	0,6	SPGX0603..	DFT0303..
—	DFSP195R4WD32M	—	—	—	19,50	.770	20,50	107,0	78,0	0,6	SPGX0603..	DFT0303..
—	DFSP200R4WD32M	—	—	—	20,00	.790	21,00	112,0	80,0	0,6	SPGX0603..	DFT0303..
—	DFSP210R4WD32M	—	—	—	21,00	.830	22,00	96,0	64,0	0,7	SPGX0603..	DFT0303..
—	DFSP220R4WD32M	—	—	—	22,00	.870	23,00	120,0	88,0	0,5	SPGX0703..	DFT05T3..
—	DFSP230R4WD32M	—	—	—	23,00	.910	24,00	124,0	92,0	0,6	SPGX0703..	DFT05T3..
—	DFSP240R4WD32M	—	—	—	24,00	.945	25,00	128,0	96,0	0,6	SPGX0703..	DFT05T3..
—	DFSP250R4WD32M	—	—	—	25,00	.984	26,00	133,0	100,0	0,7	SPGX0703..	DFT05T3..
—	DFSP260R4WD32M	—	—	—	26,00	1.024	27,00	138,0	104,0	0,7	SPPX09T3..	DFT05T3..
—	DFSP265R4WD32M	—	—	—	26,50	1.043	27,50	140,0	106,0	0,7	SPPX09T3..	DFT05T3..
—	DFSP270R4WD32M	—	—	—	27,00	1.063	28,00	143,0	108,0	0,8	SPPX09T3..	DFT05T3..
—	DFSP280R4WD32M	—	—	—	28,00	1.102	29,00	147,0	112,0	0,8	SPPX09T3..	DFT05T3..
—	DFSP290R4WD32M	—	—	—	29,00	1.142	30,00	152,0	116,0	0,9	SPPX09T3..	DFT05T3..
—	DFSP300R4WD32M	—	—	—	30,00	1.181	31,00	157,0	120,0	0,9	SPPX09T3..	DFT05T3..
—	DFSP310R4WD32M	—	—	—	31,00	1.221	32,00	162,0	124,0	0,9	SPPX09T3..	DFT05T3..
—	DFSP320R4WD32M	—	—	—	32,00	1.260	33,00	167,0	128,0	1,0	SPPX09T3..	DFT05T3..
—	DFSP330R4WD32M	—	—	—	33,00	1.299	34,00	171,0	132,0	0,9	SPPX1204..	DFT06T3..
—	DFSP340R4WD32M	—	—	—	34,00	1.339	35,00	176,0	136,0	0,9	SPPX1204..	DFT06T3..
—	DFSP350R4WD32M	—	—	—	35,00	1.378	36,00	181,0	140,0	1,0	SPPX1204..	DFT06T3..
—	DFSP360R4WD32M	—	—	—	36,00	1.417	37,00	186,0	144,0	1,0	SPPX1204..	DFT06T3..
—	DFSP370R4WD32M	—	—	—	37,00	1.457	38,00	191,0	148,0	1,1	SPPX1204..	DFT06T3..
—	DFSP375R4WD32M	—	—	—	37,50	1.476	38,50	193,0	150,0	1,1	SPPX1204..	DFT06T3..
—	DFSP380R4WD32M	—	—	—	38,00	1.496	39,00	195,0	152,0	1,1	SPPX1204..	DFT06T3..
—	DFSP390R4WD32M	—	—	—	39,00	1.535	40,00	200,0	156,0	1,2	SPPX1204..	DFT06T3..
—	DFSP400R4WD32M	—	—	—	40,00	1.575	41,00	205,0	160,0	1,2	SPPX1204..	DFT06T3..
—	DFSP410R4WD32M	—	—	—	41,00	1.614	42,00	210,0	164,0	1,2	SPPX1204..	DFT0704..

(continued)

(WD Shank • 4 x D • Metric — continued)

20	D			D1 diameter					gage insert outside	gage insert inside	
	32	40	50	mm	in	D1 max	L1	L4 max			L5
—	DFSP420R4WD32M	—	—	42,00	1.654	43,00	215,0	168,0	1,3	SPPX1204..	DFT0704..
—	DFSP430R4WD32M	—	—	43,00	1.693	44,00	219,0	172,0	1,3	SPPX1204..	DFT0704..
—	DFSP440R4WD32M	—	—	44,00	1.732	45,00	223,0	176,0	1,4	SPPX15T5..	DFT0704..
—	—	DFSP450R4WD40M	—	45,00	1.772	46,00	227,0	180,0	1,4	SPPX15T5..	DFT0704..
—	—	DFSP460R4WD40M	—	46,00	1.811	47,00	232,0	184,0	1,5	SPPX15T5..	DFT0704..
—	—	DFSP470R4WD40M	—	47,00	1.850	48,00	236,0	188,0	1,5	SPPX15T5..	DFT0704..
—	—	DFSP480R4WD40M	—	48,00	1.890	49,00	240,0	192,0	1,5	SPPX15T5..	DFT0704..
—	—	DFSP490R4WD40M	—	49,00	1.929	50,00	244,0	196,0	1,4	SPPX15T5..	DFT0905..
—	—	DFSP500R4WD40M	—	50,00	1.969	51,00	248,0	200,0	1,5	SPPX15T5..	DFT0905..
—	—	DFSP510R4WD40M	—	51,00	2.008	52,00	252,0	204,0	1,6	SPPX15T5..	DFT0905..
—	—	DFSP520R4WD40M	—	52,00	2.047	53,00	256,0	208,0	1,6	SPPX15T5..	DFT0905..
—	—	DFSP530R4WD40M	—	53,00	2.087	54,00	260,0	212,0	1,7	SPPX15T5..	DFT0905..
—	—	DFSP540R4WD40M	—	54,00	2.126	55,00	264,0	216,0	1,7	SPPX15T5..	DFT0905..
—	—	—	DFSP550R4WD50M	55,00	2.165	56,00	268,0	220,0	1,8	SPPX15T5..	DFT0905..

NOTE for D1 max: Diameter can be adjusted. It is highly recommended to not adjust the diameter more than +.039" (+1mm).
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Spare Parts



diameter range	gage insert inside	inboard insert screw	tightening torque Nm	tightening torque ft. lbs	gage insert outside	outboard insert screw	tightening torque Nm	tightening torque ft. lbs	Torx driver	Torx size
—	DFTX202..	—	—	—	SPGX0502..	—	—	—	—	T6
17.50–21.00	DFT0303..	MS1152	0,9	.66	SPGX0603..	MS1152	0,9	.66	170.023	T7
22.00–25.00	DFT05T3..	193.491	2,1	1.55	SPGX0703..	192.432	1,3	.96	170.028	T8
26.00–32.00	DFT05T3..	191.924	2,1	1.55	SPPX09T3..	191.924	2,1	1.55	170.024	T9
33.00–40.00	DFT06T3..	191.916	4	2.95	SPPX1204..	191.916	4	2.95	170.025	T15
41.00–43.00	DFT0704..	192.433	6	4.43	SPPX1204..	191.698	3	2.21	170.025	T15
44.00–48.00	DFT0704..	191.698	6	4.43	SPPX15T5..	191.698	3	2.21	170.025	T15
49.00–55.00	DFT0905..	192.433	6	4.43	SPPX15T5..	192.433	6	4.43	170.025	T15

NOTE: To ensure proper clamping, two different screws for DFT™ inserts with different threads for diameter ranges .875–1.000" (22–25,5mm) and 1.750–1.875" (41–48mm) are necessary. Both screws have the same Torx size.

WARNING

During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.

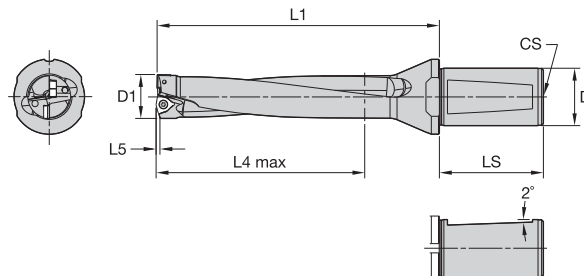
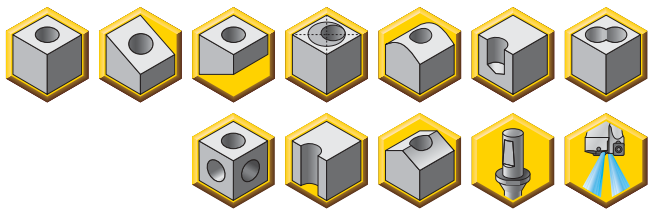
D	LS	CS
32	58	R 1/4 BSP
40	68	R 1/4 BSP
50	68	R 1/4 BSP

Indexable Drills

Drill Fix™ DFSP™ Bodies



- DFSP combines the economical squared outboard insert with the superior centering capabilities of the trigon inboard insert.
- Drill shipped with insert screws and Torx wrench.
- Order inserts for DFSP separately. See pages J103–J104 for inserts.



Indexable Drills

■ WD Shank • 5 x D • Metric

	D		D1			L1	L4 max	L5	gage insert outside	gage insert inside
	32	40	50	mm	in					
DFSP200R5WD32M	—	—	—	20,00	.787	—	132,0	100,0	0,6	SPGX0603.. DFT0303..
DFSP210R5WD32M	—	—	—	21,00	.827	—	137,0	105,0	0,7	SPGX0603.. DFT0303..
DFSP220R5WD32M	—	—	—	22,00	.866	—	142,0	110,0	0,5	SPGX0703.. DFT05T3..
DFSP230R5WD32M	—	—	—	23,00	.906	—	147,0	115,0	0,6	SPGX0703.. DFT05T3..
DFSP240R5WD32M	—	—	—	24,00	.945	—	152,0	120,0	0,6	SPGX0703.. DFT05T3..
DFSP250R5WD32M	—	—	—	25,00	.984	—	158,0	125,0	0,7	SPGX0703.. DFT05T3..
DFSP260R5WD32M	—	—	—	26,00	1.024	—	164,0	130,0	0,7	SPPX09T3.. DFT05T3..
DFSP265R5WD32M	—	—	—	26,50	1.043	—	166,5	132,5	0,7	SPPX09T3.. DFT05T3..
DFSP270R5WD32M	—	—	—	27,00	1.063	—	170,0	135,0	0,8	SPPX09T3.. DFT05T3..
DFSP280R5WD32M	—	—	—	28,00	1.102	—	175,0	140,0	0,8	SPPX09T3.. DFT05T3..
DFSP290R5WD32M	—	—	—	29,00	1.142	—	181,0	145,0	0,9	SPPX09T3.. DFT05T3..
DFSP300R5WD32M	—	—	—	30,00	1.181	—	187,0	150,0	0,9	SPPX09T3.. DFT05T3..
DFSP310R5WD32M	—	—	—	31,00	1.221	—	193,0	155,0	0,9	SPPX09T3.. DFT05T3..
DFSP320R5WD32M	—	—	—	32,00	1.260	—	199,0	160,0	1,0	SPPX09T3.. DFT05T3..
DFSP330R5WD32M	—	—	—	33,00	1.299	—	204,0	165,0	0,9	SPPX1204.. DFT06T3..
DFSP340R5WD32M	—	—	—	34,00	1.339	—	210,0	170,0	0,9	SPPX1204.. DFT06T3..
DFSP350R5WD32M	—	—	—	35,00	1.378	—	216,0	175,0	1,0	SPPX1204.. DFT06T3..
DFSP360R5WD32M	—	—	—	36,00	1.417	—	222,0	180,0	1,0	SPPX1204.. DFT06T3..
DFSP370R5WD32M	—	—	—	37,00	1.457	—	228,0	185,0	1,1	SPPX1204.. DFT06T3..
DFSP375R5WD32M	—	—	—	37,50	1.476	—	230,5	187,5	1,1	SPPX1204.. DFT06T3..
DFSP380R5WD32M	—	—	—	38,00	1.496	—	233,0	190,0	1,1	SPPX1204.. DFT06T3..
DFSP390R5WD32M	—	—	—	39,00	1.535	—	239,0	195,0	1,2	SPPX1204.. DFT06T3..
DFSP400R5WD32M	—	—	—	40,00	1.575	—	245,0	200,0	1,2	SPPX1204.. DFT06T3..
DFSP410R5WD32M	—	—	—	41,00	1.614	—	251,0	205,0	1,2	SPPX1204.. DFT0704..
DFSP420R5WD32M	—	—	—	42,00	1.654	—	257,0	210,0	1,3	SPPX1204.. DFT0704..
DFSP430R5WD32M	—	—	—	43,00	1.693	—	262,0	215,0	1,3	SPPX1204.. DFT0704..
DFSP440R5WD32M	—	—	—	44,00	1.732	—	267,0	220,0	1,4	SPPX15T5.. DFT0704..
—	DFSP450R5WD40M	—	—	45,00	1.772	—	272,0	225,0	1,4	SPPX15T5.. DFT0704..
—	DFSP460R5WD40M	—	—	46,00	1.811	—	278,0	230,0	1,5	SPPX15T5.. DFT0704..
—	DFSP470R5WD40M	—	—	47,00	1.850	—	283,0	235,0	1,5	SPPX15T5.. DFT0704..
—	DFSP480R5WD40M	—	—	48,00	1.890	—	288,0	240,0	1,5	SPPX15T5.. DFT0704..
—	DFSP490R5WD40M	—	—	49,00	1.929	—	293,0	245,0	1,4	SPPX15T5.. DFT0905..
—	DFSP500R5WD40M	—	—	50,00	1.969	—	298,0	250,0	1,5	SPPX15T5.. DFT0905..
—	DFSP510R5WD40M *	—	—	51,00	2.008	—	303,0	255,0	1,6	SPPX15T5.. DFT0905..
—	DFSP520R5WD40M	—	—	52,00	2.047	—	308,0	260,0	1,6	SPPX15T5.. DFT0905..
—	DFSP530R5WD40M	—	—	53,00	2.087	—	313,0	265,0	1,7	SPPX15T5.. DFT0905..
—	DFSP540R5WD40M	—	—	54,00	2.126	—	318,0	270,0	1,7	SPPX15T5.. DFT0905..
—	—	DFSP550R5WD50M	—	55,00	2.165	—	323,0	275,0	1,8	SPPX15T5.. DFT0905..

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

(continued)

(WD Shank • 5 x D • Metric — continued)

Spare Parts



diameter range	gage insert inside	inboard insert screw	tightening torque Nm	tightening torque ft. lbs	gage insert outside	outboard insert screw	tightening torque Nm	tightening torque ft. lbs	Torx driver	Torx size
17.50–21.00	DFT0303..	MS1152	0,9	.66	SPGX0603..	MS1152	0,9	.66	170.023	T7
22.00–25.00	DFT05T3..	193.491	2,1	1.55	SPGX0703..	192.432	1,3	.96	170.028	T8
26.00–32.00	DFT05T3..	191.924	2,1	1.55	SPPX09T3..	191.924	2,1	1.55	170.024	T9
33.00–40.00	DFT06T3..	191.916	4	2.95	SPPX1204..	191.916	4	2.95	170.025	T15
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49.00–55.00	DFT0905..	192.433	6	4.43	SPPX15T5..	192.433	6	4.43	170.025	T15

NOTE: To ensure proper clamping, two different screws for DFT™ inserts with different threads for diameter ranges .875–1.000" (22–25,5mm) and 1.750–1.875" (41–48mm) are necessary. Both screws have the same Torx size.

WARNING
During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.

D	LS	CS
32	58	R 1/4 BSP
40	68	R 1/4 BSP
50	68	R 1/4 BSP

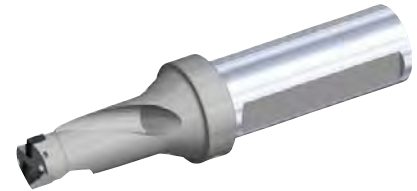
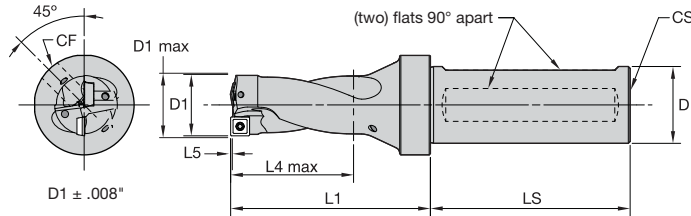
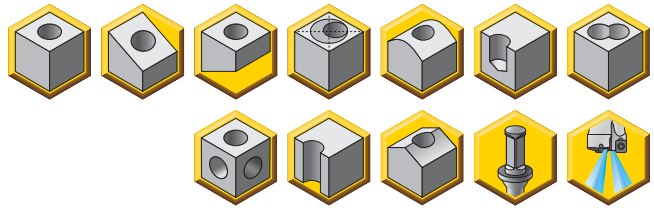


Indexable Drills

Drill Fix™ DFSP™ Bodies



- DFSP combines the economical squared outboard insert with the superior centering capabilities of the trigon inboard insert.
- Drill shipped with insert screws, side pipe plug, and Torx wrench.
- Order inserts for DFSP separately.
See pages J103–J104 for inserts.



■ Flange Shank • 2 x D • Inch

	D				D1 diameter			L1	L4 max	L5	gage insert outside	gage insert inside	
	0.750	1.000	1.250	1.500	2.000	mm	in						D1 max
DFSP0563R2SSF075	—	—	—	—	—	14,30	.563	.602	2.06	1.13	.01	SPGX0502..	DFTX202..
DFSP0594R2SSF075	—	—	—	—	—	15,09	.594	.633	2.13	1.19	.02	SPGX0502..	DFTX202..
DFSP0625R2SSF075	—	—	—	—	—	15,88	.625	.664	2.19	1.25	.02	SPGX0502..	DFTX202..
DFSP0656R2SSF075 *	—	—	—	—	—	16,66	.656	.695	2.25	1.31	.02	SPGX0502..	DFTX202..
DFSP0688R2SSF075	—	—	—	—	—	17,48	.688	.727	2.31	1.38	.02	SPGX0502..	DFTX202..
DFSP0703R2SSF075	—	—	—	—	—	17,86	.703	.742	2.34	1.41	.02	SPGX0603..	DFT0303..
DFSP0734R2SSF075	—	—	—	—	—	18,64	.734	.773	2.42	1.47	.02	SPGX0603..	DFT0303..
—	DFSP0750R2SSF100	—	—	—	—	19,05	.750	.789	2.46	1.50	.02	SPGX0603..	DFT0303..
—	DFSP0781R2SSF100	—	—	—	—	19,84	.781	.820	2.54	1.56	.02	SPGX0603..	DFT0303..
—	DFSP0813R2SSF100	—	—	—	—	20,65	.813	.852	2.62	1.63	.03	SPGX0603..	DFT0303..
—	DFSP0844R2SSF100 *	—	—	—	—	21,44	.844	.883	2.70	1.69	.03	SPGX0603..	DFT0303..
—	DFSP0875R2SSF100	—	—	—	—	22,23	.875	.914	2.77	1.75	.02	SPGX0703..	DFT05T3..
—	DFSP0906R2SSF100	—	—	—	—	23,01	.906	.945	2.84	1.81	.02	SPGX0703..	DFT05T3..
—	DFSP0938R2SSF100	—	—	—	—	23,83	.938	.977	2.93	1.88	.02	SPGX0703..	DFT05T3..
—	DFSP0969R2SSF100	—	—	—	—	24,61	.969	1.008	3.01	1.94	.03	SPGX0703..	DFT05T3..
—	DFSP0984R2SSF100	—	—	—	—	24,99	.984	1.023	3.04	1.97	.03	SPGX0703..	DFT05T3..
—	DFSP1000R2SSF100	DFSP1000R2SSF125	—	—	—	25,40	1.000	1.040	3.25	2.00	.03	SPGX0703..	DFT05T3..
—	—	—	DFSP1000R2SSF150 *	—	—	25,40	1.000	1.039	3.25	2.00	.03	SPGX0703..	DFT05T3..
—	—	DFSP1031R2SSF125	—	—	—	26,19	1.031	1.071	3.44	2.06	.03	SPPX09T3..	DFT05T3..
—	—	DFSP1063R2SSF125	—	—	—	27,00	1.063	1.103	3.50	2.13	.03	SPPX09T3..	DFT05T3..
—	—	DFSP1094R2SSF125	—	—	—	27,79	1.094	1.134	3.56	2.19	.03	SPPX09T3..	DFT05T3..
—	—	DFSP1125R2SSF125	—	—	—	28,58	1.125	1.165	3.75	2.25	.03	SPPX09T3..	DFT05T3..
—	—	DFSP1156R2SSF125	—	—	—	29,36	1.156	1.196	3.81	2.31	.03	SPPX09T3..	DFT05T3..
—	—	DFSP1188R2SSF125	—	—	—	30,18	1.188	1.228	3.88	2.38	.04	SPPX09T3..	DFT05T3..
—	—	DFSP1219R2SSF125	—	—	—	30,96	1.219	1.259	4.06	2.44	.04	SPPX09T3..	DFT05T3..
—	—	DFSP1250R2SSF125	—	—	—	31,75	1.250	1.290	4.12	2.50	.04	SPPX09T3..	DFT05T3..
—	—	DFSP1313R2SSF125	DFSP1313R2SSF150	—	—	33,35	1.313	1.353	4.25	2.63	.04	SPPX1204..	DFT06T3..
—	—	DFSP1375R2SSF125	DFSP1375R2SSF150	—	—	34,93	1.375	1.415	4.37	2.75	.04	SPPX1204..	DFT06T3..
—	—	DFSP1438R2SSF125	—	—	—	36,53	1.438	1.478	4.63	2.88	.04	SPPX1204..	DFT06T3..
—	—	DFSP1469R2SSF125	—	—	—	37,31	1.469	1.509	4.69	2.94	.04	SPPX1204..	DFT06T3..
—	—	DFSP1500R2SSF125	DFSP1500R2SSF150	—	—	38,10	1.500	1.540	4.75	3.00	.04	SPPX1204..	DFT06T3..
—	—	DFSP1563R2SSF125	DFSP1563R2SSF150	—	—	39,70	1.563	1.603	4.88	3.13	.05	SPPX1204..	DFT06T3..
—	—	DFSP1625R2SSF125	DFSP1625R2SSF150	—	—	41,28	1.625	1.665	5.00	3.25	.05	SPPX1204..	DFT0704..
—	—	—	DFSP1656R2SSF150	—	—	42,06	1.656	1.696	5.06	3.31	.05	SPPX1204..	DFT0704..
—	—	—	DFSP1688R2SSF150	—	—	42,88	1.688	1.728	5.13	3.38	.05	SPPX1204..	DFT0704..
—	—	—	DFSP1750R2SSF150	—	—	44,45	1.750	1.790	5.25	3.50	.05	SPPX15T5..	DFT0704..
—	—	—	DFSP1813R2SSF150	—	—	46,05	1.813	1.853	5.50	3.63	.06	SPPX15T5..	DFT0704..
—	—	—	DFSP1875R2SSF150	—	—	47,63	1.875	1.915	5.63	3.75	.06	SPPX15T5..	DFT0704..
—	—	—	DFSP1938R2SSF150	—	—	49,23	1.938	1.978	5.88	3.88	.06	SPPX15T5..	DFT0905..
—	—	—	DFSP2000R2SSF150	DFSP2000R2SSF200	—	50,80	2.000	2.040	6.00	4.00	.06	SPPX15T5..	DFT0905..
—	—	—	DFSP2125R2SSF150	DFSP2125R2SSF200	—	53,98	2.125	2.165	6.37	4.25	.07	SPPX15T5..	DFT0905..

NOTE for D1 max: Diameter can be adjusted. It is highly recommended to not adjust the diameter more than +.039" (+1mm).
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

(continued)

(Flange Shank • 2 x D • Inch — continued)

■ Spare Parts



diameter range	gage insert inside	inboard insert screw	tightening torque Nm	tightening torque ft. lbs	gage insert outside	outboard insert screw	tightening torque Nm	tightening torque ft. lbs	Torx driver	Torx size
.563-.688	DFTX202..	193.281	0,6	.44	SPGX0502..	193.281	0,6	.44	170.370	T6
.703-.844	DFT0303..	MS1152	0,9	.66	SPGX0603..	MS1152	0,9	.66	170.023	T7
.875-1.000	DFT05T3..	193.491	2,1	1.55	SPGX0703..	192.432	1,3	.96	170.028	T8
1.031-1.281	DFT05T3..	191.924	2,1	1.55	SPPX09T3..	191.924	2,1	1.55	170.024	T9
1.313-1.563	DFT06T3..	191.916	4	2.95	SPPX1204..	191.916	4	2.95	170.025	T15
1.625-1.688	DFT0704..	191.916	4	2.95	SPPX1204..	191.916	4	2.95	170.025	T15
1.750-1.875	DFT0704..	191.698	6	4.43	SPPX15T5..	191.698	3	2.21	170.025	T15
1.938-2.125	DFT0905..	192.433	6	4.43	SPPX15T5..	192.433	6	4.43	170.025	T15

NOTE: To ensure proper clamping, two different screws for DFT™ inserts with different threads for diameter ranges .875-1.000" (22-25,5mm) and 1.750-1.875" (41-48mm) are necessary. Both screws have the same Torx size.

WARNING

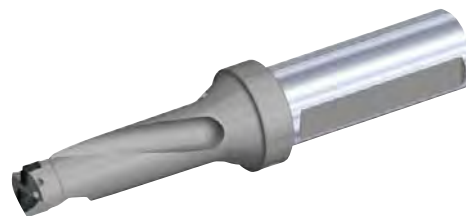
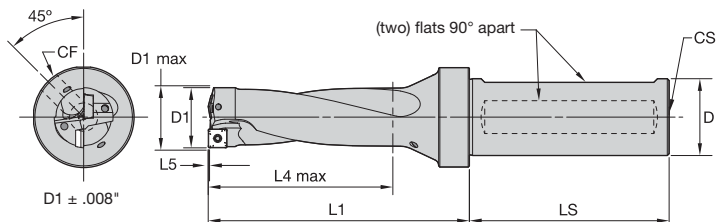
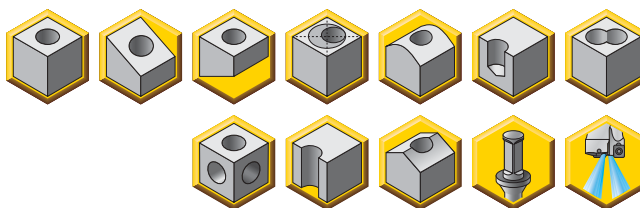
During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.



D	LS	CF	CS	pipe plug
0.750	2.00	1/8-27 NPT	R 1/8-27 NPT	1025612
1.000	3.00	1/8-27 NPT	R 1/4-18 NPT	1025612
1.250	3.25	1/8-27 NPT	R 1/4-18 NPT	1025612
1.500	3.75	1/8-27 NPT	R 1/4-18 NPT	1025612
2.000	4.00	1/8-27 NPT	R 1/4-18 NPT	1025612



- DFSP combines the economical squared outboard insert with the superior centering capabilities of the trigon inboard insert.
- Drill shipped with insert screws, side pipe plug, and Torx wrench.
- Order inserts for DFSP separately.
See pages J103–J104 for inserts.



■ Flange Shank • 3 x D • Inch

		D			D1 diameter			gage			gage	
		1.250	1.500	2.000	mm	in	D1 max	L1	L4 max	L5	insert outside	insert inside
0.750	1.000											
DFSP0563R3SSF075	—	—	—	—	14,30	.563	.602	2.62	1.69	.01	SPGX0502..	DFTX202..
DFSP0594R3SSF075	—	—	—	—	15,09	.594	.633	2.72	1.78	.02	SPGX0502..	DFTX202..
DFSP0625R3SSF075	—	—	—	—	15,88	.625	.664	2.81	1.88	.02	SPGX0502..	DFTX202..
DFSP0656R3SSF075	—	—	—	—	16,66	.656	.695	2.91	1.97	.02	SPGX0502..	DFTX202..
DFSP0688R3SSF075	—	—	—	—	17,48	.688	.727	3.00	2.06	.02	SPGX0502..	DFTX202..
DFSP0703R3SSF075	—	—	—	—	17,86	.703	.742	3.05	2.11	.02	SPGX0603..	DFT0303..
DFSP0734R3SSF075	—	—	—	—	18,64	.734	.773	3.18	2.20	.02	SPGX0603..	DFT0303..
—	DFSP0750R3SSF100	—	—	—	19,05	.750	.789	3.21	2.25	.02	SPGX0603..	DFT0303..
—	DFSP0781R3SSF100	—	—	—	19,84	.781	.820	3.32	2.34	.02	SPGX0603..	DFT0303..
—	DFSP0813R3SSF100	—	—	—	20,65	.813	.852	3.43	2.44	.03	SPGX0603..	DFT0303..
—	DFSP0844R3SSF100	—	—	—	21,44	.844	.883	3.53	2.53	.03	SPGX0603..	DFT0303..
—	DFSP0875R3SSF100	—	—	—	22,23	.875	.914	3.65	2.63	.02	SPGX0703..	DFT05T3..
—	DFSP0906R3SSF100 *	—	—	—	23,01	.906	.945	3.75	2.72	.02	SPGX0703..	DFT05T3..
—	DFSP0938R3SSF100	—	—	—	23,83	.938	.977	3.86	2.81	.02	SPGX0703..	DFT05T3..
—	DFSP0969R3SSF100	—	—	—	24,61	.969	1.008	3.98	2.91	.03	SPGX0703..	DFT05T3..
—	DFSP0984R3SSF100	—	—	—	24,99	.984	1.023	4.03	2.95	.03	SPGX0703..	DFT05T3..
—	DFSP1000R3SSF100	DFSP1000R3SSF125	DFSP1000R3SSF150	—	25,40	1.000	1.040	4.25	3.00	.03	SPGX0703..	DFT05T3..
—	—	DFSP1031R3SSF125	—	—	26,19	1.031	1.071	4.47	3.09	.03	SPPX09T3..	DFT05T3..
—	—	DFSP1063R3SSF125	—	—	27,00	1.063	1.103	4.56	3.19	.03	SPPX09T3..	DFT05T3..
—	—	DFSP1094R3SSF125	—	—	27,79	1.094	1.134	4.66	3.28	.03	SPPX09T3..	DFT05T3..
—	—	DFSP1125R3SSF125	—	—	28,58	1.125	1.165	4.87	3.38	.03	SPPX09T3..	DFT05T3..
—	—	DFSP1156R3SSF125	—	—	29,36	1.156	1.196	4.97	3.47	.03	SPPX09T3..	DFT05T3..
—	—	DFSP1188R3SSF125	—	—	30,18	1.188	1.228	5.06	3.56	.04	SPPX09T3..	DFT05T3..
—	—	DFSP1219R3SSF125	—	—	30,96	1.219	1.259	5.28	3.66	.04	SPPX09T3..	DFT05T3..
—	—	DFSP1250R3SSF125	—	—	31,75	1.250	1.290	5.37	3.75	.04	SPPX09T3..	DFT05T3..
—	—	DFSP1281R3SSF125	—	—	32,54	1.281	1.321	5.47	3.84	.04	SPPX09T3..	DFT05T3..
—	—	DFSP1313R3SSF125	DFSP1313R3SSF150	—	33,35	1.313	1.353	5.56	3.94	.04	SPPX1204..	DFT06T3..
—	—	DFSP1375R3SSF125	DFSP1375R3SSF150	—	34,93	1.375	1.415	5.75	4.13	.04	SPPX1204..	DFT06T3..
—	—	DFSP1438R3SSF125	—	—	36,53	1.438	1.478	6.06	4.31	.04	SPPX1204..	DFT06T3..
—	—	DFSP1469R3SSF125	—	—	37,31	1.509	1.509	6.16	4.41	.04	SPPX1204..	DFT06T3..
—	—	DFSP1500R3SSF125	DFSP1500R3SSF150	—	38,10	1.500	1.540	6.25	4.50	.04	SPPX1204..	DFT06T3..
—	—	—	DFSP1563R3SSF150	—	39,70	1.563	1.603	6.44	4.69	.05	SPPX1204..	DFT06T3..
—	—	DFSP1625R3SSF125	DFSP1625R3SSF150	—	41,28	1.625	1.664	6.62	4.88	.05	SPPX1204..	DFT0704..
—	—	—	DFSP1656R3SSF150 *	—	42,06	1.656	1.695	6.70	4.97	.05	SPPX1204..	DFT0704..
—	—	—	DFSP1688R3SSF150	—	42,88	1.688	1.727	6.81	5.06	.05	SPPX1204..	DFT0704..
—	—	—	DFSP1750R3SSF150	—	44,45	1.750	1.789	7.00	5.25	.05	SPPX15T5..	DFT0704..
—	—	—	DFSP1813R3SSF150	—	46,05	1.813	1.852	7.31	5.44	.06	SPPX15T5..	DFT0704..
—	—	—	DFSP1875R3SSF150	—	47,63	1.875	1.914	7.50	5.63	.06	SPPX15T5..	DFT0704..
—	—	—	DFSP1938R3SSF150	—	49,23	1.938	1.977	7.81	5.81	.06	SPPX15T5..	DFT0905..
—	—	—	DFSP2000R3SSF150	DFSP2000R3SSF200	50,80	2.000	2.039	8.00	6.00	.06	SPPX15T5..	DFT0905..
—	—	—	DFSP2125R3SSF150	DFSP2125R3SSF200	53,98	2.125	2.164	8.50	6.38	.07	SPPX15T5..	DFT0905..

NOTE for D1 max: Diameter can be adjusted. It is highly recommended to not adjust the diameter more than +.039" (+1mm).
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

(continued)

(Flange Shank • 3 x D • Inch — continued)

Spare Parts



diameter range	gage insert inside	inboard insert screw	tightening torque Nm	tightening torque ft. lbs	gage insert outside	outboard insert screw	tightening torque Nm	tightening torque ft. lbs	Torx driver	Torx size
.563–.688	DFTX202..	193.281	0,6	.44	SPGX0502..	193.281	0,6	.44	170.370	T6
.703–.844	DFT0303..	MS1152	0,9	.66	SPGX0603..	MS1152	0,9	.66	170.023	T7
.875–1.000	DFT05T3..	193.491	2,1	1.55	SPGX0703..	192.432	1,3	.96	170.028	T8
1.031–1.281	DFT05T3..	191.924	2,1	1.55	SPPX09T3..	191.924	2,1	1.55	170.024	T9
1.313–1.563	DFT06T3..	191.916	4	2.95	SPPX1204..	191.916	4	2.95	170.025	T15
1.625–1.688	DFT0704..	191.916	4	2.95	SPPX1204..	191.916	3	2.21	170.025	T15
1.750–1.875	DFT0704..	191.698	6	4.43	SPPX15T5..	191.698	3	2.21	170.025	T15
1.938–2.125	DFT0905..	192.433	6	4.43	SPPX15T5..	192.433	6	4.43	170.025	T15

NOTE: To ensure proper clamping, two different screws for DFT™ inserts with different threads for diameter ranges .875–1.000" (22–25,5mm) and 1.750–1.875" (41–48mm) are necessary. Both screws have the same Torx size.

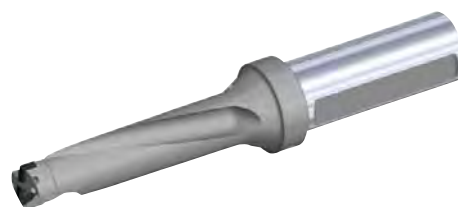
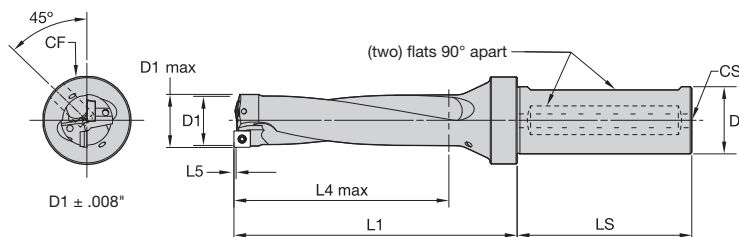
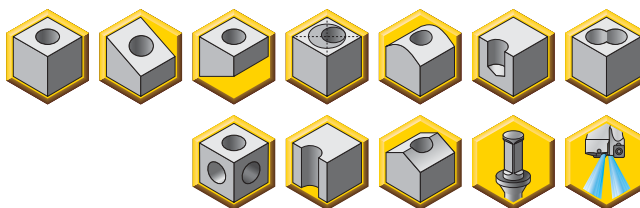
WARNING
During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.



D	LS	CF	CS	pipe plug
0.750	2.00	1/8-27 NPT	R 1/8-27 NPT	1025612
1.000	3.00	1/8-27 NPT	R 1/4-18 NPT	1025612
1.250	3.25	1/8-27 NPT	R 1/4-18 NPT	1025612
1.500	3.75	1/8-27 NPT	R 1/4-18 NPT	1025612
2.000	4.00	1/8-27 NPT	R 1/4-18 NPT	1025612

Indexable Drills

- DFSP combines the economical squared outboard insert with the superior centering capabilities of the trigon inboard insert.
- Drill shipped with insert screws, side pipe plug, and Torx wrench.
- Order inserts for DFSP separately.
See pages J103–J104 for inserts.



■ Flange Shank • 4 x D • Inch

	D			D1 diameter			L1	L4 max	L5	gage insert outside	gage insert inside	
	1.000	1.250	1.500	2.000	mm	in						D1 max
DFSP0750R4SSF100	—	—	—	—	19,05	.750	.789	3.96	3.00	.02	SPGX0603..	DFT0303..
DFSP0781R4SSF100	—	—	—	—	19,84	.781	.820	4.10	3.12	.02	SPGX0603..	DFT0303..
DFSP0813R4SSF100	—	—	—	—	20,65	.813	.852	4.24	3.25	.03	SPGX0603..	DFT0303..
DFSP0844R4SSF100	—	—	—	—	21,44	.844	.883	4.38	3.38	.03	SPGX0603..	DFT0303..
DFSP0875R4SSF100	—	—	—	—	22,23	.875	.914	4.52	3.50	.02	SPGX0703..	DFT05T3..
DFSP0906R4SSF100	—	—	—	—	23,01	.805	.945	4.66	3.62	.02	SPGX0703..	DFT05T3..
DFSP0938R4SSF100	—	—	—	—	23,83	.938	.977	4.80	3.75	.02	SPGX0703..	DFT05T3..
DFSP0969R4SSF100	—	—	—	—	24,61	.969	1.008	4.94	3.88	.03	SPGX0703..	DFT05T3..
DFSP0984R4SSF100	—	—	—	—	24,99	.984	1.023	5.01	3.94	.03	SPGX0703..	DFT05T3..
DFSP1000R4SSF100	DFSP1000R4SSF125	DFSP1000R4SSF150 *	—	—	25,40	1.000	1.040	5.25	4.00	.03	SPGX0703..	DFT05T3..
—	DFSP1031R4SSF125	—	—	—	26,19	1.031	1.071	5.50	4.12	.03	SPPX09T3..	DFT05T3..
—	DFSP1063R4SSF125	—	—	—	27,00	1.063	1.103	5.62	4.25	.03	SPPX09T3..	DFT05T3..
—	DFSP1094R4SSF125 *	—	—	—	27,79	1.094	1.134	5.75	4.38	.03	SPPX09T3..	DFT05T3..
—	DFSP1125R4SSF125	—	—	—	28,58	1.125	1.165	6.00	4.50	.03	SPPX09T3..	DFT05T3..
—	DFSP1156R4SSF125	—	—	—	29,36	1.156	1.196	6.12	4.62	.03	SPPX09T3..	DFT05T3..
—	DFSP1188R4SSF125	—	—	—	30,18	1.188	1.228	6.25	4.75	.04	SPPX09T3..	DFT05T3..
—	DFSP1219R4SSF125	—	—	—	30,96	1.219	1.259	6.50	4.88	.04	SPPX09T3..	DFT05T3..
—	DFSP1250R4SSF125	DFSP1250R4SSF150	—	—	31,75	1.250	1.290	6.62	5.00	.04	SPPX09T3..	DFT05T3..
—	DFSP1313R4SSF125	—	—	—	33,35	1.313	1.353	6.88	5.25	.04	SPPX1204..	DFT06T3..
—	DFSP1375R4SSF125	DFSP1375R4SSF150 *	—	—	34,93	1.375	1.415	7.12	5.50	.04	SPPX1204..	DFT06T3..
—	—	DFSP1406R4SSF150	—	—	35,71	1.406	1.446	7.25	5.62	.04	SPPX1204..	DFT06T3..
—	DFSP1438R4SSF125	—	—	—	36,53	1.438	1.478	7.50	5.75	.04	SPPX1204..	DFT06T3..
—	DFSP1500R4SSF125	DFSP1500R4SSF150	—	—	38,10	1.500	1.540	7.75	6.00	.04	SPPX1204..	DFT06T3..
—	—	DFSP1563R4SSF150	—	—	39,70	1.563	1.603	8.00	6.25	.05	SPPX1204..	DFT06T3..
—	—	DFSP1625R4SSF150	—	—	41,28	1.625	1.665	8.25	6.50	.05	SPPX1204..	DFT0704..
—	—	DFSP1656R4SSF150	—	—	42,06	1.656	1.696	8.36	6.62	.05	SPPX1204..	DFT0704..
—	—	DFSP1750R4SSF150	—	—	44,45	1.750	1.790	8.75	7.00	.05	SPPX15T5..	DFT0704..
—	—	DFSP1813R4SSF150	—	—	46,05	1.813	1.853	9.13	7.25	.04	SPPX15T5..	DFT0704..
—	—	DFSP1875R4SSF150	—	—	47,63	1.875	1.914	9.37	7.50	.06	SPPX15T5..	DFT0704..
—	—	DFSP1938R4SSF150	—	—	49,23	1.938	1.977	9.75	7.75	.06	SPPX15T5..	DFT0905..
—	—	DFSP2000R4SSF150	DFSP2000R4SSF200	—	50,80	2.000	2.039	10.00	8.00	.06	SPPX15T5..	DFT0905..
—	—	DFSP2125R4SSF150	DFSP2125R4SSF200	—	53,98	2.125	2.164	10.62	8.50	.07	SPPX15T5..	DFT0905..

NOTE for D1 max: Diameter can be adjusted. It is highly recommended to not adjust the diameter more than +.039" (+1mm).

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

(continued)

(Flange Shank • 4 x D • Inch — continued)

Spare Parts



diameter range	gage insert inside	inboard insert screw	tightening torque Nm	tightening torque ft. lbs	gage insert outside	outboard insert screw	tightening torque Nm	tightening torque ft. lbs	Torx driver	Torx size
.703-.844	DFT0303..	MS1152	0,9	.66	SPGX0603..	MS1152	0,9	.66	170.023	T7
.875-1.000	DFT05T3..	193.491	2,1	1.55	SPGX0703..	192.432	1,3	.96	170.028	T8
1.031-1.281	DFT05T3..	191.924	2,1	1.55	SPPX09T3..	191.924	2,1	1.55	170.024	T9
1.313-1.563	DFT06T3..	191.916	4	2.95	SPPX1204..	191.916	4	2.95	170.025	T15
1.625-1.688	DFT0704..	191.916	4	2.95	SPPX1204..	191.916	4	2.95	170.025	T15
1.750-1.875	DFT0704..	191.698	6	4.43	SPPX15T5..	191.698	3	2.21	170.025	T15
1.938-2.125	DFT0905..	192.433	6	4.43	SPPX15T5..	192.433	6	4.43	170.025	T15

NOTE: To ensure proper clamping, two different screws for DFT™ inserts with different threads for diameter ranges .875-1.000" (22-25,5mm) and 1.750-1.875" (41-48mm) are necessary. Both screws have the same Torx size.

WARNING

During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.

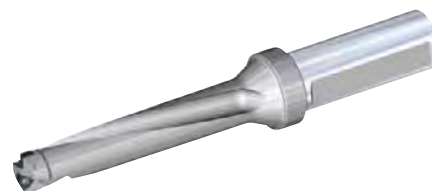
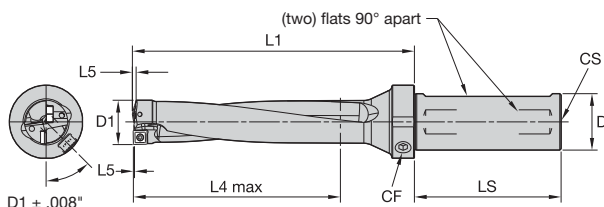
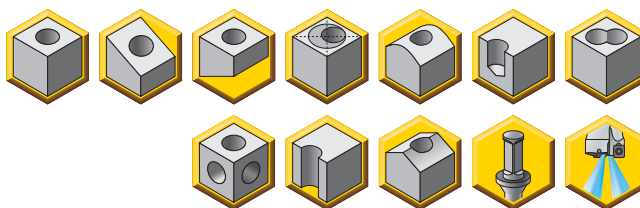


D	LS	CF	CS	pipe plug
1.000	3.00	1/8-27 NPT	R 1/4-18 NPT	1025612
1.250	3.25	1/8-27 NPT	R 1/4-18 NPT	1025612
1.500	3.75	1/8-27 NPT	R 1/4-18 NPT	1025612
2.000	4.00	1/8-27 NPT	R 1/4-18 NPT	1025612



Indexable Drills

- DFSP combines the economical squared outboard insert with the superior centering capabilities of the trigon inboard insert.
- Drill shipped with insert screws, side pipe plug, and Torx wrench.
- Order inserts for DFSP separately.
See pages J103–J104 for inserts.



■ Flange Shank • 5 x D • Inch

D				D1 diameter					gage insert outside	gage insert inside	
1.000	1.250	1.500	2.000	mm	in	D1 max	L1	L4 max			L5
DFSP0813R5SSF100	—	—	—	20,65	.813	.852	5.06	4.07	.03	SPGX0603..	DFT0303..
DFSP0844R5SSF100	—	—	—	21,44	.844	.883	5.22	4.22	.03	SPGX0603..	DFT0303..
DFSP0875R5SSF100	—	—	—	22,23	.875	.914	5.39	4.38	.02	SPGX0703..	DFT05T3..
DFSP0906R5SSF100 *	—	—	—	23,01	.906	.945	5.57	4.53	.02	SPGX0703..	DFT05T3..
DFSP0938R5SSF100	—	—	—	23,83	.938	.977	5.74	4.69	.02	SPGX0703..	DFT05T3..
DFSP0969R5SSF100 *	—	—	—	24,61	.969	1.008	5.91	4.85	.03	SPGX0703..	DFT05T3..
DFSP0984R5SSF100 *	—	—	—	24,99	.984	1.023	5.99	4.92	.03	SPGX0703..	DFT05T3..
DFSP1000R5SSF100	—	—	—	25,40	1.000	—	6.25	5.00	.02	SPGX0703..	DFT05T3..
—	DFSP1000R5SSF125	DFSP1000R5SSF150	—	25,40	1.000	—	6.25	5.00	.03	SPGX0703..	DFT05T3..
—	DFSP1031R5SSF125	—	—	26,19	1.031	—	6.53	5.16	.03	SPPX09T3..	DFT05T3..
—	DFSP1063R5SSF125	—	—	27,00	1.063	—	6.69	5.32	.03	SPPX09T3..	DFT05T3..
—	DFSP1094R5SSF125	—	—	27,79	1.094	—	6.84	5.47	.03	SPPX09T3..	DFT05T3..
—	DFSP1125R5SSF125	—	—	28,58	1.125	—	7.12	5.63	.03	SPPX09T3..	DFT05T3..
—	DFSP1156R5SSF125 *	—	—	29,36	1.156	—	7.28	5.78	.03	SPPX09T3..	DFT05T3..
—	DFSP1188R5SSF125	—	—	30,18	1.188	—	7.44	5.94	.04	SPPX09T3..	DFT05T3..
—	DFSP1219R5SSF125 *	—	—	30,96	1.219	—	7.55	5.92	.04	SPPX09T3..	DFT05T3..
—	DFSP1250R5SSF125	DFSP1250R5SSF150	—	31,75	1.250	—	7.87	6.25	.04	SPPX09T3..	DFT05T3..
—	DFSP1313R5SSF125	—	—	33,35	1.313	—	8.19	6.57	.04	SPPX1204..	DFT06T3..
—	DFSP1375R5SSF125	DFSP1375R5SSF150	—	34,93	1.375	—	8.50	6.88	.04	SPPX1204..	DFT06T3..
—	DFSP1438R5SSF125	—	—	36,53	1.438	—	8.94	7.19	.04	SPPX1204..	DFT06T3..
—	DFSP1500R5SSF125	DFSP1500R5SSF150	—	38,10	1.500	—	9.25	7.50	.04	SPPX1204..	DFT06T3..
—	—	DFSP1563R5SSF150	—	39,70	1.563	—	9.57	7.82	.05	SPPX1204..	DFT06T3..
—	—	DFSP1625R5SSF150	—	41,28	1.625	—	9.87	8.13	.05	SPPX1204..	DFT0704..
—	—	DFSP1656R5SSF150	—	42,06	1.656	—	10.03	8.28	.05	SPPX1204..	DFT0704..
—	—	DFSP1750R5SSF150	—	44,45	1.750	—	10.50	8.75	.05	SPPX15T5..	DFT0704..
—	—	DFSP1813R5SSF150 *	—	46,05	1.813	—	10.94	9.07	.06	SPPX15T5..	DFT0704..
—	—	DFSP1875R5SSF150	—	47,63	1.875	—	11.25	9.38	.06	SPPX15T5..	DFT0704..
—	—	DFSP1938R5SSF150 *	—	49,23	1.938	—	11.69	9.69	.06	SPPX15T5..	DFT0905..
—	—	DFSP2000R5SSF150	DFSP2000R5SSF200	50,80	2.000	—	12.00	10.00	.06	SPPX15T5..	DFT0905..
—	—	DFSP2125R5SSF150	DFSP2125R5SSF200	53,98	2.125	—	12.75	10.63	.07	SPPX15T5..	DFT0905..

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

(continued)

(Flange Shank • 5 x D • Inch — continued)

■ Spare Parts



diameter range	gage insert inside	inboard insert screw	tightening torque Nm	tightening torque ft. lbs	gage insert outside	outboard insert screw	tightening torque Nm	tightening torque ft. lbs	Torx driver	Torx size
.703–.844	DFT0303..	MS1152	0,9	.66	SPGX0603..	MS1152	0,9	.66	170.023	T7
.875–1.000	DFT05T3..	193.491	2,1	1.55	SPGX0703..	192.432	1,3	.96	170.028	T8
1.031–1.281	DFT05T3..	191.924	2,1	1.55	SPPX09T3..	191.924	2,1	1.55	170.024	T9
1.313–1.563	DFT06T3..	191.916	4	2.95	SPPX1204..	191.916	4	2.95	170.025	T15
1.625–1.688	DFT0704..	191.916	4	2.95	SPPX1204..	191.916	4	2.95	170.025	T15
1.750–1.875	DFT0704..	191.698	6	4.43	SPPX15T5..	191.698	3	2.21	170.025	T15
1.938–2.125	DFT0905..	192.433	6	4.43	SPPX15T5..	192.433	6	4.43	170.025	T15

NOTE: To ensure proper clamping, two different screws for DFT™ inserts with different threads for diameter ranges .875–1.000" (22–25,5mm) and 1.750–1.875" (41–48mm) are necessary. Both screws have the same Torx size.

WARNING

During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.



D	LS	CF	CS	pipe plug
1.000	3.00	1/8-27 NPT	R 1/4-18 NPT	1025612
1.250	3.25	1/8-27 NPT	R 1/4-18 NPT	1025612
1.500	3.75	1/8-27 NPT	R 1/4-18 NPT	1025612
2.000	4.00	1/8-27 NPT	R 1/4-18 NPT	1025612



Drill Fix™ DFSP™ • Metric



Material Group		Condition	Pocket Seat	Geometry	Grade	Metric									
						Cutting Speed – vc			Recommended Feed Rate (fz) by Diameter						
						Range – m/min			Ø	SPGX05 DFTX2 14,00–18,00mm	SPGX06 DFT03 18,00–21,99mm	SPGX07 DFT05 22,00–25,99mm	SPGX09 DFT05 26,00–32,99mm	SPGX12 DFT06/..07 33,00–43,99mm	SPGX15 DFT07/..09 44,00–55,00mm
						min	Starting Value	max							
P	0	S	O LP	KCU40	310	325	360	mm/r	0,06–0,10	0,06–0,11	0,08–0,14	0,12–0,21	0,14–0,26	0,16–0,26	
		I DS	KCU40												
		U	O LP	KCU40	200	215	230	mm/r	0,05–0,07	0,06–0,08	0,07–0,10	0,07–0,12	0,09–0,15	0,11–0,21	
	1	I HP	KCU40												
		S	O FP	KCPK10	310	325	360	mm/r	0,06–0,11	0,08–0,14	0,10–0,18	0,14–0,25	0,16–0,30	0,18–0,30	
		I HP	KC7140												
	2	U	O FP	KCU25	200	215	230	mm/r	0,04–0,06	0,05–0,08	0,06–0,10	0,09–0,15	0,11–0,18	0,13–0,25	
		I HP	KC7140												
		S	O FP	KCPK10	310	325	360	mm/r	0,06–0,11	0,08–0,14	0,10–0,18	0,14–0,25	0,16–0,30	0,18–0,30	
	3	I HP	KC7140												
		U	O HP	KCU40	200	215	230	mm/r	0,04–0,06	0,05–0,08	0,06–0,10	0,09–0,15	0,11–0,18	0,13–0,25	
		I HP	KC7140												
	4	S	O FP	KCPK10	260	285	320	mm/r	0,06–0,11	0,08–0,14	0,10–0,18	0,14–0,25	0,16–0,30	0,18–0,30	
		I HP	KC7140												
		U	O HP	KCU25	180	195	220	mm/r	0,04–0,06	0,05–0,08	0,06–0,10	0,09–0,15	0,11–0,18	0,13–0,25	
	5	I HP	KC7140												
		S	O FP	KCPK10	220	250	300	mm/r	0,06–0,11	0,08–0,14	0,10–0,18	0,14–0,25	0,16–0,30	0,18–0,30	
		I HP	KC7140												
	6	U	O HP	KCU40	150	180	220	mm/r	0,04–0,06	0,05–0,08	0,06–0,10	0,09–0,15	0,11–0,18	0,13–0,25	
		I HP	KC7140												
		S	O HP	KCU25	180	200	220	mm/r	0,06–0,11	0,08–0,14	0,10–0,18	0,14–0,25	0,16–0,30	0,18–0,30	
	7	I HP	KC7140												
		U	O HP	KCU40	120	135	150	mm/r	0,04–0,06	0,05–0,08	0,06–0,10	0,09–0,15	0,11–0,18	0,13–0,25	
		I HP	KC7140												
8	S	O HP	KCU25	180	200	220	mm/r	0,06–0,11	0,08–0,14	0,10–0,18	0,14–0,25	0,16–0,30	0,18–0,30		
	I HP	KC7140													
	U	O HP	KCU40	120	135	150	mm/r	0,04–0,06	0,05–0,08	0,06–0,10	0,09–0,15	0,11–0,18	0,13–0,25		
9	I HP	KC7140													
	S	O LP	KCU40	150	190	230	mm/r	0,05–0,08	0,06–0,10	0,07–0,12	0,10–0,16	0,12–0,21	0,14–0,24		
	I DS	KCU40													
10	U	O LP	KCU40	100	130	160	mm/r	0,05–0,07	0,06–0,08	0,07–0,10	0,05–0,10	0,06–0,13	0,08–0,16		
	I DS	KCU40													
	S	O MD	KC7140	60	80	100	mm/r	0,03–0,05	0,04–0,07	0,05–0,09	0,07–0,13	0,08–0,16	0,10–0,18		
11	I MD	KC7140													
	S	O LP	KCU40	150	180	210	mm/r	0,05–0,08	0,06–0,10	0,07–0,12	0,10–0,16	0,12–0,21	0,14–0,24		
	I DS	KCU40													
12	U	O MD	KCU40	100	130	160	mm/r	0,03–0,05	0,04–0,07	0,05–0,09	0,07–0,13	0,08–0,16	0,10–0,20		
	I MD	KC7140													
	S	O MD	KC7140	60	80	100	mm/r	0,03–0,05	0,04–0,07	0,05–0,09	0,07–0,13	0,08–0,16	0,10–0,18		
13	I MD	KC7140													
	S	O LP	KCU40	100	130	160	mm/r	0,05–0,07	0,06–0,08	0,07–0,10	0,05–0,10	0,06–0,13	0,08–0,16		
	I DS	KCU40													
14	U	O HP	KCU40	80	110	140	mm/r	0,03–0,05	0,04–0,07	0,05–0,09	0,07–0,13	0,08–0,16	0,10–0,20		
	I HP	KC7140													
	S	O MD	KC7140	50	70	90	mm/r	0,03–0,05	0,04–0,07	0,05–0,09	0,07–0,13	0,08–0,16	0,10–0,18		
15	I MD	KC7140													

NOTE: Applying Drill Fix™ DFSP 5 x D requires high stability. It is highly recommended to be conservative in regard to speeds and feeds, and start with minimum values indicated.

Condition: S = Stable cutting conditions;
 U = Unstable cutting conditions;
 I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
 O = Outboard insert

■ Drill Fix™ DFSP™ • Metric

Material Group		Condition	Pocket Seat	Geometry	Grade	Metric									
						Cutting Speed – vc			Recommended Feed Rate (fz) by Diameter						
						min	Starting Value	max	Ø	SPGX05 DFTX2 14,00–18,00mm	SPGX06 DFT03 18,00–21,99mm	SPGX07 DFT05 22,00–25,99mm	SPGX09 DFT05 26,00–32,99mm	SPGX12 DFT06/.07 33,00–43,99mm	SPGX15 DFT07/.09 44,00–55,00mm
K	1	S	O	FP	KCPK10	200	240	300	mm/r	0,07–0,12	0,10–0,16	0,12–0,20	0,16–0,28	0,18–0,32	0,20–0,34
			I	HP	KCU40										
		U	O	FP	KCU25	120	155	200	mm/r	0,05–0,09	0,06–0,12	0,08–0,15	0,12–0,20	0,14–0,25	0,16–0,28
	I		HP	KC7140											
	2	S	O	FP	KCPK10	180	220	260	mm/r	0,07–0,12	0,10–0,16	0,12–0,20	0,16–0,28	0,18–0,32	0,20–0,34
			I	HP	KCU40										
		U	O	HP	KCU25	110	140	170	mm/r	0,05–0,09	0,06–0,12	0,08–0,15	0,12–0,20	0,14–0,25	0,16–0,28
	I		HP	KC7140											
	3	S	O	HP	KCPK10	180	220	260	mm/r	0,07–0,12	0,10–0,16	0,12–0,20	0,16–0,28	0,18–0,32	0,20–0,34
			I	HP	KCU40										
		U	O	HP	KCU25	110	140	170	mm/r	0,05–0,09	0,06–0,12	0,08–0,15	0,12–0,20	0,14–0,25	0,16–0,28
	I		HP	KC7140											
N	1	S	O	HP	KCPK10	350	500	650	mm/r	0,07–0,12	0,10–0,16	0,12–0,20	0,16–0,28	0,18–0,32	0,20–0,34
			I	HP	KMF										
		U	O	HP	KCU40	300	400	500	mm/r	0,05–0,09	0,06–0,12	0,08–0,15	0,12–0,20	0,14–0,25	0,16–0,28
	I		HP	KMF											
	2	S	O	HP	KCPK10	300	400	500	mm/r	0,07–0,12	0,10–0,16	0,12–0,20	0,16–0,28	0,18–0,32	0,20–0,34
			I	HP	KMF										
		U	O	HP	KCU40	250	350	450	mm/r	0,05–0,09	0,06–0,12	0,08–0,15	0,12–0,20	0,14–0,25	0,16–0,28
	I		HP	KMF											
	3	S	O	HP	KCPK10	300	400	500	mm/r	0,07–0,12	0,10–0,16	0,12–0,20	0,16–0,28	0,18–0,32	0,20–0,34
			I	HP	KMF										
		U	O	HP	KCU40	250	350	450	mm/r	0,05–0,09	0,06–0,12	0,08–0,15	0,12–0,20	0,14–0,25	0,16–0,28
	I		HP	KMF											
	4	S	O	HP	KCU25	300	400	500	mm/r	0,07–0,12	0,10–0,16	0,12–0,20	0,16–0,28	0,18–0,32	0,20–0,34
			I	HP	KC7140										
		U	O	HP	KCU40	250	350	450	mm/r	0,05–0,09	0,06–0,12	0,08–0,15	0,12–0,20	0,14–0,25	0,16–0,28
	I		HP	KC7140											
	5	S	O	HP	KCU25	300	400	500	mm/r	0,07–0,12	0,10–0,16	0,12–0,20	0,16–0,28	0,18–0,32	0,20–0,34
			I	HP	KC7140										
		U	O	HP	KCU40	250	350	450	mm/r	0,05–0,09	0,06–0,12	0,08–0,15	0,12–0,20	0,14–0,25	0,16–0,28
	I		HP	KC7140											
	6	S	O	HP	KCU40	400	450	500	mm/r	0,07–0,12	0,10–0,16	0,12–0,20	0,16–0,28	0,18–0,32	0,20–0,34
			I	HP	KMF										
		U	O	HP	KCU40	250	350	450	mm/r	0,05–0,09	0,06–0,12	0,08–0,15	0,12–0,20	0,14–0,25	0,16–0,28
	I		HP	KMF											
7	S	O	HP	KCU40	200	300	400	mm/r	0,04–0,06	0,05–0,08	0,06–0,10	0,09–0,15	0,11–0,18	0,13–0,25	
		I	HP	KC7140											
	U	O	HP	KCU40	200	300	400	mm/r	0,04–0,06	0,05–0,08	0,06–0,10	0,09–0,15	0,11–0,18	0,13–0,25	
I		HP	KMF												

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Condition: S = Stable cutting conditions;
U = Unstable cutting conditions;
I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
O = Outboard insert



■ Drill Fix™ DFSP™ • Metric

Metric														
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (fz) by Diameter						
					Range – m/min			Ø	SPGX05 DFTX2 14,00–18,00mm	SPGX06 DFT03 18,00–21,99mm	SPGX07 DFT05 22,00–25,99mm	SPGX09 DFT05 26,00–32,99mm	SPGX12 DFT06/..07 33,00–43,99mm	SPGX15 DFT07/..09 44,00–55,00mm
					min	Starting Value	max							
S	1	S	O HP	KCU40	60	70	75	mm/r	0,03–0,06	0,04–0,08	0,05–0,10	0,08–0,12	0,10–0,15	0,12–0,18
			I MD	KC7140										
	U	O HP	KCU40	40	50	60	mm/r	0,02–0,03	0,02–0,04	0,03–0,05	0,04–0,06	0,05–0,08	0,06–0,10	
		I MD	KC7140											
	I	O HP	KCU40	25	30	40	mm/r	0,02–0,03	0,02–0,04	0,03–0,05	0,04–0,06	0,05–0,08	0,06–0,10	
		I MD	KC7140											
	2	S	O HP	KCU40	50	60	70	mm/r	0,03–0,06	0,04–0,08	0,05–0,10	0,08–0,12	0,10–0,15	0,12–0,18
			I MD	KC7140										
		U	O HP	KCU40	30	40	50	mm/r	0,02–0,03	0,02–0,04	0,03–0,05	0,04–0,06	0,05–0,08	0,06–0,10
			I MD	KC7140										
	I	O HP	KCU40	25	30	40	mm/r	0,02–0,03	0,02–0,04	0,03–0,05	0,04–0,06	0,05–0,08	0,06–0,10	
		I MD	KC7140											
	3	S	O LP	KCU40	70	80	90	mm/r	0,03–0,06	0,04–0,08	0,05–0,10	0,08–0,12	0,10–0,15	0,12–0,18
			I DS	KC7140										
		U	O LP	KCU40	50	60	70	mm/r	0,02–0,03	0,02–0,04	0,03–0,05	0,04–0,06	0,05–0,08	0,06–0,10
			I DS	KC7140										
I	O HP	KCU40	30	40	50	mm/r	0,02–0,03	0,02–0,04	0,03–0,05	0,04–0,06	0,05–0,08	0,06–0,10		
	I MD	KC7140												
4	S	O LP	KCU40	70	80	90	mm/r	0,03–0,06	0,04–0,08	0,05–0,10	0,08–0,12	0,10–0,15	0,12–0,18	
		I DS	KC7140											
	U	O LP	KCU40	50	60	70	mm/r	0,02–0,03	0,02–0,04	0,03–0,05	0,04–0,06	0,05–0,08	0,06–0,10	
		I DS	KC7140											
I	O HP	KCU40	30	40	50	mm/r	0,02–0,03	0,02–0,04	0,03–0,05	0,04–0,06	0,05–0,08	0,06–0,10		
	I MD	KC7140												

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Pocket seat: I = Inboard insert;
 O = Outboard insert



■ Drill Fix™ DFSP™ • Inch

		Inch												
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (fz) by Diameter						
					Range – SFM			Ø	SPGX05 DFTX2 .551–.708"	SPGX06 DFT03 .709–.865"	SPGX07 DFT05 .866–1.023"	SPGX09 DFT05 1.024–1.299"	SPGX12 DFT06/..07 1.300–1.732"	SPGX15 DFT07/..09 1.733–2.165"
					min	Starting Value	max							
P	0	S	O LP	KCU40	1017	1066	1181	SFM	0.0024–0.0039	0.0024–0.0043	0.0031–0.0055	0.0047–0.0083	0.0055–0.0102	0.0063–0.0102
			I DS	KCU40										
		U	O LP	KCU40	656	705	754	SFM	0.0020–0.00284	0.0024–0.0031	0.0028–0.0039	0.0028–0.0047	0.0035–0.0059	0.0043–0.0081
	I HP		KCU40											
	I HP		KCU40											
	1	S	O FP	KCPK10	1017	1066	1181	SFM	0.0024–0.0043	0.0031–0.0055	0.0039–0.0071	0.0055–0.0098	0.0063–0.0118	0.0071–0.0118
			I HP	KC7140										
		U	O FP	KCU25	656	705	754	SFM	0.0016–0.0024	0.0020–0.0031	0.0024–0.0039	0.0035–0.0059	0.0043–0.0071	0.0051–0.0098
	I HP		KC7140											
	I HP		KC7140											
	2	S	O FP	KCPK10	1017	1066	1181	SFM	0.0024–0.0043	0.0031–0.0055	0.0039–0.0071	0.0055–0.0098	0.0063–0.0118	0.0071–0.0118
			I HP	KC7140										
		U	O FP	KCU25	656	705	754	SFM	0.0016–0.0024	0.0020–0.0031	0.0024–0.0039	0.0035–0.0059	0.0043–0.0071	0.0051–0.0098
	I HP		KC7140											
	I HP		KC7140											
	3	S	O FP	KCPK10	853	935	1050	SFM	0.0024–0.0043	0.0031–0.0055	0.0039–0.0071	0.0055–0.0098	0.0063–0.0118	0.0071–0.0118
			I HP	KC7140										
		U	O HP	KCU25	590	640	722	SFM	0.0016–0.0024	0.0020–0.0031	0.0024–0.0039	0.0035–0.0059	0.0043–0.0071	0.0051–0.0098
	I HP		KC7140											
	I HP		KC7140											
	4	S	O FP	KCPK10	722	820	984	SFM	0.0024–0.0043	0.0031–0.0055	0.0039–0.0071	0.0055–0.0098	0.0063–0.0118	0.0071–0.0118
			I HP	KC7140										
		U	O HP	KCU25	492	590	722	SFM	0.0016–0.0024	0.0020–0.0031	0.0024–0.0039	0.0035–0.0059	0.0043–0.0071	0.0051–0.0098
	I HP		KC7140											
I HP	KC7140													
5	S	O HP	KCU25	590	656	722	SFM	0.0024–0.0043	0.0031–0.0055	0.0039–0.0071	0.0055–0.0098	0.0063–0.0118	0.0071–0.0118	
		I HP	KC7140											
	U	O HP	KCU40	394	443	492	SFM	0.0016–0.0024	0.0020–0.0031	0.0024–0.0039	0.0035–0.0059	0.0043–0.0071	0.0051–0.0098	
I HP		KC7140												
I HP		KC7140												
6	S	O HP	KCU25	590	656	722	SFM	0.0024–0.0043	0.0031–0.0055	0.0039–0.0071	0.0055–0.0098	0.0063–0.0118	0.0071–0.0118	
		I HP	KC7140											
	U	O HP	KCU40	394	443	492	SFM	0.0016–0.0024	0.0020–0.0031	0.0024–0.0039	0.0035–0.0059	0.0043–0.0071	0.0051–0.0098	
I HP		KC7140												
I HP		KC7140												
M	1	S	O LP	KCU40	492	623	754	SFM	0.0020–0.0031	0.0024–0.0039	0.0028–0.0047	0.0039–0.0063	0.0047–0.0083	0.0055–0.0094
			I DS	KCU40										
		U	O LP	KCU40	328	426	525	SFM	0.0020–0.0028	0.0024–0.0031	0.0028–0.0039	0.0020–0.0039	0.0024–0.0051	0.0031–0.0063
	I DS		KCU40											
	I MD		KC7140											
	2	S	O LP	KCU40	492	590	689	SFM	0.0020–0.0031	0.0024–0.0039	0.0028–0.0047	0.0039–0.0063	0.0047–0.0083	0.0055–0.0094
			I DS	KCU40										
		U	O MD	KCU40	328	426	525	SFM	0.0012–0.0020	0.0016–0.0028	0.0020–0.0035	0.0028–0.0051	0.0031–0.0063	0.0039–0.0079
	I MD		KC7140											
	I MD		KC7140											
	3	S	O LP	KCU40	328	426	525	SFM	0.0020–0.0028	0.0024–0.0031	0.0028–0.0039	0.0020–0.0039	0.0024–0.0051	0.0031–0.0063
			I DS	KCU40										
U		O HP	KCU40	262	361	459	SFM	0.0012–0.0020	0.0016–0.0028	0.0020–0.0035	0.0028–0.0051	0.0031–0.0063	0.0039–0.0079	
	I HP	KC7140												
	I MD	KC7140												

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U = Unstable cutting conditions;
I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
O = Outboard insert



Drill Fix™ DFSP™ • Inch

Indexable Drills

		Inch													
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (fz) by Diameter							
					Range – SFM			Ø	SPGX05 DFTX2 .551–.708"	SPGX06 DFT03 .709–.865"	SPGX07 DFT05 .866–1.023"	SPGX09 DFT05 1.024–1.299"	SPGX12 DFT06/..07 1.300–1.732"	SPGX15 DFT07/..09 1.733–2.165"	
					min	Starting Value	max								
K	1	S	O	FP	KCPK10	656	787	984	SFM	0.0028–0.0047	0.0039–0.0063	0.0047–0.0079	0.0063–0.0110	0.0071–0.0126	0.0079–0.0134
			I	HP	KCU40										
		U	O	FP	KCU25	394	508	656	SFM	0.0020–0.0035	0.0024–0.0047	0.0031–0.0059	0.0047–0.0079	0.0055–0.0098	0.0063–0.0110
	2	S	O	FP	KCPK10	590	722	853	SFM	0.0028–0.0047	0.0039–0.0063	0.0047–0.0079	0.0063–0.0110	0.0071–0.0126	0.0079–0.0134
			I	HP	KCU40										
		U	O	HP	KCU25	361	459	558	SFM	0.0020–0.0035	0.0024–0.0047	0.0031–0.0059	0.0047–0.0079	0.0055–0.0098	0.0063–0.0110
	3	S	O	HP	KCPK10	590	722	853	SFM	0.0028–0.0047	0.0039–0.0063	0.0047–0.0079	0.0063–0.0110	0.0071–0.0126	0.0079–0.0134
			I	HP	KCU40										
		U	O	HP	KCU25	361	459	558	SFM	0.0020–0.0035	0.0024–0.0047	0.0031–0.0059	0.0047–0.0079	0.0055–0.0098	0.0063–0.0110
N	1	S	O	HP	KCPK10	1148	1640	2132	SFM	0.0028–0.0047	0.0039–0.0063	0.0047–0.0079	0.0063–0.0110	0.0071–0.0126	0.0079–0.0134
			I	HP	KMF										
		U	O	HP	KCU40	984	1312	1640	SFM	0.0020–0.0035	0.0024–0.0047	0.0031–0.0059	0.0047–0.0079	0.0055–0.0098	0.0063–0.0110
	2	S	O	HP	KCPK10	984	1312	1640	SFM	0.0028–0.0047	0.0039–0.0063	0.0047–0.0079	0.0063–0.0110	0.0071–0.0126	0.0079–0.0134
			I	HP	KMF										
		U	O	HP	KCU40	820	1148	1476	SFM	0.0020–0.0035	0.0024–0.0047	0.0031–0.0059	0.0047–0.0079	0.0055–0.0098	0.0063–0.0110
	3	S	O	HP	KCPK10	984	1312	1640	SFM	0.0028–0.0047	0.0039–0.0063	0.0047–0.0079	0.0063–0.0110	0.0071–0.0126	0.0079–0.0134
			I	HP	KMF										
		U	O	HP	KCU40	820	1148	1476	SFM	0.0020–0.0035	0.0024–0.0047	0.0031–0.0059	0.0047–0.0079	0.0055–0.0098	0.0063–0.0110
4	S	O	HP	KCU25	984	1312	1640	SFM	0.0028–0.0047	0.0039–0.0063	0.0047–0.0079	0.0063–0.0110	0.0071–0.0126	0.0079–0.0134	
		I	HP	KCU40											
	U	O	HP	KCU40	820	1148	1476	SFM	0.0020–0.0035	0.0024–0.0047	0.0031–0.0059	0.0047–0.0079	0.0055–0.0098	0.0063–0.0110	
5	S	O	HP	KCU40	1312	1476	1640	SFM	0.0028–0.0047	0.0039–0.0063	0.0047–0.0079	0.0063–0.0110	0.0071–0.0126	0.0079–0.0134	
		I	HP	KMF											
	U	O	HP	KCU40	820	1148	1476	SFM	0.0020–0.0035	0.0024–0.0047	0.0031–0.0059	0.0047–0.0079	0.0055–0.0098	0.0063–0.0110	
6	S	O	HP	KCU40	1312	1476	1640	SFM	0.0028–0.0047	0.0039–0.0063	0.0047–0.0079	0.0063–0.0110	0.0071–0.0126	0.0079–0.0134	
		I	HP	KMF											
	U	O	HP	KCU40	820	1148	1476	SFM	0.0020–0.0035	0.0024–0.0047	0.0031–0.0059	0.0047–0.0079	0.0055–0.0098	0.0063–0.0110	

NOTE: Applying Drill Fix™ DFSP 5 x D requires high stability. It is highly recommended to be conservative in regard to speeds and feeds, and start with minimum values indicated.

Condition: S = Stable cutting conditions;
 U = Unstable cutting conditions;
 I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
 O = Outboard insert

■ Drill Fix™ DFSP™ • Inch

Inch														
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (fz) by Diameter						
					Range – SFM			Ø	SPGX05 DFTX2 .551–.708"	SPGX06 DFT03 .709–.865"	SPGX07 DFT05 .866–1.023"	SPGX09 DFT05 1.024–1.299"	SPGX12 DFT06/..07 1.300–1.732"	SPGX15 DFT07/..09 1.733–2.165"
					min	Starting Value	max							
S	1	S	O HP	KCU40	197	230	246	SFM	0.0012–0.0024	0.0016–0.0031	0.0020–0.0039	0.0031–0.0047	0.0039–0.0059	0.0047–0.0071
			I MD	KC7140										
		U	O HP	KCU40	131	164	197	SFM	0.0008–0.0012	0.0008–0.0016	0.0012–0.0020	0.0016–0.0024	0.0020–0.0031	0.0024–0.0039
	I MD	KC7140												
	2	S	O HP	KCU40	164	197	230	SFM	0.0012–0.0024	0.0016–0.0031	0.0020–0.0039	0.0031–0.0047	0.0039–0.0059	0.0047–0.0071
			I MD	KC7140										
		U	O HP	KCU40	98	131	164	SFM	0.0008–0.0012	0.0008–0.0016	0.0012–0.0020	0.0016–0.0024	0.0020–0.0031	0.0024–0.0039
	I MD	KC7140												
	3	S	O HP	KCU40	230	262	295	SFM	0.0012–0.0024	0.0016–0.0031	0.0020–0.0039	0.0031–0.0047	0.0039–0.0059	0.0047–0.0071
			I MD	KC7140										
		U	O HP	KCU40	164	197	230	SFM	0.0008–0.0012	0.0008–0.0016	0.0012–0.0020	0.0016–0.0024	0.0020–0.0031	0.0024–0.0039
	I MD	KC7140												
	4	S	O HP	KCU40	230	262	295	SFM	0.0012–0.0024	0.0016–0.0031	0.0020–0.0039	0.0031–0.0047	0.0039–0.0059	0.0047–0.0071
			I MD	KC7140										
		U	O HP	KCU40	164	197	230	SFM	0.0008–0.0012	0.0008–0.0016	0.0012–0.0020	0.0016–0.0024	0.0020–0.0031	0.0024–0.0039
	I MD	KC7140												

NOTE: Applying Drill Fix™ DFSP 5 x D requires high stability. It is highly recommended to be conservative in regard to speeds and feeds, and start with minimum values indicated.

Condition: S = Stable cutting conditions;
U = Unstable cutting conditions;
I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
O = Outboard insert



Indexable Drills

Drill Fix™ DFT™

Primary Application

The Drill Fix DFT system is available in diameter range 24–82mm (.625–3.250") as a versatile and reliable tool solution with a large portfolio of lengths, insert geometries, and grades.

Balanced cutting forces, improved chip flute, and coolant-channel design enable high metal removal rates and long tool body life. The trigon-shaped DFT inserts are used for both inboard and outboard inserts and offer the highest centering capabilities. Each insert has three cutting edges.

Features and Benefits

Productivity and Profitability

- Achieve high hole accuracy with trigon-shaped inboard inserts that offer the highest centering capabilities.
- Use X-offset on turning machines to adjust the drill diameter and eliminate the need for specials in many applications, and on machining centers to reach tolerance optimization.
- Same insert size is used in each pocket, reducing inventory costs.

Versatility

- Diameter range covering 24–82mm (.625–3.250").
- 2.5 x D and 4 x D L/D ratios are standard.
- Various shanks available as standard: WD and SSF.
- Trigon-shaped inserts feature three cutting edges.
- Large variety of DFT insert grades and geometries available.
- Use DFT drills in straight holes, inclined entries and exits, interrupted cuts, and rough or welded entry surfaces.
- Eccentric chuck available as standard.

Versatile and reliable tool solution with a large portfolio of lengths, insert geometries, and grades.



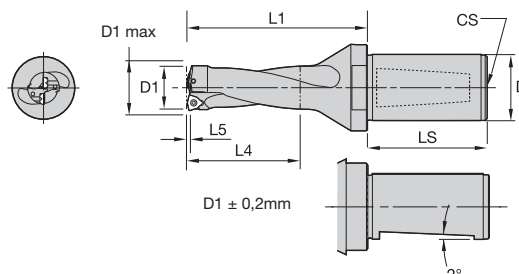
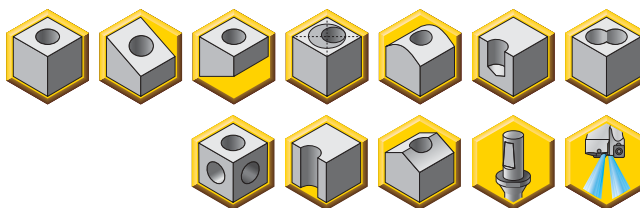
Reliability

- Highest centering capabilities due to trigon-shaped insert.
- Same insert can be used as inboard or outboard insert — no risk of mixing up inner and outer inserts.
- Improved chip flute and coolant-channel design result in long tool body life and excellent chip evacuation.

Customization

- Intermediate diameters available as semi-standards.
- Engineered solutions available.
- Multistep drills available upon request.
- Stacked material version.

- Drill shipped with insert screws and Torx wrench.
- See pages J98 and J101–J102 for inserts.



Indexable Drills

■ WN/WD Shank • 2,5 x D • Metric

D		D1 diameter							gage insert
32	40	50	mm	in	D1 max	L1	L4 max	L5	
DFT250R2WD32M	DFT250R2WD40M	—	25,00	.984	27,00	90,0	58,9	0,9	DFT05T3..
DFT260R2WD32M	DFT260R2WD40M	—	26,00	1.024	27,00	90,0	59,1	1,1	DFT05T3..
DFT270R2WD32M	DFT270R2WD40M	—	27,00	1.063	29,00	100,0	66,1	1,1	DFT05T3..
DFT280R2WD32M	DFT280R2WD40M	—	28,00	1.102	29,00	100,0	66,3	1,3	DFT05T3..
DFT290R2WD32M	DFT290R2WD40M	—	29,00	1.142	31,00	100,0	66,3	1,3	DFT05T3..
DFT300R2WD32M	DFT300R2WD40M	—	30,00	1.181	31,00	115,0	76,4	1,4	DFT05T3..
DFT310R2WD32M	DFT310R2WD40M	—	31,00	1.221	33,00	115,0	76,4	1,4	DFT05T3..
DFT320R2WD32M	DFT320R2WD40M	—	32,00	1.260	33,00	115,0	76,5	1,5	DFT05T3..
DFT330R2WD32M	DFT330R2WD40M	—	33,00	1.299	35,00	115,0	76,4	1,4	DFT06T3..
DFT340R2WD32M	DFT340R2WD40M	—	34,00	1.339	35,00	115,0	76,5	1,5	DFT06T3..
DFT350R2WD32M	DFT350R2WD40M	—	35,00	1.378	38,00	115,0	76,6	1,6	DFT06T3..
DFT360R2WD32M	DFT360R2WD40M	—	36,00	1.417	37,00	115,0	76,8	1,8	DFT06T3..
DFT370R2WD32M	DFT370R2WD40M	—	37,00	1.457	38,00	135,0	96,7	1,7	DFT06T3..
DFT380R2WD32M	DFT380R2WD40M	—	38,00	1.496	41,00	135,0	96,8	1,8	DFT06T3..
DFT390R2WD32M	DFT390R2WD40M	—	39,00	1.535	40,00	135,0	96,9	1,9	DFT06T3..
DFT400R2WD32M	DFT400R2WD40M	—	40,00	1.575	41,00	135,0	97,0	2,0	DFT06T3..
DFT410R2WD32M	DFT410R2WD40M	—	41,00	1.614	44,00	135,0	96,9	1,9	DFT0704..
DFT420R2WD32M	DFT420R2WD40M	—	42,00	1.654	43,00	135,0	96,9	2,0	DFT0704..
DFT430R2WD32M	DFT430R2WD40M	—	43,00	1.693	44,00	150,0	112,1	2,1	DFT0704..
DFT440R2WD32M	DFT440R2WD40M	—	44,00	1.732	47,00	150,0	112,1	2,1	DFT0704..
—	DFT450R2WD40M	DFT450R2WD50M	45,00	1.772	46,00	150,0	112,2	2,2	DFT0704..
—	DFT460R2WD40M	DFT460R2WD50M	46,00	1.811	47,00	150,0	112,0	2,3	DFT0704..
—	DFT470R2WD40M	DFT470R2WD50M *	47,00	1.850	50,00	150,0	111,5	2,4	DFT0704..
—	DFT480R2WD40M	DFT480R2WD50M	48,00	1.890	49,00	150,0	111,0	2,4	DFT0704..
—	DFT490R2WD40M	DFT490R2WD50M	49,00	1.929	50,00	165,0	117,2	2,2	DFT0905..
—	DFT500R2WD40M	DFT500R2WD50M	50,00	1.969	54,00	165,0	117,2	2,2	DFT0905..
—	DFT510R2WD40M	DFT510R2WD50M	51,00	2.008	52,00	165,0	117,4	2,5	DFT0905..
—	DFT520R2WD40M	DFT520R2WD50M	52,00	2.047	53,00	165,0	117,5	2,6	DFT0905..
—	DFT530R2WD40M	DFT530R2WD50M	53,00	2.087	54,00	165,0	117,6	2,6	DFT0905..
—	DFT540R2WD40M	DFT540R2WD50M	54,00	2.126	58,00	165,0	117,7	2,7	DFT0905..
—	—	DFT550R2WD50M	55,00	2.165	56,00	180,0	125,0	2,7	DFT0905..
—	—	DFT560R2WD50M	56,00	2.205	57,00	180,0	125,0	2,8	DFT0905..
—	—	DFT570R2WD50M	57,00	2.244	58,00	180,0	125,0	2,9	DFT0905..
—	—	DFT580R2WD50M	58,00	2.284	62,00	180,0	125,0	3,0	DFT0905..
—	—	DFT590R2WD50M	59,00	2.323	60,00	180,0	125,0	3,0	DFT0905..
—	—	DFT600R2WD50M	60,00	2.362	61,00	180,0	125,0	3,1	DFT0905..

(continued)

(WN/WD Shank • 2,5 x D • Metric — continued)

32	D	40	50	D1 diameter			L1	L4 max	L5	gage insert
				mm	in	D1 max				
—	—	—	DFT610R2WD50M	61,00	2.402	62,00	180,0	125,0	3,2	DFT0905..
—	—	—	DFT620R2WD50M	62,00	2.441	65,00	180,0	125,0	3,2	DFT0905..
—	—	—	DFT630R2WD50M	63,00	2.480	64,00	180,0	125,0	3,3	DFT0905..
—	—	—	DFT640R2WD50M	64,00	2.520	65,00	180,0	125,0	3,4	DFT0905..
—	—	—	DFT650R2WD50M	65,00	2.559	66,00	180,0	125,0	3,4	DFT0905..
—	—	—	DFT660R2WD50M	66,00	2.598	69,00	180,0	125,0	3,5	DFT0905..
—	—	—	DFT670R2WD50M	67,00	2.638	67,00	180,0	125,0	3,5	DFT0905..
—	—	—	DFT680R2WD50M	68,00	2.677	69,00	180,0	125,0	3,6	DFT0905..
—	—	—	DFT690R2WD50M	69,00	2.717	73,00	205,0	140,0	3,6	DFT1105..
—	—	—	DFT700R2WD50M	70,00	2.756	71,00	205,0	140,0	3,6	DFT1105..
—	—	—	DFT710R2WD50M	71,00	2.795	72,00	205,0	140,0	3,9	DFT1105..
—	—	—	DFT720R2WD50M	72,00	2.835	73,00	205,0	140,0	3,9	DFT1105..
—	—	—	DFT730R2WD50M	73,00	2.874	79,00	205,0	140,0	4,0	DFT1105..
—	—	—	DFT740R2WD50M	74,00	2.913	75,00	205,0	140,0	4,1	DFT1105..
—	—	—	DFT750R2WD50M	75,00	2.953	76,00	205,0	140,0	4,2	DFT1105..
—	—	—	DFT760R2WD50M	76,00	2.992	77,00	205,0	140,0	4,2	DFT1105..
—	—	—	DFT770R2WD50M	77,00	3.032	78,00	205,0	140,0	4,3	DFT1105..
—	—	—	DFT780R2WD50M	78,00	3.071	79,00	205,0	140,0	4,3	DFT1105..
—	—	—	DFT790R2WD50M	79,00	3.110	82,00	205,0	140,0	4,4	DFT1105..
—	—	—	DFT800R2WD50M	80,00	3.150	81,00	205,0	140,0	4,5	DFT1105..
—	—	—	DFT810R2WD50M *	81,00	3.189	82,00	205,0	140,0	4,5	DFT1105..
—	—	—	DFT820R2WD50M	82,00	3.228	83,00	205,0	140,0	4,5	DFT1105..

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.


WARNING

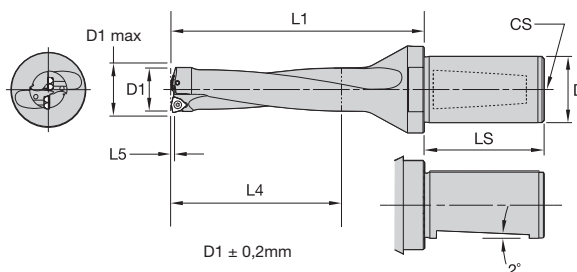
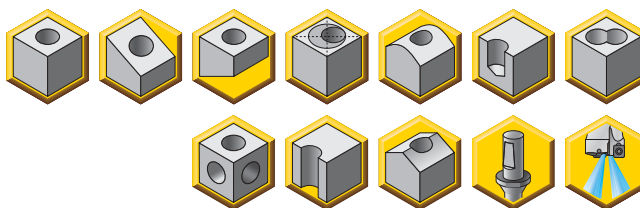
During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.



gage insert	insert screw	Torx wrench	Torx size
DFT05T3..	191.924	170.024	9
DFT06T3..	191.848	170.025	15
DFT0704..	191.698	170.025	15
DFT0905..	191.726	170.026	20
DFT1105..	191.375	170.026	20

D	LS	CS
32	58	R 1/4 BSP
40	68	R 1/4 BSP
50	68	R 1/4 BSP

- Drill shipped with insert screws and Torx wrench.
- See pages J98 and J101–J102 for inserts.



■ WN/WD Shank • 4 x D • Metric

32	40	D1 diameter		D1 max	L1	L4 max	L5	gage insert
		mm	in					
DFT250R4WD32M	DFT250R4WD40M	25,00	.984	27,00	135,0	100,0	0,8	DFT05T3..
DFT260R4WD32M	DFT260R4WD40M	26,00	1.024	27,00	139,0	104,0	0,9	DFT05T3..
DFT270R4WD32M	DFT270R4WD40M	27,00	1.063	29,00	143,0	108,0	1,0	DFT05T3..
DFT280R4WD32M	DFT280R4WD40M	28,00	1.102	29,00	156,0	112,0	1,1	DFT05T3..
DFT290R4WD32M	DFT290R4WD40M	29,00	1.142	31,00	151,0	116,0	1,1	DFT05T3..
DFT300R4WD32M	DFT300R4WD40M	30,00	1.181	31,00	160,0	120,0	1,2	DFT05T3..
DFT310R4WD32M	DFT310R4WD40M	31,00	1.221	33,00	164,0	124,0	1,3	DFT05T3..
DFT320R4WD32M	DFT320R4WD40M	32,00	1.260	33,00	168,0	128,0	1,3	DFT05T3..
—	DFT330R4WD40M	33,00	1.299	35,00	177,0	132,0	1,1	DFT06T3..
—	DFT340R4WD40M	34,00	1.339	35,00	181,0	136,0	1,3	DFT06T3..
—	DFT350R4WD40M	35,00	1.378	38,00	185,0	140,0	1,3	DFT06T3..
—	DFT360R4WD40M	36,00	1.417	37,00	189,0	144,0	1,4	DFT06T3..
—	DFT370R4WD40M	37,00	1.457	38,00	198,0	148,0	1,5	DFT06T3..
—	DFT380R4WD40M	38,00	1.496	41,00	202,0	152,0	1,5	DFT06T3..
—	DFT390R4WD40M	39,00	1.535	40,00	206,0	156,0	1,6	DFT06T3..
—	DFT400R4WD40M	40,00	1.575	41,00	210,0	160,0	1,7	DFT06T3..
—	DFT410R4WD40M	41,00	1.614	44,00	214,0	164,0	1,6	DFT0704..
—	DFT420R4WD40M	42,00	1.654	43,00	223,0	168,0	1,7	DFT0704..
—	DFT430R4WD40M	43,00	1.693	44,00	227,0	172,0	1,7	DFT0704..
—	DFT440R4WD40M	44,00	1.732	47,00	231,0	176,0	1,8	DFT0704..
—	DFT450R4WD40M	45,00	1.772	46,00	240,0	180,0	1,9	DFT0704..
—	DFT460R4WD40M	46,00	1.811	47,00	244,0	184,0	1,9	DFT0704..
—	DFT470R4WD40M	47,00	1.850	50,00	248,0	188,0	2,0	DFT0704..
—	DFT480R4WD40M	48,00	1.890	49,00	252,0	192,0	2,0	DFT0704..

WARNING

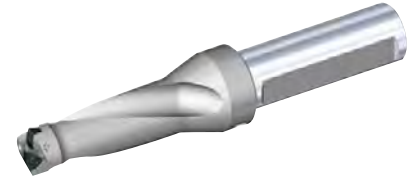
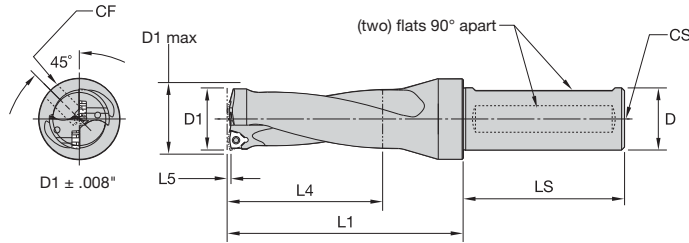
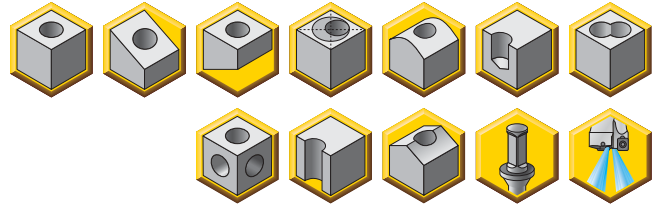
During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.



gage insert	insert screw	Torx wrench	Torx size
DFT05T3..	191.924	170.024	9
DFT06T3..	191.848	170.025	15
DFT0704..	191.698	170.025	15

D	LS	CS
32	58	R 1/4 BSP
40	68	R 1/4 BSP

- Drill shipped with insert screws, side pipe plug, and Torx wrench.
- See pages J98 and J101–J102 for inserts.



■ Flange Shank • 2.5 x D • Inch

	D			D1 diameter			L1	L4 max	L5	gage insert
	1.250	1.500	2.000	mm	in	D1 max				
DFT0875R2SSF125	—	—	—	22,23	.875	.950	3.63	2.19	.04	DFT0303..
DFT0906R2SSF125	—	—	—	23,01	.906	.981	3.63	2.27	.04	DFT0303..
DFT0938R2SSF125	—	—	—	23,81	.938	1.000	3.75	2.35	.04	DFT0303..
DFT0969R2SSF125	—	—	—	24,61	.969	1.019	3.75	2.40	.04	DFT0303..
DFT0984R2SSF125	—	—	—	25,00	.984	1.109	3.88	2.50	.04	DFT05T3..
DFT1000R2SSF125	DFT1000R2SSF150	—	—	25,40	1.000	1.125	4.00	2.50	.04	DFT05T3..
DFT1031R2SSF125	—	—	—	26,20	1.031	1.156	4.00	2.60	.04	DFT05T3..
DFT1063R2SSF125	—	—	—	26,99	1.063	1.188	4.13	2.65	.04	DFT05T3..
DFT1094R2SSF125	—	—	—	27,79	1.094	1.219	4.13	2.70	.05	DFT05T3..
DFT1125R2SSF125	—	—	—	28,58	1.125	1.250	4.38	2.85	.05	DFT05T3..
DFT1156R2SSF125	—	—	—	29,36	1.156	1.281	4.38	2.89	.05	DFT05T3..
DFT1188R2SSF125	—	—	—	30,16	1.188	1.288	4.50	3.00	.05	DFT05T3..
DFT1219R2SSF125	DFT1219R2SSF150	—	—	30,96	1.219	1.319	4.63	3.05	.06	DFT05T3..
DFT1250R2SSF125	DFT1250R2SSF150	—	—	31,75	1.250	1.325	4.75	3.13	.06	DFT05T3..
DFT1281R2SSF125	DFT1281R2SSF150 *	—	—	32,55	1.281	1.345	4.75	3.20	.06	DFT05T3..
DFT1313R2SSF125	DFT1313R2SSF150	—	—	33,34	1.313	1.438	4.88	3.30	.05	DFT06T3..
DFT1375R2SSF125	DFT1375R2SSF150	—	—	34,93	1.375	1.500	5.13	3.45	.06	DFT06T3..
DFT1406R2SSF125	DFT1406R2SSF150	—	—	35,71	1.406	1.531	5.13	3.50	.06	DFT06T3..
DFT1438R2SSF125	DFT1438R2SSF150	—	—	36,51	1.438	1.563	5.25	3.60	.07	DFT06T3..
DFT1469R2SSF125	DFT1469R2SSF150	—	—	37,31	1.469	1.594	5.38	3.70	.07	DFT06T3..
DFT1500R2SSF125	DFT1500R2SSF150	—	—	38,10	1.500	1.625	5.50	3.75	.07	DFT06T3..
DFT1531R2SSF125	DFT1531R2SSF150	—	—	38,89	1.531	1.656	5.50	3.85	.07	DFT06T3..
DFT1563R2SSF125	DFT1563R2SSF150	—	—	39,69	1.563	1.688	5.63	3.90	.07	DFT06T3..
DFT1625R2SSF125	DFT1625R2SSF150	—	—	41,28	1.625	1.750	5.88	4.10	.07	DFT0704..
DFT1688R2SSF125	DFT1688R2SSF150	—	—	42,86	1.688	1.813	6.00	4.25	.08	DFT0704..
—	DFT1750R2SSF150	—	—	44,45	1.750	1.875	6.25	4.38	.08	DFT0704..
—	DFT1813R2SSF150	—	—	46,04	1.813	1.938	6.38	4.55	.09	DFT0704..
—	DFT1875R2SSF150	—	—	47,63	1.875	2.000	6.63	4.70	.09	DFT0704..

(continued)

(Flange Shank • 2.5 x D • Inch — continued)



1.250	D		D1 diameter			L1	L4 max	L5	gage insert
	1.500	2.000	mm	in	D1 max				
—	DFT1938R2SSF150	—	49,21	1.938	2.188	6.75	4.85	.08	DFT0905..
—	DFT2000R2SSF150	DFT2000R2SSF200	50,80	2.000	2.250	7.00	5.00	.09	DFT0905..
—	DFT2125R2SSF150	DFT2125R2SSF200	53,98	2.125	2.375	7.38	5.35	.10	DFT0905..
—	—	DFT2250R2SSF200	57,15	2.250	2.500	7.75	5.63	.11	DFT0905..
—	—	DFT2375R2SSF200	60,33	2.375	2.590	8.13	5.95	.12	DFT0905..
—	—	DFT2500R2SSF200	63,50	2.500	2.650	8.50	6.25	.12	DFT0905..
—	—	DFT2750R2SSF200	69,85	2.750	3.050	9.13	6.88	.15	DFT1105..
—	—	DFT3000R2SSF200	76,20	3.000	3.150	10.00	7.50	.15	DFT1105..
—	—	DFT3250R2SSF200	82,55	3.250	3.260	10.26	8.13	.16	DFT1105..

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

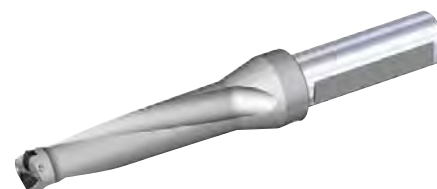
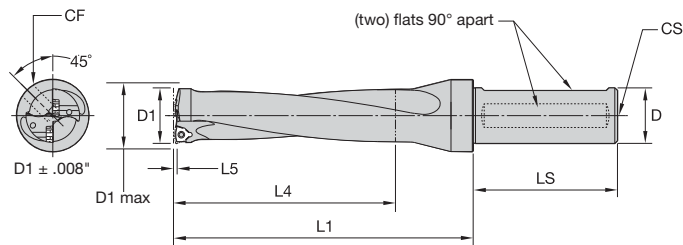
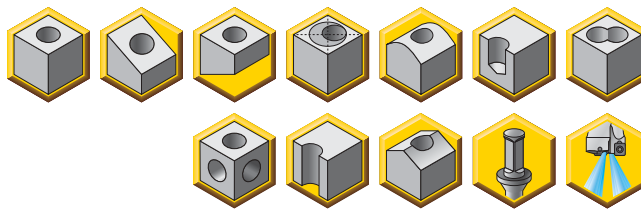
WARNING

During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.

Indexable Drills

gage insert								
	insert screw	Torx wrench	Torx size	D	LS	CF	CS	pipe plug
DFT05T3..	191.924	170.024	9	1.25	3.25	1/8-27 NPT	R 1/4-18 NPT	HSFS0125
DFT06T3..	191.848	170.025	15	1.50	3.75	1/8-27 NPT	R 1/4-18 NPT	HSFS0125
DFT0704..	191.698	170.025	15	2.00	4.00	1/8-27 NPT	R 1/4-18 NPT	HSFS0125
DFT0905..	191.726	170.026	20					
DFT1105..	191.375	170.026	20					

- Drill shipped with insert screws, side pipe plug, and Torx wrench.
- See pages J98 and J101–J102 for inserts.


■ Flange Shank • 4 x D • Inch

	D			D1 diameter			L1	L4 max	L5	gage insert	
	1.000	1.250	1.500	2.000	mm	in					D1 max
DFT0984R4SSF100	—	—	—	—	25,00	.984	1.109	5.50	3.94	.03	DFT05T3..
DFT1000R4SSF100	DFT1000R4SSF125	DFT1000R4SSF150	—	—	25,40	1.000	1.125	5.63	4.00	.03	DFT05T3..
—	DFT1031R4SSF125	—	—	—	26,20	1.031	1.156	5.75	4.13	.04	DFT05T3..
—	DFT1063R4SSF125	—	—	—	26,99	1.063	1.188	5.88	4.25	.04	DFT05T3..
—	DFT1094R4SSF125	—	—	—	27,78	1.094	1.219	5.88	4.38	.04	DFT05T3..
—	DFT1125R4SSF125	DFT1125R4SSF150	—	—	28,58	1.125	1.250	6.13	4.50	.04	DFT05T3..
—	DFT1156R4SSF125	—	—	—	29,37	1.156	1.281	6.13	4.63	.05	DFT05T3..
—	DFT1188R4SSF125	—	—	—	30,16	1.188	1.288	6.50	4.75	.05	DFT05T3..
—	DFT1219R4SSF125	—	—	—	30,96	1.219	1.319	6.63	4.88	.05	DFT05T3..
—	DFT1250R4SSF125	DFT1250R4SSF150	—	—	31,75	1.250	1.325	6.75	5.00	.05	DFT05T3..
—	DFT1281R4SSF125	—	—	—	32,55	1.281	1.345	6.88	5.13	.05	DFT05T3..
—	DFT1313R4SSF125	—	—	—	33,34	1.313	1.438	7.00	5.25	.05	DFT06T3..
—	DFT1375R4SSF125	DFT1375R4SSF150	—	—	34,93	1.375	1.500	7.25	5.50	.05	DFT06T3..
—	DFT1406R4SSF125 *	—	—	—	35,72	1.406	1.531	7.25	5.63	.05	DFT06T3..
—	DFT1438R4SSF125	DFT1438R4SSF150	—	—	36,51	1.438	1.563	7.63	5.75	.06	DFT06T3..
—	DFT1469R4SSF125	—	—	—	37,31	1.469	1.594	7.75	5.88	.06	DFT06T3..
—	DFT1500R4SSF125	DFT1500R4SSF150	—	—	38,10	1.500	1.625	7.88	6.00	.06	DFT06T3..
—	DFT1531R4SSF125	DFT1531R4SSF150 *	—	—	38,90	1.531	1.656	7.88	6.13	.06	DFT06T3..
—	DFT1563R4SSF125	DFT1563R4SSF150	—	—	39,69	1.563	1.688	8.13	6.25	.06	DFT06T3..
—	DFT1625R4SSF125	DFT1625R4SSF150	—	—	41,28	1.625	1.750	8.38	6.50	.06	DFT0704..
—	DFT1688R4SSF125	DFT1688R4SSF150	—	—	42,86	1.688	1.813	8.75	6.75	.07	DFT0704..
—	—	DFT1750R4SSF150	—	—	44,45	1.750	1.875	9.00	7.00	.07	DFT0704..
—	—	DFT1813R4SSF150	—	—	46,04	1.813	1.938	9.25	7.25	.08	DFT0704..
—	—	DFT1875R4SSF150	—	—	47,63	1.875	2.000	9.50	7.50	.08	DFT0704..
—	—	DFT1938R4SSF150	—	—	49,21	1.938	2.188	9.88	7.75	.07	DFT0905..
—	—	DFT2000R4SSF150	DFT2000R4SSF200	—	50,80	2.000	2.250	10.13	8.00	.07	DFT0905..
—	—	DFT2125R4SSF150	DFT2125R4SSF200	—	53,98	2.125	2.375	10.63	8.50	.09	DFT0905..

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

WARNING

During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.

gage insert	insert screw	Torx wrench	Torx size	D	LS	CF	CS	pipe plug
				1.00	3.00	1/8-27 NPT	R 1/4-18 NPT	
DFT05T3..	191.924	170.024	9	1.00	3.00	1/8-27 NPT	R 1/4-18 NPT	HSFS0125
DFT06T3..	191.848	170.025	15	1.25	3.25	1/8-27 NPT	R 1/4-18 NPT	HSFS0125
DFT0704..	191.698	170.025	15	1.50	3.75	1/8-27 NPT	R 1/4-18 NPT	HSFS0125
DFT0905..	191.726	170.026	20	2.00	4.00	1/8-27 NPT	R 1/4-18 NPT	HSFS0125

■ Drill Fix™ DFT™ • Metric

		Metric													
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (f) by Diameter							
					Range – m/min			Ø	DFT03 16–24mm	DFT05 25–32mm	DFT06 32–40mm	DFT07 41–48mm	DFT09... 49–68mm	DFT11 69–82mm	
					min	Starting Value	max								
P	0	S	O DS	KCU40	280	300	320	mm/r	0,05–0,08	0,07–0,12	0,09–0,15	0,13–0,21	0,17–0,27	0,17–0,27	
			I DS	KCU40											
		U	O DS	KCU40	200	215	230	mm/r	0,05–0,08	0,07–0,12	0,09–0,15	0,13–0,21	0,17–0,27	0,17–0,27	
	1	S	O MD	KCU25	310	325	360	mm/r	0,05–0,08	0,07–0,12	0,09–0,15	0,13–0,21	0,17–0,27	0,19–0,31	
			I MD	KC7140											
		U	O MD	KCU25	200	215	230	mm/r	0,06–0,10	0,09–0,15	0,11–0,18	0,15–0,25	0,19–0,31	0,19–0,31	
	2	S	O HP	KCPK10	310	325	360	mm/r	0,06–0,10	0,09–0,15	0,11–0,18	0,15–0,25	0,19–0,31	0,19–0,31	
			I HP	KC7140											
		U	O HP	KCU25	200	215	230	mm/r	0,06–0,10	0,09–0,15	0,11–0,18	0,15–0,25	0,19–0,31	0,19–0,31	
	3	S	O HP	KCPK10	260	285	320	mm/r	0,06–0,10	0,09–0,15	0,11–0,18	0,15–0,25	0,19–0,31	0,19–0,31	
			I HP	KC7140											
		U	O HP	KCU25	180	195	220	mm/r	0,06–0,10	0,09–0,15	0,11–0,18	0,15–0,25	0,19–0,31	0,19–0,31	
	4	S	O HP	KCU25	220	250	300	mm/r	0,06–0,10	0,09–0,15	0,11–0,18	0,15–0,25	0,19–0,31	0,19–0,31	
			I HP	KC7140											
		U	O HP	KCU40	150	180	220	mm/r	0,06–0,10	0,09–0,15	0,11–0,18	0,15–0,25	0,19–0,31	0,19–0,31	
	5	S	O HP	KCU25	180	200	220	mm/r	0,06–0,10	0,07–0,13	0,09–0,15	0,11–0,18	0,12–0,23	0,12–0,23	
			I HP	KC7140											
		U	O HP	KCU40	120	135	150	mm/r	0,06–0,10	0,07–0,13	0,09–0,15	0,11–0,18	0,12–0,23	0,12–0,23	
	6	S	O HP	KCU25	180	200	220	mm/r	0,05–0,10	0,07–0,13	0,09–0,15	0,11–0,18	0,12–0,23	0,12–0,23	
			I HP	KC7140											
		U	O HP	KCU40	120	135	150	mm/r	0,05–0,10	0,07–0,13	0,09–0,15	0,11–0,18	0,12–0,23	0,12–0,23	
	M	1	S	O DS	KCU40	150	190	230	mm/r	0,05–0,08	0,05–0,10	0,06–0,13	0,08–0,14	0,09–0,17	0,09–0,17
				I DS	KCU40										
			U	O DS	KCU40	100	130	160	mm/r	0,05–0,08	0,05–0,10	0,06–0,13	0,08–0,14	0,09–0,17	0,09–0,17
2		S	O MD	KC7140	60	80	100	mm/r	0,05–0,08	0,05–0,10	0,06–0,13	0,08–0,14	0,09–0,17	0,09–0,17	
			I MD	KC7140											
		U	O MD	KCU40	100	130	160	mm/r	0,05–0,08	0,05–0,10	0,06–0,13	0,08–0,14	0,09–0,17	0,09–0,17	
3		S	O DS	KCU40	100	130	160	mm/r	0,05–0,08	0,05–0,10	0,06–0,13	0,08–0,14	0,09–0,17	0,09–0,17	
			I DS	KCU40											
		U	O HP	KCU40	80	110	140	mm/r	0,05–0,08	0,05–0,10	0,06–0,13	0,08–0,14	0,09–0,17	0,09–0,17	
3		S	O MD	KC7140	50	70	90	mm/r	0,05–0,08	0,05–0,10	0,06–0,13	0,08–0,14	0,09–0,17	0,09–0,17	
			I MD	KC7140											

Condition: S = Stable cutting conditions;
 U = Unstable cutting conditions;
 I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
 O = Outboard insert

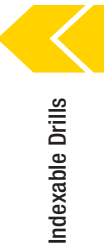


Drill Fix™ DFT™ • Metric

		Metric													
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (f) by Diameter							
					Range – m/min			Ø	DFT03 16–24mm	DFT05 25–32mm	DFT06 32–40mm	DFT07 41–48mm	DFT09... 49–68mm	DFT11 69–82mm	
					min	Starting Value	max								
K	1	S	O HP	KCPK10	200	240	300	mm/r	0,08–0,13	0,10–0,18	0,14–0,26	0,18–0,33	0,21–0,39	0,21–0,39	
			I HP	KCU40											
		U	O HP	KCU25	120	155	200	mm/r	0,08–0,13	0,10–0,18	0,14–0,26	0,18–0,33	0,21–0,39	0,21–0,39	
	I HP		KCU40												
	2	S	O HP	KCPK10	180	220	260	mm/r	0,08–0,13	0,10–0,18	0,14–0,26	0,18–0,33	0,21–0,39	0,21–0,39	
			I HP	KCU40											
		U	O HP	KCU25	110	140	170	mm/r	0,08–0,13	0,10–0,18	0,14–0,26	0,18–0,33	0,21–0,39	0,21–0,39	
	I HP		KC7140												
	3	S	O HP	KCPK10	180	220	260	mm/r	0,08–0,13	0,10–0,18	0,14–0,26	0,18–0,33	0,21–0,39	0,21–0,39	
			I HP	KCU40											
		U	O HP	KCU25	110	140	170	mm/r	0,08–0,13	0,10–0,18	0,14–0,26	0,18–0,33	0,21–0,39	0,21–0,39	
	I HP		KC7140												
N	1	S	O ST	KD1425	400	600	800	mm/r	0,05–0,07	0,07–0,09	0,10–0,14	0,12–0,16	0,14–0,18	0,14–0,18	
			I ST	KD1425											
		U	O HP	KCU40	300	400	500	mm/r	0,05–0,07	0,07–0,09	0,10–0,14	0,12–0,16	0,14–0,18	0,14–0,18	
	I HP		KCU40												
	2	S	O ST	KD1425	375	550	775	mm/r	0,05–0,07	0,07–0,09	0,10–0,14	0,12–0,16	0,14–0,18	0,14–0,18	
			I ST	KD1425											
		U	O HP	KCU40	250	350	450	mm/r	0,05–0,07	0,07–0,09	0,10–0,14	0,12–0,16	0,14–0,18	0,14–0,18	
	I HP		KCU40												
	3	S	O ST	KD1425	350	500	650	mm/r	0,05–0,07	0,07–0,09	0,10–0,14	0,12–0,16	0,14–0,18	0,14–0,18	
			I ST	KD1425											
		U	O HP	KCU40	250	350	450	mm/r	0,05–0,07	0,07–0,09	0,10–0,14	0,12–0,16	0,14–0,18	0,14–0,18	
	I HP		KCU40												
	4	S	O ST	KD1425	400	600	800	mm/r	0,05–0,07	0,07–0,09	0,10–0,14	0,12–0,16	0,14–0,18	0,14–0,18	
			I ST	KD1425											
		U	O HP	KCU40	250	350	450	mm/r	0,05–0,07	0,07–0,09	0,10–0,14	0,12–0,16	0,14–0,18	0,14–0,18	
	I HP		KCU40												
	5	S	O ST	KD1425	400	600	800	mm/r	0,05–0,07	0,07–0,09	0,10–0,14	0,12–0,16	0,14–0,18	0,14–0,18	
			I ST	KD1425											
		U	O HP	KCU40	250	350	450	mm/r	0,05–0,07	0,07–0,09	0,10–0,14	0,12–0,16	0,14–0,18	0,14–0,18	
	I HP		KCU40												
	6	S	O ST	KD1425	400	600	800	mm/r	0,05–0,07	0,07–0,09	0,10–0,14	0,12–0,16	0,14–0,18	0,14–0,18	
			I ST	KD1425											
		U	O HP	KCU40	250	350	450	mm/r	0,05–0,07	0,07–0,09	0,10–0,14	0,12–0,16	0,14–0,18	0,14–0,18	
	I HP		KCU40												
7	S	O ST	KD1425	400	600	800	mm/r	0,05–0,07	0,07–0,09	0,10–0,14	0,12–0,16	0,14–0,18	0,14–0,18		
		I ST	KD1425												
	U	O HP	KCU40	250	350	450	mm/r	0,05–0,07	0,07–0,09	0,10–0,14	0,12–0,16	0,14–0,18	0,14–0,18		
I HP		KCU40													

Condition: S = Stable cutting conditions;
 U = Unstable cutting conditions;
 I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
 O = Outboard insert



■ Drill Fix™ DFT™ • Metric

		Metric													
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (f) by Diameter							
					Range – m/min			Ø	DFT03 16–24mm	DFT05 25–32mm	DFT06 32–40mm	DFT07 41–48mm	DFT09... 49–68mm	DFT11 69–82mm	
					min	Starting Value	max								
S	1	S	O	HP	KCU40	60	70	75	mm/r	0,03–0,05	0,04–0,06	0,05–0,08	0,06–0,1	0,08–0,13	0,08–0,13
			I	HP	KCU40										
	U	O	HP	KCU40	40	50	60	mm/r	0,03–0,05	0,04–0,06	0,05–0,08	0,06–0,1	0,08–0,13	0,08–0,13	
		I	HP	KC7140											
	I	O	MD	KC7140	25	30	40	mm/r	0,03–0,05	0,04–0,06	0,05–0,08	0,06–0,1	0,08–0,13	0,08–0,13	
		I	MD	KC7140											
	2	S	O	HP	KCU40	50	60	70	mm/r	0,05–0,07	0,05–0,07	0,05–0,08	0,06–0,1	0,07–0,12	0,07–0,12
			I	HP	KCU40										
		U	O	HP	KCU40	30	40	50	mm/r	0,04–0,06	0,05–0,08	0,06–0,10	0,06–0,1	0,09–0,15	0,09–0,15
			I	HP	KC7140										
	I	O	MD	KC7140	25	30	40	mm/r	0,05–0,07	0,05–0,07	0,05–0,08	0,06–0,1	0,07–0,12	0,07–0,12	
		I	MD	KC7140											
	3	S	O	HP	KCU40	70	80	90	mm/r	0,03–0,05	0,04–0,06	0,05–0,08	0,06–0,1	0,08–0,13	0,08–0,13
			I	HP	KCU40										
		U	O	HP	KCU40	50	60	70	mm/r	0,03–0,05	0,04–0,06	0,05–0,08	0,06–0,1	0,08–0,13	0,08–0,13
			I	HP	KCU40										
I	O	MD	KC7140	30	40	50	mm/r	0,03–0,05	0,04–0,06	0,05–0,08	0,06–0,1	0,08–0,13	0,08–0,13		
	I	MD	KC7140												
4	S	O	HP	KCU40	70	80	90	mm/r	0,05–0,07	0,05–0,07	0,05–0,08	0,06–0,1	0,07–0,12	0,07–0,12	
		I	HP	KCU40											
	U	O	HP	KCU40	50	60	70	mm/r	0,04–0,06	0,05–0,08	0,06–0,10	0,06–0,1	0,09–0,15	0,09–0,15	
		I	HP	KCU40											
I	O	MD	KC7140	30	40	50	mm/r	0,05–0,07	0,05–0,07	0,05–0,08	0,06–0,1	0,07–0,12	0,07–0,12		
	I	MD	KC7140												

Condition: S = Stable cutting conditions;
 U = Unstable cutting conditions;
 I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
 O = Outboard insert



Indexable Drills

■ Drill Fix™ DFT™ • Inch

										Inch						
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (f) by Diameter								
					Range – m/min			Ø	DFT03 .625–.969"	DFT05 .984–1.250"	DFT06 1.313–1.563"	DFT07 1.625–1.875"	DFT09 1.938–2.125"	DFT11 2.750–3.250"		
					min	Starting Value	max									
P	0	S	O DS	KCU40	918	984	1050	SFM	.0020-.0031	.0028-.0047	.0035-.0059	.0051-.0083	.0067-.0106	.0067-.0106		
			I DS	KCU40												
		U	O DS	KCU40	656	705	754	SFM	.0020-.0031	.0028-.0047	.0035-.0059	.0051-.0083	.0067-.0106	.0067-.0106		
			I DS	KCU40	426	443	492	SFM	.0020-.0031	.0028-.0047	.0035-.0059	.0051-.0083	.0067-.0106	.0075-.0122		
	1	S	O MD	KCU25	1017	1066	1181	SFM	.0020-.0031	.0028-.0047	.0035-.0059	.0051-.0083	.0067-.0106	.0075-.0122		
			I MD	KC7140												
		U	O MD	KCU25	656	705	754	SFM	.0024-.0039	.0035-.0059	.0043-.0071	.0059-.0098	.0075-.0122	.0075-.0122		
			I MD	KC7140	426	443	492	SFM	.0024-.0039	.0035-.0059	.0043-.0071	.0059-.0098	.0075-.0122	.0075-.0122		
	2	S	O HP	KCPK10	1017	1066	1181	SFM	.0024-.0039	.0035-.0059	.0043-.0071	.0059-.0098	.0075-.0122	.0075-.0122		
			I HP	KC7140												
		U	O HP	KCU25	656	705	754	SFM	.0024-.0039	.0035-.0059	.0043-.0071	.0059-.0098	.0075-.0122	.0075-.0122		
			I HP	KC7140	426	443	492	SFM	.0024-.0039	.0035-.0059	.0043-.0071	.0059-.0098	.0075-.0122	.0075-.0122		
	3	S	O HP	KCPK10	853	935	1050	SFM	.0024-.0039	.0035-.0059	.0043-.0071	.0059-.0098	.0075-.0122	.0075-.0122		
			I HP	KC7140												
		U	O HP	KCU25	590	640	722	SFM	.0024-.0039	.0035-.0059	.0043-.0071	.0059-.0098	.0075-.0122	.0075-.0122		
			I HP	KC7140	361	394	459	SFM	.0024-.0039	.0035-.0059	.0043-.0071	.0059-.0098	.0075-.0122	.0075-.0122		
	4	S	O HP	KCU25	722	820	984	SFM	.0024-.0039	.0035-.0059	.0043-.0071	.0059-.0098	.0075-.0122	.0075-.0122		
			I HP	KC7140												
		U	O HP	KCU40	492	590	722	SFM	.0024-.0039	.0035-.0059	.0043-.0071	.0059-.0098	.0075-.0122	.0075-.0122		
			I HP	KC7140	295	361	459	SFM	.0024-.0039	.0035-.0059	.0043-.0071	.0059-.0098	.0075-.0122	.0075-.0122		
	5	S	O HP	KCU25	590	656	722	SFM	.0024-.0039	.0028-.0051	.0035-.0059	.0043-.0071	.0047-.0091	.0047-.0091		
			I HP	KC7140												
		U	O HP	KCU40	394	443	492	SFM	.0024-.0039	.0028-.0051	.0035-.0059	.0043-.0071	.0047-.0091	.0047-.0091		
			I HP	KC7140	230	279	328	SFM	.0020-.0039	.0028-.0051	.0035-.0059	.0043-.0071	.0047-.0091	.0047-.0091		
6	S	O HP	KCU25	590	656	722	SFM	.0020-.0039	.0028-.0051	.0035-.0059	.0043-.0071	.0047-.0091	.0047-.0091			
		I HP	KC7140													
	U	O HP	KCU40	394	443	492	SFM	.0020-.0039	.0028-.0051	.0035-.0059	.0047-.0091	.0047-.0091	.0043-.0071			
		I HP	KC7140	230	279	328	SFM	.0020-.0039	.0028-.0051	.0035-.0059	.0043-.0071	.0047-.0091	.0047-.0091			
M	1	S	O DS	KCU40	492	623	754	SFM	.0020-.0031	.0020-.0039	.0024-.0051	.0031-.0055	.0035-.0067	.0035-.0067		
			I DS	KCU40												
		U	O DS	KCU40	328	426	525	SFM	.0020-.0031	.0020-.0039	.0024-.0051	.0031-.0055	.0035-.0067	.0035-.0067		
			I DS	KCU40	197	262	328	SFM	.0020-.0031	.0020-.0039	.0024-.0051	.0031-.0055	.0035-.0067	.0035-.0067		
	2	S	O DS	KCU40	492	590	689	SFM	.0020-.0031	.0020-.0039	.0024-.0051	.0031-.0055	.0035-.0067	.0035-.0067		
			I DS	KCU40												
		U	O MD	KCU40	328	426	525	SFM	.0020-.0031	.0020-.0039	.0024-.0051	.0031-.0055	.0035-.0067	.0035-.0067		
			I MD	KC7140	197	262	328	SFM	.0020-.0031	.0020-.0039	.0024-.0051	.0031-.0055	.0035-.0067	.0035-.0067		
	3	S	O DS	KCU40	328	426	525	SFM	.0020-.0031	.0020-.0039	.0024-.0051	.0031-.0055	.0035-.0067	.0035-.0067		
			I DS	KCU40												
		U	O HP	KCU40	262	361	459	SFM	.0020-.0031	.0020-.0039	.0024-.0051	.0031-.0055	.0035-.0067	.0035-.0067		
			I HP	KC7140	164	230	295	SFM	.0020-.0031	.0020-.0039	.0024-.0051	.0031-.0055	.0035-.0067	.0035-.0067		

Condition: S = Stable cutting conditions;
U = Unstable cutting conditions;
I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
O = Outboard insert



■ Drill Fix™ DFT™ • Inch

Indexable Drills

		Inch												
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (f) by Diameter						
					Range – SFM			Ø	DFT03 .625–.969"	DFT05 .984–1.250"	DFT06 1.313–1.563"	DFT07 1.625–1.875"	DFT09 1.938–2.125"	DFT11 2.750–3.250"
					min	Starting Value	max							
K	1	S	O HP KCPK10	656	787	984	SFM	.0031–.0051	.0039–.0071	.0055–.0102	.0071–.0130	.0083–.0154	.0083–.0154	
			I HP KCU40											
		U	O HP KCU25	394	508	656	SFM	.0031–.0051	.0039–.0071	.0055–.0102	.0071–.0130	.0083–.0154	.0083–.0154	
	2	S	O HP KCPK10	590	722	853	SFM	.0031–.0051	.0039–.0071	.0055–.0102	.0071–.0130	.0083–.0154	.0083–.0154	
			I HP KCU40											
		U	O HP KCU25	361	459	558	SFM	.0031–.0051	.0039–.0071	.0055–.0102	.0071–.0130	.0083–.0154	.0083–.0154	
	3	S	O HP KCPK10	590	722	853	SFM	.0031–.0051	.0039–.0071	.0055–.0102	.0071–.0130	.0083–.0154	.0083–.0154	
			I HP KCU40											
		U	O HP KCU25	361	459	558	SFM	.0031–.0051	.0039–.0071	.0055–.0102	.0071–.0130	.0083–.0154	.0083–.0154	
N	1	S	O ST KD1425	1312	1968	2624	SFM	.0020–.0028	.0028–.0035	.0039–.0055	.0047–.0063	.0055–.0071	.0055–.0071	
			I ST KD1425											
		U	O HP KCU40	984	1312	1640	SFM	.0020–.0028	.0028–.0035	.0039–.0055	.0047–.0063	.0055–.0071	.0055–.0071	
	2	S	O ST KD1425	1230	1804	2542	SFM	.0020–.0028	.0028–.0035	.0039–.0055	.0047–.0063	.0055–.0071	.0055–.0071	
			I ST KD1425											
		U	O HP KCU40	820	1148	1476	SFM	.0020–.0028	.0028–.0035	.0039–.0055	.0047–.0063	.0055–.0071	.0055–.0071	
	3	S	O ST KD1425	1148	1640	2132	SFM	.0020–.0028	.0028–.0035	.0039–.0055	.0047–.0063	.0055–.0071	.0055–.0071	
			I ST KD1425											
		U	O HP KCU40	820	1148	1476	SFM	.0020–.0028	.0028–.0035	.0039–.0055	.0047–.0063	.0055–.0071	.0055–.0071	
	4	S	O ST KD1425	1312	1968	2624	SFM	.0020–.0028	.0028–.0035	.0039–.0055	.0047–.0063	.0055–.0071	.0055–.0071	
			I ST KD1425											
		U	O HP KCU40	820	1148	1476	SFM	.0020–.0028	.0028–.0035	.0039–.0055	.0047–.0063	.0055–.0071	.0055–.0071	
	5	S	O ST KD1425	1312	1968	2624	SFM	.0020–.0028	.0028–.0035	.0039–.0055	.0047–.0063	.0055–.0071	.0055–.0071	
			I ST KD1425											
		U	O HP KCU40	820	1148	1476	SFM	.0020–.0028	.0028–.0035	.0039–.0055	.0047–.0063	.0055–.0071	.0055–.0071	
	6	S	O ST KD1425	1312	1968	2624	SFM	.0020–.0028	.0028–.0035	.0039–.0055	.0047–.0063	.0055–.0071	.0055–.0071	
			I ST KD1425											
		U	O HP KCU40	820	1148	1476	SFM	.0020–.0028	.0028–.0035	.0039–.0055	.0047–.0063	.0055–.0071	.0055–.0071	

Condition: S = Stable cutting conditions;
 U = Unstable cutting conditions;
 I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
 O = Outboard insert

■ Drill Fix™ DFT™ • Inch

Inch															
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (f) by Diameter							
					Range – SFM			Ø	DFT03 .625–.969"	DFT05 .984–1.250"	DFT06 1.313–1.563"	DFT07 1.625–1.875"	DFT09 1.938–2.125"	DFT11 2.750–3.250"	
					min	Starting Value	max								
S	S	O	HP	KCU40	197	230	246	SFM	.0012–.0020	.0016–.0024	.0020–.0031	.0024–.0039	.0031–.0051	.0031–.0051	
		I	HP	KCU40											
	U	O	HP	KCU40	131	164	197	SFM	.0012–.0020	.0016–.0024	.0020–.0031	.0024–.0039	.0031–.0051	.0031–.0051	
		I	HP	KC7140											
	I	O	MD	KC7140	82	98	131	SFM	.0012–.0020	.0016–.0024	.0020–.0031	.0024–.0039	.0031–.0051	.0031–.0051	
		I	MD	KC7140											
	2	S	O	HP	KCU40	164	197	230	SFM	.0020–.0028	.0020–.0028	.0020–.0031	.0024–.0039	.0028–.0047	.0028–.0047
			I	HP	KCU40										
		U	O	HP	KCU40	98	131	164	SFM	.0016–.0024	.0020–.0031	.0024–.0039	.0024–.0039	.0035–.0059	.0035–.0059
			I	HP	KC7140										
	I	O	MD	KC7140	82	98	131	SFM	.0020–.0028	.0020–.0028	.0020–.0031	.0024–.0039	.0028–.0047	.0028–.0047	
		I	MD	KC7140											
	3	S	O	HP	KCU40	230	262	295	SFM	.0012–.0020	.0016–.0024	.0020–.0031	.0024–.0039	.0031–.0051	.0031–.0051
			I	HP	KCU40										
		U	O	HP	KCU40	164	197	230	SFM	.0012–.0020	.0016–.0024	.0020–.0031	.0024–.0039	.0031–.0051	.0031–.0051
			I	HP	KCU40										
I	O	MD	KC7140	98	131	164	SFM	.0012–.0020	.0016–.0024	.0020–.0031	.0024–.0039	.0031–.0051	.0031–.0051		
	I	MD	KC7140												
4	S	O	HP	KCU40	230	262	295	SFM	.0020–.0028	.0020–.0028	.0020–.0031	.0024–.0039	.0028–.0047	.0028–.0047	
		I	HP	KCU40											
	U	O	HP	KCU40	164	197	230	SFM	.0016–.0024	.0020–.0031	.0024–.0039	.0024–.0039	.0035–.0059	.0035–.0059	
		I	HP	KCU40											
I	O	MD	KC7140	98	131	164	SFM	.0020–.0028	.0020–.0028	.0020–.0031	.0024–.0039	.0028–.0047	.0028–.0047		
	I	MD	KC7140												

Condition: S = Stable cutting conditions;
U = Unstable cutting conditions;
I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
O = Outboard insert



Indexable Drills

➤ HTS Series Indexable Deep-Hole Drilling System

Primary Application

HTS series indexable drills are designed for deep-hole drilling up to 10 x D in steel, stainless steel, ductile iron, cast iron, and non-ferrous materials. The two HTS systems — HTS and HTS-R — cover a diameter range of 40–270mm (1.575–10.629").



Features and Benefits

HTS Indexable Drill System

- Large diameter range from 45–270mm (1.750–10.629") with standard drill heads.
- Drill Fix™ DFT™ trigon inserts as outboard and inboard insert offer the best centering capabilities; square-outboard insert cartridges offer increased surface and hole quality.
- Various insert geometries and grades available as standard.
- Adjust drilling depth and diameter range with suitable extensions and reducers.
- Diameter adjustment by shortening outer cartridge.
- Customized drilling heads up to 540mm (21.259").



HTS-R Indexable Drill System

- Modular system uses drill heads equipped with DFR™ insert cartridges.
- Five drill heads cover the diameter range 40–55mm (1.575–2.165").
- Drill Fix™ DFR rectangular inboard and outboard inserts offer the highest feed rates at small diameters.
- Various insert geometries and grades available as standard.
- Adjust drilling depth and diameters by using extensions and reducers.
- Diameter adjustment by shortening outer cartridge.

➤ HTS Indexable Drill System

The HTS indexable drill system is one of the most reliable deep-hole drilling systems available. Drilling up to 10 x D can be easily achieved in materials like steel, stainless steel, ductile iron, cast iron, and non-ferrous materials. Various drilling heads cover the diameter range 45–270mm (1.77–10.63").

HTS drill heads are equipped with pilot drills and cartridges using trigon-shaped Drill Fix™ DFT™ inserts. Use HTS extensions and reducers to achieve various diameters and depths of drilling.

For improved surface qualities and increased reliability, finishing HTS cartridges with a squared-outboard insert are available as standard.

Features and Benefits

Productivity

- Achieve high hole accuracy by using pilot drills and trigon-shaped inserts.
- Benefit from improved surface qualities using finishing cartridges with squared-outboard inserts.
- Adjust outer cartridge to desired cutting diameter, reducing inventory.
- Same insert size is used in each insert cartridge, reducing inventory costs.

Versatility

- Diameter range covering 45–270mm (1.77–10.63").
- L/D ratio up to 10 x D as standard.
- Inserts and pilot drills can be used with various heads and cartridges, covering various diameters.
- Large variety of DFT insert grades and geometries available.
- Finishing cartridge with squared-outboard insert offering four cutting edges for high process stability.
- Carbide pilot drills are available upon request.

Use HTS extensions and reducers to achieve various diameters and depths of drilling.

Customization

- Wear pads can be added for increased stability.
- Fully engineered solutions available.
- Custom solutions covering diameter range up to 540mm (21.259") are possible.



➤ HTS-R Indexable Drill System

HTS-R extends the HTS system by covering diameters between 40–55mm (1.575–2.165").

Up to 30% higher feed rates achievable with rectangular-shaped Drill Fix™ DFR™ inserts with the added benefit of improved chip control.

Features and Benefits

Productivity

- Benefit from better chip control and higher insert stability for longer tool body life.
- Same insert size is used in each insert cartridge.

Versatility

- Diameter range covering 40–55mm (1.575–2.165") with five drilling heads.
- Large variety of DFR insert grades and geometries available.
- Outer cartridges can be adjusted to the desired cutting diameter.
- Extensions and reducers are available as standard.
- Solid carbide and HSS pilot drills are available to match the cutting conditions of specific applications.

Benefit from better chip control and higher insert stability for longer tool body life.



Pilot drill should be installed and set to the proper length before installing the inner cartridge.



Install inner cartridge, then the outer insert.

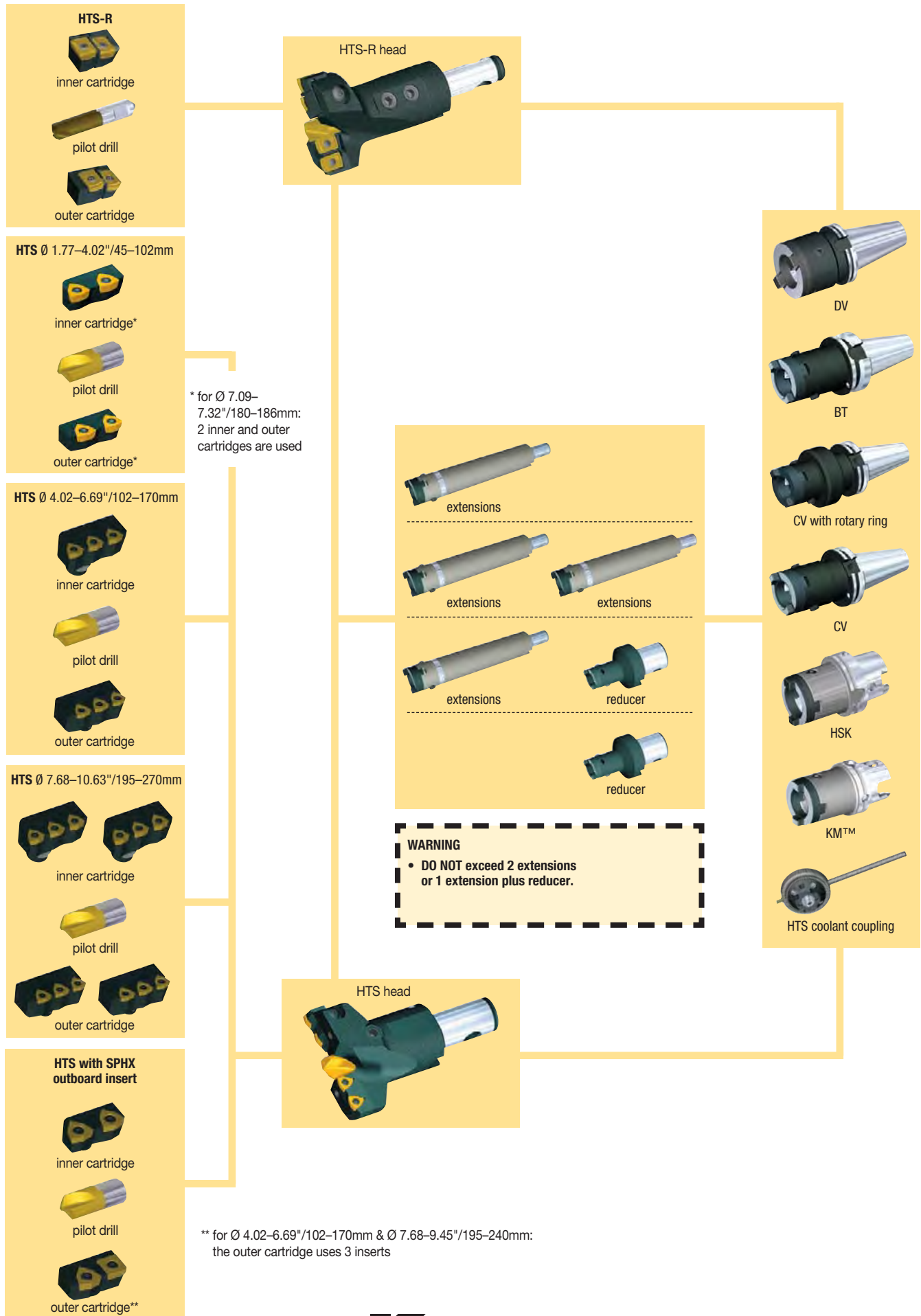


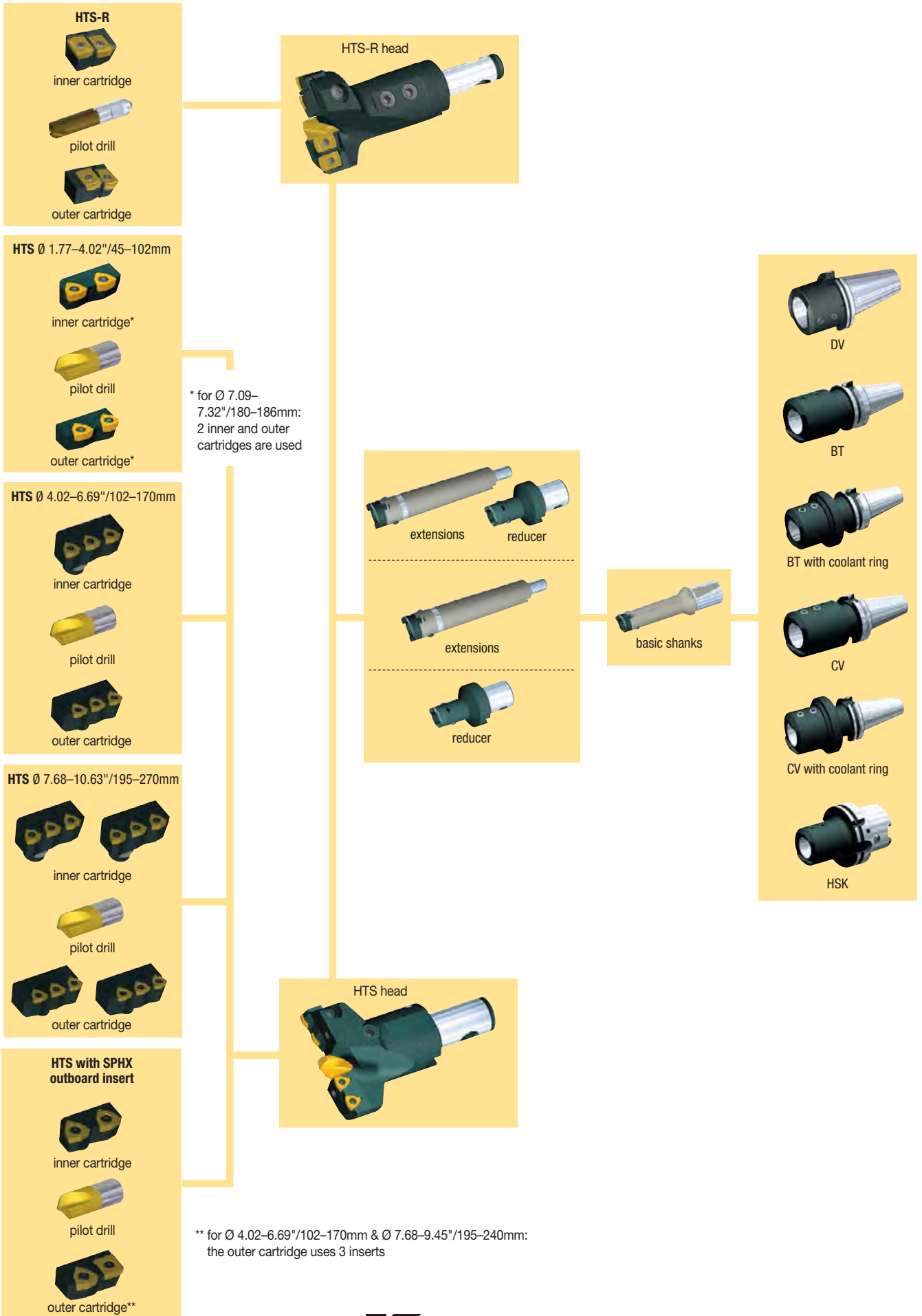
Install inner insert into cartridge.

Customization

- Wear pads can be added for increased stability.
- Fully engineered solutions available.













To assemble your HTS(-R) head, choose the desired drill diameter range from the left-hand column.

Next, follow the columns to the right, and select the appropriate component from each column to complete your HTS(-R) head.






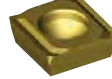
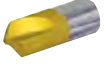
drilling range			HTS(-R) head with DFR™/DFT™ inserts										
			L1				inner cartridge			outer cartridge			pilot drill
mm	in	HTS head	mm	in	cartridge	n	insert	n	cartridge	n	insert	n	
40–43	1.57–1.69	HTSR040R025M	60	2.36		1		2		1		2	
43–46	1.69–1.81	HTSR043R025M	70	2.76	HTSR11CI	1	DFR0302	2	HTSR11CE	1	DFR0302	2	B513S10
46–49	1.81–1.93	HTSR046R028M			HTSR12CI	1	DFR0403	2	HTSR12CE	1	DFR0403	2	B513S10
49–52	1.93–2.05	HTSR049R028M			HTSR13CI	1	DFR0403	2	HTSR13CE	1	DFR0403	2	B513S10
52–55	2.05–2.17	HTSR052R028M			HTSR14CI	1	DFR0403	2	HTSR14CE	1	DFR0403	2	B513S10

drilling range	mm	in	HTS head	HTS(-R) head with DFR™/DFT™ inserts									
				mm	in	cartridge	n	insert	n	cartridge	n	insert	n
45–50	1.77–1.97	3.76045R028V	50	1.97	3.77000R050V	1	DFT0303	2	3.77000R051V	1	DFT0303	2	B510S08
50–55	1.97–2.17	3.76050R028V			3.77000R052V	1	DFT0303	2	3.77000R053V	1	DFT0303	2	B510S08
55–58	2.17–2.28	3.76055R032V	60	2.36	3.77000R038V	1	DFT05T3	2	3.77000R039V	1	DFT05T3	2	B510S08
58–63	2.28–2.48	3.76058R032V			3.77000R023V	1	DFT05T3	2	3.77000R024V	1	DFT05T3	2	B510S10
63–68	2.48–2.68	3.76063R032V			3.77000R025V	1	DFT05T3	2	3.77000R024V	1	DFT05T3	2	B510S10
63–68	2.48–2.68	3.76063R040V*			70	2.76	3.77000R025V	1	DFT05T3	2	3.77000R024V	1	DFT05T3
68–73	2.68–2.87	3.76068R040V	3.77000R026V	1			DFT05T3	2	3.77000R027V	1	DFT05T3	2	B510S10
73–78	2.87–3.07	3.76073R040V	3.77000R026V	1			DFT05T3	2	3.77000R027V	1	DFT05T3	2	B510S15
78–84	3.07–3.31	3.76078R040V	3.77000R028V	1			DFT06T3	2	3.77000R029V	1	DFT06T3	2	B510S15
78–84	3.07–3.31	3.76078R048V*	70	2.76	3.77000R028V	1	DFT06T3	2	3.77000R029V	1	DFT06T3	2	B510S15
84–90	3.31–3.54	3.76084R048V			3.77000R028V	1	DFT06T3	2	3.77000R029V	1	DFT06T3	2	B510S15
90–94°	3.54–3.70	3.76090R048V			–	–	–	–	–	–	–	–	–
90–96	3.54–3.78	3.76090R048V			3.77000R030V	1	DFT06T3	2	3.77000R031V	1	DFT06T3	2	B510S15
96–100°	3.78–3.93	3.76096R048V	80	3.15	–	–	–	–	–	–	–	–	
96–102	3.78–4.02	3.76096R048V			3.77000R030V	1	DFT06T3	2	3.77000R031V	1	DFT06T3	2	B510S20
96–100°	3.78–3.93	3.76096R058V*			–	–	–	–	–	–	–	–	
96–102	3.78–4.02	3.76096R058V*			3.77000R030V	1	DFT06T3	2	3.77000R031V	1	DFT06T3	2	B510S20
102–108	4.02–4.25	3.76102R058V	90	3.54	3.77000R081V	1	DFT05T3	3	3.77000R082V	1	DFT05T3	3	B510S20
108–115	4.25–4.53	3.76108R058V			3.77000R083V	1	DFT06T3	3	3.77000R084V	1	DFT06T3	3	B510S20
115–122	4.53–4.80	3.76115R070V			3.77000R085V	1	DFT06T3	3	3.77000R086V	1	DFT06T3	3	B510S25
122–130	4.80–5.12	3.76122R070V			3.77000R079V	1	DFT06T3	3	3.77000R080V	1	DFT06T3	3	B510S25
130–140	5.12–5.51	3.76130R070V	100	3.94	3.77000R087V	1	DFT06T3	3	3.77000R088V	1	DFT06T3	3	B510S25
140–150	5.51–5.91	3.76140R080V			3.77000R077V	1	DFT0704	3	3.77000R078V	1	DFT0704	3	B510S25
150–158	5.91–6.22	3.76150R080V			3.77000R075V	1	DFT0704	3	3.77000R076V	1	DFT0704	3	B510S25
158–162	6.22–6.38	3.76158R080V			3.77000R073V	1	DFT0704	3	3.77000R074V	1	DFT0704	3	B510S25
162–170	6.38–6.70	3.76162R080V	125	4.92	3.77000R048V	1	DFT0704	3	3.77000R049V	1	DFT0704	3	B510S30
180–184°	7.08–7.24	3.76180R110			–	–	–	–	–	–	–	–	
180–186	7.08–7.32	3.76180R110			3.77000R030V	3	DFT06T3	4	3.77000R031V	1	DFT06T3	4	B510S30
195–201	7.68–7.91	3.76195R110			3.77000R081V	3	DFT05T3	6	3.77000R082V	1	DFT05T3	6	B510S30
213–220	8.39–8.66	3.76213R125	150	5.91	3.77000R083V	3	DFT06T3	6	3.77000R084V	1	DFT06T3	6	B510S30
230–240	9.06–9.45	3.76230R160			3.77000R079V	2	DFT06T3	6	3.77000R080V	2	DFT06T3	6	B510S30
260–270	10.24–10.63	3.76260R160			3.77000R077V	2	DFT06T3	6	3.77000R078V	2	DFT06T3	6	B510S30

° Decreased diameter range by using SPHX insert in exterior cartridge.

* Drill heads with reinforced body for short-chipping materials.

n = Required quantity.

HTS head with DFT™ inserts and SPHX outboard insert													
inner cartridge							outer cartridge						
													
cartridge	n	cartridge	n	insert	n	cartridge	n	insert	n	insert	n	pilot drill	
-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	

	3.77000R250V	1	-	-	DFT0303.	2	3.77000R251V	1	DFT0303.	1	SPHX0703.	1	B510S08.
	3.77000R252V	1	-	-	DFT0303.	2	3.77000R253V	1	DFT0303.	1	SPHX0703.	1	B510S08.
	3.77000R038V	1	-	-	DFT05T3.	2	3.77000R239V	1	DFT05T3.	1	SPHX0903.	1	B510S08.
	3.77000R023V	1	-	-	DFT05T3.	2	3.77000R224V	1	DFT05T3.	1	SPHX0903.	1	B510S10.
	3.77000R025V	1	-	-	DFT05T3.	2	3.77000R224V	1	DFT05T3.	1	SPHX0903.	1	B510S10.
	3.77000R025V	1	-	-	DFT05T3.	2	3.77000R224V	1	DFT05T3.	1	SPHX0903.	1	B510S10.
	3.77000R026V	1	-	-	DFT05T3.	2	3.77000R227V	1	DFT05T3.	1	SPHX0903.	1	B510S10.
	3.77000R026V	1	-	-	DFT05T3.	2	3.77000R227V	1	DFT05T3.	1	SPHX0903.	1	B510S15.
	3.77000R028V	1	-	-	DFT06T3.	2	3.77000R229V	1	DFT06T3.	1	SPHX0903.	1	B510S15.
	3.77000R028V	1	-	-	DFT06T3.	2	3.77000R229V	1	DFT06T3.	1	SPHX0903.	1	B510S15.
	3.77000R228V	1	-	-	DFT06T3.	2	3.77000R229V	1	DFT06T3.	1	SPHX0903.	1	B510S15.
	3.77000R230V	1	-	-	DFT06T3.	2	3.77000R231V	1	DFT06T3.	1	SPHX0903.	1	B510S15.
	-	-	-	-	-	-	-	-	-	-	-	-	
	3.77000R230V	1	-	-	DFT06T3.	2	3.77000R231V	1	DFT06T3.	1	SPHX0903.	1	B510S20.
	-	-	-	-	-	-	-	-	-	-	-	-	
	3.77000R230V	1	-	-	DFT06T3.	2	3.77000R231V	1	DFT06T3.	1	SPHX0903.	1	B510S20.
	-	-	-	-	-	-	-	-	-	-	-	-	
	3.77000R081V	1	-	-	DFT05T3.	3	3.77000R282V	1	DFT05T3.	2	SPHX0903.	1	B510S20.
	3.77000R083V	1	-	-	DFT06T3.	3	3.77000R284V	1	DFT06T3.	2	SPHX1204.	1	B510S20.
	3.77000R085V	1	-	-	DFT06T3.	3	3.77000R286V	1	DFT06T3.	2	SPHX1204.	1	B510S25.
	3.77000R079V	1	-	-	DFT06T3.	3	3.77000R280V	1	DFT06T3.	2	SPHX1204.	1	B510S25.
	3.77000R087V	1	-	-	DFT06T3.	3	3.77000R288V	1	DFT06T3.	2	SPHX1204.	1	B510S25.
	3.77000R077V	1	-	-	DFT0704.	3	3.77000R278V	1	DFT0704.	2	SPHX1505.	1	B510S25.
	3.77000R075V	1	-	-	DFT0704.	3	3.77000R276V	1	DFT0704.	2	SPHX1204.	1	B510S25.
	3.77000R073V	1	-	-	DFT0704.	3	3.77000R274V	1	DFT0704.	2	SPHX1204.	1	B510S25.
	3.77000R248V	1	-	-	DFT0704.	3	3.77000R249V	1	DFT0704.	2	SPHX1505.	1	B510S30.
	3.77000R230V	3	-	-	DFT06T3.	4	3.77000R231V	1	DFT06T3.	3	SPHX0903.	1	B510S30.
	-	-	-	-	-	-	-	-	-	-	-	-	
	3.77000R081V	3	-	-	DFT05T3.	9	3.77000R282V	1	DFT05T3.	2	SPHX0903.	1	B510S30.
	3.77000R083V	3	-	-	DFT06T3.	9	3.77000R284V	1	DFT06T3.	2	SPHX1204.	1	B510S30.
	3.77000R079V	2	3.77000R080V	1	DFT06T3.	9	3.77000R280V	1	DFT06T3.	2	SPHX1204.	1	B510S30.
	-	-	-	-	-	-	-	-	-	-	-	B510S30	

HTS Tool Assembly Combinations

- Select your appropriate drill diameter range.
- Choose the appropriate adapter and shank size.
- Follow the columns to the right, and select the appropriate components from each column to complete your HTS(-R) tool.

drilling range		shank		DV		BT		CV		HSK																								
				assembly details		assembly details		assembly details		assembly details																								
mm	in	D1	40	50	40	50	40	50	50/63/100																									
HTS heads with DFR™ inserts												40-43 43-46	1.57-1.69 1.69-1.81	WD/ WN	32	DV40BWD32075M DV40RMWD32115M**	DV50BWD32060M DV50RMWD32140M**	BT40BWD32070M	BT50BWD32080M	CV40BWD32M343 CV40RMWD32M453**	CV50BWD32M343 CV50RMWD32M453**	HSK50ASWN32110M HSK63ASWN32090M HSK100ASWN32100M												
															50	-	DV50BWD50075M DV50RMWD50144M**	-	BT50BWD50085M BT50RMWD50162M**	-	CV50BWD50M343 CV50RMWD50M472**	-												
														SS(F)	1.50	-	-	-	-	-	CV40BSSF150575	CV50SS150400 (AD) CV50SS150600 (AD) CV50SS150800 (AD) CV50BSSF150450	-											
															HTS	50	-	5.36050-154050	-	BT50BHTS50080M	-	CV50BHTS50M314 CV50RMHTS50M413**	-											
												46-49 49-52 52-55	1.81-1.93 1.93-2.05 2.05-2.17	WD/ WN	32	DV40BWD32075M DV40RMWD32115M**	DV50BWD32060M DV50RMWD32140M**	-	BT50BWD32080M	CV40BWD32M343 CV40RMWD32M453**	CV50BWD32M343 CV50RMWD32M453**	-												
															50	-	DV50BWD50075M DV50RMWD50144M**	-	BT50BWD50085M BT50RMWD50162M**	-	CV50BWD50M343 CV50RMWD50M472**	-												
														SS(F)	2.00	-	-	-	-	-	CV50SS200562 (AD) CV50SS200762 (AD) CV50BSSF200550	-												
															HTS	50	-	5.36050-154050	-	BT50BHTS50080M	-	CV50BHTS50M314 CV50RMHTS50M413**	-											
												HTS heads with DFT™ /SPHX inserts												45-50 50-55	1.77-1.97 1.97-2.17	WD/ WN	32	DV40BWD32075M DV40RMWD32115M**	DV50BWD32060M DV50RMWD32140M**	BT40BWD32070M	BT50BWD32080M	CV40BWD32M343 CV40RMWD32M453**	CV50BWD32M343 CV50RMWD32M453**	HSK50ASWN32110M HSK63ASWN32090M HSK100ASWN32100M
																											50	-	DV50BWD50075M DV50RMWD50144M**	-	BT50BWD50085M BT50RMWD50162M**	-	CV50BWD50M343 CV50RMWD50M472**	HSK100ASWN50110M
																										SS(F)	2.00	-	-	-	-	-	CV50SS200562 (AD) CV50SS200762 (AD) CV50BSSF200550	-
																											HTS	50	-	5.36050-154050	-	BT50BHTS50080M	-	CV50BHTS50M314 CV50RMHTS50M413**
55-58 58-63 63-68	2.17-2.28 2.28-2.48 2.48-2.68	WD/ WN	32	DV40BWD32075M DV40RMWD32115M**	DV50BWD32060M DV50RMWD32140M**	BT40BWD32070M	BT50BWD32080M	CV40BWD32M343 CV40RMWD32M453**	CV50BWD32M343 CV50RMWD32M453**	HSK50ASWN32110M HSK63ASWN32090M HSK100ASWN32100M																								
			50	-	DV50BWD50075M DV50RMWD50144M**	-	BT50BWD50085M BT50RMWD50162M**	-	CV50BWD50M343 CV50RMWD50M472**	HSK100ASWN50110M																								
		SS(F)	2.00	-	-	-	-	-	CV50SS200562 (AD) CV50SS200762 (AD) CV50BSSF200550	-																								
			HTS	50	-	5.36050-154050	-	BT50BHTS50080M	-	CV50BHTS50M314 CV50RMHTS50M413**	-																							
63-68* 68-73 73-78 78-84	2.48-2.68 2.68-2.87 2.87-3.07 3.07-3.31	WD/ WN	50	-	DV50BWD50075M DV50RMWD50144M**	-	BT50BWD50085M BT50RMWD50162M**	-	CV50BWD50M343 CV50RMWD50M472**	HSK100ASWN50110M																								
			SS(F)	2.00	-	-	-	-	CV50SS200562 (AD) CV50SS200762 (AD) CV50BSSF200550	-																								
		HTS		50	-	5.36050-154050	-	BT50BHTS50080M	-	CV50BHTS50M314 CV50RMHTS50M413**	-																							

* HTS drilling head with reinforced body for short-chipping materials.

** Adapter with coolant ring.

The shown combinations are not complete. Ask your Kennametal representative to get the most reasonable solution for your application. Please note that the assembled total length of the drilling tool is not necessarily the total achievable drilling depth.

KM	basic shank					reducer			for use with coolant adapter		extension			HTS head
	assembly details	L4	L4	L4	L4	L1					L1			
80	metric	mm	inch	in		mm	in	coolant adapter	shell mill DV/BT		mm	in		
-	5.34032-025115 5.34032-025200	110 195	-	-	-	-	-	-	-	-	-	-	-	-
-	5.34050-025300 5.34050-025450	270 420	-	-	-	-	-	-	-	-	5.34125R025150	160	6.30	HTSR040R025M HTSR043R025M
-	-	-	SSF150HTS130239 SSF150HTS130664 SSF150HTS131114 SSF150HTS131764	.39 4.65 9.14 15.64	-	-	-	-	-	-	-	-	-	-
-	5.34032-028115 5.34032-028200	110 195	-	-	-	-	-	-	-	-	-	-	-	-
-	5.34050-028300 5.34050-028450	265 415	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	SSF200HTS130239 SSF200HTS130664 SSF200HTS131114 SSF200HTS131764	.39 4.65 9.14 15.64	-	-	-	-	-	-	5.34128R028150	160	6.30	HTSR046R028M HTSR049R028M HTSR052R028M
KM80ATCHTS50085M KM80ATCHTS50100M	-	-	-	-	-	5.34280R028080	90	3.54	5.34350-090100	DV50SM60070M BT50SM60090M	-	-	-	-
-	5.34032-025115 5.34032-025200	110 195	-	-	-	-	-	-	-	-	-	-	-	-
-	5.34050-028300 5.34050-028450	265 415	-	-	-	-	-	-	-	-	5.34128R028150	160	6.30	3.76045R028V 3.76050R028V
-	-	-	SSF200HTS130239 SSF200HTS130664 SSF200HTS131114 SSF200HTS131764	.39 4.65 9.14 15.64	-	-	-	-	-	-	-	-	-	-
KM80ATCHTS50085M KM80ATCHTS50100M	-	-	-	-	-	5.34280R028080	90	3.54	5.34350-090100	DV50SM60070M BT50SM60090M	-	-	-	-
-	5.34032-032125	120	-	-	-	-	-	-	-	-	-	-	-	-
-	5.34050-032500 5.34050-032350 5.34050-032350	165 315 465	-	-	-	-	-	-	-	-	5.34132R032100 5.34132R032200	110 210	4.33 8.27	3.76055R032V 3.76058R032V 3.76063R032V
-	-	-	SSF200HTS160239 SSF200HTS160714 SSF200HTS161214 SSF200HTS161964	.39 5.14 10.14 17.64	-	-	-	-	-	-	-	-	-	-
KM80ATCHTS50085M KM80ATCHTS50100M	-	-	-	-	-	5.34280R032080	90	3.5	5.34350-090100	DV50SM60070M BT50SM60090M	-	-	-	-
-	5.34050-040148 5.34050-040300 5.34050-040450 5.34050-040600	140 267 417 567	-	-	-	-	-	-	-	-	5.34140R040200	212	8.35	3.76063R040V* 3.76068R040V 3.76073R040V 3.76078R040V
-	-	-	SSF200HTS220297 SSF200HTS220922 SSF200HTS221572 SSF200HTS222572	.47 7.22 13.72 23.72	-	-	-	-	-	-	-	-	-	-
KM80ATCHTS50085M KM80ATCHTS50100M	-	-	-	-	-	5.34280R040080	90	3.62	5.34350-090100	DV50SM60070M BT50SM60090M	-	-	-	-

(continued)

(HTS Tool Assembly Combinations — continued)

HTS Tool Assembly Combinations

- Select your appropriate drill diameter range.
- Choose the appropriate adapter and shank size.
- Follow the columns to the right, and select the appropriate components from each column to complete your HTS(-R) tool.

drilling range		shank		DV		BT		CV		HSK
				assembly details		assembly details		assembly details		assembly details
mm	in		D1	40	50	40	50	40	50	50/63/100
78–84* 84–90 90–96 96–102	3.07–3.31 3.31–3.54 3.54–3.70 3.78–4.02	WD/ WN	50	–	DV50BWD50075M DV50RMWD50144M**	–	BT50BWD50085M BT50RMWD50162M**	–	CV50BWD50M343 CV50RMWD50M472**	HSK100ASWN50110M
		SS(F)	2.00	–	–	–	–	–	CV50SS200562 (AD) CV50SS200762 (AD) CV50BSSF200550	–
		HTS	50	–	5.36050–154050	–	BT50BHTS50080M	–	CV50BHTS50M314 CV50RMHTS50M413**	–
96–102* 102–108 108–115	3.78–4.02 4.02–4.25 4.25–4.53	WD/ WN	50	–	DV50BWD50075M DV50RMWD50144M**	–	BT50BWD50085M BT50RMWD50162M**	–	CV50BWD50M343 CV50RMWD50M472**	HSK100ASWN50110M
		SS(F)	2.00	–	–	–	–	–	CV50SS200562 (AD) CV50SS200762 (AD) CV50BSSF200550	–
		HTS	50	–	5.36050–154050	–	BT50BHTS50080M	–	CV50BHTS50M314 CV50RMHTS50M413**	–
115–122 122–130 130–140	4.53–4.80 4.80–5.12 5.12–5.51	SS(F)	40	–	–	–	–	–	CV50SS250800	–
		HTS	40	5.36050154040	–	BT50BHTS40080M	–	CV50BHTS40M314 CV50RMHTS40M412**	–	HSK100AHTS40085M
			50	–	5.36050–154050	–	BT50BHTS50080M	–	CV50BHTS50M314 CV50RMHTS50M413**	HSK100AHTS50090M
140–150 150–158 158–162 162–170	5.51–5.91 5.91–6.22 6.22–6.38 6.38–6.70	HTS	50	–	5.36050–154050	–	BT50BHTS50080M	–	CV50BHTS50M314 CV50RMHTS50M413**	HSK100AHTS50090M
180–186 195–201 213–220	7.08–7.32 7.68–7.91 8.39–8.66	customized solutions available upon request								
230–240 260–270	9.06–9.45 10.24–10.63	customized solutions available upon request								

* HTS drilling head with reinforced body for short-chipping materials.

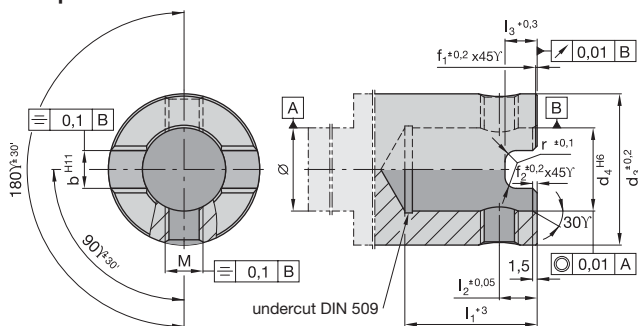
** Adapter with coolant ring.

The shown combinations are not complete. Ask your Kennametal representative to get the most reasonable solution for your application.

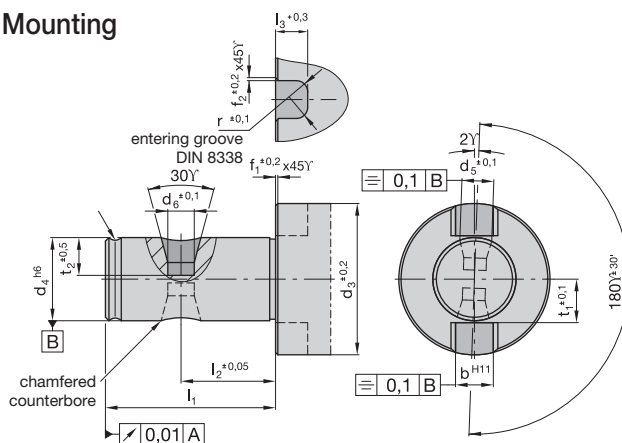
Please note that the assembled total length of the drilling tool is not necessarily the total achievable drilling depth.

KM	basic shank			reducer		extension		HTS head					
	assembly details	L4	L4	L1	for use with coolant adapter		L1						
80	metric	mm	inch	in	mm	in	coolant adapter	shell mill DV/BT	mm	in			
-	5.34050-048168 5.34050-048300 5.34050-048450 5.34050-048600	160 267 417 567	-	-	-	-	-	-	-	-			
-	-	-	SSF200HTS270297 SSF200HTS271122 SSF200HTS271922 SSF200HTS273122	1.47 9.22 17.22 29.22	-	-	-	-	5.34140R048200	212	8.35	3.76078R048V* 3.76084R048V 3.76090R048V 3.76096R048V	
KM80ATCHTS50085M KM80ATCHTS50100M	-	-	-	-	5.34280R048080	92	3.62	5.34350-090100	DV50SM60070M BT50SM60090M	-	-	-	
-	5.34050-058186 5.34050-058300 5.34050-058450 5.34050-058600	180 254 404 554	-	-	-	-	-	-	-	-	-	-	
-	-	-	SSF200HTS160239 SSF200HTS160714 SSF200HTS161214 SSF200HTS161964	.39 5.14 10.14 17.64	-	-	-	-	5.34158R058300	314	12.36	3.76096R058V* 3.76102R058V 3.76108R058V	
KM80ATCHTS50085M KM80ATCHTS50100M	-	-	-	-	5.34280R058080	94	3.70	5.34350-090100	DV50SM60070M BT50SM60090M	-	-	-	
-	-	-	SSF250HTS400355 SSF250HTS401055 SSF250HTS401555 SSF250HTS402555	1.63 8.21 13.21 23.21	-	-	-	-	-	-	-	-	
KM80ATCHTS40085M KM80ATCHTS40100M	-	-	-	-	5.34280R070150	164	6.45	5.34350-090100	DV50SM60070M BT50SM60090M	5.34170R070300 5.34170R070500	314 514	12.36 20.24	3.76115R070V 3.76122R070V 3.76130R070V
KM80ATCHTS50085M KM80ATCHTS50100M	-	-	-	-	-	-	-	-	-	-	-	-	-
KM80ATCHTS50085M KM80ATCHTS50100M	-	-	SSF300HTS500413 SSF300HTS501313 SSF300HTS502113 SSF300HTS503113	1.87 10.55 18.55 28.55	-	-	-	5.34350-090100	DV50SM60070M BT50SM60090M	5.34180R080204 5.34180R080300 5.34180R080500	220 316 516	8.66 12.44 20.32	3.76140R080V 3.76150R080V 3.76158R080V 3.76162R080V
customized solution available upon request												3.76180R110 3.76195R110 3.76213R125	
customized solution available upon request												3.76230R160 3.76260R160	

Adapter



Mounting



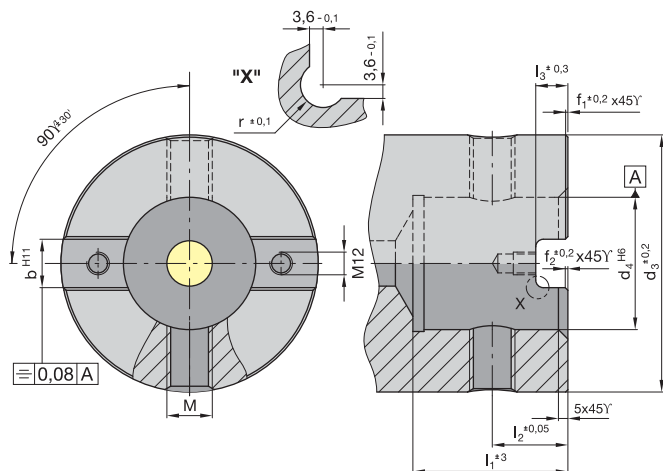
Adapter Dimensions

d3	d4	l1	l2	l3	M	b	r	f1	f2	drive ring	clamping screw	thread	MAN* Nm	sliding block	clamping screw M 12 x 25 for sliding block
25	13	28	12,4	7,0	M8 x 1,0	8,0	3	0,5	0,5	193.371	193.372	M8 x 1,0	10	-	-
28	13	28	12,4	7,0	M8 x 1,0	8,0	3	0,5	0,5	192.419	193.372	M8 x 1,0	10	-	-
32	16	32	14,4	7,5	M8 x 1,0	8,0	3	0,5	0,5	192.420	192.156	M8 x 1,0	10	-	-
40	22	35	13,4	8,5	M10 x 1,0	10,0	3	0,5	0,5	192.421	192.157	M10 x 1,0	16	-	-
48	27	40	15,4	9,0	M12 x 1,0	12,0	3	1,0	1,0	192.422	191.727	M12 x 1,0	16	-	-
58	32	38	15,4	10,0	M12 x 1,0	14,0	3	1,0	1,0	192.423	191.727	M12 x 1,0	20	-	-
70	40	43	16,4	10,0	M16 x 1,5	16,0	3	1,0	1,0	192.424	191.728	M16 x 1,5	34	-	-
80	50	46	20,4	12,5	M16 x 1,5	18,0	4	1,0	1,0	192.425	191.728	M16 x 1,5	34	-	-
90	50	46	20,4	12,5	M16 x 1,5	18,0	4	1,0	1,0	192.426	191.729	M16 x 1,5	34	-	-
110	60	46	20,4	12,5	M16 x 1,5	20,0	4	1,0	1,0	192.427	191.729	M16 x 1,5	34	-	-
125 1)	60	77	40,0	12,5	M24 x 2,0	25,5	4	1,0	1,0	-	193.107	M24 x 2,0	120	191.019	125.225
140 1)	70	82	40,0	12,5	M24 x 2,0	25,5	4	1,0	1,0	-	193.107	M24 x 2,0	120	191.019	125.225
160 1)	80	82	40,0	12,5	M24 x 2,0	25,5	4	1,0	1,0	-	193.107	M24 x 2,0	120	191.019	125.225

* MAN = Clamping torque of clamping screw in Nm.

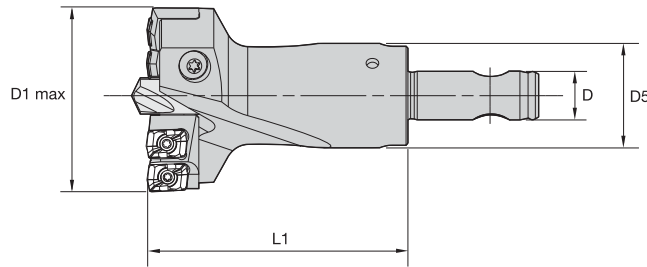
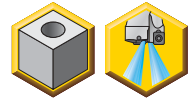
Mounting Dimensions

d3	d4	d5	d6	l1	l2	l3	t1	t2	b	r	f1	f2
25	13	8,50	6,5	35	22,0	7,00	6,7	6,50	8,0	3	0,5	0,5
28	13	8,50	6,5	35	22,0	7,00	7,0	6,50	8,0	3	0,5	0,5
32	16	8,30	6,5	40	24,0	7,50	8,5	7,50	8,0	3	0,5	0,5
40	22	10,50	7,0	45	25,0	8,50	11,5	10,00	10,0	3	0,5	0,5
48	27	12,75	9,0	50	27,0	9,00	14,0	12,00	12,0	3	1,0	1,0
58	32	11,50	9,0	50	29,0	10,00	16,5	7,25	14,0	3	1,0	1,0
70	40	15,25	12,2	55	30,0	10,50	20,5	10,00	16,0	3	1,0	1,0
80	50	15,25	12,2	60	36,0	12,50	25,5	12,50	18,0	4	1,0	1,0
90	50	16,50	12,2	60	36,0	12,50	25,5	12,50	18,0	4	1,0	1,0
110	60	14,50	12,2	60	36,0	13,65	30,5	10,00	20,0	4	1,0	1,0
125 1)	60	25,00	18,0	75	39,5	17,00	35,0	20,25	25,5	6	1,0	1,0
140 1)	70	25,00	18,0	80	39,5	17,00	42,0	20,25	25,5	6	1,0	1,0
160 1)	80	25,00	18,0	80	39,5	17,00	42,0	20,25	25,5	6	1,0	1,0



1) Adapter for d3 = 125, 140, and 160

- Head shipped with clamping and adjusting screws.
- Order pilot drill and cartridges separately; see page J76 for pilot drill.



HTS Adjustable Heads with DFR™ Inserts

catalog number	D1		D1 max		D5		L1		 pilot drill HSS		 pilot drill carbide		 cartridge interior		 cartridge exterior		 gage insert	
	mm	in	mm	in	mm	in	D	mm	in			n	n	n	ni			
HTSR040R025M	40	1.57	43	1.69	25	0.98	13A	60	2	B513S08..	B514S08..	HTSR10CI	1	HTSR10CE	1	DFR0302..	4	
HTSR043R025M	43	1.69	46	1.81	25	0.98	13A	70	3	B513S10..	B514S10..	HTSR11CI	1	HTSR11CE	1	DFR0302..	4	
HTSR046R028M	46	1.81	49	1.93	28	1.10	13B	70	3	B513S10..	B514S10..	HTSR12CI	1	HTSR12CE	1	DFR0403..	4	
HTSR049R028M	49	1.93	52	2.05	28	1.10	13B	70	3	B513S10..	B514S10..	HTSR13CI	1	HTSR13CE	1	DFR0403..	4	
HTSR052R028M	52	2.05	55	2.17	28	1.10	13B	70	3	B513S10..	B514S10..	HTSR14CI	1	HTSR14CE	1	DFR0403..	4	

NOTE: n: number of cartridges required by head.
ni: number of inserts required by head.

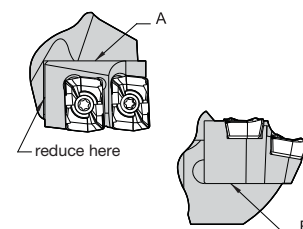
D1 diameter			
mm	in	clamping screw	adjusting screw
40-42	1.57-1.68	190.116	128.610
43-52	1.69 - 2.05	193.397	190.458



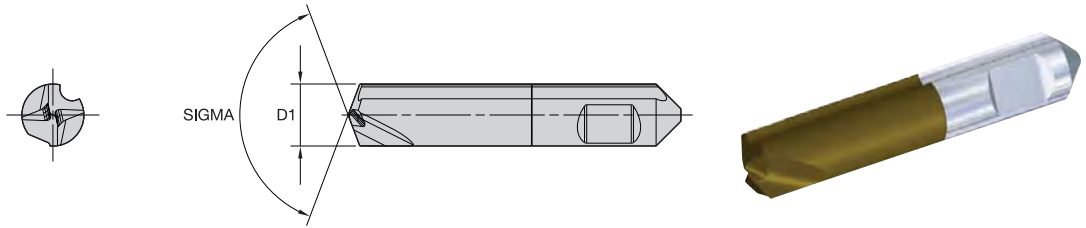
HTS DFR Cartridges

catalog number	gage insert	Nm	ft. lbs.	 insert screw	 cartridge screw	 washer
HTSR10CE	DFR0302..	5,0	3.69	192.416	192.592	192.902
HTSR10CI	DFR0302..	5,0	3.69	192.416	192.592	192.902
HTSR11CE	DFR0302..	5,0	3.69	192.416	192.592	192.902
HTSR11CI	DFR0302..	5,0	3.69	192.416	192.592	192.902
HTSR12CE	DFR0403..	5,0	3.69	192.432	192.592	192.902
HTSR12CI	DFR0403..	5,0	3.69	192.432	192.592	192.902
HTSR13CE	DFR0403..	5,0	3.69	192.432	192.592	192.902
HTSR13CI	DFR0403..	5,0	3.69	192.432	192.592	192.902
HTSR14CE	DFR0403..	5,0	3.69	192.432	192.592	192.902
HTSR14CI	DFR0403..	5,0	3.69	192.432	192.592	192.902

- Change drill diameter by shortening the outer cartridge.
- Shorten at 90° to the contact face A and the support face B.
- Shortening reduces the effective drill diameter by 2x the amount removed.

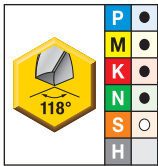


- Choose between HSS and solid carbide.

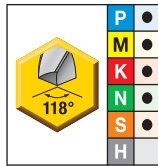


HTS DFR™ • Pilot Drills

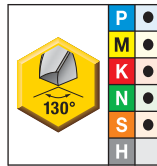
Indexable Drills



high-speed steel uncoated
A30



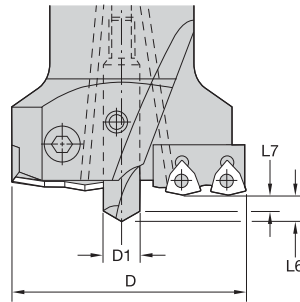
high-speed steel coated
AS3



solid carbide coated
KC7030

- first choice
- alternate choice

			D1	
			mm	in
B513S08000 A30	B513S08000 AS3	B514S08000 KC7030	8	.32
B513S10000 A30	B513S10000 AS3	B514S10000 KC7030	10	.39



HTS DFR • Pilot Drills

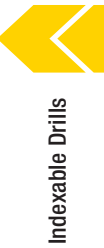
D1		high-speed steel				solid carbide			
mm	in	L6		L7		L6		L7	
mm	in	mm	in	mm	in	mm	in	mm	in
8,00	.315	4,14	.163	1,73	.068	3,61	.142	1,73	.068
10,00	.394	4,88	.192	1,88	.074	4,19	.165	1,88	.074

HTS DFR™ • Metric

Material Group	Condition	Pocket Seat	Geometry	Grade	Metric						
					Cutting Speed – vc			Recommended Feed Rate (f) by Diameter			
					Range – m/min			Ø	DFR03... 40,00–46,00mm	DFR04 46,00–55,00mm	
min	Starting Value	max									
P	1	S	O	MD	KCU25	79	190	229	mm/r	0,10–0,14	0,12–0,18
			I	MD	KCU25						
		U	O	MD	KCU40	71	130	171	mm/r	0,10–0,14	0,12–0,18
			I	MD	KCU40						
	2	S	O	GD	KCU25	75	180	217	mm/r	0,10–0,14	0,12–0,18
			I	GD	KCU25						
		U	O	GD	KCU40	71	120	271	mm/r	0,10–0,14	0,12–0,18
			I	GD	KCU40						
	3	S	O	GD	KCU25	60	140	169	mm/r	0,10–0,14	0,12–0,18
			I	GD	KCU25						
		U	O	GD	KCU40	50	100	121	mm/r	0,10–0,14	0,12–0,18
			I	GD	KCU40						
	4	S	O	GD	KCU25	79	120	229	mm/r	0,10–0,14	0,12–0,18
			I	GD	KCU25						
		U	O	GD	KCU40	71	100	171	mm/r	0,10–0,14	0,12–0,18
			I	GD	KCU40						
	5	S	O	GD	KCU40	62	100	190	mm/r	0,06–0,11	0,07–0,14
			I	GD	KCU40						
		U	O	GD	KCU40	47	60	114	mm/r	0,06–0,11	0,07–0,14
			I	GD	KCU40						
	6	S	O	GD	KCU40	59	95	180	mm/r	0,07–0,11	0,08–0,13
			I	GD	KCU40						
		U	O	GD	KCU40	45	57	108	mm/r	0,07–0,11	0,08–0,13
			I	GD	KCU40						
M	1	S	O	MD	KCU40	40	110	134	mm/r	0,07–0,11	0,12–0,18
			I	MD	KCU40						
		U	O	MD	KCU40	31	70	86	mm/r	0,07–0,11	0,12–0,18
			I	MD	KCU40						
	2	S	O	MD	KCU40	38	99	127	mm/r	0,07–0,11	0,12–0,18
			I	MD	KCU40						
		U	O	MD	KCU40	31	63	86	mm/r	0,07–0,11	0,12–0,18
			I	MD	KCU40						
	3	S	O	MD	KCU40	32	88	107	mm/r	0,07–0,11	0,12–0,18
			I	MD	KCU40						
		U	O	MD	KCU40	31	56	86	mm/r	0,07–0,11	0,12–0,18
			I	MD	KCU40						

Condition: S = Stable cutting conditions;
 U = Unstable cutting conditions;
 I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
 O = Outboard insert



■ HTS DFR™ • Metric

Material Group	Condition	Pocket Seat	Geometry	Grade	Metric						
					Cutting Speed – vc			Recommended Feed Rate (f) by Diameter			
					Range – m/min			Ø	DFR03... 40,00–46,00mm	DFR04... 46,00–55,00mm	
min	Starting Value	max									
K	1	S	O	GD	KCPK10	79	171	229	mm/r	0,11–0,20	0,13–0,27
			I	GD	KCPK10						
		U	O	LD	KCU25	64	117	156			
			I	LD	KCU25						
	I	O	LD	KCU40	40	72	96				
		I	LD	KCU40							
	2	S	O	GD	KCPK10	75	162	217	mm/r	0,11–0,20	0,13–0,27
			I	GD	KCPK10						
		U	O	GD	KCU25	64	111	156			
			I	GD	KCU25						
		I	O	LD	KCU40	40	68	96			
			I	LD	KCU40						
3	S	O	GD	KCPK10	68	146	195	mm/r	0,11–0,20	0,13–0,27	
		I	GD	KCPK10							
	U	O	GD	KCU25	59	100	144				
		I	GD	KCU25							
	I	O	GD	KCU40	35	62	84				
		I	GD	KCU40							
N	1	S	O	ST	KD1425	128	240	358	mm/r	0,06–0,09	0,11–0,19
			I	ST	KD1425						
		U	O	LD	KCU40	102	160	239			
			I	LD	KCU40						
		I	O	LD	KCU40	67	104	155			
			I	LD	KCU40						
	2	S	O	ST	KD1425	119	223	333	mm/r	0,06–0,09	0,11–0,19
			I	ST	KD1425						
		U	O	LD	KCU40	102	149	239			
			I	LD	KCU40						
		I	O	LD	KCU40	67	97	155			
			I	LD	KCU40						
	3	S	O	ST	KD1425	110	206	308	mm/r	0,06–0,09	0,11–0,19
			I	ST	KD1425						
		U	O	LD	KCU40	102	138	239			
			I	LD	KCU40						
		I	O	LD	KCU40	67	89	155			
			I	LD	KCU40						
	4	S	O	ST	KD1425	119	223	333	mm/r	0,06–0,09	0,11–0,19
			I	ST	KD1425						
		U	O	LD	KCU40	102	149	239			
			I	LD	KCU40						
		I	O	LD	KCU40	67	97	155			
			I	LD	KCU40						
5	S	O	ST	KD1425	92	220	262	mm/r	0,06–0,09	0,11–0,19	
		I	ST	KD1425							
	U	O	LD	KCU40	72	140	167				
		I	LD	KCU40							
	I	O	LD	KCU40	46	90	107				
		I	LD	KCU40							

Condition: S = Stable cutting conditions;
 U = Unstable cutting conditions;
 I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
 O = Outboard insert



HTS DFR™ • Inch

		Inch									
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (fz) by Diameter			
					Range – SFM			Ø	DFR03... .688–.750"	DFR04... .813–1.00"	
					min	Starting Value	max				
P	1	S	O	MD	KCU25	260	623	750	IPR	.004–.006	.005–.007
			I	MD	KCU25						
		U	O	MD	KCU40	231	427	561	IPR	.004–.006	.005–.007
			I	MD	KCU40						
	2	S	O	GD	KCU25	247	591	712	IPR	.004–.006	.005–.007
			I	GD	KCU25						
		U	O	GD	KCU40	231	394	561	IPR	.004–.006	.005–.007
			I	GD	KCU40						
	3	S	O	GD	KCU25	197	459	555	IPR	.004–.006	.005–.007
			I	GD	KCU25						
		U	O	GD	KCU40	163	328	396	IPR	.004–.006	.005–.007
			I	GD	KCU40						
	4	S	O	GD	KCU25	260	394	750	IPR	.004–.006	.005–.007
			I	GD	KCU25						
		U	O	GD	KCU40	231	328	561	IPR	.004–.006	.005–.007
			I	GD	KCU40						
	5	S	O	GD	KCU40	205	328	622	IPR	.002–.004	.003–.006
			I	GD	KCU40						
		U	O	GD	KC7140	154	197	373	IPR	.002–.004	.003–.006
			I	GD	KC7140						
	6	S	O	GD	KCU40	195	312	591	IPR	.003–.004	.003–.005
			I	GD	KCU40						
		U	O	GD	KC7140	146	187	355	IPR	.003–.004	.003–.005
			I	GD	KC7140						
M	1	S	O	MD	KCU40	130	361	439	IPR	.003–.004	.005–.007
			I	MD	KC7140						
		U	O	MD	KC7140	101	230	281	IPR	.003–.004	.005–.007
			I	MD	KC7140						
	2	S	O	MD	KCU40	124	325	417	IPR	.003–.004	.005–.007
			I	MD	KC7140						
		U	O	MD	KC7140	101	207	281	IPR	.003–.004	.005–.007
			I	MD	KC7140						
	3	S	O	MD	KCU40	104	289	351	IPR	.003–.004	.005–.007
			I	MD	KC7140						
		U	O	MD	KC7140	101	184	281	IPR	.003–.004	.005–.007
			I	MD	KC7140						
3	S	O	MD	KCU40	104	289	351	IPR	.003–.004	.005–.007	
		I	MD	KC7140							
	U	O	MD	KC7140	101	184	281	IPR	.003–.004	.005–.007	
		I	MD	KC7140							

Condition: S = Stable cutting conditions;
 U = Unstable cutting conditions;
 I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
 O = Outboard insert



■ HTS DFR™ • Inch

		Inch									
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (fz) by Diameter			
					Range – SFM			Ø	DFR03... .688–.750"	DFR04... .813–1.00"	
					min	Starting Value	max				
K	1	S	O	GD	KCPK10	260	561	750	IPR	.004–.008	.005–.011
			I	GD	KCPK10						
		U	O	LD	KCU25	211	384	510			
			I	LD	KCU25						
	I	O	LD	KCU40	131	236	316				
		I	LD	KCU40							
	2	S	O	GD	KCPK10	247	533	712	IPR	.004–.008	.005–.011
			I	GD	KCPK10						
		U	O	GD	KCU25	211	365	510			
			I	GD	KCU25						
		I	O	LD	KCU40	131	224	316			
			I	LD	KCU40						
3	S	O	GD	KCPK10	222	480	641	IPR	.004–.008	.005–.011	
		I	GD	KCPK10							
	U	O	GD	KCU25	195	328	473				
		I	GD	KCU25							
	I	O	GD	KCU40	113	202	274				
		I	GD	KCU40							
N	1	S	O	ST	KD1425	420	787	1176	IPR	.002–.004	.004–.007
			I	ST	KD1425						
		U	O	LD	KCU40	336	525	784			
			I	LD	KCU40						
	2	S	O	ST	KD1425	391	732	1094	IPR	.002–.004	.004–.007
			I	ST	KD1425						
		U	O	LD	KCU40	336	488	784			
			I	LD	KCU40						
	3	S	O	ST	KD1425	361	677	1011	IPR	.002–.004	.004–.007
			I	ST	KD1425						
		U	O	LD	KCU40	336	451	784			
			I	LD	KCU40						
4	S	O	ST	KD1425	391	732	1094	IPR	.002–.004	.004–.007	
		I	ST	KD1425							
	U	O	LD	KCU40	336	488	784				
		I	LD	KCU40							
5	S	O	ST	KD1425	302	722	858	IPR	.002–.004	.004–.007	
		I	ST	KD1425							
	U	O	LD	KCU40	235	459	549				
		I	LD	KCU40							
I	O	LD	KCU40	151	295	351					
	I	LD	KCU40								

Condition: S = Stable cutting conditions;
 U = Unstable cutting conditions;
 I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
 O = Outboard insert



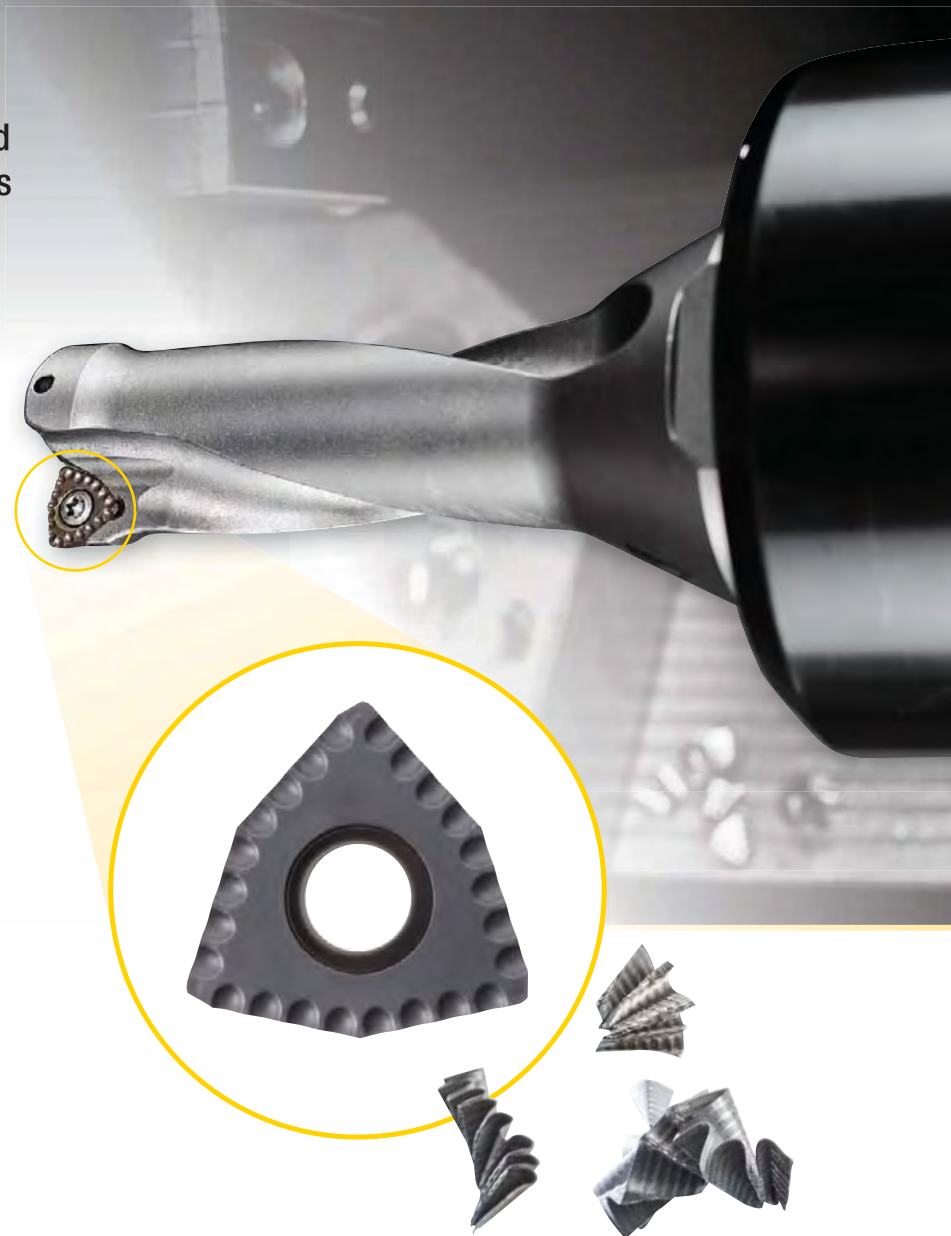
Difficult Applications Made Easy

Use DS and LP geometries to avoid bird nesting and long, stringy chips in low-carbon steel applications.

- The new DS insert style can be used on Drill Fix™ DFT™, HTS, and KSEM PLUS™ tooling systems.
- LP-style inserts can be used on Drill Fix DFSP™ as outboard inserts.
- Use the new geometries in all applications where long chips are an issue.

See pages J4–J59 for Drill Fix indexable drills.

See pages H102–H106, H108–H125, and H133 for KSEM PLUS A1 and B1 head systems.

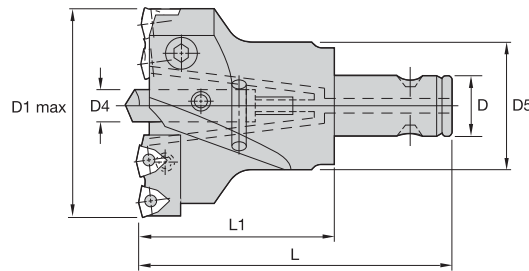


Experience the advantages at your Authorized Kennametal Distributor or at kennametal.com.



kennametal.com

- Head shipped with clamping and adjusting screws.
- Order pilot drill separately; see page J86.
- Order cartridges separately; see page J84.

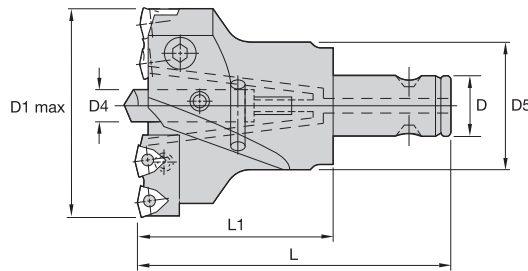


■ HTS Adjustable Heads with DFT™ Inserts

catalog number	D1		D1 max		D5	D	L	L1	pilot drill	cartridge interior	n	cartridge exterior	n	gage insert	ni	kg	lbs
	mm	in	mm	in													
3.76045R028V	45	1.770	50	1.970	28	13	85	50	B510S08.	3.77000R050V	1	3.77000R051V	1	DFT0303.	4	0.3	0.66
3.76050R028V	50	1.970	55	2.170	28	13	85	50	B510S08.	3.77000R052V	1	3.77000R053V	1	DFT0303.	4	0.4	0.88
3.76055R032V	55	2.170	58	2.280	33	16	100	60	B510S08.	3.77000R038V	1	3.77000R039V	1	DFT05T3.	4	0.4	0.88
3.76058R032V	58	2.280	63	2.480	33	16	100	60	B510S10.	3.77000R023V	1	3.77000R024V	1	DFT05T3.	4	0.4	0.88
3.76063R032V	63	2.480	68	2.680	33	16	100	60	B510S10.	3.77000R025V	1	3.77000R024V	1	DFT05T3.	4	0.4	0.88
3.76063R040V	63	2.480	68	2.680	41	22	115	70	B510S10.	3.77000R025V	1	3.77000R024V	1	DFT05T3.	4	0.5	1.10
3.76068R040V	68	2.680	73	2.870	41	22	115	70	B510S10.	3.77000R026V	1	3.77000R027V	1	DFT05T3.	4	0.8	1.76
3.76073R040V	73	2.870	78	3.070	41	22	115	70	B510S15.	3.77000R026V	1	3.77000R027V	1	DFT05T3.	4	0.8	1.76
3.76078R040V	78	3.070	84	3.310	41	22	115	70	B510S15.	3.77000R028V	1	3.77000R029V	1	DFT06T3.	4	0.8	1.76
3.76078R048V	78	3.070	84	3.310	49	27	120	70	B510S15.	3.77000R028V	1	3.77000R029V	1	DFT06T3.	4	0.9	1.98
3.76084R048V	84	3.310	90	3.540	49	27	120	70	B510S15.	3.77000R028V	1	3.77000R029V	1	DFT06T3.	4	1.0	2.20
3.76090R048V	90	3.540	96	3.780	49	27	120	70	B510S15.	3.77000R030V	1	3.77000R031V	1	DFT06T3.	4	1.0	2.20
3.76096R048V	96	3.780	102	4.020	49	27	120	70	B510S20.	3.77000R030V	1	3.77000R031V	1	DFT06T3.	4	1.1	2.43
3.76096R058V	96	3.780	102	4.020	59	32	130	80	B510S20.	3.77000R030V	1	3.77000R031V	1	DFT06T3.	4	1.2	2.65
3.76102R058V	102	4.020	108	4.250	59	32	130	80	B510S20.	3.77000R081V	1	3.77000R082V	1	DFT05T3.	6	1.7	3.75
3.76108R058V	108	4.250	115	4.530	59	32	130	80	B510S20.	3.77000R083V	1	3.77000R084V	1	DFT06T3.	6	1.8	3.97
3.76115R070V	115	4.530	122	4.800	71	40	145	90	B510S20.	3.77000R085V	1	3.77000R086V	1	DFT06T3.	6	2.9	6.39
3.76122R070V	122	4.800	130	5.120	71	40	145	90	B510S25.	3.77000R079V	1	3.77000R080V	1	DFT06T3.	6	2.9	6.39
3.76130R070V	130	5.120	140	5.510	71	40	145	90	B510S25.	3.77000R087V	1	3.77000R088V	1	DFT06T3.	6	3.0	6.61
3.76140R080V	140	5.510	150	5.910	81	50	160	100	B510S25.	3.77000R077V	1	3.77000R078V	1	DFT0704.	6	4.3	9.48
3.76150R080V	150	5.910	158	6.220	81	50	160	100	B510S25.	3.77000R075V	1	3.77000R076V	1	DFT0704.	6	4.5	9.92
3.76158R080V	158	6.220	162	6.380	81	50	160	100	B510S25.	3.77000R073V	1	3.77000R074V	1	DFT0704.	6	4.5	9.92
3.76162R080V	162	6.380	170	6.690	80	50	160	100	B510S30.	3.77000R048V	1	3.77000R049V	1	DFT0704.	6	4.5	9.92
3.76180R110	180	7.090	186	7.320	110	60	185	125	B510S30.	3.77000R030V	3	3.77000R031V	1	DFT06T3.	8	6.0	13.23
3.76195R110	195	7.680	201	7.910	110	60	185	125	B510S30.	3.77000R081V	3	3.77000R082V	1	DFT05T3.	12	6.5	14.33
3.76213R125	213	8.390	220	8.660	125	60	200	125	B510S30.	3.77000R083V	3	3.77000R084V	1	DFT06T3.	12	7.5	16.53
3.76230R160	230	9.060	240	9.450	160	80	230	150	B510S30.	3.77000R079V	2	3.77000R080V	2	DFT06T3.	12	8.5	18.74
3.76260R160 *	260	10.240	270	10.630	160	80	230	150	B510S30.	3.77000R077V	2	3.77000R078V	2	DFT06T3.	12	9.0	19.84

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.
n: number of cartridges required by head.
ni: number of inserts required by head.

- Head shipped with clamping and adjusting screws.
- Order pilot drill separately; see page J86.
- Order cartridges separately; see pages J84–J85.



■ HTS Adjustable Heads • DFT™ and SPHX Inserts

catalog number	D1		D1 max		pilot drill	cartridge interior			gage insert	ni	cartridge exterior SPHX				
	mm	in	mm	in		n	cartridge interior 2	n			n	n	gage insert	ni	
3.76045R028V	45	1.770	50	1.970	B510S08.	3.77000R250V	1	—	—	DFT0303.	3	3.77000R251V	1	SPHX0703.	1
3.76050R028V	50	1.970	55	2.170	B510S08.	3.77000R252V	1	—	—	DFT0303.	3	3.77000R253V	1	SPHX0703.	1
3.76055R032V	55	2.170	58	2.280	B510S08.	3.77000R038V	1	—	—	DFT05T3.	3	3.77000R239V	1	SPHX0903.	1
3.76058R032V	58	2.280	63	2.480	B510S10.	3.77000R023V	1	—	—	DFT05T3.	3	3.77000R224V	1	SPHX0903.	1
3.76063R032V	63	2.480	68	2.680	B510S10.	3.77000R025V	1	—	—	DFT05T3.	3	3.77000R224V	1	SPHX0903.	1
3.76063R040V	63	2.480	68	2.680	B510S10.	3.77000R025V	1	—	—	DFT05T3.	3	3.77000R224V	1	SPHX0903.	1
3.76068R040V	68	2.680	73	2.870	B510S10.	3.77000R026V	1	—	—	DFT05T3.	3	3.77000R227V	1	SPHX0903.	1
3.76073R040V	73	2.870	78	3.070	B510S15.	3.77000R026V	1	—	—	DFT05T3.	3	3.77000R227V	1	SPHX0903.	1
3.76078R040V	78	3.070	84	3.310	B510S15.	3.77000R028V	1	—	—	DFT06T3.	3	3.77000R229V	1	SPHX0903.	1
3.76078R048V	78	3.070	84	3.310	B510S15.	3.77000R028V	1	—	—	DFT06T3.	3	3.77000R229V	1	SPHX0903.	1
3.76084R048V	84	3.310	90	3.540	B510S15.	3.77000R228V	1	—	—	DFT06T3.	3	3.77000R229V	1	SPHX0903.	1
3.76090R048V	90	3.540	96	3.780	B510S15.	3.77000R230V	1	—	—	DFT06T3.	3	3.77000R231V	1	SPHX0903.	1
3.76096R048V	96	3.780	102	4.020	B510S20.	3.77000R230V	1	—	—	DFT06T3.	3	3.77000R231V	1	SPHX0903.	1
3.76096R058V	96	3.780	102	4.020	B510S20.	3.77000R230V	1	—	—	DFT06T3.	3	3.77000R231V	1	SPHX0903.	1
3.76102R058V	102	4.020	108	4.250	B510S20.	3.77000R081V	1	—	—	DFT05T3.	5	3.77000R282V	1	SPHX0903.	1
3.76108R058V	108	4.250	115	4.530	B510S20.	3.77000R083V	1	—	—	DFT06T3.	5	3.77000R284V	1	SPHX1204.	1
3.76115R070V	115	4.530	122	4.800	B510S20.	3.77000R085V	1	—	—	DFT06T3.	5	3.77000R286V	1	SPHX1204.	1
3.76122R070V	122	4.800	130	5.120	B510S25.	3.77000R079V	1	—	—	DFT06T3.	5	3.77000R280V	1	SPHX1204.	1
3.76130R070V	130	5.120	140	5.510	B510S25.	3.77000R087V	1	—	—	DFT06T3.	5	3.77000R288V	1	SPHX1204.	1
3.76140R080V	140	5.510	150	5.910	B510S25.	3.77000R077V	1	—	—	DFT0704.	5	3.77000R278V	1	SPHX1505.	1
3.76150R080V	150	5.910	158	6.220	B510S25.	3.77000R075V	1	—	—	DFT0704.	5	3.77000R276V	1	SPHX1204.	1
3.76158R080V	158	6.220	162	6.380	B510S25.	3.77000R073V	1	—	—	DFT0704.	5	3.77000R274V	1	SPHX1204.	1
3.76162R08'0V	162	6.380	170	6.690	B510S30.	3.77000R248V	1	—	—	DFT0704.	5	3.77000R249V	1	SPHX1505.	1
3.76180R110	180	7.090	186	7.320	B510S30.	3.77000R230V	3	—	—	DFT06T3.	7	3.77000R231V	1	SPHX0903.	1
3.76195R110	195	7.680	201	7.910	B510S30.	3.77000R081V	3	—	—	DFT05T3.	11	3.77000R282V	1	SPHX0903.	1
3.76213R125	213	8.390	220	8.660	B510S30.	3.77000R083V	3	—	—	DFT06T3.	11	3.77000R284V	1	SPHX1204.	1
3.76230R160	230	9.060	240	9.450	B510S30.	3.77000R079V	2	3.77000R080V	1	DFT06T3.	11	3.77000R280V	1	SPHX1204.	1
3.76260R160 *	260	10.240	270	10.630	B510S30.	—	2	—	1	DFT06T3.	11	3.77000R078V	1	SPHX1204.	1

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.
n: number of cartridges required by head.
ni: number of inserts required by head.

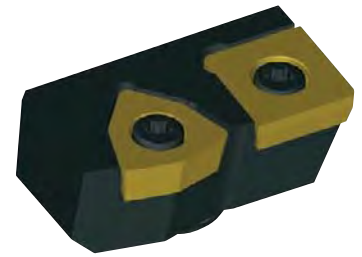


■ HTS Interior and Exterior Cartridges • DFT™ Inserts

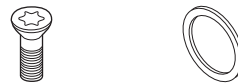
Indexable Drills



catalog number	gage insert	number of inserts	insert screw	cartridge screw	fan washer	Nm	ft. lbs.
3.77000R023V	DFT05T3..	2	191.924	192.593	192.903	5,0	3.69
3.77000R024V	DFT05T3..	2	191.924	192.593	192.903	5,0	3.69
3.77000R025V	DFT05T3..	2	191.924	192.593	192.903	5,0	3.69
3.77000R026V	DFT05T3..	2	191.924	192.593	192.903	5,0	3.69
3.77000R027V	DFT05T3..	2	191.924	192.593	192.903	5,0	3.69
3.77000R028V	DFT06T3..	2	191.848	129.612	192.111	10,0	7.38
3.77000R029V	DFT06T3..	2	191.848	129.612	192.111	10,0	7.38
3.77000R030V	DFT06T3..	2	191.848	129.616	192.111	10,0	7.38
3.77000R031V	DFT06T3..	2	191.848	129.616	192.111	10,0	7.38
3.77000R038V	DFT05T3..	2	191.924	192.593	192.903	5,0	3.69
3.77000R039V	DFT05T3..	2	191.924	192.593	192.903	5,0	3.69
3.77000R048V	DFT0704..	3	191.698	125.830	192.112	35,0	25.81
3.77000R049V	DFT0704..	3	191.698	125.830	192.112	35,0	25.81
3.77000R050V	DFT0303..	2	192.432	192.592	192.902	5,0	3.69
3.77000R051V	DFT0303..	2	192.432	192.592	192.902	5,0	3.69
3.77000R052V	DFT0303..	2	192.432	192.592	192.902	5,0	3.69
3.77000R053V	DFT0303..	2	192.432	192.592	192.902	5,0	3.69
3.77000R073V	DFT0704..	3	191.698	—	192.112	35,0	25.81
3.77000R074V	DFT0704..	3	191.698	—	192.112	35,0	25.81
3.77000R075V	DFT0704..	3	191.698	—	192.112	35,0	25.81
3.77000R076V	DFT0704..	3	191.698	—	192.112	35,0	25.81
3.77000R077V	DFT0704..	3	191.698	—	192.112	35,0	25.81
3.77000R078V	DFT0704..	3	191.698	—	192.112	35,0	25.81
3.77000R079V	DFT06T3..	3	191.848	125.820	192.112	35,0	25.81
3.77000R080V	DFT06T3..	3	191.848	125.820	192.112	35,0	25.81
3.77000R081V	DFT05T3..	3	191.924	125.820	192.112	35,0	25.81
3.77000R082V	DFT05T3..	3	191.924	125.820	192.112	35,0	25.81
3.77000R083V	DFT06T3..	3	191.848	125.820	192.112	35,0	25.81
3.77000R084V	DFT06T3..	3	191.848	125.820	192.112	35,0	25.81
3.77000R085V	DFT06T3..	3	191.848	—	192.112	35,0	25.81
3.77000R086V	DFT06T3..	3	191.848	125.820	192.112	35,0	25.81
3.77000R087V	DFT06T3..	3	191.848	125.820	192.112	35,0	25.81
3.77000R088V	DFT06T3..	3	191.848	125.820	192.112	35,0	25.81



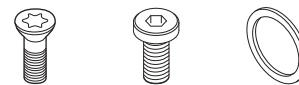
■ HTS Finishing Interior Cartridges • For Use with Exterior Cartridges Equipped with SPHX Inserts



catalog number	gage insert	number of inserts	insert screw	washer	Nm	ft. lbs.
3.77000R228V	DFT06T3..	2	191.848	192.111	10,0	7.38
3.77000R230V	DFT06T3..	2	191.848	192.111	10,0	7.38
3.77000R248V	DFT0704..	3	191.698	192.112	35,0	25.81
3.77000R250V	DFT0303..	2	192.432	192.902	5,0	3.69
3.77000R252V	DFT0303..	2	192.432	192.902	5,0	3.69

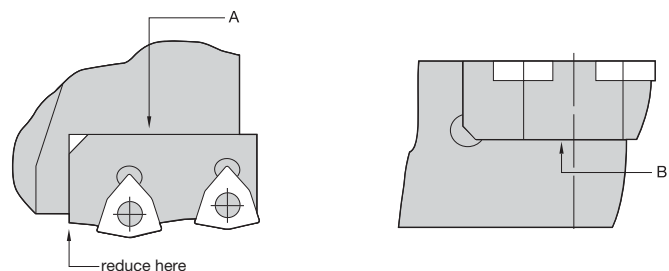
NOTE: Modified interior cartridges for use with SPHX-equipped exterior cartridges only.

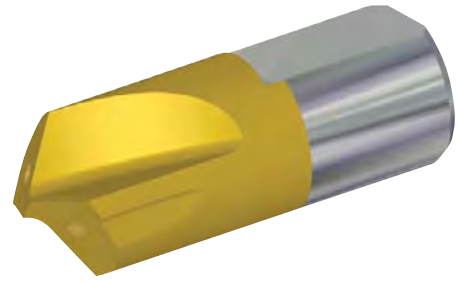
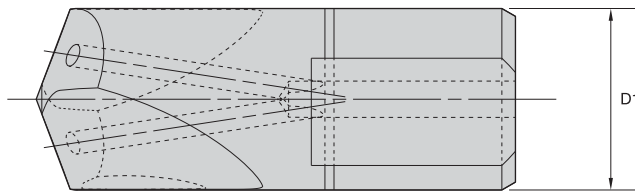
■ HTS Finishing Exterior Cartridges • SPHX Inserts



catalog number	gage insert inside	number of inserts	gage insert outside	number of inserts	insert screw	screw	washer	Nm	ft. lbs.
3.77000R224V	DFT05T3..	2	SPHX0903..	1	191.924	193.451	192.903	5,0	3.69
3.77000R227V	DFT05T3..	2	SPHX0903..	1	191.924	192.593	192.903	5,0	3.69
3.77000R229V	DFT06T3..	2	SPHX0903..	1	191.916	129.612	192.111	10,0	7.38
3.77000R231V	DFT06T3..	2	SPHX0903..	1	191.916	129.616	192.111	10,0	7.38
3.77000R239V	DFT05T3..	2	SPHX0903..	1	191.924	193.451	192.903	5,0	3.69
3.77000R249V	DFT0704..	3	SPHX1505..	1	191.698	125.830	192.112	35,0	25.81
3.77000R251V	DFT0303..	2	SPHX0703..	1	192.432	193.450	192.902	5,0	3.69
3.77000R253V	DFT0303..	2	SPHX0703..	1	192.432	193.450	192.902	5,0	3.69
3.77000R274V	DFT0704..	3	SPHX1505..	1	191.698	—	192.112	35,0	25.81
3.77000R276V	DFT0704..	3	SPHX1505..	1	191.698	—	192.112	35,0	25.81
3.77000R278V	DFT0704..	3	SPHX1505..	1	191.698	—	192.112	35,0	25.81
3.77000R280V	DFT06T3..	3	SPHX1204..	1	191.916	125.820	192.112	35,0	25.81
3.77000R282V	DFT05T3..	3	SPHX0903..	1	191.924	125.820	192.112	35,0	25.81
3.77000R284V	DFT06T3..	3	SPHX1204..	1	191.916	125.820	192.112	35,0	25.81
3.77000R286V	DFT06T3..	3	SPHX1204..	1	191.916	—	192.112	35,0	25.81
3.77000R288V	DFT06T3..	3	SPHX1204..	1	191.916	125.820	192.112	35,0	25.81

- Change drill diameter by shortening the outer cartridge.
- Shorten at 90° to the contact face A and the support face B.
- Shortening reduces the effective drill diameter by two times the amount removed.

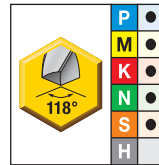
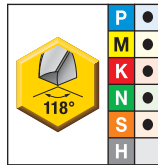
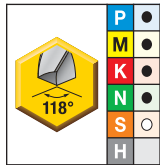




8–10mm sizes are without coolant.

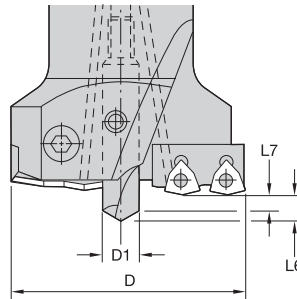


■ HTS DFT™ • Pilot Drills



● first choice
○ alternate choice

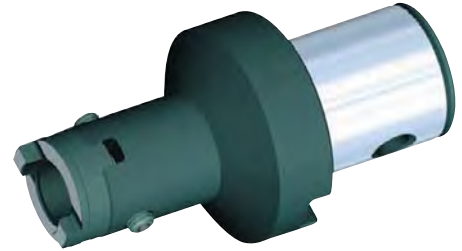
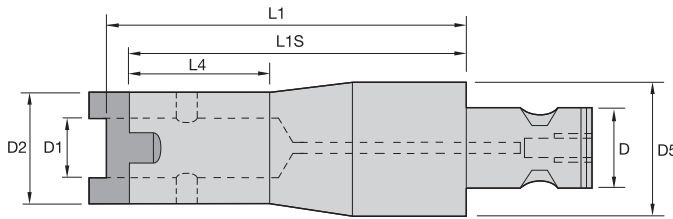
high-speed steel uncoated A30		high-speed steel coated AS3		carbide drills KC7315		D1	
						mm	in
B510S08000 A30	B510S08000 AS3	B511S08000 KC7315	8,00	0.315			
B510S10000 A30	B510S10000 AS3	B511S10000 KC7315	10,00	0.394			
B510S15000 A30	B510S15000 AS3	B511S15000 KC7315	15,00	0.591			
B510S20000 A30	B510S20000 AS3	B511S20000 KC7315	20,00	0.787			
B510S25000 A30	B510S25000 AS3	B511S25000 KC7315	25,00	0.984			
B510S30000 A30	B510S30000 AS3	B511S30000 KC7315	30,00	1.181			



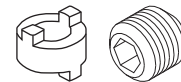
■ Pilot Drill Setting Lengths

D1		2–4 x D				4–6 x D				>6 x D			
		L6		L7		L6		L7		L6		L7	
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
8,00	.315	3,00	.118	0,80	.032	3,40	.134	1,20	.047	3,80	.150	1,60	.063
10,00	.394	4,00	.158	1,30	.051	4,30	.169	1,60	.063	4,60	.181	1,90	.075
15,00	.591	6,20	.244	2,10	.083	6,50	.256	2,40	.095	6,80	.268	2,70	.106
20,00	.787	8,10	.319	2,60	.102	8,40	.331	2,90	.114	8,70	.343	3,20	.126
25,00	.984	10,50	.413	3,50	.138	7,40	.429	3,90	.154	11,30	.445	4,30	.169
30,00	1.181	12,30	.484	4,10	.158	12,80	.504	4,50	.177	13,20	.520	5,00	.197

- Reducers are shipped with drive ring and clamping screws.



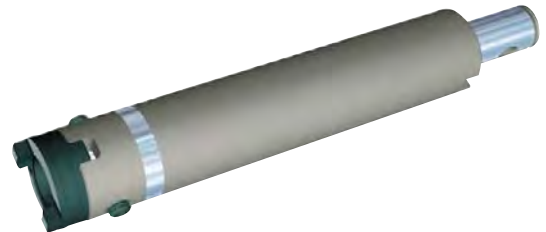
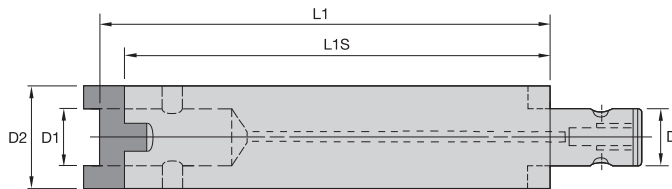
Reducers



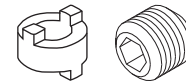
catalog number	D1 coupling size	D coupling size	D2		D5		L1		L1S		L4		drive ring	clamping screw	Nm	ft. lbs.
			mm	in	mm	in	mm	in	mm	in	mm	in				
5.34280R028080	13B	50	27,6	1.09	80,0	3.15	90,0	3.54	80,0	3.15	50,0	1.97	192.419	192.156	10,2	7.5
5.34280R032080	16	50	31,6	1.24	80,0	3.15	90,0	3.54	80,0	3.15	55,0	2.17	192.420	192.156	10,2	7.5
5.34280R040080	22	50	39,6	1.56	80,0	3.15	92,0	3.62	80,0	3.15	57,0	2.24	192.421	192.157	16,3	12.0
5.34280R048080	27	50	47,6	1.87	80,0	3.15	92,0	3.62	80,0	3.15	57,0	2.24	192.422	191.727	20,3	15.0
5.34280R058080	32	50	57,6	2.27	80,0	3.15	93,9	3.70	80,0	3.15	58,9	2.32	192.423	191.727	20,3	15.0
5.34240R032100	16	22	31,6	1.24	40,0	1.57	110,0	4.33	100,0	3.94	55,0	2.17	192.420	192.156	10,2	7.5
5.34248R040100	22	27	39,6	1.56	48,0	1.89	112,0	4.41	100,0	3.94	57,0	2.24	192.421	192.157	16,3	12.0
5.34258R048100	27	32	47,6	1.87	58,0	2.28	112,0	4.41	100,0	3.94	57,0	2.24	192.422	191.727	20,3	15.0
5.34270R058100	32	40	57,6	2.27	70,0	2.76	113,9	4.48	100,0	3.94	58,9	2.32	192.423	191.727	20,3	15.0
5.34280R070150	40	50	69,6	2.74	80,0	3.15	163,9	6.45	150,0	5.91	68,9	2.71	192.424	191.728	33,9	25.0

NOTE: Assemble components using recommended torque values.

- Extensions are shipped with drive ring and clamping screws.



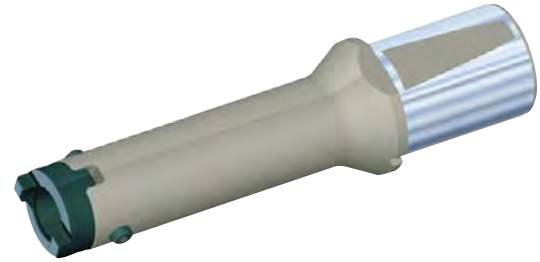
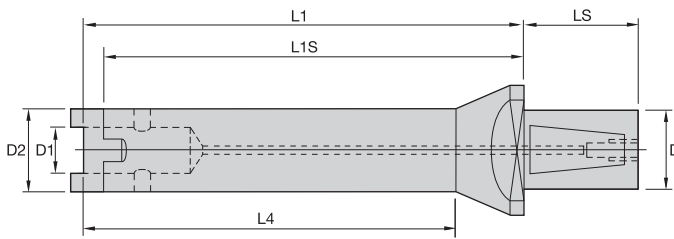
Extensions



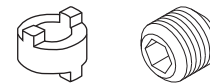
catalog number	D1 coupling size	D coupling size	D2		L1		L1S		drive ring	clamping screw	Nm	ft. lbs.
			mm	in	mm	in	mm	in				
5.34132R032100	16	16	32,0	1.26	110,0	4.33	100,0	3.94	192.420	192.156	10,2	7.5
5.34125R025150	13A	13A	25,0	0.98	160,0	6.30	150,0	5.91	193.371	193.372	10,2	7.5
5.34128R028150	13B	13B	28,0	1.10	160,0	6.30	150,0	5.91	192.419	192.156	10,2	7.5
5.34170R070186	40	40	70,0	2.76	200,0	7.87	186,0	7.32	192.424	191.728	33,9	25.0
5.34132R032200	16	16	32,0	1.26	210,0	8.27	200,0	7.87	192.420	192.156	10,2	7.5
5.34140R040200	22	22	40,0	1.57	212,0	8.35	200,0	7.87	192.421	192.157	16,3	12.0
5.34148R048200	27	27	48,0	1.89	212,0	8.35	200,0	7.87	192.422	191.727	20,3	15.0
5.34180R080204	50	50	80,0	3.15	220,0	8.66	204,0	8.03	192.425	191.728	33,9	25.0
5.34158R058300	32	32	58,0	2.28	314,0	12.36	300,0	11.81	192.423	191.727	33,9	25.0
5.34170R070300	40	40	70,0	2.76	314,0	12.36	300,0	11.81	192.424	191.728	33,9	25.0
5.34180R080300	50	50	80,0	3.15	316,0	12.44	300,0	11.81	192.425	191.728	33,9	25.0
5.34170R070500	40	40	70,0	2.76	514,0	20.24	500,0	19.69	192.424	191.728	33,9	25.0
5.34180R080500	50	50	80,0	3.15	516,0	20.32	500,0	19.69	192.425	191.728	33,9	25.0

NOTE: Assemble components using recommended torque values.

- Shanks are shipped with drive ring and clamping screws.



■ **Basic Shank WN/WD • Metric**

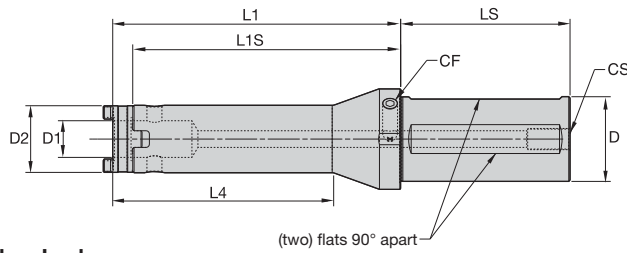


Indexable Drills

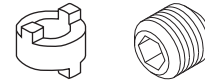
catalog number	D1 coupling size	D	D2	L1	L1S	L4	LS	drive ring	clamping screw	Nm
5.34032-025115	13A	32,0	25,0	125,0	115,0	110,0	58,0	193.371	193.372	10,2
5.34032-028115	13B	32,0	28,0	125,0	115,0	110,0	58,0	192.419	192.156	10,2
5.34032-032125	16	32,0	32,0	135,0	125,0	120,0	58,0	192.420	192.156	10,2
5.34050-040148	22	50,0	40,0	160,0	148,0	140,0	68,0	192.421	192.157	16,3
5.34050-048168	27	50,0	48,0	175,0	168,0	160,0	68,0	192.422	191.727	20,3
5.34050-058186	32	50,0	58,0	200,0	186,0	180,0	68,0	192.423	191.727	20,3
5.34032-025200	13A	32,0	25,0	210,0	200,0	195,0	58,0	193.371	193.372	10,2
5.34032-028200	13B	32,0	28,0	210,0	200,0	195,0	58,0	192.419	192.156	10,2
5.34050-032200	16	50,0	32,0	210,0	200,0	165,0	68,0	192.420	192.156	10,2
5.34050-025300	13A	50,0	25,0	310,0	300,0	270,0	68,0	193.371	193.372	10,2
5.34050-028300	13B	50,0	28,0	310,0	300,0	265,0	68,0	192.419	192.156	10,2
5.34050-040300	22	50,0	40,0	312,0	300,0	267,0	68,0	192.421	192.157	10,2
5.34050-048300	27	50,0	48,0	312,0	300,0	267,0	68,0	192.422	191.727	16,3
5.34050-058300	32	50,0	58,0	314,0	300,0	254,0	68,0	192.423	191.727	20,3
5.34050-032350	16	50,0	32,0	360,0	350,0	315,0	68,0	192.420	192.156	10,2
5.34050-025450	13A	50,0	25,0	460,0	450,0	420,0	68,0	193.371	193.372	10,2
5.34050-028450	13B	50,0	28,0	460,0	450,0	415,0	68,0	192.419	192.156	10,2
5.34050-040450	22	50,0	40,0	462,0	450,0	417,0	68,0	192.421	192.157	10,2
5.34050-048450	27	50,0	48,0	462,0	450,0	417,0	68,0	192.422	191.727	16,3
5.34050-058450	32	50,0	58,0	464,0	450,0	404,0	68,0	192.423	191.727	20,3
5.34050-032500	16	50,0	32,0	510,0	500,0	465,0	68,0	192.420	192.156	10,2
5.34050-040600	22	50,0	40,0	612,0	600,0	567,0	68,0	192.422	192.157	10,2
5.34050-048600	27	50,0	48,0	612,0	600,0	567,0	68,0	192.422	191.727	16,3
5.34050-058600	32	50,0	58,0	614,0	600,0	554,0	68,0	192.423	191.727	20,3

NOTE: Assemble components using recommended torque values.

- Shanks are shipped with drive ring and clamping screws.



■ Flanged Shank • Inch



catalog number	D1 coupling size	D	D2	L1	L1S	L4	LS	drive ring	clamping screw	ft. lbs.
SSF150HTS130239 *	13A	1.50	0.98	2.39	2.00	0.39	3.75	193.371	193.372	7.5
SSF150HTS130450	13A	1.50	0.98	4.50	4.11	2.50	3.75	193.371	193.372	7.5
SSF150HTS130664	13A	1.50	0.98	6.64	6.25	4.65	3.75	193.371	193.372	7.5
SSF150HTS131114	13A	1.50	0.98	11.14	10.75	9.14	3.75	193.371	193.372	7.5
SSF150HTS131764	13A	1.50	0.98	17.64	17.25	15.64	3.75	193.371	193.372	7.5
SSF200HTS130239	13B	2.00	1.10	2.39	2.00	0.39	4.00	192.419	192.156	7.5
SSF200HTS130450 *	13B	2.00	1.10	4.50	4.11	2.50	4.00	192.419	192.156	7.5
SSF200HTS130664	13B	2.00	1.10	6.64	6.25	4.65	4.00	192.419	192.156	7.5
SSF200HTS131114	13B	2.00	1.10	11.14	10.75	9.14	4.00	192.419	192.156	7.5
SSF200HTS131764	13B	2.00	1.10	17.64	17.25	15.64	4.00	192.419	192.156	7.5
SSF200HTS160239	16	2.00	1.26	2.39	2.00	0.39	4.00	192.420	192.156	7.5
SSF200HTS160450 *	16	2.00	1.26	4.50	4.11	2.50	4.00	192.420	192.156	7.5
SSF200HTS160714	16	2.00	1.26	7.14	6.75	5.14	4.00	192.420	192.156	7.5
SSF200HTS161214	16	2.00	1.26	12.14	11.75	10.14	4.00	192.420	192.156	7.5
SSF200HTS161964	16	2.00	1.26	19.64	19.25	17.64	4.00	192.420	192.156	7.5
SSF200HTS220297	22	2.00	1.57	2.97	2.50	0.47	4.00	192.421	192.157	12.0
SSF200HTS220550	22	2.00	1.58	5.50	5.03	3.50	4.00	192.421	192.157	12.0
SSF200HTS220922	22	2.00	1.57	9.22	8.75	7.22	4.00	192.421	192.157	12.0
SSF200HTS221572	22	2.00	1.57	15.72	15.25	13.72	4.00	192.421	192.157	12.0
SSF200HTS222572	22	2.00	1.57	25.72	25.25	23.72	4.00	192.421	192.157	12.0
SSF200HTS270297	27	2.00	1.89	2.97	2.50	1.47	4.00	192.422	191.727	15.0
SSF200HTS270550	27	2.00	1.89	5.50	5.03	3.50	4.00	192.422	191.727	15.0
SSF200HTS271122	27	2.00	1.89	11.22	10.75	9.22	4.00	192.422	191.727	15.0
SSF200HTS271922	27	2.00	1.89	19.22	18.75	17.22	4.00	192.422	191.727	15.0
SSF200HTS273122	27	2.00	1.89	31.22	30.75	29.22	4.00	192.422	191.727	15.0
SSF200HTS320305 *	32	2.00	2.28	3.05	2.50	1.55	4.00	192.423	191.727	15.0
SSF200HTS320550	32	2.00	2.28	5.50	4.95	3.50	4.00	192.423	191.727	15.0
SSF200HTS320805	32	2.00	2.28	8.05	7.50	6.05	4.00	192.423	191.727	15.0
SSF200HTS321305	32	2.00	2.28	13.05	12.50	11.05	4.00	192.423	191.727	15.0
SSF200HTS321805	32	2.00	2.28	18.05	17.50	16.05	4.00	192.423	191.727	15.0
SSF250HTS400355	40	2.50	2.76	3.55	3.00	1.63	4.25	192.424	191.728	26.0
SSF250HTS400650 *	40	2.50	2.76	6.50	5.95	4.50	4.25	192.424	191.728	26.0
SSF250HTS401055	40	2.50	2.76	10.55	10.00	8.21	4.25	192.424	191.728	26.0
SSF250HTS401555	40	2.50	2.76	15.55	15.00	13.21	4.25	192.424	191.728	26.0
SSF250HTS402555	40	2.50	2.76	25.55	25.00	23.21	4.25	192.424	191.728	26.0
SSF300HTS500413 *	50	3.00	3.15	4.13	3.50	1.87	4.50	192.425	191.728	26.0
SSF300HTS500700 *	50	3.00	3.15	7.00	6.37	5.00	4.50	192.425	191.728	26.0
SSF300HTS501313	50	3.00	3.15	13.13	12.50	10.55	4.50	192.425	191.728	26.0
SSF300HTS502113	50	3.00	3.15	21.13	20.50	18.55	4.50	192.425	191.728	26.0
SSF300HTS503113	50	3.00	3.15	31.13	30.50	28.55	4.50	192.425	191.728	26.0

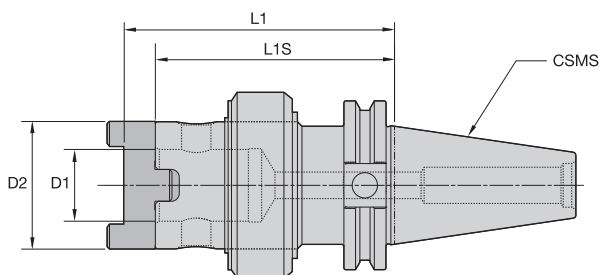
NOTE: Assemble components using recommended torque values.

*Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

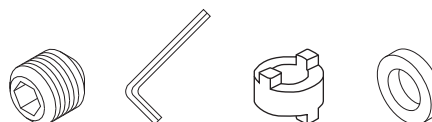


D	CF	CS	side pipe plug
1.500	1/8-27 NPT	1/4-18 NPT	HSFS0125
2.000	1/8-27 NPT	1/4-18 NPT	HSFS0125
2.500	1/8-27 NPT	1/4-18 NPT	HSFS0125
3.000	1/8-27 NPT	1/4-18 NPT	HSFS0125

- Shanks are shipped with drive ring and clamping screws.



CV Taper Shank • Form AD • Rotary Coolant Ring

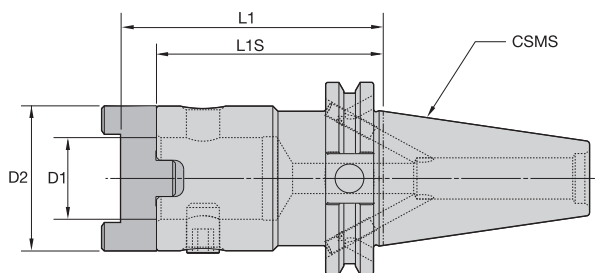


catalog number	CSMS system size	D1 coupling size	D2	L1	L1S	clamping screw	hex wrench	drive ring	coolant ring	ft. lbs.
CV50RMHTS13M394	CV50	13B	1.09	4.33	3.94	192.156	170.004	192.419	302.011	7.5
CV50RMHTS16M394	CV50	16	1.25	4.33	3.94	192.156	170.004	192.420	302.011	7.5
CV50RMHTS22M394	CV50	22	1.54	4.41	3.94	192.157	170.004	192.421	302.011	12.0
CV50RMHTS27M394	CV50	27	1.88	4.41	3.94	191.727	170.006	192.422	302.011	15.0
CV50RMHTS32M394 *	CV50	32	2.27	4.49	3.94	191.727	170.006	192.423	302.011	15.0
CV50RMHTS40M413	CV50	40	2.74	4.69	4.13	191.728	170.008	192.424	302.009	26.0
CV50RMHTS50M413	CV50	50	3.13	4.76	4.13	191.728	170.008	192.425	302.010	26.0

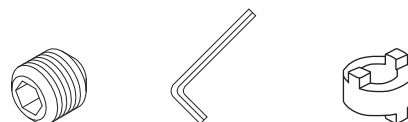
NOTE: Assemble components using recommended torque values.

*Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

- Shanks are shipped with drive ring and clamping screws.



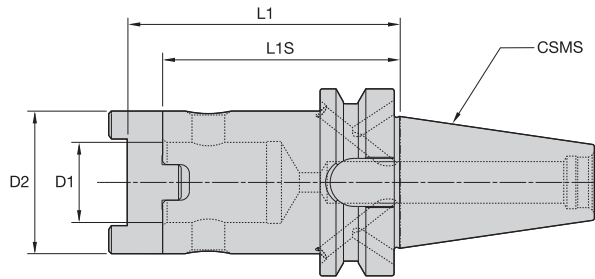
CV Taper Shank • Form B/AD Coolant



catalog number	CSMS system size	D1 coupling size	D2	L1	L1S	clamping screw	hex wrench	drive ring	ft. lbs.
CV50BHST13M295	CV50	13B	1.10	3.35	2.95	192.156	170.004	192.419	7.5
CV50BHST16M295	CV50	16	1.26	3.35	2.95	192.156	170.004	192.420	7.5
CV50BHST22M295	CV50	22	1.57	3.43	2.95	192.157	170.004	192.421	12.0
CV50BHST27M295	CV50	27	1.89	3.43	2.95	191.727	170.006	192.422	15.0
CV50BHST32M314	CV50	32	2.28	3.70	3.15	191.727	170.006	192.423	15.0
CV50BHST40M314	CV50	40	2.76	3.70	3.15	191.728	170.008	192.424	26.0
CV50BHST50M314	CV50	50	3.15	3.78	3.15	191.728	170.008	192.425	26.0

NOTE: Assemble components using recommended torque values.

- Shanks are shipped with drive ring and clamping screw.

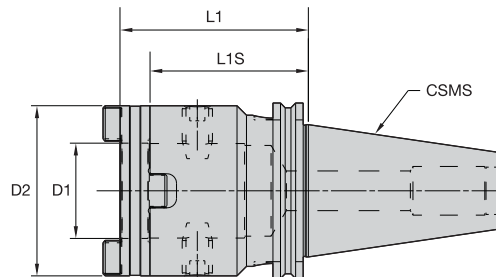


■ **BT Taper Shank • Form B/AD Coolant**

catalog number	CSMS system size	D1 coupling size	D2	L1		L1S		clamping screw	hex wrench	drive ring	Nm	ft. lbs.
				mm	in	mm	in					
BT50BHTS22075M	BT50	22	40,0	87,0	3.43	75,0	2.95	192.157	170.005	192.421	16,0	12.0
BT50BHTS32080M	BT50	32	58,0	94,0	3.70	80,0	3.15	MS1276	170.006	192.423	20,0	15.0
BT50BHTS40080M	BT50	40	70,0	94,0	3.70	80,0	3.15	191.728	170.008	192.424	34,0	26.0
BT50BHTS50080M	BT50	50	80,0	96,0	3.78	80,0	3.15	191.728	170.008	192.425	34,0	26.0

NOTE: Assemble components using recommended torque values.

- Shanks are shipped with drive ring and clamping screw.



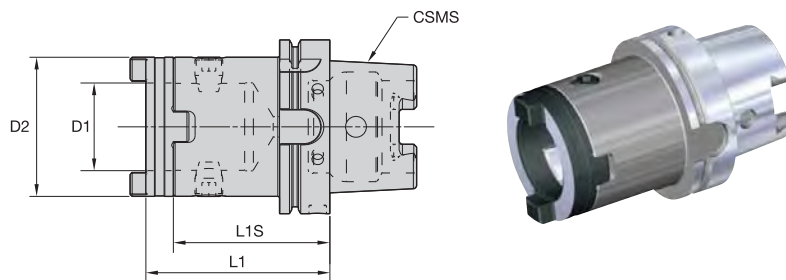
■ **DV Taper Shank • Form B/AD Coolant**

catalog number	CSMS system size	D1 coupling size	D2	L1		L1S		clamping screw	hex wrench	drive ring
				mm	in	mm	in			
5.36050-154040	DV50	40	70,0	100,0	3.94	84,0	3.31	191.728	170.008	192.424
5.36050-154050	DV50	50	90,0	100,0	3.94	84,0	3.31	191.729	170.008	192.426

NOTE: Assemble components using recommended torque values.

			40	(2x) MS2221S	2,5mm
			50	(2x) MS1296S	3mm

- Shanks are shipped with drive ring and clamping screw.



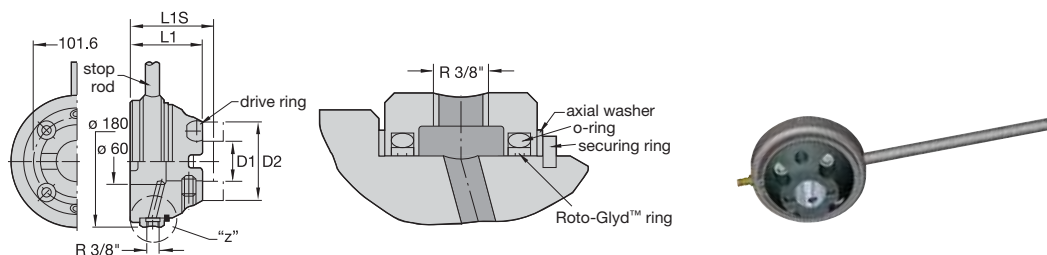
■ HSK100A Taper Shank

Indexable Drills

catalog number	CSMS system size	D1 coupling size	D2		L1		L1S		clamping screw	hex wrench	drive ring	Nm	ft. lbs.
			mm	in	mm	in	mm	in					
HSK100AHTS40085M	HSK100A	40	70,0	2.8	99,0	3.9	85,0	3.3	191.728	170.008	192.424	35,0	25.0
HSK100AHTS50090M	HSK100A	50	80,0	3.1	106,0	4.2	90,0	3.5	191.728	170.008	192.425	35,0	25.0

NOTE: Assemble components using recommended torque values.

- Shanks are shipped with drive ring and clamping screws.



■ Flanged Adapter (Including Drive Ring)

catalog number	D1	D2		L1		L1S		kg	lbs
		mm	in	mm	in	mm	in		
5.34350-090100	50,00	90,0	3.54	116,0	4.57	100,0	3.94	10,0	21.94

NOTE: Adapter includes all items shown except the nipple. Nipple must be ordered separately.

If replacement becomes necessary, the nipple is manufactured with a predetermined breaking point for safety purposes.
Maximum RPM is 1500. Maximum pressure is 72 psi or 5 bar.

■ Spare Parts

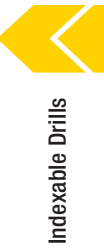
catalog number	drive ring	clamping screw	coolant ring	O-ring	securing ring	axial washer	ROTO-GLYD ring	stop bar	nipple
5.34350-090100	192.426	191.729	302.014	192.731	192.126	192.158	192.730	460.716	192.759

HTS DFT™ • Metric

		Metric										
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (f) by Diameter				
					Range – m/min			Ø	DFT03... 45,00–55,00mm	DFT05... 55,00–78,00mm	DFT06... 78,00–140,00mm	DFT07... 140,00–270,00mm
					min	Starting Value	max					
P	1	S	O MD	KCU25	94	190	229	mm/r	0,06–0,10	0,08–0,12	0,10–0,14	0,13–0,19
			I MD	KCU40								
		U	O MD	KCU40	71	130	171	mm/r	0,06–0,10	0,08–0,12	0,10–0,14	0,13–0,19
			I MD	KC7140								
		I	O MD	KCU40	44	80	106	mm/r	0,06–0,10	0,08–0,12	0,10–0,14	0,13–0,19
			I MD	KC7140								
	2	S	O HP	KCU25	94	180	229	mm/r	0,10–0,14	0,12–0,18	0,12–0,18	0,12–0,20
			I HP	KCU40								
		U	O HP	KCU40	71	120	1714	mm/r	0,10–0,14	0,12–0,18	0,12–0,18	0,12–0,20
			I HP	KC7140								
		I	O HP	KCU40	44	70	106	mm/r	0,10–0,14	0,12–0,18	0,12–0,18	0,12–0,20
			I HP	KC7140								
	3	S	O HP	KCU25	70	140	169	mm/r	0,10–0,14	0,12–0,18	0,12–0,18	0,12–0,20
			I HP	KCU40								
		U	O HP	KCU40	50	100	121	mm/r	0,10–0,14	0,12–0,18	0,12–0,18	0,12–0,20
			I HP	KC7140								
		I	O HP	KCU40	30	60	72	mm/r	0,10–0,14	0,12–0,18	0,12–0,18	0,12–0,20
			I HP	KC7140								
	4	S	O HP	KCU25	94	120	229	mm/r	0,10–0,14	0,12–0,18	0,12–0,18	0,12–0,20
			I HP	KCU40								
		U	O HP	KCU40	71	100	171	mm/r	0,10–0,14	0,12–0,18	0,12–0,18	0,12–0,20
			I HP	KC7140								
		I	O HP	KCU40	44	80	106	mm/r	0,10–0,14	0,12–0,18	0,12–0,18	0,12–0,20
			I HP	KC7140								
5	S	O HP	KCU25	78	100	190	mm/r	0,05–0,07	0,06–0,08	0,06–0,10	0,08–0,12	
		I HP	KCU40									
	U	O HP	KCU40	47	60	114	mm/r	0,05–0,07	0,06–0,08	0,06–0,10	0,08–0,12	
		I HP	KC7140									
	I	O HP	KCU40	31	40	76	mm/r	0,05–0,07	0,06–0,08	0,06–0,10	0,08–0,12	
		I HP	KC7140									
6	S	O HP	KCU25	74	95	180	mm/r	0,04–0,07	0,05–0,08	0,06–0,10	0,08–0,12	
		I HP	KCU40									
	U	O HP	KCU40	45	57	108	mm/r	0,04–0,07	0,05–0,08	0,06–0,10	0,08–0,12	
		I HP	KC7140									
	I	O HP	KCU40	30	38	72	mm/r	0,04–0,07	0,05–0,08	0,06–0,10	0,08–0,12	
		I HP	KC7140									
M	1	S	O MD	KCU25	48	110	134	mm/r	0,07–0,11	0,12–0,18	0,14–0,20	0,16–0,22
			I MD	KCU40								
		U	O MD	KCU40	31	70	86	mm/r	0,07–0,11	0,12–0,18	0,14–0,20	0,16–0,22
			I MD	KC7140								
		I	O MD	KC7140	22	50	61	mm/r	0,07–0,11	0,12–0,18	0,14–0,20	0,16–0,22
			I MD	KC7140								
	2	S	O MD	KCU25	48	99	134	mm/r	0,07–0,11	0,12–0,18	0,14–0,20	0,16–0,22
			I MD	KCU40								
		U	O MD	KCU40	31	63	86	mm/r	0,07–0,11	0,12–0,18	0,14–0,20	0,16–0,22
			I MD	KC7140								
		I	O MD	KC7140	22	45	61	mm/r	0,07–0,11	0,12–0,18	0,14–0,20	0,16–0,22
			I MD	KC7140								
3	S	O MD	KCU25	48	88	134	mm/r	0,07–0,11	0,12–0,18	0,14–0,20	0,16–0,22	
		I MD	KCU40									
	U	O MD	KCU40	31	56	86	mm/r	0,07–0,11	0,12–0,18	0,14–0,20	0,16–0,22	
		I MD	KC7140									
	I	O MD	KC7140	22	40	61	mm/r	0,07–0,11	0,12–0,18	0,14–0,20	0,16–0,22	
		I MD	KC7140									

Condition: S = Stable cutting conditions;
 U = Unstable cutting conditions;
 I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
 O = Outboard insert



■ HTS DFT™ • Metric

Indexable Drills

					Metric									
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (f) by Diameter						
					Range – m/min			Ø	DFT03... 45,00–55,00mm	DFT05... 55,00–78,00mm	DFT06... 78,00–140,00mm	DFT07... 140,00–270,00mm		
					min	Starting Value	max							
K	1	S	O	HP	KCPK10	94	171	229	mm/r	0,11–0,20	0,13–0,27	0,15–0,31	0,17–0,33	
			I	HP	KCPK10									
		U	O	HP	KCU25	64	117	156	mm/r	0,11–0,20	0,13–0,27	0,15–0,31	0,17–0,33	
	2	S	O	HP	KCPK10	94	162	229	mm/r	0,11–0,20	0,13–0,27	0,15–0,31	0,17–0,33	
			I	HP	KCPK10									
		U	O	HP	KCU25	64	111	156	mm/r	0,11–0,20	0,13–0,27	0,15–0,31	0,17–0,33	
	3	S	O	HP	KCU40	40	72	96	mm/r	0,11–0,20	0,13–0,27	0,15–0,31	0,17–0,33	
			I	HP	KCU40									
		U	O	HP	KCU40	40	68	96	mm/r	0,11–0,20	0,13–0,27	0,15–0,31	0,17–0,33	
	N	1	S	O	ST	KD1425	154	240	358	mm/r	0,06–0,09	0,11–0,19	0,12–0,20	0,14–0,25
				I	ST	KD1425								
			U	O	HP	KC7140	102	160	239	mm/r	0,06–0,09	0,11–0,19	0,12–0,20	0,14–0,25
2		S	O	HP	KCU40	67	104	155	mm/r	0,06–0,09	0,11–0,19	0,12–0,20	0,14–0,25	
			I	HP	KCU40									
		U	O	HP	KCU40	67	97	155	mm/r	0,06–0,09	0,11–0,19	0,12–0,20	0,14–0,25	
3		S	O	ST	KD1425	154	206	358	mm/r	0,06–0,09	0,11–0,19	0,12–0,20	0,14–0,25	
			I	ST	KD1425									
		U	O	HP	KCU40	102	138	239	mm/r	0,06–0,09	0,11–0,19	0,12–0,20	0,14–0,25	
4		S	O	HP	KCU40	67	89	155	mm/r	0,06–0,09	0,11–0,19	0,12–0,20	0,14–0,25	
			I	HP	KCU40									
		U	O	HP	KCU40	67	89	155	mm/r	0,06–0,09	0,11–0,19	0,12–0,20	0,14–0,25	
5	S	O	ST	KD1425	154	223	358	mm/r	0,06–0,09	0,11–0,19	0,12–0,20	0,14–0,25		
		I	ST	KD1425										
	U	O	LD	KC7140	102	149	239	mm/r	0,06–0,09	0,11–0,19	0,12–0,20	0,14–0,25		
S	1	S	O	HP	KC7140	24	40	49	mm/r	0,04–0,07	0,05–0,08	0,07–0,10	0,07–0,10	
			I	HP	KC7140									
		U	O	HP	KC7140	18	30	37	mm/r	0,04–0,07	0,05–0,08	0,07–0,10	0,07–0,10	
	2	S	O	HP	KC7140	15	25	30	mm/r	0,04–0,07	0,05–0,08	0,07–0,10	0,07–0,10	
			I	HP	KC7140									
		U	O	HP	KC7140	15	25	30	mm/r	0,04–0,07	0,05–0,08	0,07–0,10	0,07–0,10	
	2	S	O	HP	KC7140	25	35	48	mm/r	0,04–0,07	0,05–0,08	0,07–0,10	0,07–0,10	
			I	HP	KC7140									
		U	O	HP	KC7140	18	25	34	mm/r	0,04–0,07	0,05–0,08	0,07–0,10	0,07–0,10	
	2	S	O	HP	KC7140	14	20	27	mm/r	0,04–0,07	0,05–0,08	0,07–0,10	0,07–0,10	
			I	HP	KC7140									
		U	O	HP	KC7140	14	20	27	mm/r	0,04–0,07	0,05–0,08	0,07–0,10	0,07–0,10	

Condition: S = Stable cutting conditions;
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 I = Interrupted cutting conditions

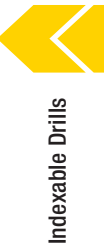
Pocket seat: I = Inboard insert;
 O = Outboard insert

■ HTS DFT™ • Inch

Inch													
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (f) by Diameter					
					Range – SFM			Ø	DFT03... 1.77–2.17"	DFT05... 2.17–3.07"	DFT06... 3.07–5.51"	DFT07... 5.51–10.63"	
					min	Starting Value	max						
P	1	S	O	MD	KCU25	309	623	750	IPR	.002–.004	.003–.005	.004–.006	.005–.007
			I	MD	KCU40								
		U	O	MD	KCU40	231	427	561	IPR	.002–.004	.003–.005	.004–.006	.005–.007
			I	MD	KC7140								
		I	O	MD	KCU40	143	262	348	IPR	.002–.004	.003–.005	.004–.006	.005–.007
			I	MD	KC7140								
	2		S	O	HP	KCU25	309	591	750	IPR	.004–.006	.005–.007	.005–.007
			I	HP	KCU40								
		U	O	HP	KCU40	231	394	561	IPR	.004–.006	.005–.007	.005–.007	.005–.008
			I	HP	KC7140								
		I	O	HP	KCU40	143	230	348	IPR	.004–.006	.005–.007	.005–.007	.005–.008
			I	HP	KC7140								
	3		S	O	HP	KCU25	229	459	555	IPR	.004–.006	.005–.007	.005–.007
			I	HP	KCU40								
		U	O	HP	KCU40	163	328	396	IPR	.004–.006	.005–.007	.005–.007	.005–.008
			I	HP	KC7140								
		I	O	HP	KCU40	98	197	238	IPR	.004–.006	.005–.007	.005–.007	.005–.008
			I	HP	KC7140								
	4		S	O	HP	KCU25	309	394	750	IPR	.004–.006	.005–.007	.005–.007
			I	HP	KCU40								
		U	O	HP	KCU40	231	328	561	IPR	.004–.006	.005–.007	.005–.007	.005–.008
			I	HP	KC7140								
		I	O	HP	KCU40	143	262	348	IPR	.004–.006	.005–.007	.005–.007	.005–.008
			I	HP	KC7140								
5	S		O	HP	KCU25	257	328	622	IPR	.002–.003	.002–.003	.002–.004	.003–.005
		I	HP	KCU40									
	U	O	HP	KCU40	154	197	373	IPR	.002–.003	.002–.003	.002–.004	.003–.005	
		I	HP	KC7140									
	I	O	HP	KCU40	103	131	250	IPR	.002–.003	.002–.003	.002–.004	.003–.005	
		I	HP	KC7140									
6		S	O	HP	KCU25	244	312	591	IPR	.002–.003	.002–.003	.002–.004	.003–.005
		I	HP	KCU40									
	U	O	HP	KCU40	146	187	355	IPR	.002–.003	.002–.003	.002–.004	.003–.005	
		I	HP	KC7140									
	I	O	HP	KCU40	98	125	238	IPR	.002–.003	.002–.003	.002–.004	.003–.005	
		I	HP	KC7140									
M		1	S	O	MD	KCU25	159	361	439	IPR	.003–.004	.005–.007	.006–.008
	I			MD	KCU40								
	U		O	MD	KCU40	101	230	281	IPR	.003–.004	.005–.007	.006–.008	.006–.009
			I	MD	KC7140								
		I	O	MD	KC7140	72	164	199	IPR	.003–.004	.005–.007	.006–.008	.006–.009
			I	MD	KC7140								
	2		S	O	MD	KCU25	159	325	439	IPR	.003–.004	.005–.007	.006–.008
			I	MD	KCU40								
		U	O	MD	KCU40	101	207	281	IPR	.003–.004	.005–.007	.006–.008	.006–.009
			I	MD	KC7140								
		I	O	MD	KC7140	72	148	199	IPR	.003–.004	.005–.007	.006–.008	.006–.009
			I	MD	KC7140								
3	S		O	MD	KCU25	159	289	439	IPR	.003–.004	.005–.007	.006–.008	.006–.009
		I	MD	KCU40									
	U	O	MD	KCU40	101	184	281	IPR	.003–.004	.005–.007	.006–.008	.006–.009	
		I	MD	KC7140									
	I	O	MD	KC7140	72	131	199	IPR	.003–.004	.005–.007	.006–.008	.006–.009	
		I	MD	KC7140									

Condition: S = Stable cutting conditions;
 U = Unstable cutting conditions;
 I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
 O = Outboard insert



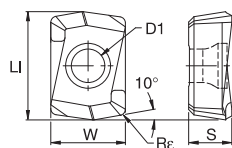
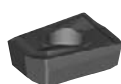
■ HTS DFT™ • Inch

		Inch											
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (f) by Diameter					
					Range – SFM			Ø	DFT03... 1.77–2.17"	DFT05... 2.17–3.07"	DFT06... 3.07–5.51"	DFT07... 5.51–10.63"	
					min	Starting Value	max						
K	1	S	O	HP	KCPK10	309	561	750	IPR	.004–.008	.005–.011	.006–.012	.007–.013
			I	HP	KCPK10								
		U	O	HP	KCU25	211	384	510	IPR	.004–.008	.005–.011	.006–.012	.007–.013
	2	S	O	HP	KCPK10	309	533	750	IPR	.004–.008	.005–.011	.006–.012	.007–.013
			I	HP	KCPK10								
		U	O	HP	KCU25	211	365	510	IPR	.004–.008	.005–.011	.006–.012	.007–.013
	3	S	O	HP	KCU40	131	236	316	IPR	.004–.008	.005–.011	.006–.012	.007–.013
			I	HP	KCU40								
		U	O	HP	KCU40	131	224	316	IPR	.004–.008	.005–.011	.006–.012	.007–.013
N	1	S	O	HP	KCPK10	294	480	712	IPR	.004–.008	.005–.011	.006–.012	.007–.013
			I	HP	KCPK10								
		U	O	HP	KCU25	195	328	473	IPR	.004–.008	.005–.011	.006–.012	.007–.013
	2	S	O	HP	KCU25	113	202	274	IPR	.004–.008	.005–.011	.006–.012	.007–.013
			I	HP	KCU40								
		U	O	HP	KCU40	113	202	274	IPR	.004–.008	.005–.011	.006–.012	.007–.013
	3	S	O	ST	KD1425	504	787	1176	IPR	.002–.004	.004–.007	.005–.008	.006–.010
			I	ST	KD1425								
		U	O	HP	KC7140	336	525	784	IPR	.002–.004	.004–.007	.005–.008	.006–.010
4	S	O	HP	KC7140	218	341	510	IPR	.002–.004	.004–.007	.005–.008	.006–.010	
		I	HP	KC7140									
	U	O	HP	KC7140	218	317	510	IPR	.002–.004	.004–.007	.005–.008	.006–.010	
5	S	O	ST	KD1425	504	732	1176	IPR	.002–.004	.004–.007	.005–.008	.006–.010	
		I	ST	KD1425									
	U	O	HP	KCU40	336	488	784	IPR	.002–.004	.004–.007	.005–.008	.006–.010	
6	S	O	HP	KCU40	218	317	510	IPR	.002–.004	.004–.007	.005–.008	.006–.010	
		I	HP	KCU40									
	U	O	HP	KCU40	218	317	510	IPR	.002–.004	.004–.007	.005–.008	.006–.010	
7	S	O	ST	KD1425	504	732	1176	IPR	.002–.004	.004–.007	.005–.008	.006–.010	
		I	ST	KD1425									
	U	O	LD	KC7140	336	488	784	IPR	.002–.004	.004–.007	.005–.008	.006–.010	
S	1	S	O	HP	KC7140	218	317	510	IPR	.002–.004	.004–.007	.005–.008	.006–.010
			I	HP	KC7140								
		U	O	HP	KC7140	218	317	510	IPR	.002–.004	.004–.007	.005–.008	.006–.010
	2	S	O	HP	KC7140	218	317	510	IPR	.002–.004	.004–.007	.005–.008	.006–.010
			I	HP	KC7140								
		U	O	HP	KC7140	218	317	510	IPR	.002–.004	.004–.007	.005–.008	.006–.010
	3	S	O	ST	KD1425	368	722	858	IPR	.002–.004	.004–.007	.005–.008	.006–.010
			I	ST	KD1425								
		U	O	HP	KC7140	235	459	549	IPR	.002–.004	.004–.007	.005–.008	.006–.010
4	S	O	HP	KC7140	151	295	351	IPR	.002–.004	.004–.007	.005–.008	.006–.010	
		I	HP	KC7140									
	U	O	HP	KC7140	151	295	351	IPR	.002–.004	.004–.007	.005–.008	.006–.010	
5	S	O	HP	KC7140	80	131	160	IPR	.002–.003	.002–.003	.003–.004	.003–.004	
		I	HP	KC7140									
	U	O	HP	KC7140	60	98	120	IPR	.002–.003	.002–.003	.003–.004	.003–.004	
6	S	O	HP	KC7140	50	82	100	IPR	.002–.003	.002–.003	.003–.004	.003–.004	
		I	HP	KC7140									
	U	O	HP	KC7140	50	82	100	IPR	.002–.003	.002–.003	.003–.004	.003–.004	
7	S	O	HP	KC7140	82	115	158	IPR	.002–.003	.002–.003	.003–.004	.003–.004	
		I	HP	KC7140									
	U	O	HP	KC7140	58	82	112	IPR	.002–.003	.002–.003	.003–.004	.003–.004	
8	S	O	HP	KC7140	46	66	90	IPR	.002–.003	.002–.003	.003–.004	.003–.004	
		I	HP	KC7140									
	U	O	HP	KC7140	46	66	90	IPR	.002–.003	.002–.003	.003–.004	.003–.004	

Condition: S = Stable cutting conditions;
 U = Unstable cutting conditions;
 I = Interrupted cutting conditions

Pocket seat: I = Inboard insert;
 O = Outboard insert



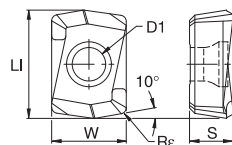


● first choice
○ alternate choice

P	●	●	●	●
M	○	○	○	○
K	●	●	○	○
N	○	○	○	○
S	○	○	●	●
H	○	○	○	○

DFR-GD

catalog number	LI		W		D1		S		Rε		KCPK10	KCU25	KCU40	KC7140
	mm	in	mm	in	mm	in	mm	in	mm	in				
DFR020204GD	7,12	.280	4,90	.193	2,30	.091	2,79	.110	0,40	.016	●	●	●	●
DFR030204GD	8,71	.343	6,00	.236	2,50	.098	2,88	.113	0,40	.016	●	●	●	●
DFR040304GD	10,76	.424	7,38	.291	2,85	.112	3,79	.149	0,40	.016	●	●	●	●

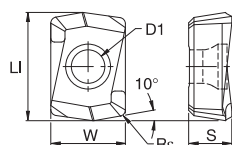
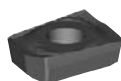


● first choice
○ alternate choice

P	●	●	●	●
M	○	○	○	○
K	○	○	○	○
N	○	○	○	○
S	○	○	●	●
H	○	○	○	○

DFR-MD

catalog number	LI		W		D1		S		Rε		KCU25	KCU40	KC7140
	mm	in	mm	in	mm	in	mm	in	mm	in			
DFR020204MD	7,12	.280	4,90	.193	2,30	.091	2,79	.110	0,40	.016	●	●	●
DFR030204MD	8,71	.343	6,00	.236	2,50	.098	2,88	.113	0,40	.016	●	●	●
DFR040304D28MD	10,76	.424	7,26	.286	2,85	.112	3,79	.149	0,40	.016	-	-	●
DFR040304MD	10,76	.424	7,38	.291	2,85	.112	3,79	.149	0,40	.016	●	●	●



● first choice
○ alternate choice

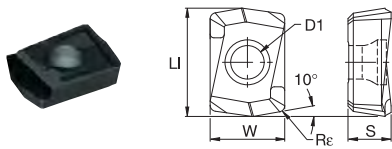
P	○	○	○	○
M	○	○	○	○
K	●	●	○	○
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○

DFR-LD

catalog number	LI		W		D1		S		Rε		KCPK10	KCU25	KCU40	KC7140
	mm	in	mm	in	mm	in	mm	in	mm	in				
DFR020204LD	7,12	.280	4,90	.193	2,30	.091	2,79	.110	0,40	.016	●	●	●	●
DFR030204LD	8,71	.343	6,00	.236	2,50	.098	2,86	.113	0,40	.016	●	●	●	●
DFR040304LD	10,76	.424	7,38	.291	2,85	.112	3,76	.148	0,40	.016	●	●	●	●

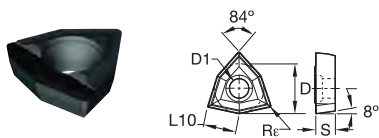
P	■
M	■
K	■
N	●
S	■
H	■

● first choice
○ alternate choice



■ DFR • PCD • Single-Tipped

catalog number	LI		W		D1		S		Rε		KD1425
	mm	in	mm	in	mm	in	mm	in	mm	in	
DFR040304ST	10,50	.413	7,40	.291	2,85	.112	3,18	.125	0,40	.015	●



■ DFT • PCD • Single-Tipped

catalog number	L10		D		D1		S		Rε		KD1425
	mm	in	mm	in	mm	in	mm	in	mm	in	
DFT05T308ST	5,19	.205	8,00	.315	3,40	.134	3,75	.148	0,80	.031	●
DFT06T308ST	6,52	.257	10,00	.394	4,40	.173	3,75	.148	0,80	.031	●
DFT070408ST	7,84	.309	12,00	.472	4,40	.173	4,75	.187	0,80	.031	●
DFT090508ST	9,83	.387	15,00	.591	5,50	.217	5,19	.204	0,80	.031	●
DFT110508ST	11,53	.454	17,60	.693	5,85	.230	4,81	.189	0,80	.031	●

Indexable Drills

DFR™ • PCD • Metric

Metric										
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (fz) by Diameter		
					Range – m/min			Ø	DFR04 20,50–24,00mm	
					min	Starting Value	max			
N	1	S	O	ST	396	720	841	mm/r	0,06–0,08	
			I	ST						KD1425
	2	S	O	ST	369	670	782	mm/r	0,12–0,18	
			I	ST						KD1425
	3	S	O	ST	341	619	723	mm/r	0,12–0,18	
			I	ST						KD1425
	4	S	O	ST	475	720	841	mm/r	0,12–0,18	
			I	ST						KD1425
	5	S	O	ST	480	720	864	mm/r	0,06–0,08	
			I	ST						KD1425

DFR™ • PCD • Inch

Inch										
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (fz) by Diameter		
					Range – SFM			Ø	DFR04 .813–1.00"	
					min	Starting Value	max			
N	1	S	O	ST	1300	2362	2760	IPR	.002–.003	
			I	ST						KD1425
	2	S	O	ST	1209	2197	2567	IPR	.005–.007	
			I	ST						KD1425
	3	S	O	ST	1118	2032	2374	IPR	.005–.007	
			I	ST						KD1425
	4	S	O	ST	1560	2362	2760	IPR	.005–.007	
			I	ST						KD1425
	5	S	O	ST	1575	2362	2834	IPR	.002–.003	
			I	ST						KD1425



■ DFT™ • PCD • Metric

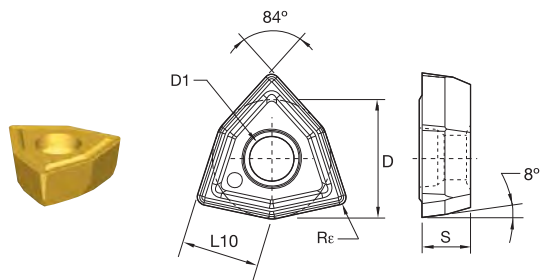
Metric															
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (f) by Diameter							
					Range – m/min			Ø	DFT03 16–24,00mm	DFT05 25–32,00mm	DFT06 33–40,00mm	DFT07 41–48,00mm	DFT09 49–68,00mm	DFT11 69–82,00mm	
					min	Starting Value	max								
N	1	S	O	ST/C	KD1425	480	720	864	mm/r	0,05–0,07	0,07–0,09	0,10–0,14	0,12–0,16	0,14–0,18	0,14–0,18
			I	ST/C	KD1425										
	2	S	O	ST/C	KD1425	447	670	804	mm/r	0,05–0,07	0,07–0,09	0,10–0,14	0,12–0,16	0,14–0,18	0,14–0,18
			I	ST/C	KD1425										
	3	S	O	ST/C	KD1425	413	619	743	mm/r	0,05–0,07	0,07–0,09	0,10–0,14	0,12–0,16	0,14–0,18	0,14–0,18
			I	ST/C	KD1425										
	4	S	O	ST/C	KD1425	447	670	804	mm/r	0,05–0,07	0,07–0,09	0,10–0,14	0,12–0,16	0,14–0,18	0,14–0,18
			I	ST/C	KD1425										
	5	S	O	ST/C	KD1425	480	720	864	mm/r	0,05–0,07	0,07–0,09	0,10–0,14	0,12–0,16	0,14–0,18	0,14–0,18
			I	ST/C	KD1425										



Indexable Drills

■ DFT™ • PCD • Inch

Inch															
Material Group	Condition	Pocket Seat	Geometry	Grade	Cutting Speed – vc			Recommended Feed Rate (f) by Diameter							
					Range – SFM			Ø	DFT03 .625–.969"	DFT05 .984–1.250"	DFT06 1.313–1.563"	DFT07 1.625–1.875"	DFT09 1.938–2.125"	DFT11 2.750–3.250"	
					min	Starting Value	max								
N	1	S	O	ST/C	KD1425	1575	2362	2834	IPR	.002–.003	.003–.004	.004–.006	.005–.006	.006–.007	.006–.007
			I	ST/C	KD1425										
	2	S	O	ST/C	KD1425	1465	2197	2636	IPR	.002–.003	.003–.004	.004–.006	.005–.006	.006–.007	.006–.007
			I	ST/C	KD1425										
	3	S	O	ST/C	KD1425	1355	2032	2438	IPR	.002–.003	.003–.004	.004–.006	.005–.006	.006–.007	.006–.007
			I	ST/C	KD1425										
	4	S	O	ST/C	KD1425	1465	2197	2636	IPR	.002–.003	.003–.004	.004–.006	.005–.006	.006–.007	.006–.007
			I	ST/C	KD1425										
	5	S	O	ST/C	KD1425	1575	2362	2834	IPR	.002–.003	.003–.004	.004–.006	.005–.006	.006–.007	.006–.007
			I	ST/C	KD1425										

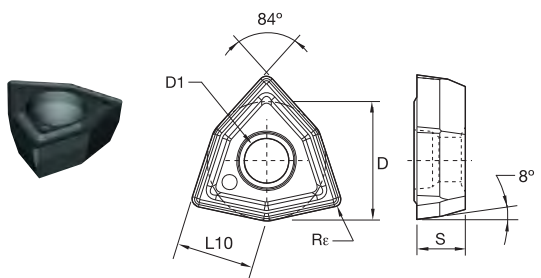


DFT-GD

catalog number	L10		D		D1		S		Re		KCPK10	KCU25	KCU40	KC7140
	mm	in	mm	in	mm	in	mm	in	mm	in				
DFT030204GD	3,97	.156	6,00	.236	2,25	.089	2,45	.096	0,40	.016	●	●	●	●
DFT030304GD	3,97	.156	6,00	.236	2,65	.104	2,95	.116	0,40	.016	●	●	●	●
DFT05T308GD	5,29	.208	8,00	.315	3,40	.134	3,75	.148	0,80	.031	●	●	●	●
DFT06T308GD	6,62	.260	10,00	.394	4,40	.173	3,75	.148	0,80	.031	●	●	●	●
DFT070408GD	7,94	.313	12,00	.472	4,40	.173	4,75	.187	0,80	.031	●	●	●	●
DFT090508GD	9,92	.391	15,00	.591	5,50	.217	5,25	.207	0,85	.034	●	●	●	●

● first choice
○ alternate choice

P	●	●	●	●	●
M	○	○	○	○	○
K	●	●	●	○	○
N	○	○	○	○	○
S	○	○	○	○	○
H	○	○	○	○	○

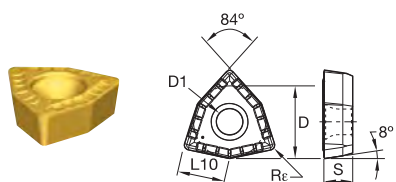


DFT-HP

catalog number	L10		D		D1		S		Re		KCPK10	KCU25	KCU40	KC7140	KMF
	mm	in	mm	in	mm	in	mm	in	mm	in					
DFTX20204HP	3,31	.130	5,00	.197	2,25	.089	2,45	.097	0,40	.015	-	●	●	●	-
DFT030204HP	3,97	.156	6,00	.236	2,25	.089	2,45	.096	0,40	.016	●	●	●	●	●
DFT030304HP	3,97	.156	6,00	.236	2,65	.104	2,95	.116	0,40	.016	●	●	●	●	●
DFT05T308HP	5,29	.208	8,00	.315	3,50	.137	3,75	.148	0,80	.031	●	●	●	●	●
DFT06T308HP	6,62	.260	10,00	.394	4,40	.173	3,75	.148	0,80	.031	●	●	●	●	●
DFT070408HP	7,94	.313	12,00	.472	4,40	.173	4,75	.187	0,80	.031	●	●	●	●	●
DFT090508HP	9,92	.391	15,00	.591	5,50	.217	5,25	.207	0,85	.033	●	●	●	●	●

● first choice
○ alternate choice

P	●	●	●	●	●
M	○	○	○	○	○
K	●	●	●	○	○
N	○	○	○	○	○
S	○	○	○	○	○
H	○	○	○	○	○



DFT-MD

catalog number	L10		D		D1		S		Re		KCU25	KCU40	KC7140
	mm	in	mm	in	mm	in	mm	in	mm	in			
DFTX20204MD	3,31	.130	5,00	.197	2,25	.089	2,45	.097	0,40	.015	●	●	●
DFT030204MD	3,97	.156	6,00	.236	2,25	.089	2,45	.096	0,40	.016	●	●	●
DFT030304MD	3,97	.156	6,00	.236	2,65	.104	2,95	.116	0,40	.016	●	●	●
DFT05T308MD	5,29	.208	8,00	.315	3,40	.134	3,75	.148	0,80	.031	●	●	●
DFT06T308MD	6,62	.260	10,00	.394	4,40	.173	3,75	.148	0,80	.031	●	●	●
DFT070408MD	7,94	.313	12,00	.472	4,40	.173	4,75	.187	0,80	.031	●	●	●
DFT090508MD	9,92	.391	15,00	.591	5,50	.217	5,25	.207	0,80	.031	●	●	●
DFT110508MD	11,64	.458	17,60	.693	5,85	.230	4,88	.192	0,80	.031	-	-	●

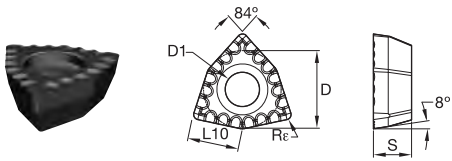
● first choice
○ alternate choice

P	●	●	●	●	●
M	○	○	○	○	○
K	●	●	●	○	○
N	○	○	○	○	○
S	○	○	○	○	○
H	○	○	○	○	○



Indexable Drills

- DS geometry for improved control of chip flow, chip breakage, and chip curling.
- These inserts support drilling in P0 and P1 steel, higher alloyed tool steels, and stainless steels where high feed rates cannot be used to provide short chips.



- first choice
- alternate choice

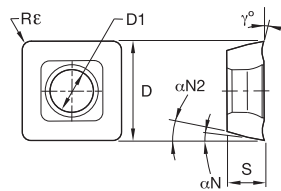
P	●
M	○
K	○
N	○
S	○
H	○



DFT • DS

Indexable Drills

catalog number	L10		D		D1		S		Rε		KCU40
	mm	in	mm	in	mm	in	mm	in	mm	in	
DFTX20204DS	3,31	.130	5,00	.197	2,25	.089	2,45	.097	0,40	.016	●
DFT030304DS	3,97	.156	6,00	.236	2,65	.104	2,95	.116	0,40	.016	●
DFT05T308DS	5,29	.208	8,00	.315	3,40	.134	3,75	.148	0,80	.031	●
DFT06T308DS	6,62	.260	10,00	.394	4,40	.173	3,75	.148	0,80	.031	●
DFT070408DS	7,94	.313	12,00	.472	4,40	.173	4,75	.187	0,80	.031	●
DFT090508DS	9,92	.391	15,00	.591	5,50	.217	5,25	.207	0,80	.031	●

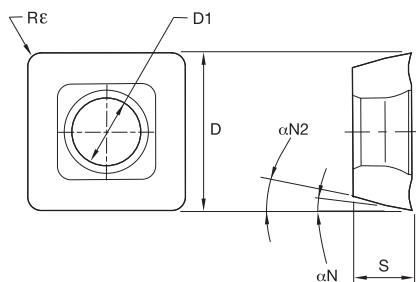
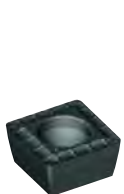


● first choice
○ alternate choice

P	●	●	●	●
M	○	○	○	○
K	●	●	●	○
N	○	○	○	○
S	○	○	○	○
H				

■ SP..X..(R)HP

catalog number	D		D1		S		Rε		γ°	αN	αN2	KCPK10	KCU25	KCU40	KC7140
	mm	in	mm	in	mm	in	mm	in							
SPGX050204HP	5,56	.219	2,25	.089	2,38	.094	0,40	.016	10	7	11	-	●	●	●
SPGX060304RHP	6,35	.250	2,65	.104	3,18	.125	0,40	.016	10	7	11	-	●	●	●
SPGX070304RHP	7,94	.313	2,85	.112	3,18	.125	0,40	.016	10	7	11	-	●	●	●
SPGX070308HP	7,94	.313	2,85	.112	3,18	.125	0,80	.031	10	7	11	●	●	●	-
SPPX09T308RHP	9,53	.375	3,60	.142	3,97	.156	0,80	.031	10	7	11	-	●	●	●
SPPX09T310HP	9,53	.375	3,60	.142	3,97	.156	1,00	.039	10	7	11	●	●	●	-
SPPX120408RHP	12,70	.500	4,60	.181	4,76	.188	0,80	.031	10	7	11	-	●	●	●
SPPX120412HP	12,70	.500	4,60	.181	4,76	.188	1,20	.047	10	7	11	●	●	●	-
SPPX15T508RHP	15,73	.625	5,50	.234	5,95	.234	0,80	.031	10	7	11	-	●	●	●
SPPX15T512HP	15,73	.625	5,50	.217	5,95	.234	1,20	.047	10	7	11	●	●	●	-

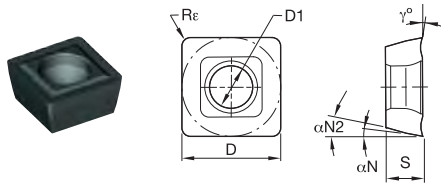


■ SP..X..MD

catalog number	D		D1		S		Rε		γ°	αN	αN2	KCPK10	KCU25	KCU40	KC7140
	mm	in	mm	in	mm	in	mm	in							
SPGX050204MD	5,56	.219	2,25	.089	2,38	.094	0,40	.016	16	7	11	-	●	●	●
SPGX060304MD	6,35	.250	2,65	.104	3,18	.125	0,40	.016	20	7	11	●	●	●	●
SPGX070304MD	7,94	.313	2,85	.112	3,18	.125	0,40	.016	16	7	11	●	●	●	●
SPGX070308MD	7,94	.313	2,85	.112	3,18	.125	0,80	.031	16	7	11	●	●	●	-
SPPX09T308MD	9,53	.375	3,60	.142	3,97	.156	0,80	.031	16	7	11	-	●	●	●
SPPX09T310MD	9,53	.375	3,60	.142	3,97	.156	1,00	.039	16	7	11	●	●	●	-
SPPX120408MD	12,70	.500	4,60	.181	4,76	.188	0,80	.031	16	7	11	-	●	●	●
SPPX120412MD	12,70	.500	4,60	.181	4,76	.188	1,20	.047	16	7	11	●	●	●	-
SPPX15T508MD	15,73	.625	5,50	.234	5,95	.234	0,80	.031	16	7	11	-	●	●	●
SPPX15T512MD	15,73	.625	5,50	.217	5,95	.234	1,20	.047	16	7	11	●	●	●	-



Indexable Drills



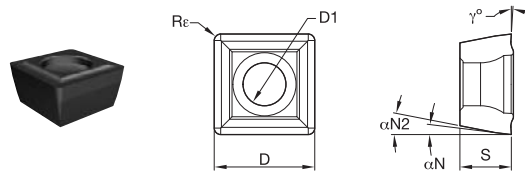
● first choice
○ alternate choice

P	●	●	●
M	○	○	○
K	●	●	●
N	○	○	○
S	○	○	○
H			

■ SP..X..FP

catalog number	D		D1		S		Re		γ°	αN	$\alpha N2$	KCPK10	KCU25	KCU40
	mm	in	mm	in	mm	in	mm	in						
SPGX060304FP	6,35	.250	2,85	.112	3,18	.125	0,40	.016	6	7	11	●	●	●
SPGX070304FP	7,94	.313	2,85	.112	3,18	.125	0,40	.016	6	7	11	●	●	●
SPGX070308FP	7,94	.313	2,85	.112	3,18	.125	0,80	.031	6	7	11	●	●	●
SPPX09T308FP	9,53	.375	3,60	.142	3,97	.156	0,80	.031	6	7	11	●	●	●
SPPX09T310FP	9,53	.375	3,60	.142	3,97	.156	1,00	.039	6	7	11	●	●	●
SPPX120408FP	12,70	.500	4,60	.181	4,76	.188	0,80	.031	6	7	11	●	●	●
SPPX120412FP	12,70	.500	4,60	.181	4,76	.188	1,20	.047	6	7	11	●	●	●
SPPX15T508FP	15,73	.625	5,50	.234	5,95	.234	0,80	.031	6	7	11	●	●	●
SPPX15T512FP	15,73	.625	5,50	.217	5,95	.234	1,20	.047	6	7	11	●	●	●

- LP geometry for improved control of chip flow, chip breakage, and chip curling.
- These inserts support drilling in P0 and P1 steel, higher alloyed tool steels, and stainless steels where high feed rates cannot be used to provide short chips.



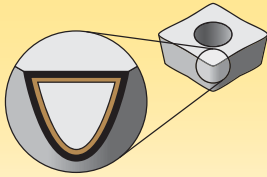
● first choice
○ alternate choice

P	●	
M	○	
K		
N	○	
S	○	
H		

NEW!

■ SP..X..LP

catalog number	D		D1		S		Re		γ°	αN	$\alpha N2$	KCU40
	mm	in	mm	in	mm	in	mm	in				
SPGX050204LP	5,42	.213	2,25	.089	2,38	.094	0,40	.016	4	7	11	●
SPGX060304LP	6,35	.250	2,65	.104	3,18	.125	0,40	.016	4	7	11	●
SPPX070304LP	7,80	.307	2,85	.112	3,18	.125	0,40	.016	4	7	11	●
SPPX09T308LP	9,38	.369	3,60	.142	3,97	.156	0,80	.031	4	7	11	●
SPPX120408LP	12,56	.494	4,60	.181	4,76	.187	0,80	.031	4	7	11	●

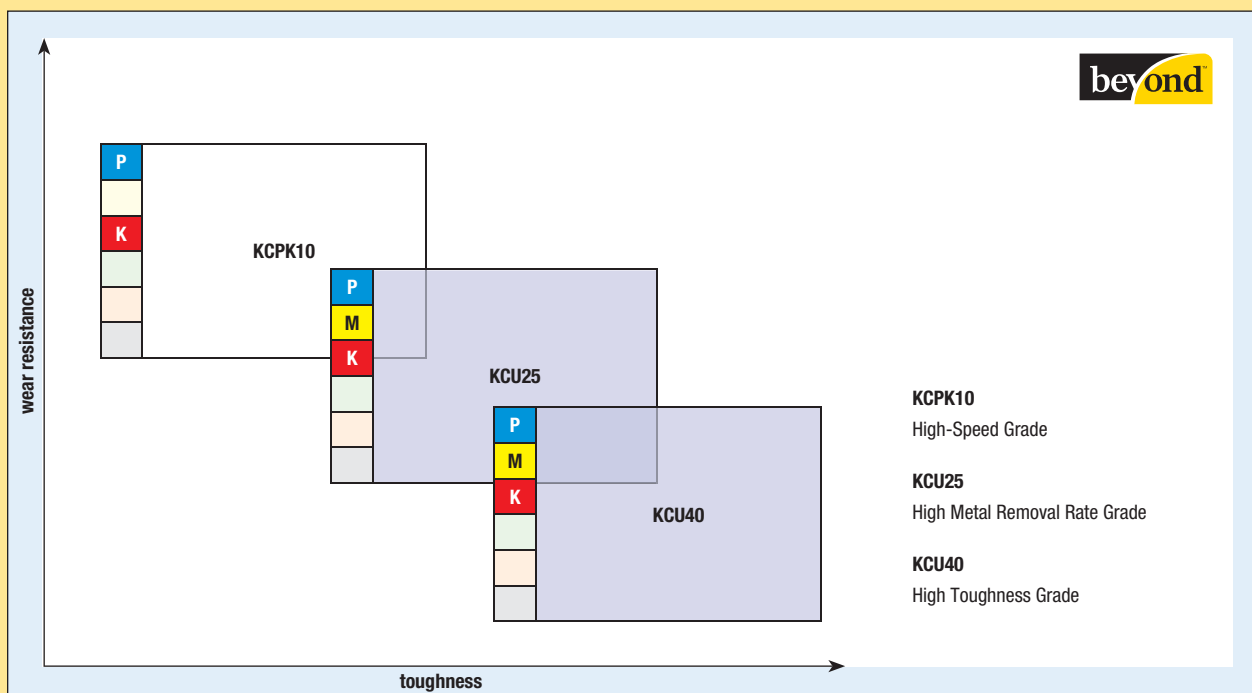


Coatings provide high-speed capability and are engineered for finishing to light roughing.

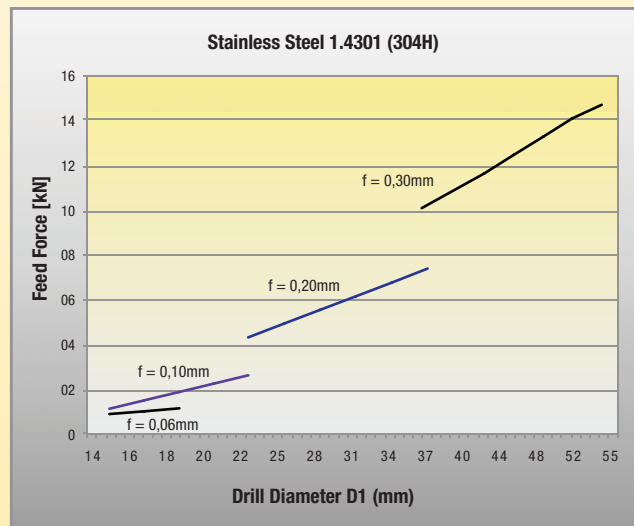
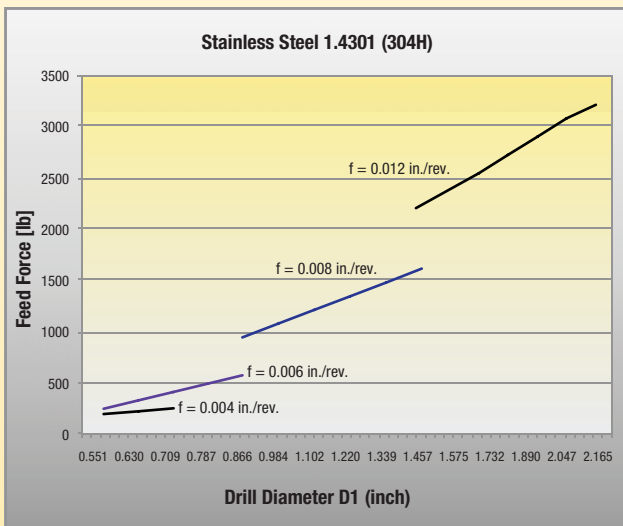
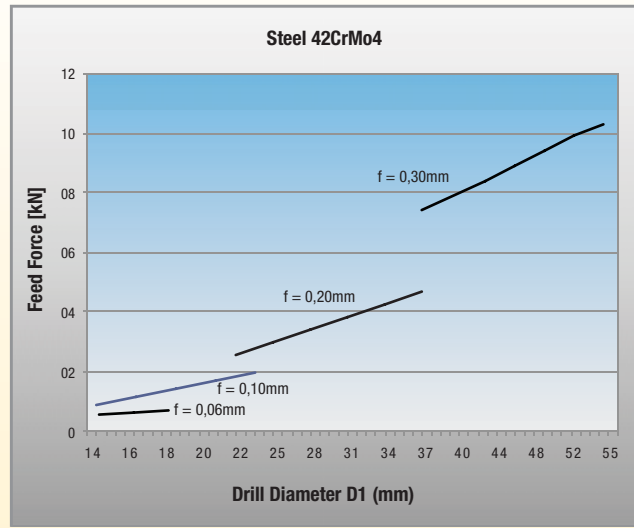
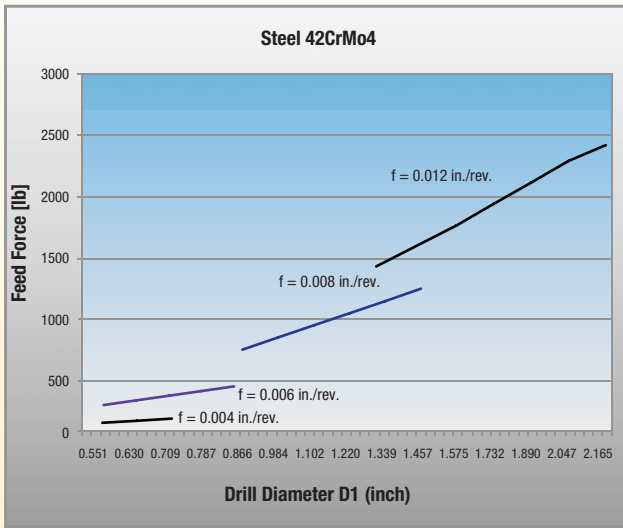
P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High-Temp Alloys
H	Hardened Materials

wear resistance ← → toughness

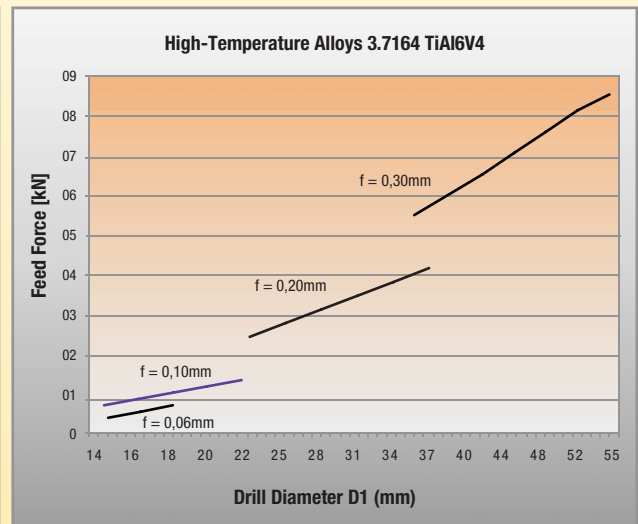
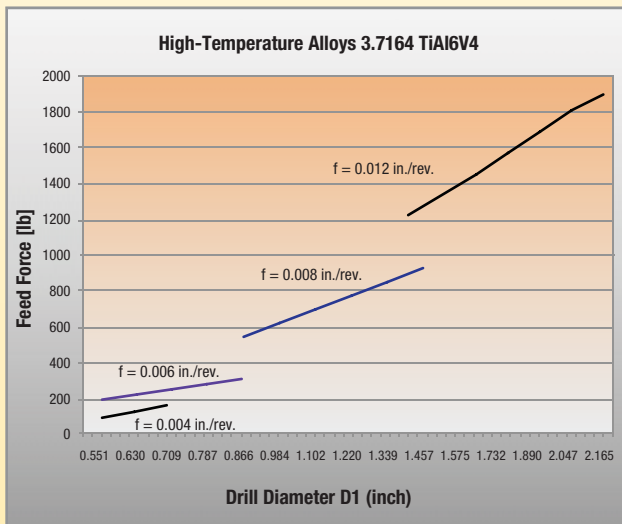
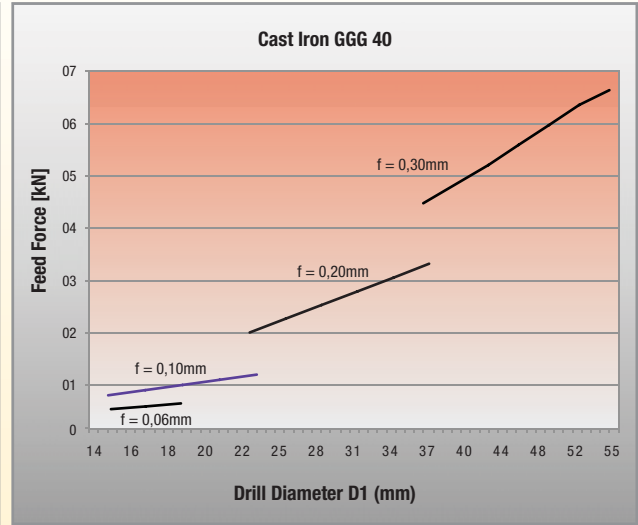
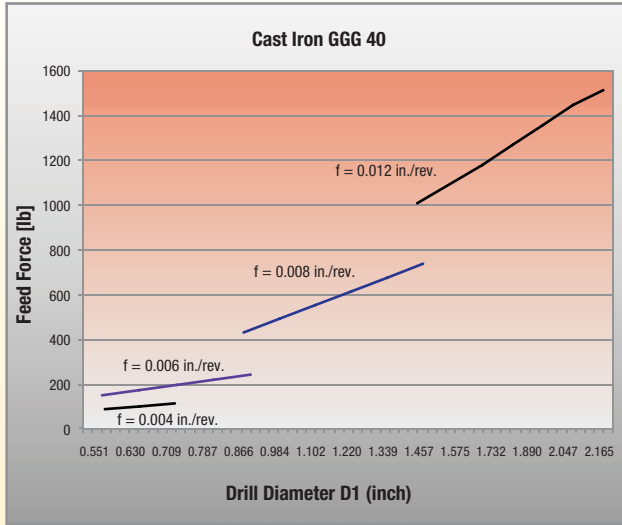
Grade	Coating	Grade Description	Material																			
			P	05	10	15	20	25	30	35	40	45										
KCPK10	 Al ₂ O ₃ TiCN	<p>Composition: With an advanced CVD TiCN-Al₂O₃ coating combined with a cobalt-enriched carbide substrate, this grade offers a balanced combination of deformation-resistance and edge toughness.</p> <p>Application: The KCPK10™ grade offers outstanding abrasion and crater wear resistance for high-speed machining of steels and cast irons. Use for very high cutting speeds with low to medium feed rates.</p>	P																			
			K																			
KCU25	 Al ₂ O ₃ TiCN	<p>Composition: This advanced CVD TiCN-Al₂O₃ coating, together with a newly engineered tough carbide substrate, ensures adequate deformation resistance along with excellent edge strength, and offers very good wear resistance over a wide range of machining conditions.</p> <p>Application: KCU25, as a high productivity grade with high speeds and feeds, is the first choice for productive process with very good reliability in steels, stainless steels, and cast irons.</p>	P																			
			M																			
KCU40	 PVD TiN_TiAlN	<p>Composition: With a multilayered PVD TiN-TiAlN coating and a tough substrate, this grade withstands interruptions and provides high wear resistance for long tool life.</p> <p>Application: The KCU40 grade is the first choice for high reliability in most materials. This grade should be used at medium speeds and high feeds due to sharper edges, and as a grade for high toughness applications. It covers steel, stainless steel, cast iron, and high-temp alloys under certain conditions.</p>	P																			
			M																			
			K																			



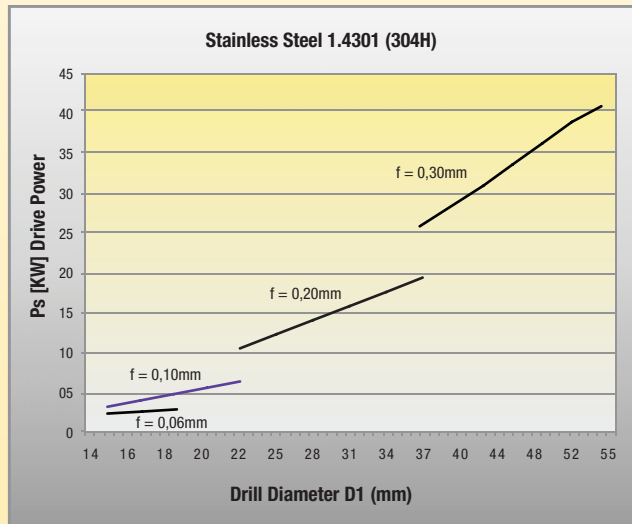
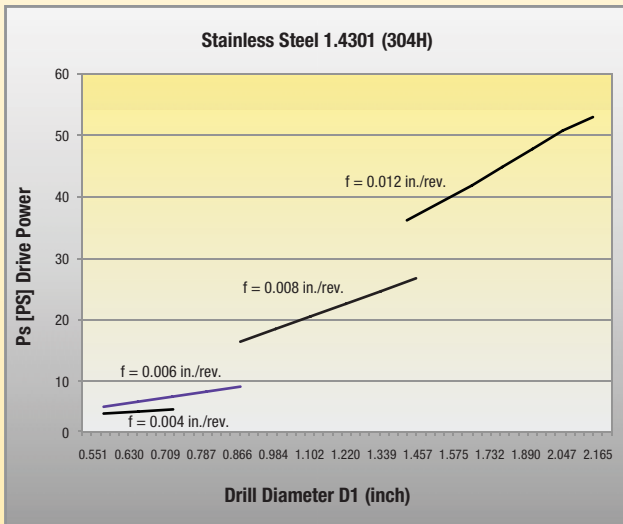
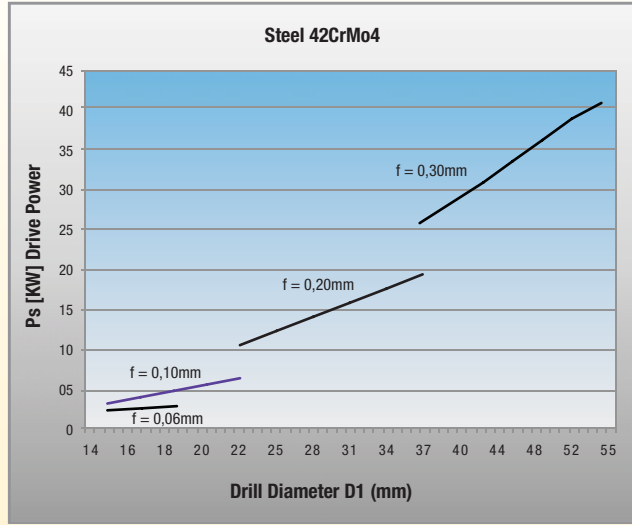
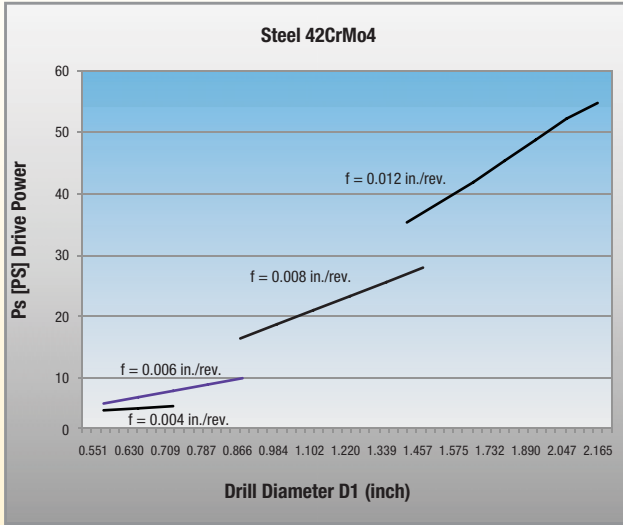
■ Feed Force Requirement



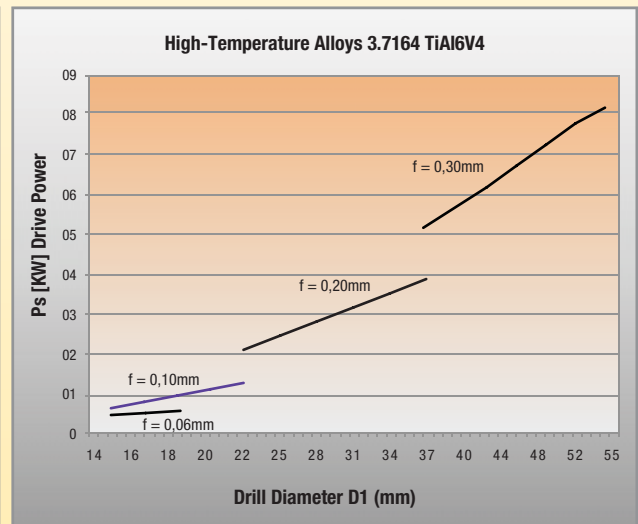
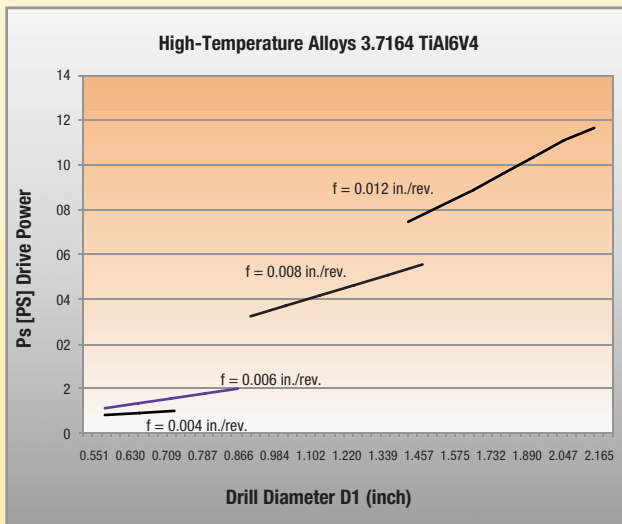
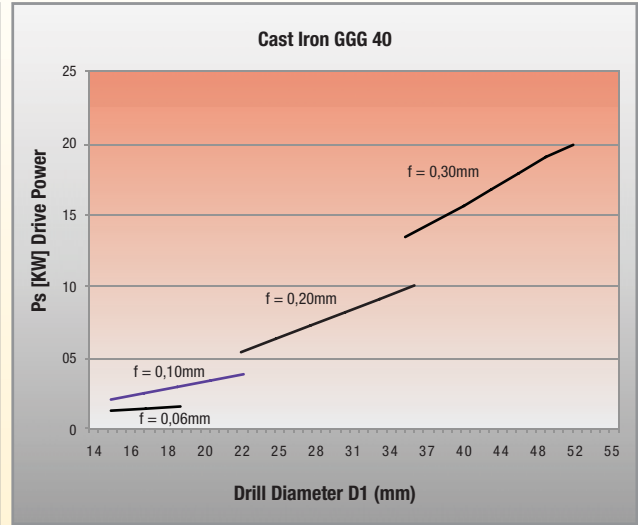
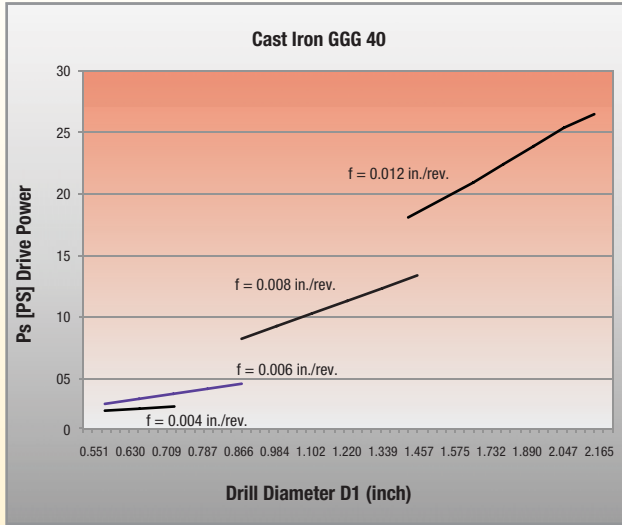
■ Feed Force Requirement



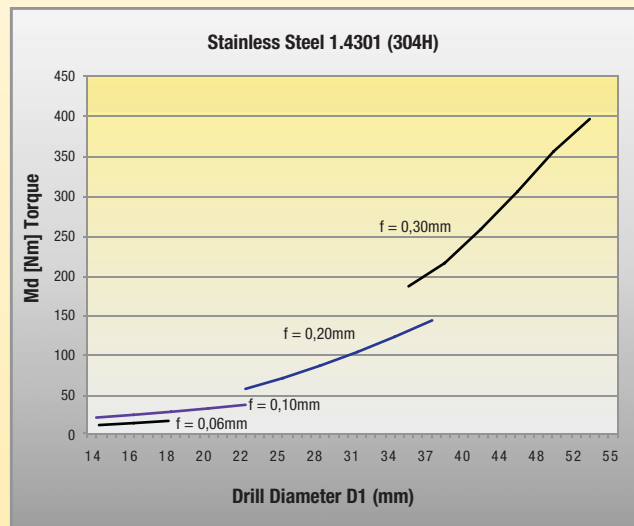
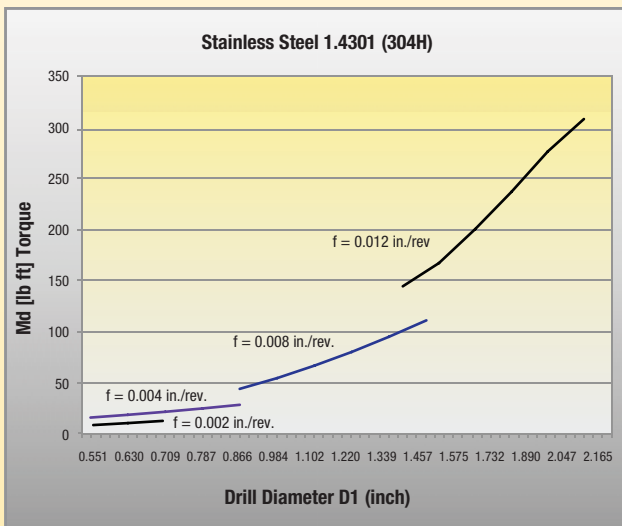
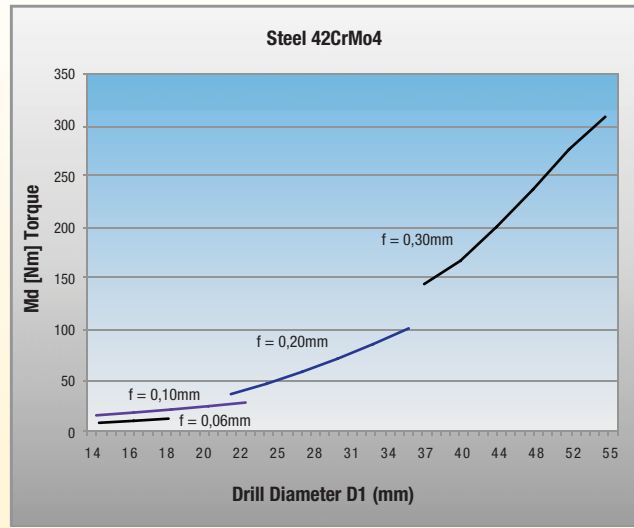
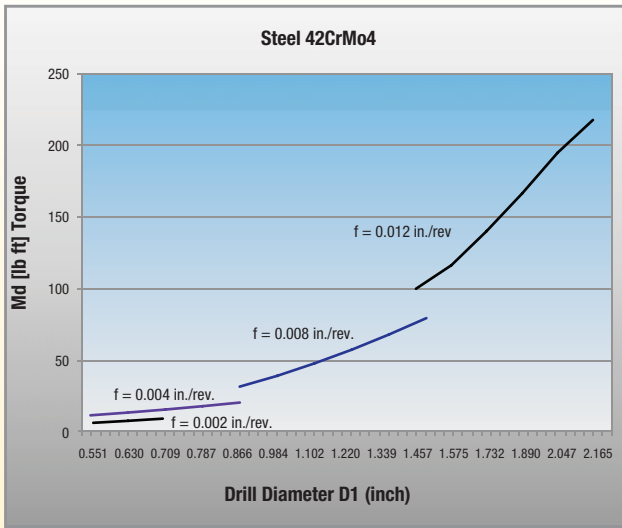
Power Recommendation



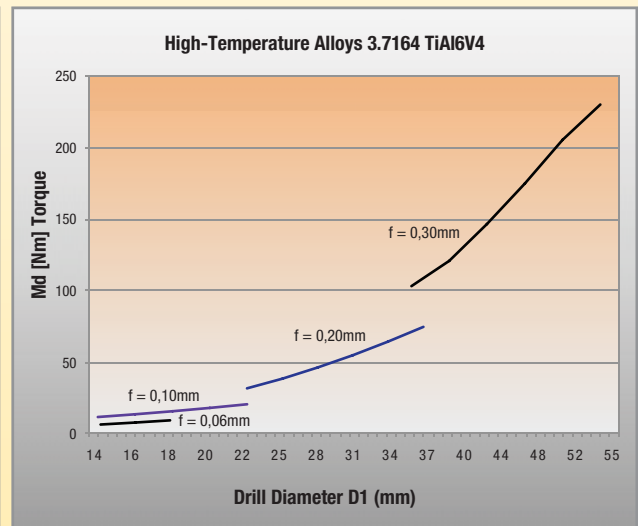
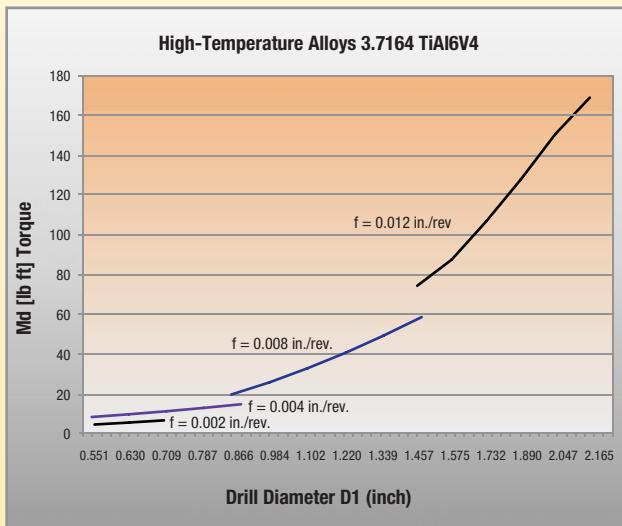
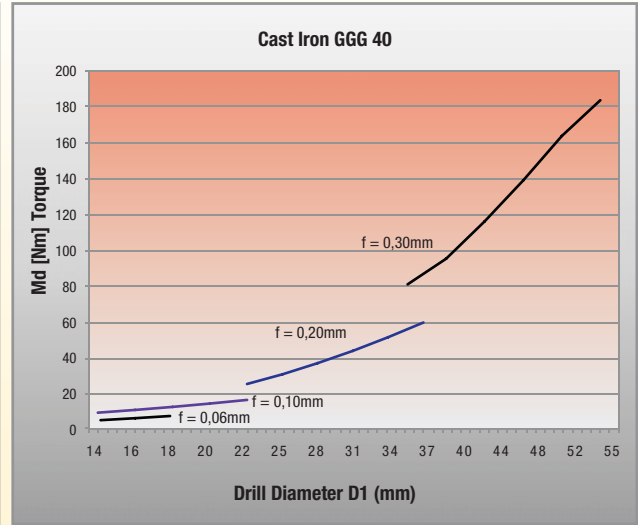
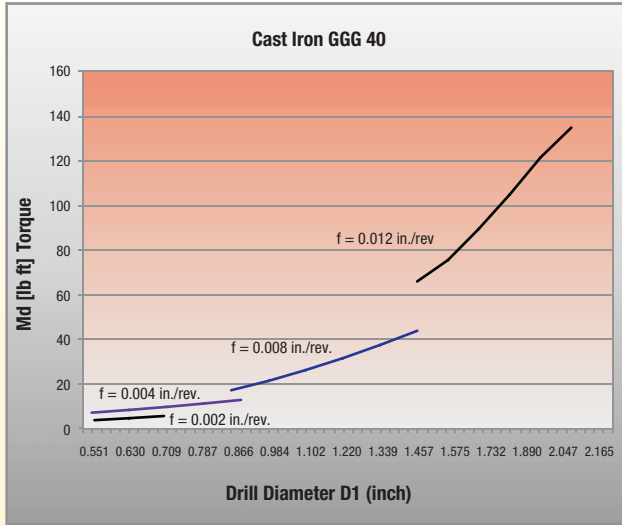
■ Power Recommendation



Torque Recommendation



■ Torque Recommendation



CTR™ Counterboring Tools

CTR counterboring tools are designed for high-production screw-head counterbores and similar counterboring operations. Tools can be adapted to almost all applications for optimum cutting performance and long tool life.

Extremely unequal insert positioning and flutes prevent chattering and generate less noise. A precise 90° bottom can be achieved with the S2 S inserts.

Features and Benefits

Productivity and Reliability

- S2 S inserts reduce additional drill operations to achieve a precise 90° bottom.
- Chatter-free operations for improved surface quality due to extremely unequal insert positioning and flutes.
- Achieve high metal removal rates to reduce machine time and manufacturing costs.

Versatility

- Counterboring tools can be used in steel, stainless steel, non-ferrous materials, cast irons, and heat-resistant alloy applications.
- Toolholders are double- or triple-fluted at a diameter range of 15–46mm (.591–1.811") with through-coolant capabilities.
- S2 S standard inserts are double-edged and available in various grades and geometries.

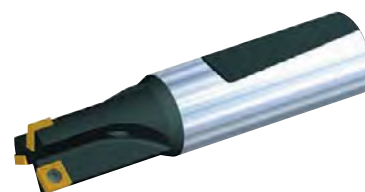
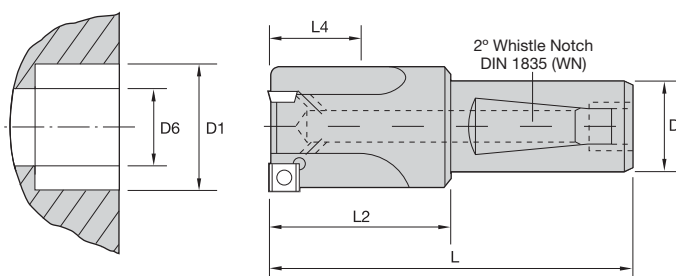
Achieve high metal removal rates to reduce machine time and manufacturing costs.



Customization

- Length and diameter variations with and without adjustable cartridges available.
- Combination and multistep tooling based on drilling tools, like the Drill Fix™ system, with short distance and small diameter steps.
- Various radii and customized grades available upon request.

- Counterboring tool shipped with insert screws and Torx wrench.
- Order inserts separately; see pages J115–J117.



■ S2 S Whistle Notch WN Shank • Metric

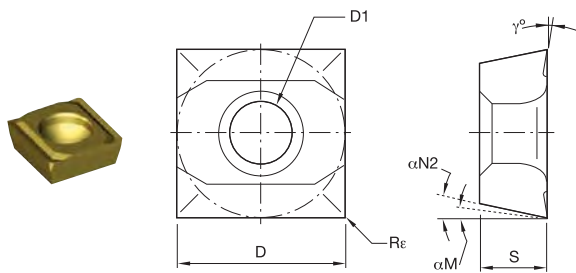
catalog number	D1		tol min D1		tol max D1		D	D6	L	L2	L4 max	gage insert	number of inserts
	mm	in	mm	in	mm	in							
CBTF150R2WD20N2M	15,14	0.596	-0,120	-0.005	0,120	0.005	20	6,0	81	31	8,5	SPHX060204R..	2
CBTF160R2WD20N2M	16,14	0.635	-0,120	-0.005	0,120	0.005	20	7,0	81	31	8,5	SPHX060204R..	2
CBTF170R2WD20N2M	17,14	0.675	-0,120	-0.005	0,120	0.005	20	8,0	86	36	13,5	SPHX060204R..	2
CBTF180R2WD20N2M	18,14	0.714	-0,120	-0.005	0,120	0.005	20	8,4	86	36	13,5	SPHX070304R..	2
CBTF180R2WD20N3M	18,14	0.714	-0,120	-0.005	0,120	0.005	20	8,4	86	36	13,5	SPHX060204R..	3
CBTF200R2WD20N2M	20,17	0.794	-0,120	-0.005	0,120	0.005	20	8,5	86	36	16,0	SPHX070304R..	2
CBTF200R2WD20N3M	20,17	0.794	-0,120	-0.005	0,120	0.005	20	8,5	86	36	16,0	SPHX060204R..	3
CBTF210R2WD20N2M	21,17	0.833	-0,120	-0.005	0,120	0.005	20	8,5	86	36	16,0	SPHX070304R..	2
CBTF210R2WD20N3M	21,17	0.833	-0,120	-0.005	0,120	0.005	20	10,5	86	36	11,0	SPHX060204R..	3
CBTF220R2WD20N2M	22,17	0.873	-0,120	-0.005	0,120	0.005	20	10,4	86	36	16,0	SPHX070304R..	2
CBTF220R2WD20N3M	22,17	0.873	-0,120	-0.005	0,120	0.005	20	10,5	86	36	16,0	SPHX060204R..	3
CBTF230R2WD20N2M	23,17	0.912	-0,120	-0.005	0,120	0.005	20	10,5	91	41	21,0	SPHX090304R..	2
CBTF230R2WD20N3M	23,17	0.912	-0,120	-0.005	0,120	0.005	20	10,5	91	41	16,0	SPHX070304R..	3
CBTF240R2WD20N2M	24,17	0.951	-0,120	-0.005	0,120	0.005	20	10,5	91	41	18,5	SPHX090304R..	2
CBTF240R2WD20N3M	24,17	0.951	-0,120	-0.005	0,120	0.005	20	10,5	91	41	16,0	SPHX070304R..	3
CBTF250R2WD20N2M	25,17	0.991	-0,120	-0.005	0,120	0.005	20	12,0	96	46	23,5	SPHX090304R..	2
CBTF250R2WD20N3M	25,17	0.991	-0,120	-0.005	0,120	0.005	20	10,5	96	46	21,0	SPHX070304R..	3
CBTF260R2WD20N2M	26,17	1.030	-0,120	-0.005	0,120	0.005	20	13,0	96	46	23,5	SPHX090304R..	2
CBTF270R2WD20N3M	27,17	1.070	-0,120	-0.005	0,120	0.005	20	10,5	96	46	21,0	SPHX090304R..	3
CBTF280R2WD20N3M	28,17	1.109	-0,120	-0.005	0,120	0.005	20	15,0	101	51	23,5	SPHX090304R..	3
CBTF300R2WD20N3M	30,17	1.188	-0,120	-0.005	0,120	0.005	20	15,0	101	51	23,0	SPHX090304R..	3
CBTF320R2WD20N3M	32,20	1.268	-0,120	-0.005	0,120	0.005	20	17,0	101	51	23,0	SPHX090304R..	3
CBTF330R2WD20N3M	33,20	1.307	-0,120	-0.005	0,120	0.005	20	17,0	101	51	25,5	SPHX090304R..	3
CBTF340R2WD32N3M	34,20	1.346	-0,120	-0.005	0,120	0.005	32	18,0	111	51	25,5	SPHX090304R..	3
CBTF350R2WD32N3M	35,20	1.386	-0,120	-0.005	0,120	0.005	32	19,0	111	51	25,5	SPHX090304R..	3
CBTF360R2WD32N3M	36,20	1.425	-0,120	-0.005	0,120	0.005	32	19,0	116	56	27,5	SPHX090304R..	3
CBTF380R2WD32N3M	38,20	1.504	-0,120	-0.005	0,120	0.005	32	22,0	121	61	30,0	SPHX120404R..	3
CBTF400R2WD32N3M	40,20	1.582	-0,120	-0.005	0,120	0.005	32	21,0	121	61	30,5	SPHX120404R..	3
CBTF420R2WD32N3M	42,20	1.661	-0,120	-0.005	0,120	0.005	32	22,0	126	66	33,5	SPHX120404R..	3
CBTF460R2WD32N3M	46,20	1.819	-0,120	-0.005	0,120	0.005	32	25,0	126	66	33,5	SPHX120404R..	3

■ Spare Parts



gage insert	insert screw	wrench	Torx size
SPHX060204R..	192.432	170.028	T8
SPHX070304R..	192.432	170.028	T8
SPHX090304R..	191.924	170.024	T9
SPHX120404R..	191.916	170.025	T15

- Double-sided insert style.



- first choice
- alternate choice

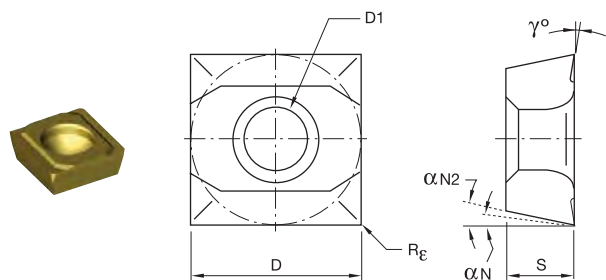
P	●	●	●	●
M	○	○	○	●
K	○	○	○	○
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○

■ SPHX..R-20

catalog number	D		D1		S		Re		γ°	$\alpha N2$	$\alpha N M$	KCJ25	KCJ40	KC7215	KC7140
	mm	in	mm	in	mm	in	mm	in							
SPHX060202R20	6,35	.250	2,85	.112	2,38	.094	0,20	.008	12	11	7	-	-	●	-
SPHX060204R20	6,35	.250	2,85	.112	2,38	.094	0,40	.016	12	11	7	●	●	-	●
SPHX060206R20	6,35	.250	2,85	.112	2,38	.094	0,60	.024	12	11	7	-	-	●	-
SPHX060208R20	6,35	.250	2,85	.112	2,38	.094	0,80	.031	12	11	7	-	-	●	-
SPHX070302R20	7,94	.313	2,85	.112	3,18	.125	0,20	.008	12	11	7	-	-	●	-
SPHX070304R20	7,94	.313	2,85	.112	3,18	.125	0,40	.016	12	11	7	●	●	-	●
SPHX070306R20	7,94	.313	2,85	.112	3,18	.125	0,60	.024	12	11	7	-	-	●	-
SPHX070308R20	7,94	.313	2,85	.112	3,18	.125	0,80	.031	12	11	7	-	-	●	-
SPHX070310R20	7,94	.313	2,85	.112	3,18	.125	1,00	.039	12	11	7	-	-	●	-
SPHX070312R20	7,94	.313	2,85	.112	3,18	.125	1,20	.047	12	11	7	-	-	●	-
SPHX090304R20	9,53	.375	3,50	.138	3,18	.125	0,40	.016	12	11	7	●	●	●	●
SPHX090308R20	9,53	.375	3,50	.138	3,18	.125	0,80	.031	12	11	7	●	●	-	-
SPHX090310R20	9,53	.375	3,50	.138	3,18	.125	1,00	.039	12	11	7	-	-	●	-
SPHX090312R20	9,53	.375	3,50	.138	3,18	.125	1,20	.047	12	11	7	-	-	●	-
SPHX090316R20	9,53	.375	3,50	.138	3,18	.125	1,60	.063	12	11	7	-	-	●	-
SPHX120404R20	12,70	.500	4,50	.177	4,76	.187	0,40	.016	12	11	7	●	●	-	●
SPHX120408R20	12,70	.500	4,50	.177	4,76	.187	0,80	.031	12	11	7	●	●	-	-
SPHX120410R20	12,70	.500	4,50	.177	4,76	.187	1,00	.039	12	11	7	-	-	●	-
SPHX120412R20	12,70	.500	4,50	.177	4,76	.187	1,20	.047	12	11	7	-	-	●	-
SPHX120416R20	12,70	.500	4,50	.177	4,76	.187	1,60	.063	12	11	7	-	-	●	-
SPHX120420R20	12,70	.500	4,50	.177	4,76	.187	2,00	.079	12	11	7	-	-	●	-
SPHX150504R20	15,88	.625	5,50	.217	5,95	.234	0,40	.016	12	11	7	●	●	-	-
SPHX150508R20	15,88	.625	5,50	.217	5,95	.234	0,80	.031	12	11	7	●	●	-	-
SPHX150512R20	15,88	.625	5,50	.217	5,95	.234	1,20	.047	12	11	7	-	-	●	-
SPHX150516R20	15,88	.625	5,50	.217	5,95	.234	1,60	.063	12	11	7	-	-	●	-
SPHX150520R20	15,88	.625	5,50	.217	5,95	.234	2,00	.079	12	11	7	-	-	●	-

NOTE: SPHX...R-20: This geometry is first choice for steel applications.





● first choice
○ alternate choice

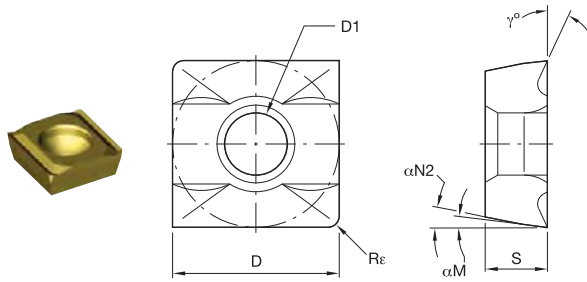
P	○	○	○	○	○
M	○	○	○	○	○
K	●	●	●	●	●
N	○	○	○	○	○
S	○	○	○	○	○
H	○	○	○	○	○

SPHX..R-21

Indexable Drills

catalog number	D		D1		S		Rε		γ°	αN2	αN	KCPK10	KCU25	KCU40	KC7215	KM1
	mm	in	mm	in	mm	in	mm	in								
SPHX060202R21	6,35	.250	2,85	.112	2,38	.094	0,20	.008	4	11	7	-	-	-	●	-
SPHX060204R21	6,35	.250	2,85	.112	2,38	.094	0,40	.016	4	11	7	●	●	●	-	-
SPHX060204R-21	6,35	.250	2,85	.112	2,38	.094	0,40	.016	4	11	7	-	-	-	-	●
SPHX060206R21	6,35	.250	2,85	.112	2,38	.094	0,60	.024	4	11	7	-	-	-	●	-
SPHX060208R21	6,35	.250	2,85	.112	2,38	.094	0,80	.031	4	11	7	-	-	-	-	●
SPHX070304R21	7,94	.313	2,85	.112	3,18	.125	0,40	.016	4	11	7	●	●	●	-	-
SPHX070304R-21	7,94	.313	2,85	.112	3,18	.125	0,40	.016	4	11	7	-	-	-	-	●
SPHX070306R21	7,94	.313	2,85	.112	3,18	.125	0,60	.024	4	11	7	-	-	-	●	-
SPHX070308R21	7,94	.313	2,85	.112	3,18	.125	0,80	.031	4	11	7	●	-	●	-	-
SPHX070310R21	7,94	.313	2,85	.112	3,18	.125	1,00	.039	4	11	7	-	-	-	●	-
SPHX090304R21	9,53	.375	3,50	.138	3,18	.125	0,40	.016	4	11	7	●	●	●	-	-
SPHX090304R-21	9,53	.375	3,50	.138	3,18	.125	0,40	.016	4	11	7	-	-	-	-	●
SPHX090308R21	9,53	.375	3,50	.138	3,18	.125	0,80	.032	4	11	7	●	●	●	-	-
SPHX090310R21	9,53	.375	3,50	.138	3,18	.125	1,00	.039	4	11	7	-	-	-	●	-
SPHX090312R21	9,53	.375	3,50	.138	3,18	.125	1,20	.047	4	11	7	-	-	-	●	-
SPHX090316R21	9,53	.375	3,50	.138	3,18	.125	1,60	.063	4	11	7	-	-	-	●	-
SPHX120404R21	12,70	.500	4,50	.177	4,76	.187	0,40	.016	4	11	7	●	●	●	-	-
SPHX120404R-21	12,70	.500	4,50	.177	4,76	.187	0,40	.016	4	11	7	-	-	-	-	●
SPHX120408R21	12,70	.500	4,50	.177	4,76	.187	0,80	.031	4	11	7	-	-	-	●	-
SPHX120410R21	12,70	.500	4,50	.177	4,76	.187	1,00	.039	4	11	7	-	-	-	●	-
SPHX120412R21	12,70	.500	4,50	.177	4,76	.187	1,20	.047	4	11	7	-	-	-	●	-
SPHX120416R21	12,70	.500	4,50	.177	4,76	.187	1,60	.063	4	11	7	-	-	-	●	-
SPHX120420R21	12,70	.500	4,50	.177	4,76	.187	2,00	.079	4	11	7	-	-	-	●	-
SPHX150504R-21	15,88	.625	5,50	.217	5,95	.234	0,40	.016	4	11	7	-	-	-	-	●

NOTE: SPHX...R-21: This geometry is first choice for cast iron applications.



● first choice
○ alternate choice

P	■	
M	■	
K	■	○
N	■	●
S	■	
H	■	

■ SPHX..R-22

catalog number	D		D1		S		Re		γ°	$\alpha N2$	$\alpha N M$	KM1
	mm	in	mm	in	mm	in	mm	in				
SPHX060204R-22	6,35	.250	2,85	.112	2,38	.094	0,40	.016	25	11	—	●
SPHX070304R-22	7,94	.313	2,85	.112	3,18	.125	0,40	.016	25	11	—	●
SPHX090304R-22	9,53	.375	3,50	.138	3,18	.125	0,40	.016	25	11	—	●
SPHX120404R-22	12,70	.500	4,50	.177	4,76	.187	0,40	.016	25	11	—	●
SPHX150504R-22	15,88	.625	5,50	.217	5,95	.234	0,40	.016	25	11	7	●

NOTE: SPHX...R-22: This geometry is first choice for aluminum applications.



Indexable Drills



Hole Finishing

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RMS Solid Carbide Reaming	K6–K11
RMR, RMB, and RMB-E Tipped Reaming	K12–K25
RMR Disc Tipped Reaming	K12, K15–K16, K22
RMB Cermet Tipped Reaming	K13, K17–K18, K23–K24
RMB-E Expansion Reaming	K14, K19–K21, K23–K24
RHR, RHM, and RHM-E Modular Reaming	K26–K45
RHR Disc Tipped Reaming	K26, K29–K30, K38
RHM Cermet Tipped Reaming	K27, K31–K34, K39–K40
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➤ Hole Finishing with Kennametal

Owning the entire process chain from raw materials to reconditioning makes Kennametal one of the few sources in the metalworking industry where you can get complete hole finishing tooling, from reaming and fine boring to motion tooling. Kennametal provides customized solutions that are the best fit for any application or machining challenge, without limitations from product portfolio or capacity.

PCD Tooling

- Extremely productive and tailored for satisfying your high-volume production needs.
- Several standard PCD grades, like KD1415™ and KD1425™, are available to provide the highest tool life and cutting data as well as unmatched surface and diameter tolerance quality.
- Platforms are available depending on your application and preference from steel to carbide based, adjustable pocket seats, fine-boring components like Romicon™ or FB cartridges, spindle couplings, or SIF™ steerable adapters.



Multi-flute Reaming

- RMR™, RMB™, and RMB-E™ tipped reaming.
- RHR™, RHM™, and RHM-E™ modular reaming.
- Highly productive and easy to use.
- Large, standard, off-the-shelf portfolio of solid carbide, cermet, carbide-tipped, and modular reaming tools, all ground to achieve H7 without customization.
- Complex specials with multiple steps, coupling, and length variations are available.
- Intermediate sizes, grades, and lead chamfers available with short delivery.



Motion Tooling

- Sophisticated tooling achieves most challenging tasks.
- Large, customized complex solution portfolio of:
 - Linear feed-out heads.
 - Eccentric actuating heads.
 - Pivot heads.
 - Cylinder boring tools.
 - Line boring bars.
 - Bottle boring tools.
 - Valve seat and guide tools.
 - Machining center tools.
- Depending on your application and preference, tools are based on the positive-stop principle; use drawbars, like with engineered solution machines; or don't require machining center modification.



Padded Reaming

- RIQ™ Quattro Cut™ and RIR™ reaming systems.
- Highest precision and surface quality achievable but still easy to apply.
- RIQ is the market-leading reaming technology that eliminates back taper adjustment, dramatically reduces setup time while still offering highest accuracy and surface quality, and offers four cutting edges with PCD, CBN, carbide, or cermet styles.
- RIR provides the most stable pocket seat and fail-safe clamping, from smallest to largest diameters.
- Combine the large, standard RIQ and RIR insert offering with your customized tool body.



Fine Boring

- Romicron™ and ModBORE™ systems.
- Extremely flexible, with an extensive diameter and length range.
- Offers the latest grade technology using standard turning inserts.
- Romicron enables diameter modifications by hand directly at the machine without setup equipment or affecting lock screw accuracy.
- The ModBORE system offers a very large diameter range with each tool along, with roughing to finishing tooling, and can be easily and safely adapted to every KM™ spindle.



								standard diameter		custom solution diameter			
		P	M	K	N	S	H	range	accuracy	range	accuracy		
reaming tools		●	●	●	●	○		.196–.551" 5–14mm	IT7	.056–1.00" 1,4–25,4mm	IT6 >.39" >10mm	.0004" 10 μm	.0003" 7 μm
		●	●	●	●	○		.551–.787" 14–20mm	IT7	.551–1.65" 14–42mm	IT6	.0004" 10 μm	.0003" 7 μm
		●		○	○			.551–.787" 14–20mm	IT7	.551–2.55" 14–65mm	IT6	.0004" 10 μm	.0003" 7 μm
		●	●	●	●	○		.551–1.65" 14–42mm	IT6	.551–1.65" 14–42mm	IT5–IT6	.0004" 10 μm	.0003" 7 μm
		●	●	●	●	○		.551–1.65" 14–42mm	IT7	.551–1.65" 14–42mm	IT6	.0004" 10 μm	.0003" 7 μm
		●		○	○			.551–1.65" 14–42mm	IT7	.551–1.96" 14–50mm	IT6	.0004" 10 μm	.0003" 7 μm
		●	●	●	●	○		.551–1.65" 14–42mm	IT6	.551–1.65" 14–42mm	IT5–IT6	.0004" 10 μm	.0003" 7 μm
		●	●	●	●	●	○	–	–	.236–11.8" 6–300mm	IT5	.0004" 10 μm	.0002" 4 μm
		●	●	●	●	●	○	–	–	.630–11.8" 16–300mm	IT5	.0004" 10 μm	.0002" 4 μm
boring/fine-boring tools		●	●	●	●	●	○	.157–3.93" 4–100mm	IT6	.062–3.93" 1,6–100mm	IT6	.0002" 5 μm	.0002–.0004" 5–10 μm
		●	●	●	●	●	●	.984–5.47" 25–139mm	IT6	.984–7.2" 25–183mm	IT6	.0002" 5 μm	.0002–.0004" 5–10 μm
		●	●	●	●	●	○	2.79–8.38" 71–213mm	IT6	.394–12.83" 10–326mm	IT6	.0002" 5 μm	.0002–.0004" 5–10 μm
		●	●	●	○	○		>1.57" >40mm	IT6	1.57–63.0" 40–1600mm	IT6	.0002" 5 μm	.0002–.0004" 5–10 μm
		●	●	●	●	●		.925–6.024" 23,5–153mm	IT9	.925–6.0" 23,5–153mm	IT9	.0004" 10 μm	>.0008" >20 μm
		●	●	●	●	○		.383–3.469" 9,75–88,1mm	IT7	.118–3.4" 3,0–88,1mm	IT7	.0002" 5 μm	.0002–.0004" 5–10 μm
		●	●	●	●	○		.383–12.598" 9,75–320mm	IT7	.118–12.5" 3,0–320mm	IT7	.0002" 5 μm	.0002–.0004" 5–10 μm
		●	●	●	●	○		.925–6.024" 23,5–153mm	IT7	.925–6.0" 23,5–153mm	IT7	.0002" 5 μm	.0002–.0004" 5–10 μm
		●	●	●	●	●		5.9–86.8" 150–2205mm	IT9	5.9–86.8" 150–2205mm	IT9	.0004" 10 μm	>.0008" >20 μm
		●	●	●	●	●		5.9–86.8" 150–2205mm	IT7	5.9–86.8" 150–2205mm	IT7	.0002" 5 μm	>.0004" >10 μm
	●	○	●	●	○		>1.10" >28mm	IT7	>1.10" >28mm	IT7	.0002" 5 μm	.0002–.0004" 5–10 μm	
PCD					●			–	–	.394–4.00" 10–100mm	IT6	.0004" 10 μm	.0004" 10 μm
					●			–	–	.197–1.00" 5–25mm	IT6	.0002" 5 μm	.0003" 7 μm

Cylindricity
NOTE: Process- and application-dependent.
Highly dependent on the pre-machine hole accuracy.
Use of high-performance drilling/pre-machining tools mandatory to reach values.

Position
NOTE: Process- and application-dependent.
Highly dependent on the pre-machine hole accuracy.
Use of high-performance drilling/pre-machining tools mandatory to reach values.

achievable surface quality Ra						capability				cost/part	cycle time	required operator experience	page(s)
P	M	K	N	S	H								
20–40 µ-in 0,5–1,0 µm	20–40 µ-in 0,5–1,0 µm	20–60 µ-in 0,5–1,5 µm	–	20–40 µ-in 0,5–1,0 µm	–	●	●	●	●	moderate	low	low	K6–K11
8–24 µ-in 0,2–0,6 µm	20–40 µ-in 0,5–1,0 µm	20–40 µ-in 0,5–1,0 µm	–	20–40 µ-in 0,5–1,0 µm	–	●	●	●	●	low	low	low	K12, K15–K16, K22
8–24 µ-in 0,2–0,6 µm	–	20–60 µ-in 0,5–1,5 µm	4–24 µ-in 0,1–0,6 µm	–	–	●	●	●	●	moderate	low	low	K13, K17–K18, K23–K24
20–40 µ-in 0,5–1,0 µm	20–40 µ-in 0,5–1,0 µm	20–60 µ-in 0,5–1,5 µm	–	20–40 µ-in 0,5–1,0 µm	–	●	●	●	●	moderate	low	moderate	K14, K19–K21, K23–K24
8–24 µ-in 0,2–0,6 µm	20–40 µ-in 0,5–1,0 µm	20–40 µ-in 0,5–1,0 µm	–	20–40 µ-in 0,5–1,0 µm	–	●	●	●	●	moderate	low	low	K26, K29–K30, K38
8–24 µ-in 0,2–0,6 µm	–	20–60 µ-in 0,5–1,5 µm	4–24 µ-in 0,1–0,6 µm	–	–	●	●	●	●	moderate	low	low	K27, K31–K34, K39–K40
20–40 µ-in 0,5–1,0 µm	20–40 µ-in 0,5–1,0 µm	20–60 µ-in 0,5–1,5 µm	–	20–40 µ-in 0,5–1,0 µm	–	●	●	●	●	moderate	low	moderate	K28, K35–K37, K39–K40
8–24 µ-in 0,2–0,6 µm	20–63 µ-in 0,5–1,6 µm	20–72 µ-in 0,5–1,8 µm	4–24 µ-in 0,1–0,6 µm	<32 µ-in <08 µm	<32 µ-in <08 µm	●	●	●	●	low	moderate	high	K53–K57, K60–K64
8–24 µ-in 0,2–0,6 µm	20–63 µ-in 0,5–1,6 µm	20–72 µ-in 0,5–1,8 µm	4–24 µ-in 0,1–0,6 µm	<32 µ-in <08 µm	<32 µ-in <08 µm	●	●	●	●	low	moderate	moderate	K53–K55, K57–K65
32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	<48 µ-in <1,2 µm	●	●	○	○	low	moderate	low	K76–K80
32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	<48 µ-in <1,2 µm	●	●	●	●	low	moderate	low	K81–K86
32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	<48 µ-in <1,2 µm	●	●	○	○	low	moderate	low	K87–K90
32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	<48 µ-in <1,2 µm	●	●	●	●	low	moderate	low	please contact us
40–200 µ-in 1,0–5,0 µm	40–200 µ-in 1,0–5,0 µm	40–200 µ-in 1,0–5,0 µm	40–80 µ-in 1,0–2,0 µm	40–200 µ-in 1,0–5,0 µm	–	●	●	●	●	low	low	low–moderate	K122–K126
32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	<48 µ-in <1,2 µm	●	●	●	●	low	moderate	low–moderate	K128–K129, K134–K135
32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	<48 µ-in <1,2 µm	●	●	●	●	low	moderate	low–moderate	K131–K136
32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	<48 µ-in <1,2 µm	●	●	●	●	low	moderate	low–moderate	K137–K141
40–200 µ-in 1,0–5,0 µm	40–200 µ-in 1,0–5,0 µm	40–200 µ-in 1,0–5,0 µm	40–80 µ-in 1,0–2,0 µm	40–200 µ-in 1,0–5,0 µm	–	●	●	●	●	low	low	low–moderate	K141–K145
32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	–	●	●	●	●	low	moderate	low–moderate	K141–K145
32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	32–80 µ-in 0,8–2,0 µm	–	●	●	○	○	low	moderate	low–moderate	K116–K117
–	–	–	4–32 µ-in 0,1–0,8 µm	–	–	●	●	●	●	low	very low	moderate	K154–K158
–	–	–	4–32 µ-in 0,1–0,8 µm	–	–	●	●	●	●	low	very low	moderate	K154–K158

Ra Surface roughness

NOTE: Surface roughness values are guidelines and depend on the application, coolant situation, machine, and cutting data applied.

➤ RMS™ Multi-Flute Reaming Tools

RMS™ multi-flute reaming tools achieve the highest metal removal rates in 5–14mm (.197-.551") diameters. All standard reamers are ground to an ISO H7 tolerance class hole to address common applications. Specific coatings and lead configurations enable high-speed machining of steel, stainless steel, cast iron, and non-ferrous materials at accelerated speeds.

Primary Application

Use standard SIF™ steerable hydraulic chucks or SIF adapters for easy compensation of radial runout and angular inaccuracies of the spindle to achieve the highest possible hole straightness and surface quality.



Features and Benefits

Higher Productivity and Profitability

- Longer tool life with increased hole and surface quality due to lapped ground leads.
- Highest metal removal rates at higher speeds and feeds due to reaming-specific grades and substrates.
- Improved straightness and cylindrical form compared to competitive tools, and reduced vibration due to unequal flutes.
- All RMS reamers have internal coolant capability.

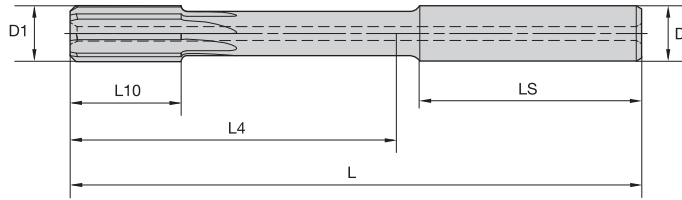
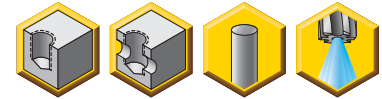
RMS™ multi-flute reaming tools achieve highest metal removal rates from 5–14mm (.197–.551").

Customization

- Diameters 1,40–14,15mm (.055–.557") available with and without internal coolant in 0,001mm (.00004") steps.
- Intermediate diameters of standard program available as simple specials with short delivery time.
- Solid cermet reaming tools and tooling for heat-resistant materials are available on request.

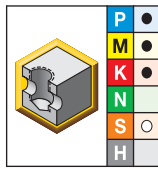
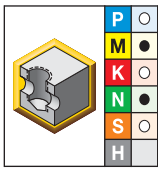


- For hole tolerance H7.
- Intermediate sizes ground to achieve IT7 hole tolerance class available.
- Starting with Ø .393" (10mm) in IT6 hole tolerance available.



RMS • Blind Hole Solid Carbide Reamer with Internal Coolant

Hole Finishing



- first choice
- alternate choice

		D1		D		L		L4		L10		LS		Z
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
K605	KC6305													
RMS05000H7SF	RMS05000H7SF	5,00	.197	6,00	.236	74,0	2.913	32,0	1.260	12,0	.472	36,0	1.417	4
RMS05500H7SF *	RMS05500H7SF	5,50	.217	6,00	.236	74,0	2.913	32,0	1.260	12,0	.472	36,0	1.417	4
RMS06000H7SF	RMS06000H7SF	6,00	.236	6,00	.236	74,0	2.913	32,0	1.260	12,0	.472	36,0	1.417	4
RMS06500H7SF	RMS06500H7SF	6,50	.256	8,00	.315	91,0	3.583	49,0	1.930	16,0	.630	36,0	1.417	4
RMS07000H7SF	RMS07000H7SF	7,00	.276	8,00	.315	91,0	3.583	49,0	1.930	16,0	.630	36,0	1.417	4
RMS08000H7SF	RMS08000H7SF	8,00	.315	8,00	.315	91,0	3.583	49,0	1.930	16,0	.630	36,0	1.417	6
RMS09000H7SF	RMS09000H7SF	9,00	.354	10,00	.394	103,0	4.055	57,0	2.240	20,0	.787	40,0	1.575	6
RMS10000H7SF	RMS10000H7SF	10,00	.394	10,00	.394	103,0	4.055	57,0	2.240	20,0	.787	40,0	1.575	6
RMS11000H7SF	RMS11000H7SF	11,00	.433	12,00	.472	118,0	4.646	67,0	2.640	24,0	.945	45,0	1.772	6
RMS12000H7SF	RMS12000H7SF	12,00	.472	12,00	.472	118,0	4.646	67,0	2.640	24,0	.945	45,0	1.772	6
RMS13000H7SF	RMS13000H7SF	13,00	.512	14,00	.551	132,0	5.197	81,0	3.190	28,0	1.102	45,0	1.772	6
RMS14000H7SF	RMS14000H7SF	14,00	.551	14,00	.551	132,0	5.197	81,0	3.190	28,0	1.102	45,0	1.772	6

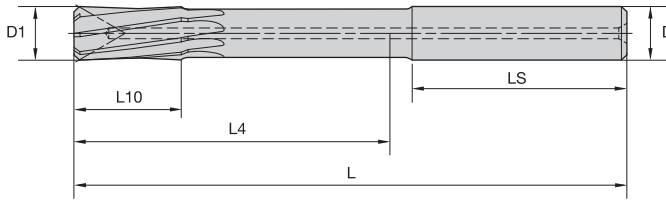
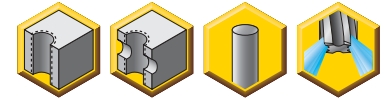
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Dimensions for Engineered-Solution Reamers

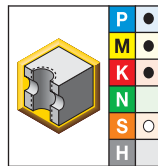
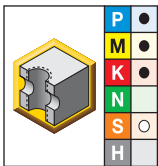
D1 min		D1 max		D		L		L4		L10		LS		Z
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
14,000	0.5512	15,999	0.6299	16	0.630	147,4	5.80	92,4	3.64	7,5	0.30	49	1.93	6
16,000	0.6299	17,999	0.7086	20	0.787	159,4	6.28	102,4	4.03	7,5	0.30	51	2.01	6
18,000	0.7087	20,000	0.7874	20	0.787	173,4	6.83	116,4	4.58	7,5	0.30	51	2.01	6
20,001	0.7874	22,499	0.8858	20	0.787	202,4	7.97	145,4	5.72	7,5	0.30	51	2.01	6
22,500	0.8858	24,999	0.9842	20	0.787	212,4	8.36	155,4	6.12	7,5	0.30	51	2.01	6
25,000	0.9843	27,499	1.0826	25	0.984	232,4	9.15	169,4	6.67	7,5	0.30	57	2.24	8
27,500	1.0827	29,999	1.1811	25	0.984	242,4	9.54	179,4	7.06	7,5	0.30	57	2.24	8
30,000	1.1811	32,499	1.2795	25	0.984	272,4	10.72	209,4	8.24	7,5	0.30	57	2.24	8
32,500	1.2795	34,999	1.3779	32	1.260	272,4	10.72	205,4	8.09	7,5	0.30	61	2.40	8
35,000	1.3780	37,499	1.4763	32	1.260	272,4	10.72	205,4	8.09	7,5	0.30	61	2.40	8
37,500	1.4764	39,999	1.5748	32	1.260	272,4	10.72	205,4	8.09	7,5	0.30	61	2.40	8
40,000	1.5748	42,500	1.6732	32	1.260	272,4	10.72	205,4	8.09	7,5	0.30	61	2.40	8

NOTE: The above dimensions are used when ordering engineered-solution reamers on this page unless otherwise specified.

- For hole tolerance H7.
- Intermediate sizes ground to achieve IT7 hole tolerance class available.
- Starting with Ø .393" (10mm) in IT6 hole tolerance available.



■ RMS • Through Hole Solid Carbide Reamer with Internal Coolant



- first choice
- alternate choice

		D1		D		L		L4		L10		LS		Z
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
K605	KC6305													
RMS05000H7HF	RMS05000H7HF	5,00	.197	6,00	.236	74,0	2.913	32,0	1.260	12,0	.472	36,0	1.417	4
RMS05500H7HF	RMS05500H7HF	5,50	.217	6,00	.236	74,0	2.913	32,0	1.260	12,0	.472	36,0	1.417	4
RMS06000H7HF	RMS06000H7HF	6,00	.236	6,00	.236	74,0	2.913	32,0	1.260	12,0	.472	36,0	1.417	4
RMS06500H7HF	RMS06500H7HF	6,50	.256	8,00	.315	91,0	3.583	49,0	1.930	16,0	.630	36,0	1.417	4
RMS07000H7HF	RMS07000H7HF	7,00	.276	8,00	.315	91,0	3.583	49,0	1.930	16,0	.630	36,0	1.417	4
RMS08000H7HF	RMS08000H7HF	8,00	.315	8,00	.315	91,0	3.583	49,0	1.930	16,0	.630	36,0	1.417	6
RMS09000H7HF *	RMS09000H7HF	9,00	.354	10,00	.394	103,0	4.055	57,0	2.240	20,0	.787	40,0	1.575	6
RMS10000H7HF	RMS10000H7HF	10,00	.394	10,00	.394	103,0	4.055	57,0	2.240	20,0	.787	40,0	1.575	6
RMS11000H7HF	RMS11000H7HF	11,00	.433	12,00	.472	118,0	4.646	67,0	2.640	24,0	.945	45,0	1.772	6
RMS12000H7HF	RMS12000H7HF	12,00	.472	12,00	.472	118,0	4.646	67,0	2.640	24,0	.945	45,0	1.772	6
RMS13000H7HF	RMS13000H7HF	13,00	.512	14,00	.551	132,0	5.197	81,0	3.190	28,0	1.102	45,0	1.772	6
RMS14000H7HF	RMS14000H7HF	14,00	.551	14,00	.551	132,0	5.197	81,0	3.190	28,0	1.102	45,0	1.772	6

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Dimensions for Engineered-Solution Reamers

D1 min		D1 max		D		L		L4		L10		LS		Z
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
14,000	0.5512	15,999	0.6299	16	0.630	147,4	5.80	92,4	3.64	7,5	0.30	49	1.93	6
16,000	0.6299	17,999	0.7086	20	0.787	159,4	6.28	102,4	4.03	7,5	0.30	51	2.01	6
18,000	0.7087	20,000	0.7874	20	0.787	173,4	6.83	116,4	4.58	7,5	0.30	51	2.01	6
20,001	0.7874	22,499	0.8858	20	0.787	202,4	7.97	145,4	5.72	7,5	0.30	51	2.01	6
22,500	0.8858	24,999	0.9842	20	0.787	212,4	8.36	155,4	6.12	7,5	0.30	51	2.01	6
25,000	0.9843	27,499	1.0826	25	0.984	232,4	9.15	169,4	6.67	7,5	0.30	57	2.24	8
27,500	1.0827	29,999	1.1811	25	0.984	242,4	9.54	179,4	7.06	7,5	0.30	57	2.24	8
30,000	1.1811	32,499	1.2795	25	0.984	272,4	10.72	209,4	8.24	7,5	0.30	57	2.24	8
32,500	1.2795	34,999	1.3779	32	1.260	272,4	10.72	205,4	8.09	7,5	0.30	61	2.40	8
35,000	1.3780	37,499	1.4763	32	1.260	272,4	10.72	205,4	8.09	7,5	0.30	61	2.40	8
37,500	1.4764	39,999	1.5748	32	1.260	272,4	10.72	205,4	8.09	7,5	0.30	61	2.40	8
40,000	1.5748	42,500	1.6732	32	1.260	272,4	10.72	205,4	8.09	7,5	0.30	61	2.40	8

NOTE: The above dimensions are used when ordering engineered-solution reamers on this page unless otherwise specified.

■ RMS™ • Metric

Material Group		straight flute			helical flute			Metric							
		K605			KC6305			Cutting Speed – vc							
		Range – m/min							Tool Diameter (mm)	Recommended Feed Rate per Tooth					
		min	Starting Value	max	min	Starting Value	max	Feed/Tooth		4,16–7,15mm		7,16–9,59mm		9,60–14,00mm	
									min	max	min	max	min	max	
P	1	40	60	70	90	120	155	mm/z	0,05	0,10	0,05	0,12	0,05	0,15	
	2	40	60	70	90	120	155	mm/z	0,05	0,10	0,05	0,12	0,05	0,15	
	3	35	50	60	75	100	130	mm/z	0,05	0,10	0,05	0,12	0,05	0,15	
	4	25	40	45	60	80	105	mm/z	0,05	0,10	0,05	0,12	0,05	0,15	
	5	15	20	25	30	40	55	mm/z	0,04	0,08	0,04	0,10	0,04	0,12	
	6	15	20	25	30	40	55	mm/z	0,04	0,08	0,04	0,10	0,04	0,12	
M	1	8	10	15	15	20	28	mm/z	0,04	0,08	0,04	0,09	0,04	0,10	
	2	8	10	15	15	20	28	mm/z	0,04	0,08	0,04	0,09	0,04	0,10	
	3	8	10	15	15	20	28	mm/z	0,04	0,08	0,04	0,09	0,04	0,10	
K	1	35	50	60	75	100	130	mm/z	0,05	0,16	0,05	0,18	0,05	0,20	
	2	25	40	50	60	90	110	mm/z	0,05	0,14	0,05	0,16	0,05	0,18	
	3	20	30	45	60	80	105	mm/z	0,05	0,12	0,05	0,14	0,05	0,16	
N	1	110	150	195	–	–	–	mm/z	0,06	0,16	0,06	0,18	0,06	0,20	
	2	110	150	195	–	–	–	mm/z	0,06	0,16	0,06	0,18	0,06	0,20	
	3	110	150	195	–	–	–	mm/z	0,06	0,16	0,06	0,18	0,06	0,20	
	4	110	150	195	–	–	–	mm/z	0,06	0,16	0,06	0,18	0,06	0,20	
	5	105	140	180	–	–	–	mm/z	0,06	0,16	0,06	0,18	0,06	0,20	
S	1	8	10	15	15	20	28	mm/z	0,04	0,08	0,04	0,10	0,04	0,12	
	2	8	10	15	15	20	28	mm/z	0,04	0,08	0,04	0,10	0,04	0,12	
	3	15	20	30	20	30	40	mm/z	0,05	0,10	0,05	0,12	0,05	0,15	
	4	15	20	30	20	30	40	mm/z	0,05	0,10	0,05	0,12	0,05	0,15	



■ RMS™ • Inch

Material Group														
	straight flute			helical flute			Inch							
	K605			KC6305			Recommended Feed Rate per Tooth							
	Cutting Speed – vc			Cutting Speed – vc			Recommended Feed Rate per Tooth							
	Range – SFM			Range – SFM			Tool Diameter (inch)	.164–.281"		.282–.378"		.378–.551"		
	min	Starting Value	max	min	Starting Value	max		Feed/Tooth	min	max	min	max	min	max
P	1	131	197	230	295	394	508	inch/z	.002	.004	.002	.005	.002	.006
	2	131	197	230	295	394	508	inch/z	.002	.004	.002	.005	.002	.006
	3	115	164	197	246	328	426	inch/z	.002	.004	.002	.005	.002	.006
	4	82	131	148	197	262	344	inch/z	.002	.004	.002	.005	.002	.006
	5	49	66	82	98	131	180	inch/z	.002	.003	.002	.004	.002	.005
	6	49	66	82	98	131	180	inch/z	.002	.003	.002	.004	.002	.005
M	1	26	33	49	49	66	92	inch/z	.002	.003	.002	.004	.002	.004
	2	26	33	49	49	66	92	inch/z	.002	.003	.002	.004	.002	.004
	3	26	33	49	49	66	92	inch/z	.002	.003	.002	.004	.002	.004
K	1	115	164	197	246	328	426	inch/z	.002	.006	.002	.007	.002	.008
	2	82	131	164	197	295	361	inch/z	.002	.006	.002	.006	.002	.007
	3	66	98	148	197	262	344	inch/z	.002	.005	.002	.006	.002	.006
N	1	361	492	640	–	–	–	inch/z	.002	.006	.002	.007	.002	.008
	2	361	492	640	–	–	–	inch/z	.002	.006	.002	.007	.002	.008
	3	361	492	640	–	–	–	inch/z	.002	.006	.002	.007	.002	.008
	4	361	492	640	–	–	–	inch/z	.002	.006	.002	.007	.002	.008
	5	344	459	590	–	–	–	inch/z	.002	.006	.002	.007	.002	.008
S	1	26	33	49	49	66	92	inch/z	.002	.003	.002	.004	.002	.005
	2	26	33	49	50	66	92	inch/z	.002	.003	.002	.004	.002	.005
	3	49	66	98	66	98	131	inch/z	.002	.004	.002	.005	.002	.006
	4	49	66	98	66	98	131	inch/z	.002	.004	.002	.005	.002	.006



➤ RMR™ Disc Reaming

Primary Application

In comparison to solid carbide reamers or single-tipped reamers, RMR disc reamers are the economic alternative without disadvantages to productivity or hole quality. Combine RMR disc reamers with the Kennametal SIF™ steerable holder for best results.

Features and Benefits

- Solid carbide disc at front instead of single-tipped carbide blanks.
- Unique coating specifically for reaming applications.
- High-speed and high-performance ready.
- Superior surface finish due to lapped ground leads.
- Improved hole straightness and roundness due to unequal flute spacing (less vibrations) and runout <3 microns.
- Helical and straight flutes for chip control in through and blind holes.
- Adjustment screw with straight-fluted RMR reamers to change internal coolant supply from axial to radial.



Customization

- All diameters between 14–42,5mm (.5512–1.6732").
- Variation of leads and cylindrical margin for application-specific optimization.

➤ RMB™ Cermet Tipped Reamers

Primary Application

RMB™ multi-flute reamers are tipped with cermet blanks and are available in 14–20mm (.5512–.7874") diameters off-the-shelf and up to 50mm (1.968") as custom solutions. Cermet reamers provide excellent tool life and surface finishes in steel applications. Combine RMB reamers with the Kennametal SIF™ steerable holder for best results.

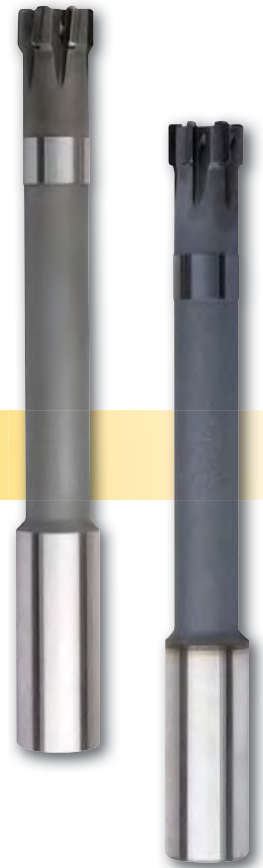
Features and Benefits

Higher productivity and profitability

- Longer tool life with increased hole and surface quality due to lapped ground leads.
- Cermet enables highest metal removal rates at higher speeds and feeds in steel.
- Improved straightness and cylindrical form compared to competitive tools and reduced vibration due to unequal flutes.
- Adjustment screw with straight-fluted RMB reamers to change internal coolant supply from axial to radial.

Customization

- Diameters up to 50mm (1.968") available with and without internal coolant in 0,001mm (.00004") steps.
- Intermediate diameters from standard offering available as simple specials with short delivery time.
- RMB tooling for machining heat-resistant materials available on request.



➤ RMB-E™ Expandable Reamers

Primary Application

The original idea behind an expansion reamer is to achieve more regrinds. The expansion mechanism is designed for this purpose only.

The Kennametal expandable reaming system is different. It offers a completely linear expansion rate of 2 microns per 30° turn, over an expansion rate of 48 microns. The micron adjustability of this system eliminates manufacturing tolerances and enables machining to the tightest tolerances, typically achieved only by using an uncoated tool or guide pad reaming. No presetting equipment is required.



Features and Benefits

Precision and Productivity

- Use with SIF™ steerable chucks for KST toolholders for easy compensation of radial runout and angular inaccuracies.
- Tools are preadjusted to hit IT6 tolerance.
- Expansion range of 48 microns.
- Completely linear expansion.
- 2 microns per 30° turn.

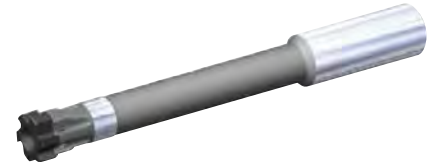
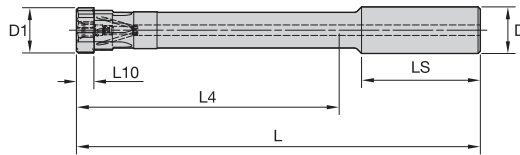
Increased Tool Life

- Longer tool life at smaller tolerances.

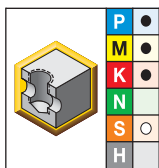
Customization

- Diameters up to 42mm (1.65") available with helical and straight flutes in 0,001mm (.00004") increments.

- For hole tolerance H7.
- Intermediate sizes ground to achieve IT6 or IT7 hole tolerance class available.
- Adjustment screw to change internal coolant supply from axial to radial.



■ RMR • Disc Style Reamer • Straight Fluted for Blind Holes with Internal Coolant



- first choice
- alternate choice

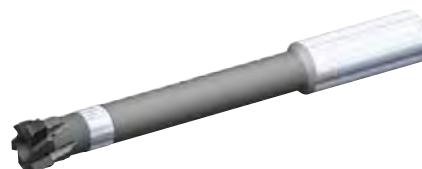
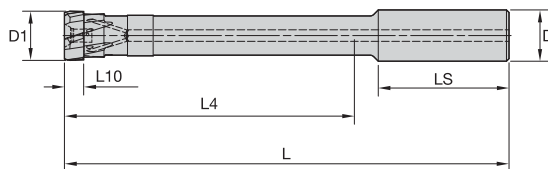
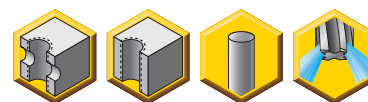
	D1		D		L		L4		L10		LS		Z
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
KCU05													
RMR14000H7SF	14,00	.551	16,000	0.63	147,4	5.8	92,4	3.638	7,50	.295	49,00	1.929	6
RMR15000H7SF	15,00	.591	16,000	0.63	147,4	5.8	92,4	3.638	7,50	.295	49,00	1.929	6
RMR16000H7SF	16,00	.630	20,000	0.79	159,4	6.3	102,4	4.031	7,50	.295	51,00	2.008	6
RMR17000H7SF	17,00	.669	20,000	0.79	159,4	6.3	102,4	4.031	7,50	.295	51,00	2.008	6
RMR18000H7SF	18,00	.709	20,000	0.79	173,4	6.8	116,4	4.583	7,50	.295	51,00	2.008	6
RMR19000H7SF	19,00	.748	20,000	0.79	173,4	6.8	116,4	4.583	7,50	.295	51,00	2.008	6
RMR20000H7SF	20,00	.787	20,000	0.79	173,4	6.8	116,4	4.583	7,50	.295	51,00	2.008	6

Dimensions for Engineered-Solution Reamers

D1 min		D1 max		D		L		L4		L10		LS		Z
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
14,000	0.5512	15,999	0.6299	16	0.630	147,4	5.80	92,4	3.64	7,5	0.30	49	1.93	6
16,000	0.6299	17,999	0.7086	20	0.787	159,4	6.28	102,4	4.03	7,5	0.30	51	2.01	6
18,000	0.7087	20,000	0.7874	20	0.787	173,4	6.83	116,4	4.58	7,5	0.30	51	2.01	6
20,001	0.7874	22,499	0.8858	20	0.787	202,4	7.97	145,4	5.72	7,5	0.30	51	2.01	6
22,500	0.8858	24,999	0.9842	20	0.787	212,4	8.36	155,4	6.12	7,5	0.30	51	2.01	6
25,000	0.9843	27,499	1.0826	25	0.984	232,4	9.15	169,4	6.67	7,5	0.30	57	2.24	8
27,500	1.0827	29,999	1.1811	25	0.984	242,4	9.54	179,4	7.06	7,5	0.30	57	2.24	8
30,000	1.1811	32,499	1.2795	25	0.984	272,4	10.72	209,4	8.24	7,5	0.30	57	2.24	8
32,500	1.2795	34,999	1.3779	32	1.260	272,4	10.72	205,4	8.09	7,5	0.30	61	2.40	8
35,000	1.3780	37,499	1.4763	32	1.260	272,4	10.72	205,4	8.09	7,5	0.30	61	2.40	8
37,500	1.4764	39,999	1.5748	32	1.260	272,4	10.72	205,4	8.09	7,5	0.30	61	2.40	8
40,000	1.5748	42,500	1.6732	32	1.260	272,4	10.72	205,4	8.09	7,5	0.30	61	2.40	8

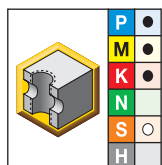
NOTE: The above dimensions are used when ordering engineered-solution reamers on this page unless otherwise specified.

- For hole tolerance H7.
- Intermediate sizes ground to achieve IT6 or IT7 hole tolerance class available.



RMR • Disc Style Reamer • Helical Fluted for Through Holes with Internal Coolant

Hole Finishing



- first choice
- alternate choice

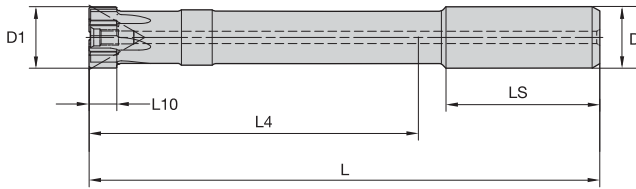
KCU05	D1		D		L		L4		L10		LS		Z
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
RMR14000H7HF	14,00	.551	16,00	0.630	147,4	5.80	92,4	3.638	7,5	0.30	49,00	1.93	6
RMR15000H7HF	15,00	.591	16,00	0.630	147,4	5.80	92,4	3.638	7,5	0.30	49,00	1.93	6
RMR16000H7HF	16,00	.630	20,00	0.787	159,4	6.28	102,4	4.031	7,5	0.30	51,00	2.01	6
RMR17000H7HF	17,00	.669	20,00	0.787	159,4	6.28	102,4	4.031	7,5	0.30	51,00	2.01	6
RMR18000H7HF	18,00	.709	20,00	0.787	173,4	6.83	116,4	4.583	7,5	0.30	51,00	2.01	6
RMR19000H7HF	19,00	.748	20,00	0.787	173,4	6.83	116,4	4.583	7,5	0.30	51,00	2.01	6
RMR20000H7HF	20,00	.787	20,00	0.787	173,4	6.83	116,4	4.583	7,5	0.30	51,00	2.01	6

Dimensions for Engineered-Solution Reamers

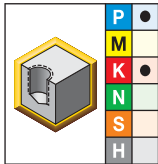
D1 min		D1 max		D		L		L4		L10		LS		Z
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
14,000	0.5512	15,999	0.6299	16	0.630	147,4	5.80	92,4	3.64	7,5	0.30	49	1.93	6
16,000	0.6299	17,999	0.7086	20	0.787	159,4	6.28	102,4	4.03	7,5	0.30	51	2.01	6
18,000	0.7087	20,000	0.7874	20	0.787	173,4	6.83	116,4	4.58	7,5	0.30	51	2.01	6
20,001	0.7874	22,499	0.8858	20	0.787	202,4	7.97	145,4	5.72	7,5	0.30	51	2.01	6
22,500	0.8858	24,999	0.9842	20	0.787	212,4	8.36	155,4	6.12	7,5	0.30	51	2.01	6
25,000	0.9843	27,499	1.0826	25	0.984	232,4	9.15	169,4	6.67	7,5	0.30	57	2.24	8
27,500	1.0827	29,999	1.1811	25	0.984	242,4	9.54	179,4	7.06	7,5	0.30	57	2.24	8
30,000	1.1811	32,499	1.2795	25	0.984	272,4	10.72	209,4	8.24	7,5	0.30	57	2.24	8
32,500	1.2795	34,999	1.3779	32	1.260	272,4	10.72	205,4	8.09	7,5	0.30	61	2.40	8
35,000	1.3780	37,499	1.4763	32	1.260	272,4	10.72	205,4	8.09	7,5	0.30	61	2.40	8
37,500	1.4764	39,999	1.5748	32	1.260	272,4	10.72	205,4	8.09	7,5	0.30	61	2.40	8
40,000	1.5748	42,500	1.6732	32	1.260	272,4	10.72	205,4	8.09	7,5	0.30	61	2.40	8

NOTE: The above dimensions are used when ordering engineered-solution reamers on this page unless otherwise specified.

- For hole tolerance H7.
- Intermediate sizes ground to achieve IT6 or IT7 hole tolerance class available.
- Adjustment screw to change internal coolant supply from axial to radial.



RMB • Blind Hole Cermet-Tipped Reamer



- first choice
- alternate choice

KT6215	D1		D		L		L4		L10		LS		Z
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
RMB14000H7SF *	14,00	.550	16,00	0.63	145,0	5.7	76,0	2.990	8,0	0.3	49,0	1.9	6
RMB15000H7SF	15,00	.590	16,00	0.63	145,0	5.7	76,0	2.990	8,0	0.3	49,0	1.9	6
RMB16000H7SF	16,00	.630	20,00	0.79	157,0	6.2	86,0	3.390	8,0	0.3	51,0	2.0	6
RMB17000H7SF *	17,00	.670	20,00	0.79	157,0	6.2	86,0	3.390	8,0	0.3	51,0	2.0	6
RMB18000H7SF *	18,00	.710	20,00	0.79	171,0	6.7	100,0	3.940	8,0	0.3	51,0	2.0	6
RMB19000H7SF *	19,00	.750	20,00	0.79	171,0	6.7	100,0	3.940	8,0	0.3	51,0	2.0	6
RMB20000H7SF *	20,00	.790	20,00	0.79	200,0	7.9	129,0	5.080	8,0	0.3	51,0	2.0	6

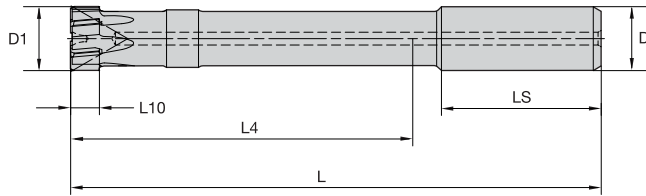
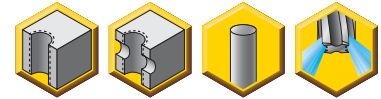
NOTE: Uncoated carbide grade K605™ and uncoated cermet grade KT325™ are available on request.
*Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Dimensions for Engineered-Solution Reamers

D1 min		D1 max		D		L		L4		L10		LS		Z
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
14,000	0.5512	15,999	0.6299	16	0.630	145	5.71	76	2.99	8	0.31	49	1.93	6
16,000	0.6299	17,999	0.7086	20	0.787	157	6.18	86	3.39	8	0.31	51	2.01	6
18,000	0.7087	19,999	0.7874	20	0.787	171	6.73	100	3.94	8	0.31	51	2.01	6
20,000	0.7874	21,999	0.8661	20	0.787	200	7.87	129	5.08	8	0.31	51	2.01	6
22,000	0.8661	25,999	1.0236	20	0.787	210	8.27	139	5.47	10	0.39	51	2.01	6
26,000	1.0236	29,999	1.1811	25	0.984	240	9.45	163	6.42	10	0.39	57	2.24	8
30,000	1.1811	32,000	1.2598	25	0.984	270	10.63	193	7.60	12	0.47	57	2.24	8

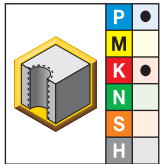
NOTE: The above dimensions are used when ordering engineered-solution reamers on this page unless otherwise specified.

- For hole tolerance H7.
- Intermediate sizes ground to achieve IT6 or IT7 hole tolerance class available.
- Adjustment screw to change internal coolant supply from axial to radial.



RMB • Through Hole Cermet-Tipped Reamer

Hole Finishing



- first choice
- alternate choice

KT6215	D1		D		L		L4		L10		LS		Z
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
RMB14000H7HF *	14,00	.550	16,00	0.63	145,0	5.7	76,0	2.990	7,6	0.3	49,0	1.9	6
RMB15000H7HF *	15,00	.590	16,00	0.63	145,0	5.7	76,0	2.990	7,6	0.3	49,0	1.9	6
RMB16000H7HF	16,00	.630	20,00	0.79	157,0	6.2	86,0	3.390	7,6	0.3	51,0	2.0	6
RMB18000H7HF *	18,00	.710	20,00	0.79	171,0	6.7	100,0	3.940	7,6	0.3	51,0	2.0	6
RMB19000H7HF *	19,00	.750	20,00	0.79	171,0	6.7	100,0	3.940	7,6	0.3	51,0	2.0	6
RMB20000H7HF *	20,00	.790	20,00	0.79	200,0	7.9	129,0	5.080	7,6	0.3	51,0	2.0	6

NOTE: Uncoated carbide grade K605™ is available on request.

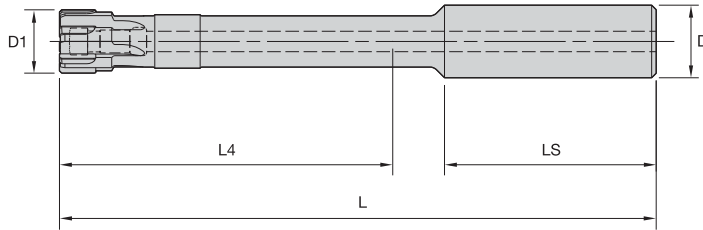
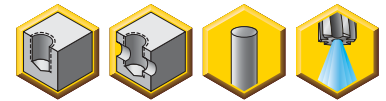
*Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Dimensions for Engineered-Solution Reamers

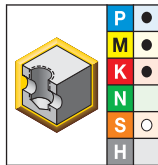
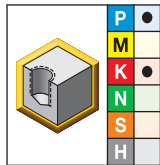
D1 min		D1 max		D		L		L4		L10		LS		Z
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
14,000	0.5512	15,999	0.6299	16	0.630	145	5.71	76	2.99	8	0.31	49	1.93	6
16,000	0.6299	17,999	0.7086	20	0.787	157	6.18	86	3.39	8	0.31	51	2.01	6
18,000	0.7087	19,999	0.7874	20	0.787	171	6.73	100	3.94	8	0.31	51	2.01	6
20,000	0.7874	21,999	0.8661	20	0.787	200	7.87	129	5.08	8	0.31	51	2.01	6
22,000	0.8661	25,999	1.0236	20	0.787	210	8.27	139	5.47	10	0.39	51	2.01	6
26,000	1.0236	29,999	1.1811	25	0.984	240	9.45	163	6.42	10	0.39	57	2.24	8
30,000	1.1811	32,000	1.2598	25	0.984	270	10.63	193	7.60	12	0.47	57	2.24	8

NOTE: The above dimensions are used when ordering engineered-solution reamers on this page unless otherwise specified.

- For hole tolerance H6.
- Intermediate sizes available.
- Allen expansion screw.



RMB-E • Blind Hole Expansion Reamer



- first choice
- alternate choice

		D1		D		L		L4		LS		Z
		mm	in	mm	in	mm	in	mm	in	mm	in	
KC6005	KC6305											
RMBE14000H6SF *	RMBE14000H6SF	14,00	.551	16,00	0.63	131,5	5.2	72,5	2.854	49,0	1.9	6
RMBE15000H6SF *	RMBE15000H6SF *	15,00	.591	16,00	0.63	136,5	5.4	77,5	3.051	49,0	1.9	6
RMBE16000H6SF *	RMBE16000H6SF *	16,00	.630	20,00	0.79	143,5	5.7	82,5	3.248	54,4	2.1	6
RMBE17000H6SF *	RMBE17000H6SF *	17,00	.669	20,00	0.79	148,5	5.8	87,5	3.445	51,0	2.0	6
RMBE18000H6SF *	RMBE18000H6SF *	18,00	.709	20,00	0.79	153,5	6.0	92,5	3.642	51,0	2.0	6
RMBE19000H6SF *	RMBE19000H6SF	19,00	.748	20,00	0.79	158,5	6.2	97,5	3.839	51,0	2.0	6
RMBE20000H6SF *	RMBE20000H6SF *	20,00	.787	25,00	0.98	169,8	6.7	102,5	4.035	57,0	2.2	6

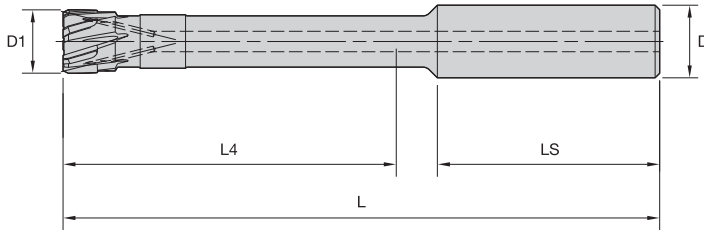
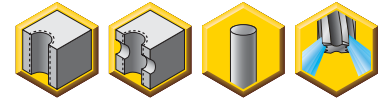
NOTE: Uncoated carbide grade K605™ and uncoated cermet grade KT325™ are available on request.
*Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Dimensions for Engineered-Solution Reamers

D1 min		D1 max		D		L		L4		LS		Z
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
14,000	0.5512	14,499	0.5708	16	0.630	131,5	5.18	72,5	2.85	49	1.93	6
14,500	0.5709	14,999	0.5905	16	0.630	134,0	5.28	75,0	2.95	49	1.93	6
15,000	0.5906	15,499	0.6102	16	0.630	136,5	5.37	77,5	3.05	49	1.93	6
15,500	0.6102	15,999	0.6299	16	0.630	139,0	5.47	80,0	3.15	49	1.93	6
16,000	0.6299	16,499	0.6496	20	0.787	143,5	5.65	82,5	3.25	51	2.01	6
16,500	0.6496	16,999	0.6693	20	0.787	146,0	5.75	85,0	3.35	51	2.01	6
17,000	0.6693	17,499	0.6889	20	0.787	148,5	5.85	87,5	3.44	51	2.01	6
17,500	0.6890	17,999	0.7086	20	0.787	151,0	5.94	90,0	3.54	51	2.01	6
18,000	0.7087	18,499	0.7283	20	0.787	153,5	6.04	92,5	3.64	51	2.01	6
18,500	0.7283	18,999	0.7480	20	0.787	156,0	6.14	95,0	3.74	51	2.01	6
19,000	0.7480	19,499	0.7677	20	0.787	158,5	6.24	97,5	3.84	51	2.01	6
19,500	0.7677	19,999	0.7874	20	0.787	161,0	6.34	100,0	3.94	51	2.01	6
20,000	0.7874	20,499	0.8070	25	0.984	169,8	6.68	102,5	4.04	57	2.24	6

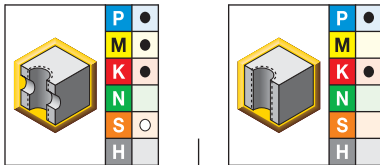
NOTE: The above dimensions are used when ordering engineered-solution reamers on this page unless otherwise specified.
Custom expandable reamers available starting from a diameter of 8mm.

- For hole tolerance H6.
- Intermediate sizes available.
- Allen expansion screw.



RMB-E • Through Hole Expansion Reamer

Hole Finishing



- first choice
- alternate choice

		D1		D		L		L4		LS		Z
		mm	in	mm	in	mm	in	mm	in	mm	in	
KC6005	KC6305											
RMBE14000H6HF	RMBE14000H6HF *	14,00	.551	16,00	0.63	131,5	5.2	72,5	2.854	49,0	1.9	6
RMBE15000H6HF *	RMBE15000H6HF	15,00	.591	16,00	0.63	136,5	5.4	77,5	3.051	49,0	1.9	6
RMBE16000H6HF *	RMBE16000H6HF	16,00	.630	20,00	0.79	143,5	5.7	82,5	3.248	51,0	2.0	6
RMBE17000H6HF *	RMBE17000H6HF *	17,00	.669	20,00	0.79	148,5	5.8	87,5	3.445	51,0	2.0	6
RMBE18000H6HF *	RMBE18000H6HF	18,00	.709	20,00	0.79	153,5	6.0	92,5	3.642	51,0	2.0	6
RMBE19000H6HF *	RMBE19000H6HF *	19,00	.748	20,00	0.79	158,5	6.2	97,5	3.839	51,0	2.0	6
RMBE20000H6HF *	RMBE20000H6HF	20,00	.787	25,00	0.98	169,8	6.7	102,5	4.035	57,0	2.2	6

NOTE: Uncoated carbide grade K605™ is available on request.

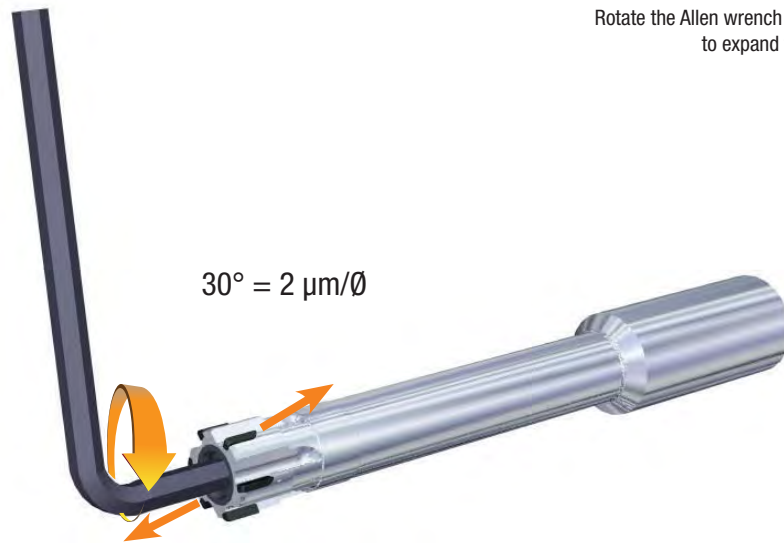
*Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Dimensions for Engineered-Solution Reamers

D1 min		D1 max		D		L		L4		LS		Z
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
14,000	0.5512	14,499	0.5708	16	0.630	131,5	5.18	72,5	2.85	49	1.93	6
14,500	0.5709	14,999	0.5905	16	0.630	134,0	5.28	75,0	2.95	49	1.93	6
15,000	0.5906	15,499	0.6102	16	0.630	136,5	5.37	77,5	3.05	49	1.93	6
15,500	0.6102	15,999	0.6299	16	0.630	139,0	5.47	80,0	3.15	49	1.93	6
16,000	0.6299	16,499	0.6496	20	0.787	143,5	5.65	82,5	3.25	51	2.01	6
16,500	0.6496	16,999	0.6693	20	0.787	146,0	5.75	85,0	3.35	51	2.01	6
17,000	0.6693	17,499	0.6889	20	0.787	148,5	5.85	87,5	3.44	51	2.01	6
17,500	0.6890	17,999	0.7086	20	0.787	151,0	5.94	90,0	3.54	51	2.01	6
18,000	0.7087	18,499	0.7283	20	0.787	153,5	6.04	92,5	3.64	51	2.01	6
18,500	0.7283	18,999	0.7480	20	0.787	156,0	6.14	95,0	3.74	51	2.01	6
19,000	0.7480	19,499	0.7677	20	0.787	158,5	6.24	97,5	3.84	51	2.01	6
19,500	0.7677	19,999	0.7874	20	0.787	161,0	6.34	100,0	3.94	51	2.01	6
20,000	0.7874	20,499	0.8070	25	0.984	169,8	6.68	102,5	4.04	57	2.24	6

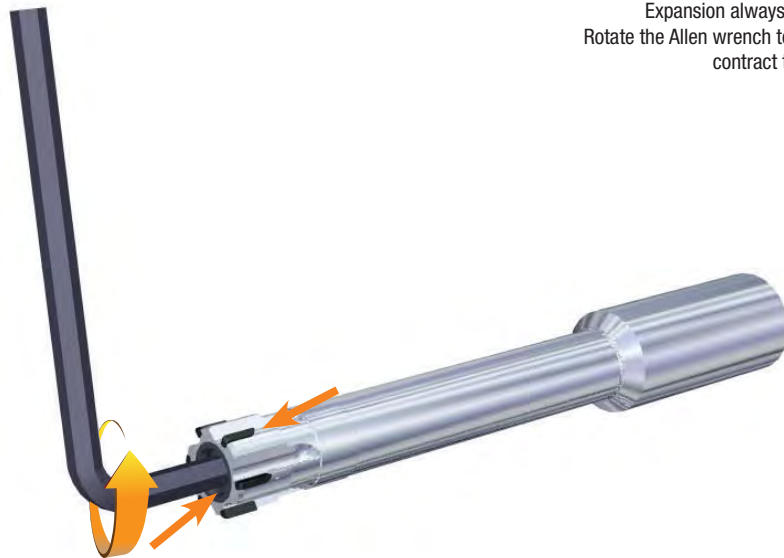
NOTE: The above dimensions are used when ordering engineered-solution reamers on this page unless otherwise specified.
Custom expandable reamers available starting with a diameter of 8mm.

To Expand



Rotate the Allen wrench to the right
to expand the reamer.

To Contract



Expansion always reversible:
Rotate the Allen wrench to the left
to contract the reamer.

- $30^\circ = 2 \mu\text{m}$ linear expansion.
- $720^\circ = 2$ revolutions; = $48 \mu\text{m}$ maximum expansion.
- Hard stop after 720° expansion. You cannot over expand!
- The expansion occurs in the elastic material behavior.
- You cannot reduce the diameter below D1.

■ RMR • Metric

Material Group		KCU05			Metric				
		Cutting Speed – vc			Recommended Feed Rate per Tooth				
		Range – m/min			Tool Diameter (mm)	14,00–19,99mm		20,00–32,00mm	
		min	Starting Value	max		Feed/Tooth	min	max	min
P	1	90	120	155	mm/z	0,10	0,22	0,10	0,25
	2	90	120	155	mm/z	0,10	0,22	0,10	0,25
	3	75	100	130	mm/z	0,10	0,22	0,10	0,25
	4	50	80	105	mm/z	0,10	0,22	0,10	0,25
	5	30	40	60	mm/z	0,10	0,22	0,10	0,25
	6	30	40	60	mm/z	0,08	0,20	0,08	0,22
M	1	15	20	40	mm/z	0,08	0,18	0,08	0,20
	2	15	20	30	mm/z	0,08	0,18	0,08	0,20
	3	15	20	30	mm/z	0,08	0,18	0,08	0,20
K	1	80	110	130	mm/z	0,10	0,22	0,10	0,25
	2	65	90	110	mm/z	0,10	0,22	0,10	0,25
	3	50	70	90	mm/z	0,10	0,20	0,10	0,25
S	1	15	20	30	mm/z	0,10	0,18	0,10	0,20
	2	15	20	30	mm/z	0,10	0,18	0,10	0,20
	3	20	30	40	mm/z	0,10	0,20	0,10	0,20
	4	20	30	40	mm/z	0,10	0,20	0,10	0,20



■ RMR • Inch

Material Group		KCU05			Inch				
		Cutting Speed – vc			Recommended Feed Rate per Tooth				
		Range – SFM			Tool Diameter (inch)	.551–.787"		.787–1.260"	
		min	Starting Value	max		Feed/Tooth	min	max	min
P	1	295	394	509	inch/z	.004	.009	.004	.010
	2	295	394	509	inch/z	.004	.009	.004	.010
	3	246	328	427	inch/z	.004	.009	.004	.010
	4	164	262	344	inch/z	.004	.009	.004	.010
	5	98	131	197	inch/z	.004	.009	.004	.010
	6	98	131	197	inch/z	.003	.008	.003	.009
M	1	49	66	131	inch/z	.003	.007	.003	.008
	2	49	66	98	inch/z	.003	.007	.003	.008
	3	49	66	98	inch/z	.003	.007	.003	.008
K	1	262	361	427	inch/z	.004	.009	.004	.010
	2	213	295	361	inch/z	.004	.009	.004	.010
	3	164	230	295	inch/z	.004	.008	.004	.010
S	1	49	66	98	inch/z	.004	.007	.004	.008
	2	49	66	98	inch/z	.004	.007	.004	.008
	3	66	98	131	inch/z	.004	.008	.004	.008
	4	66	98	131	inch/z	.004	.008	.004	.008

■ RMB™ and RMB-E™ • Metric

Material Group	RMB™ – Cermet Tipped				RMB-E™								Metric					
	straight flute		helical flute		straight flute				helical flute									
	KT6215		KT6215		K605				KC6305									
	Cutting Speed – vc												Recommended Feed Rate per Tooth					
Range – m/min												Tool Diameter (mm)	14,00–19,99mm		20,00–32,00mm			
min	Starting Value	max	min	Starting Value	max	min	Starting Value	max	min	Starting Value	max		Feed/ Tooth	min	max	min	max	
P	1	150	180	210	180	210	240	40	60	70	90	120	155	mm/z	0,10	0,22	0,10	0,25
	2	150	180	210	180	210	240	40	60	70	90	120	155	mm/z	0,10	0,22	0,10	0,25
	3	130	160	180	150	180	210	30	40	50	75	100	130	mm/z	0,10	0,22	0,10	0,25
	4	100	130	150	120	150	170	25	40	45	50	80	105	mm/z	0,10	0,22	0,10	0,25
	5	80	100	120	100	130	150	10	20	30	30	40	55	mm/z	0,08	0,20	0,08	0,22
	6	80	100	120	100	130	150	10	20	30	30	40	55	mm/z	0,08	0,20	0,08	0,22
M	1	-	-	-	-	-	8	10	15	15	20	28	mm/z	0,08	0,18	0,08	0,20	
	2	-	-	-	-	-	8	10	15	15	20	28	mm/z	0,08	0,18	0,08	0,20	
	3	-	-	-	-	-	8	10	15	15	20	28	mm/z	0,08	0,18	0,08	0,20	
K	1	150	180	200	180	210	240	30	50	60	80	110	130	mm/z	0,10	0,22	0,10	0,25
	2	130	160	180	150	180	210	25	40	45	65	90	110	mm/z	0,10	0,22	0,10	0,25
	3	100	130	160	120	150	170	20	30	40	50	70	90	mm/z	0,10	0,20	0,10	0,22
N	1	-	-	-	-	-	110	150	195	-	-	-	mm/z	0,10	0,30	0,10	0,30	
	2	-	-	-	-	-	110	150	195	-	-	-	mm/z	0,10	0,30	0,10	0,30	
	3	-	-	-	-	-	110	150	195	-	-	-	mm/z	0,10	0,30	0,10	0,30	
	4	-	-	-	-	-	110	150	195	-	-	-	mm/z	0,10	0,30	0,10	0,30	
	5	-	-	-	-	-	105	140	180	-	-	-	mm/z	0,10	0,30	0,10	0,30	
S	1	-	-	-	-	-	8	10	15	15	20	28	mm/z	0,10	0,18	0,10	0,20	
	2	-	-	-	-	-	8	10	15	15	20	28	mm/z	0,10	0,18	0,10	0,20	
	3	-	-	-	-	-	15	20	30	20	30	40	mm/z	0,10	0,20	0,10	0,20	
	4	-	-	-	-	-	15	20	30	20	30	40	mm/z	0,10	0,20	0,10	0,20	



RMB™ and RMB-E™ • Inch

		RMB – Cermet Tipped				RMB-E												
		straight flute		helical flute		straight flute		helical flute		Inch								
		KT6215		KT6215		K605		KC6305		Recommended Feed Rate per Tooth								
		Cutting Speed – vc												Tool Diameter (inch)				
		Range – SFM												.551-.787"		.787-1.260"		
Material Group		min	Starting Value	max	min	Starting Value	max	min	Starting Value	max	min	Starting Value	max	Feed/ Tooth	min	max	min	max
P	1	492	590	689	590	689	787	131	197	230	295	394	508	inch/z	.004	.009	.004	.010
	2	492	590	689	590	689	787	131	197	230	295	394	508	inch/z	.004	.009	.004	.010
	3	426	525	590	492	590	689	98	131	164	246	328	426	inch/z	.004	.009	.004	.010
	4	328	426	492	394	492	558	82	131	148	164	262	344	inch/z	.004	.009	.004	.010
	5	262	328	394	328	426	492	33	66	98	98	131	180	inch/z	.003	.008	.003	.009
	6	262	328	394	328	426	492	33	66	98	98	131	180	inch/z	.003	.008	.003	.009
M	1	-	-	-	-	-	-	26	33	49	49	66	92	inch/z	.003	.007	.003	.008
	2	-	-	-	-	-	-	26	33	49	49	66	92	inch/z	.003	.007	.003	.008
	3	-	-	-	-	-	-	26	33	49	49	66	92	inch/z	.003	.007	.003	.008
K	1	492	590	656	590	689	787	98	164	197	262	361	426	inch/z	.004	.009	.004	.010
	2	426	525	590	492	590	689	82	131	148	213	295	361	inch/z	.004	.009	.004	.010
	3	328	426	525	394	492	558	66	98	131	164	230	295	inch/z	.004	.008	.004	.009
N	1	-	-	-	-	-	-	361	492	640	-	-	-	inch/z	.004	.012	.004	.012
	2	-	-	-	-	-	-	361	492	640	-	-	-	inch/z	.004	.012	.004	.012
	3	-	-	-	-	-	-	361	492	640	-	-	-	inch/z	.004	.012	.004	.012
	4	-	-	-	-	-	-	361	492	640	-	-	-	inch/z	.004	.012	.004	.012
	5	-	-	-	-	-	-	344	459	590	-	-	-	inch/z	.004	.012	.004	.012
S	1	-	-	-	-	-	-	26	33	49	49	66	92	inch/z	.004	.007	.004	.008
	2	-	-	-	-	-	-	26	33	49	49	66	92	inch/z	.004	.007	.004	.008
	3	-	-	-	-	-	-	49	66	98	66	98	131	inch/z	.004	.008	.004	.008
	4	-	-	-	-	-	-	49	66	98	66	98	131	inch/z	.004	.008	.004	.008

Hole Finishing

Reaming Allowances for Multi-Blade Reaming

mm	in	reaming allowances in diameter					
		min	mm middle	mm max	in min	in middle	in max
1,40–4,80	.055–.189	0,08	0,12	0,20	.003	.005	.008
4,81–9,59	.189–.378	0,10	0,15	0,25	.004	.006	.010
9,60–15,00	.378–.591	0,15	0,20	0,30	.006	.008	.012
15,00–20,00	.591–.787	0,15	0,25	0,35	.006	.010	.014
20,00–50,00	.787–1.969	0,20	0,30	0,40	.008	.012	.016

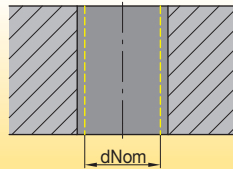
Troubleshooting

Problem

Cause

Possible Remedy

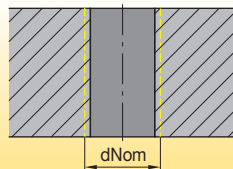
Hole diameter too large.



- Reaming tool running out-of-center.
- Concentricity of pilot hole and ream machining unsatisfactory.
- Built-up edge.
- Unsuitable cooling lubricant.
- Reaming tool diameter too large.

- Use equalizing adapter.
- Re-align, use floating head.
- Change cooling lubricant.
- Change cutting speed.
- Measure reamers and send for repairs.

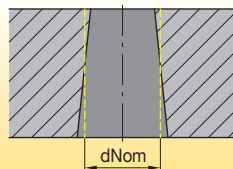
Hole diameter too small.



- Reamer worn.
- Unsuitable cooling lubricant.
- Reaming allowance too small.

- Replace and refit tool.
- Change cooling lubricant.
- Increase reaming allowance.

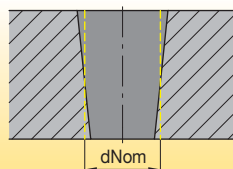
Conical hole profile wider towards drill runout.



- Concentricity of pilot hole and reaming unsatisfactory.
- Positioning accuracy of pilot hole to reaming.

- Re-align, use equalizing adapter.
- Correct positioning accuracy.

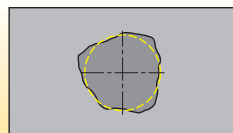
Conical hole profile wider at drill entry point.



- Concentricity of pilot hole and reaming unsatisfactory.
- Reaming tool skim cutting with ledger.

- Re-align, use floating head.
- Securely clamp reaming tool axially.

Hole out-of-center and/or showing chatter marks.



- Reaming tool running out-of-center.
- Slanted cutting surface/asymmetrical cutting.
- Workpiece twisted.

- Use equalizing adapter.
- Spot face as drilling preparation.
- Take the direction of impact into account when clamping the workpiece.

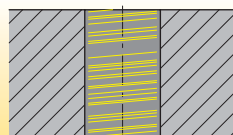
Surface quality does not meet specification.



- Tool cutters worn.
- Reaming tool running out-of-center.
- Incorrect technology data (cutting parameters).
- Inadequate chip evacuation.

- Use equalizing adapter.
- Re-align, use floating head.
- Change cooling lubricant.
- Change cutting speed.
- Measure reamers and send for repairs.

Feed grooves



- Built-up edge.

- Change cooling lubricant.
- Change cutting speed.

➤ RHR™ Disc Reaming

Primary Application

The RHR modular disc reaming system combines the productivity of disc reamers with the idea of interchangeable reaming heads. Only five coupling sizes cover the whole diameter range, a comfortable interchange mechanism, and no need for setting fixtures or repeat measurements makes this system very attractive. Combine RHR disc reamers with the Kennametal SIF™ steerable holder for the best results.

Features and Benefits

- Solid carbide disc at front instead of single-tipped carbide blanks.
- Unique coating specifically for reaming applications.
- Unique patented coupling system enables same runout accuracy as monoblock systems (<3 microns), eliminating repeat runout checking.
- Quick radial clamping change-outs, even in narrow situations.
- No fixture for clamping or dismounting necessary.
- Helical and straight flutes for chip control in through and blind holes.
- Bodies available with straight shank, HSK back end, and SIF connection.



Customization

- All diameters between 14–42,5mm (.5512–1.6732").
- Variation of leads and cylindrical margin for application-specific optimization.

➤ RHM™ Modular Cermet-Tipped System

Primary Application

RHM modular reamers are tipped with cermet blanks and available in diameters from 14–42,5mm (.5512–1.6732") as standards, and up to 50mm (1.968") as custom solutions. Cermet reamers provide excellent tool life and surface finishes in steel applications. Combine RHM module reamers with the Kennametal SIF™ steerable holder for best results.

Use SIF steerable hydraulic chucks or SIF adapters for easy compensation of radial runout and angular inaccuracies of the spindle to achieve the highest possible hole straightness and surface quality. Radial or axial tool bodies are available at diameter 20mm.



Features and Benefits

Taper-Face Contact with KST Coupling

- Symmetrical torque transmission near head.
- Higher feed rate than conventional reaming tools.
- Better surface quality and tool life due to less tendency to vibrate.
- No need for head to body orientation.

Customization

- Diameters up to 50mm (1.968") available with and without internal coolant in 0,001mm (.00004") steps.
- Intermediate diameters from standard offering available with short delivery time.
- RHM tooling for machining heat-resistant materials, as well as different lengths and couplings or shanks, available on request.

Higher productivity and profitability

- Longer tool life with increased hole and surface quality due to lapped ground leads.
- Cermet enables highest metal removal rates at higher speeds and feeds in steel.
- Improved straightness and cylindrical form compared to competitive tools and reduced vibration tendency due to unequal flutes.

➤ RHM-E™ Expandable Reamers

Primary Application

The original idea behind an expansion reamer is to achieve more regrinds. The expansion mechanism is designed for this purpose only.

The Kennametal expandable reaming system is different. Over an expansion range of 48 microns, it comes with a completely linear expansion rate of 2 microns per 30° turn. The micron-adjustability of this system eliminates manufacturing tolerances and thus allows for machining tightest tolerances, usually only achievable by using an uncoated tool or guide pad reaming. No pre-setting equipment is required.



Features and Benefits

Precision and Productivity

- Use with SIF™ steerable chucks for KST toolholders for easy compensation of radial runout and angular inaccuracies.
- Tools are preadjusted to hit IT6 tolerance.
- Expansion range of 48 microns.
- Completely linear expansion.
- 2 microns per 30° turn.

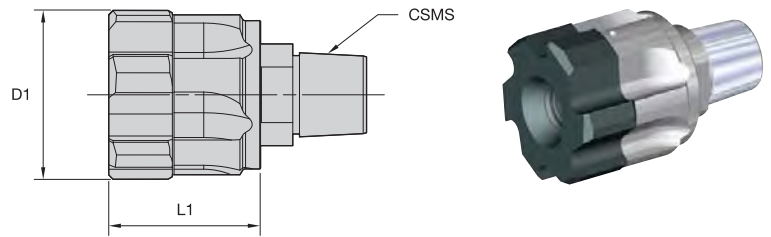
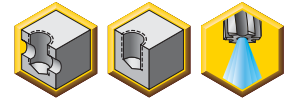
Increased Tool Life

- Longer tool life at smaller tolerances.

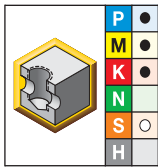
Customization

- Diameters up to 42mm (1.65") available with helical and straight flutes in 0,001mm (.00004") increments.

- For hole tolerance H7.
- Intermediate sizes ground to achieve IT6 or IT7 hole tolerance class available.
- Please order lock screw and retention knob separately.



■ **RHR • Disc Style Reamer Head • Straight Fluted for Blind Holes with Internal Coolant**

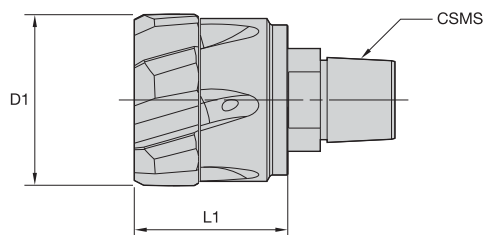
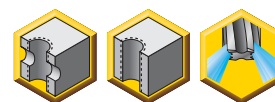


- first choice
- alternate choice

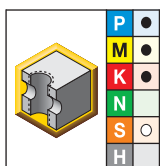
KCU05	CSMS system size	D1		L1		Z
		mm	in	mm	in	
RHR14000KST115H7SF	KST115	14,00	.551	17,90	.705	6
RHR15000KST115H7SF	KST115	15,00	.591	17,90	.705	6
RHR16000KST135H7SF	KST135	16,00	.630	17,90	.705	6
RHR17000KST135H7SF	KST135	17,00	.669	17,90	.705	6
RHR18000KST155H7SF	KST155	18,00	.709	17,90	.705	6
RHR19000KST155H7SF	KST155	19,00	.748	17,90	.705	6
RHR20000KST175H7SF	KST175	20,00	.787	17,90	.705	6
RHR21000KST175H7SF	KST175	21,00	.827	17,90	.705	6
RHR22000KST175H7SF	KST175	22,00	.866	17,90	.705	6
RHR23000KST200H7SF	KST200	23,00	.906	18,90	.744	6
RHR24000KST200H7SF	KST200	24,00	.945	18,90	.744	6
RHR25000KST200H7SF	KST200	25,00	.984	18,90	.744	8
RHR26000KST200H7SF	KST200	26,00	1.024	18,90	.744	8
RHR27000KST200H7SF	KST200	27,00	1.063	18,90	.744	8
RHR28000KST250H7SF	KST250	28,00	1.102	18,90	.744	8
RHR29000KST250H7SF	KST250	29,00	1.142	18,90	.744	8
RHR30000KST250H7SF	KST250	30,00	1.181	18,90	.744	8
RHR31000KST250H7SF	KST250	31,00	1.221	18,90	.744	8
RHR32000KST250H7SF	KST250	32,00	1.260	18,90	.744	8
RHR33000KST300H7SF	KST300	33,00	1.299	20,40	.803	8
RHR34000KST300H7SF	KST300	34,00	1.339	20,40	.803	8
RHR35000KST300H7SF	KST300	35,00	1.378	20,40	.803	8
RHR36000KST300H7SF	KST300	36,00	1.417	20,40	.803	8
RHR37000KST300H7SF	KST300	37,00	1.457	20,40	.803	8
RHR38000KST350H7SF	KST350	38,00	1.496	20,40	.803	8
RHR39000KST350H7SF	KST350	39,00	1.535	20,40	.803	8
RHR40000KST350H7SF	KST350	40,00	1.575	20,40	.803	8
RHR41000KST350H7SF	KST350	41,00	1.614	20,40	.803	8
RHR42000KST350H7SF	KST350	42,00	1.654	20,40	.803	8



- For hole tolerance H7.
- Intermediate sizes ground to achieve IT6 or IT7 hole tolerance class available.
- Please order lock screw and retention knob separately.



RHR • Disc Style Reamer Head • Helical Fluted for Through Holes with Internal Coolant

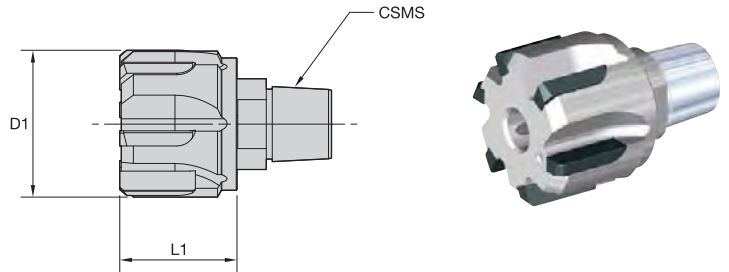
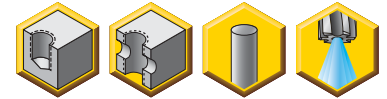


- first choice
- alternate choice

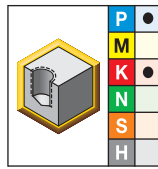
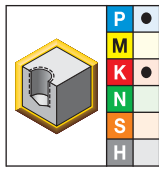
KCU05	CSMS system size	D1		L1		Z
		mm	in	mm	in	
RHR14000KST115H7HF	KST115	14,00	.551	17,90	.705	6
RHR15000KST115H7HF	KST115	15,00	.591	17,90	.705	6
RHR16000KST135H7HF	KST135	16,00	.630	17,90	.705	6
RHR17000KST135H7HF	KST135	17,00	.669	17,90	.705	6
RHR18000KST155H7HF	KST155	18,00	.709	17,90	.705	6
RHR19000KST155H7HF	KST155	19,00	.748	17,90	.705	6
RHR20000KST175H7HF	KST175	20,00	.787	17,90	.705	6
RHR21000KST175H7HF	KST175	21,00	.827	17,90	.705	6
RHR22000KST175H7HF	KST175	22,00	.866	17,90	.705	6
RHR23000KST200H7HF	KST200	23,00	.906	18,90	.744	6
RHR24000KST200H7HF	KST200	24,00	.945	18,90	.744	6
RHR25000KST200H7HF	KST200	25,00	.984	18,90	.744	8
RHR26000KST200H7HF	KST200	26,00	1.024	18,90	.744	8
RHR27000KST200H7HF	KST200	27,00	1.063	18,90	.744	8
RHR28000KST250H7HF	KST250	28,00	1.102	18,90	.744	8
RHR29000KST250H7HF	KST250	29,00	1.142	18,90	.744	8
RHR30000KST250H7HF	KST250	30,00	1.181	18,90	.744	8
RHR31000KST250H7HF	KST250	31,00	1.221	18,90	.744	8
RHR32000KST250H7HF	KST250	32,00	1.260	18,90	.744	8
RHR33000KST300H7HF	KST300	33,00	1.299	20,40	.803	8
RHR34000KST300H7HF	KST300	34,00	1.339	20,40	.803	8
RHR35000KST300H7HF	KST300	35,00	1.378	20,40	.803	8
RHR36000KST300H7HF	KST300	36,00	1.417	20,40	.803	8
RHR37000KST300H7HF	KST300	37,00	1.457	20,40	.803	8
RHR38000KST350H7HF	KST350	38,00	1.496	20,40	.803	8
RHR39000KST350H7HF	KST350	39,00	1.535	20,40	.803	8
RHR40000KST350H7HF	KST350	40,00	1.575	20,40	.803	8
RHR41000KST350H7HF	KST350	41,00	1.614	20,40	.803	8
RHR42000KST350H7HF	KST350	42,00	1.654	20,40	.803	8

Hole Finishing

- For hole tolerance H7.
- Intermediate sizes ground to achieve IT6 or IT7 hole tolerance class available.
- Please order lock screw for axial use or retention knob separately.



■ RHM • Blind Hole Cermet Tipped Reamer

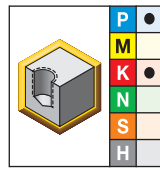
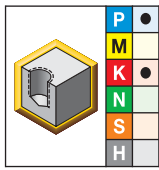


- first choice
- alternate choice

		D1		L1		Z	
		CSMS system size	mm	in	mm	in	
KT325	KT6215						
RHM14000KST115H7SF *	RHM14000KST115H7SF	KST115	14,00	.551	13,50	.531	6
RHM14288KST115H7SF *	RHM14288KST115H7SF	KST115	14,29	.563	13,50	.531	6
RHM15000KST115H7SF *	-	KST115	15,00	.591	13,50	.531	6
RHM15875KST115H7SF *	RHM15875KST115H7SF	KST115	15,88	.625	13,50	.531	6
RHM16000KST135H7SF *	RHM16000KST135H7SF	KST135	16,00	.630	13,50	.531	6
RHM17000KST135H7SF *	RHM17000KST135H7SF *	KST135	17,00	.669	15,50	.610	6
RHM17463KST135H7SF *	-	KST135	17,46	.688	15,50	.610	6
RHM18000KST155H7SF	RHM18000KST155H7SF	KST155	18,00	.709	15,50	.610	6
RHM19000KST155H7SF *	-	KST155	19,00	.748	15,50	.610	6
-	RHM19050KST155H7SF *	KST155	19,05	.750	15,50	.610	6
RHM20000KST175H7SF	RHM20000KST175H7SF	KST175	20,00	.787	15,50	.610	6
RHM20640KST175H7SF *	RHM20640KST175H7SF *	KST175	20,64	.813	15,50	.610	6
RHM21000KST175H7SF *	RHM21000KST175H7SF	KST175	21,00	.827	15,50	.610	6
-	RHM22000KST175H7SF *	KST175	22,00	.866	15,50	.610	6
RHM22230KST175H7SF *	RHM22230KST175H7SF *	KST175	22,23	.875	15,50	.610	6
RHM22500KST200H7SF *	RHM22500KST200H7SF *	KST200	22,50	.886	16,50	.650	6
RHM23000KST200H7SF *	RHM23000KST200H7SF *	KST200	23,00	.906	16,50	.650	6
RHM23810KST200H7SF *	RHM23810KST200H7SF *	KST200	23,81	.937	16,50	.650	6
RHM24000KST200H7SF *	RHM24000KST200H7SF *	KST200	24,00	.945	16,50	.650	6
RHM25000KST200H7SF *	RHM25000KST200H7SF	KST200	25,00	.984	16,50	.650	6
RHM25400KST200H7SF *	RHM25400KST200H7SF *	KST200	25,40	1.000	16,50	.650	6
RHM26000KST200H7SF *	-	KST200	26,00	1.024	16,50	.650	8
RHM26990KST200H7SF *	RHM26990KST200H7SF *	KST200	26,99	1.063	16,50	.650	8
RHM27000KST200H7SF	RHM27000KST200H7SF *	KST200	27,00	1.063	16,50	.650	8

(continued)

(RHM • Blind Hole Cermet Tipped Reamer – continued)



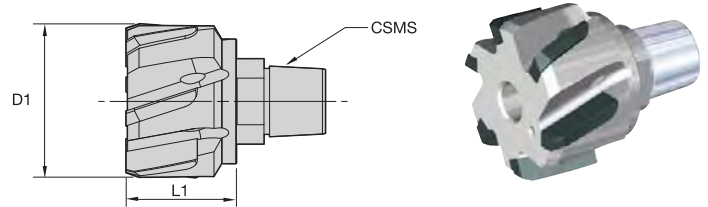
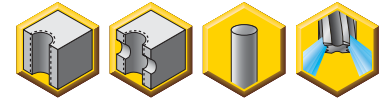
- first choice
- alternate choice

Hole Finishing

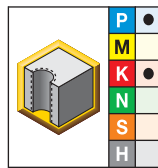
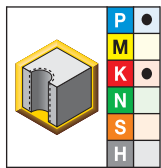
		D1		L1		Z	
KT325	KT6215	CSMS system size	mm	in	mm		in
RHM27500KST250H7SF *	RHM27500KST250H7SF *	KST250	27,50	1.083	16,50	.650	8
RHM28000KST250H7SF *	RHM28000KST250H7SF	KST250	28,00	1.102	16,50	.650	8
RHM28580KST250H7SF *	RHM28580KST250H7SF *	KST250	28,58	1.125	16,50	.650	8
RHM29000KST250H7SF	RHM29000KST250H7SF *	KST250	29,00	1.142	16,50	.650	8
RHM30000KST250H7SF	RHM30000KST250H7SF *	KST250	30,00	1.181	16,50	.650	8
RHM30160KST250H7SF *	–	KST250	30,16	1.187	16,50	.650	8
RHM31000KST250H7SF *	RHM31000KST250H7SF *	KST250	31,00	1.221	16,50	.650	8
RHM31750KST250H7SF *	RHM31750KST250H7SF *	KST250	31,75	1.250	16,50	.650	8
RHM32000KST250H7SF *	–	KST250	32,00	1.260	16,50	.650	8
RHM32500KST300H7SF *	RHM32500KST300H7SF *	KST300	32,50	1.280	18,00	.709	8
RHM33000KST300H7SF *	RHM33000KST300H7SF *	KST300	33,00	1.299	18,00	.709	8
RHM33340KST300H7SF *	RHM33340KST300H7SF *	KST300	33,34	1.313	18,00	.709	8
RHM34000KST300H7SF *	–	KST300	34,00	1.339	18,00	.709	8
RHM34930KST300H7SF *	RHM34930KST300H7SF *	KST300	34,93	1.375	18,00	.709	8
RHM35000KST300H7SF *	RHM35000KST300H7SF *	KST300	35,00	1.378	18,00	.709	8
RHM36000KST300H7SF *	RHM36000KST300H7SF *	KST300	36,00	1.417	18,00	.709	8
RHM36510KST300H7SF *	RHM36510KST300H7SF *	KST300	36,51	1.437	18,00	.709	8
RHM37000KST300H7SF *	–	KST300	37,00	1.457	18,00	.709	8
RHM37500KST350H7SF *	RHM37500KST350H7SF *	KST350	37,50	1.476	18,00	.709	8
RHM38000KST350H7SF *	RHM38000KST350H7SF *	KST350	38,00	1.496	18,00	.709	8
RHM38100KST350H7SF *	RHM38100KST350H7SF *	KST350	38,10	1.500	18,00	.709	8
RHM39000KST350H7SF *	RHM39000KST350H7SF *	KST350	39,00	1.535	18,00	.709	8
RHM39690KST350H7SF *	RHM39690KST350H7SF *	KST350	39,69	1.563	18,00	.709	8
–	RHM40000KST350H7SF *	KST350	40,00	1.575	18,00	.709	8
RHM41000KST350H7SF *	RHM41000KST350H7SF *	KST350	41,00	1.614	18,00	.709	8
RHM41280KST350H7SF *	RHM41280KST350H7SF *	KST350	41,28	1.625	18,00	.709	8
RHM42000KST350H7SF	RHM42000KST350H7SF *	KST350	42,00	1.654	18,00	.709	8

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

- For hole tolerance H7.
- Intermediate sizes ground to achieve IT6 or IT7 hole tolerance class available.
- Please order lock screw for axial use or retention knob separately.



■ RHM • Through Hole Cermet Tipped Reamer



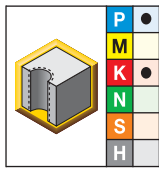
- first choice
- alternate choice

		D1		L1		Z	
		CSMS system size	mm	in	mm	in	
RHM14000KST115H7HF *	RHM14000KST115H7HF	KST115	14,00	.551	13,50	.531	6
RHM14288KST115H7HF *	RHM14288KST115H7HF *	KST115	14,29	.563	13,50	.531	6
RHM15875KST115H7HF *	-	KST115	15,88	.625	13,50	.531	6
RHM16000KST135H7HF	RHM16000KST135H7HF	KST135	16,00	.630	13,50	.531	6
RHM17000KST135H7HF *	RHM17000KST135H7HF	KST135	17,00	.669	15,50	.610	6
RHM17463KST135H7HF *	RHM17463KST135H7HF *	KST135	17,46	.688	15,50	.610	6
RHM18000KST155H7HF *	RHM18000KST155H7HF	KST155	18,00	.709	15,50	.610	6
RHM19000KST155H7HF *	RHM19000KST155H7HF	KST155	19,00	.748	15,50	.610	6
RHM19050KST155H7HF *	RHM19050KST155H7HF	KST155	19,05	.750	15,50	.610	6
RHM20000KST175H7HF	RHM20000KST175H7HF	KST175	20,00	.787	15,50	.610	6
RHM20640KST175H7HF *	RHM20640KST175H7HF	KST175	20,64	.813	15,50	.610	6
RHM21000KST175H7HF	RHM21000KST175H7HF	KST175	21,00	.827	15,50	.610	6
RHM22000KST175H7HF	RHM22000KST175H7HF *	KST175	22,00	.866	15,50	.610	6
RHM22230KST175H7HF *	RHM22230KST175H7HF *	KST175	22,23	.875	15,50	.610	6
RHM22500KST200H7HF *	RHM22500KST200H7HF *	KST200	22,50	.886	16,50	.650	6
RHM23000KST200H7HF *	RHM23000KST200H7HF *	KST200	23,00	.906	16,50	.650	6
RHM23810KST200H7HF *	RHM23810KST200H7HF *	KST200	23,81	.937	16,50	.650	6
RHM24000KST200H7HF	RHM24000KST200H7HF *	KST200	24,00	.945	16,50	.650	6
RHM25000KST200H7HF	RHM25000KST200H7HF	KST200	25,00	.984	16,50	.650	6
RHM25400KST200H7HF *	RHM25400KST200H7HF	KST200	25,40	1.000	16,50	.650	6
RHM26000KST200H7HF *	-	KST200	26,00	1.024	16,50	.650	8
RHM26990KST200H7HF *	RHM26990KST200H7HF *	KST200	26,99	1.063	16,50	.650	8
RHM27000KST200H7HF *	RHM27000KST200H7HF *	KST200	27,00	1.063	16,50	.650	8
RHM27500KST250H7HF *	RHM27500KST250H7HF *	KST250	27,50	1.083	16,50	.650	8

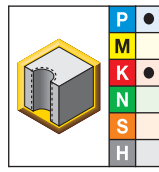
(continued)



(RHM • Through Hole Cermet Tipped Reamer — continued)



KT325



KT6215

- first choice
- alternate choice

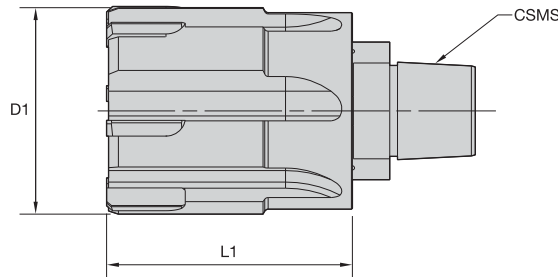
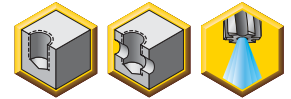
		CSMS	D1		L1		Z
		system size	mm	in	mm	in	
RHM28000KST250H7HF	RHM28000KST250H7HF	KST250	28,00	1.102	16,50	.650	8
RHM28580KST250H7HF *	-	KST250	28,58	1.125	16,50	.650	8
RHM29000KST250H7HF *	RHM29000KST250H7HF *	KST250	29,00	1.142	16,50	.650	8
RHM30000KST250H7HF	RHM30000KST250H7HF	KST250	30,00	1.181	16,50	.650	8
RHM30160KST250H7HF *	RHM30160KST250H7HF *	KST250	30,16	1.187	16,50	.650	8
RHM31000KST250H7HF *	RHM31000KST250H7HF *	KST250	31,00	1.221	16,50	.650	8
RHM31750KST250H7HF *	RHM31750KST250H7HF *	KST250	31,75	1.250	16,50	.650	8
RHM32000KST250H7HF *	RHM32000KST250H7HF *	KST250	32,00	1.260	16,50	.650	8
RHM32500KST300H7HF *	RHM32500KST300H7HF *	KST300	32,50	1.280	18,00	.709	8
RHM33000KST300H7HF *	RHM33000KST300H7HF *	KST300	33,00	1.299	18,00	.709	8
RHM33340KST300H7HF *	RHM33340KST300H7HF *	KST300	33,34	1.313	18,00	.709	8
-	RHM34000KST300H7HF	KST300	34,00	1.339	18,00	.709	8
RHM34930KST300H7HF *	RHM34930KST300H7HF *	KST300	34,93	1.375	18,00	.709	8
RHM35000KST300H7HF	RHM35000KST300H7HF	KST300	35,00	1.378	18,00	.709	8
RHM36000KST300H7HF	-	KST300	36,00	1.417	18,00	.709	8
RHM36510KST300H7HF *	RHM36510KST300H7HF *	KST300	36,51	1.437	18,00	.709	8
RHM37000KST300H7HF *	RHM37000KST300H7HF	KST300	37,00	1.457	18,00	.709	8
RHM37500KST350H7HF *	RHM37500KST350H7HF *	KST350	37,50	1.476	18,00	.709	8
RHM38100KST350H7HF *	-	KST350	38,10	1.500	18,00	.709	8
RHM39000KST350H7HF *	RHM39000KST350H7HF *	KST350	39,00	1.535	18,00	.709	8
RHM39690KST350H7HF *	RHM39690KST350H7HF *	KST350	39,69	1.563	18,00	.709	8
RHM40000KST350H7HF	RHM40000KST350H7HF	KST350	40,00	1.575	18,00	.709	8
RHM41000KST350H7HF *	RHM41000KST350H7HF *	KST350	41,00	1.614	18,00	.709	8
RHM41280KST350H7HF *	RHM41280KST350H7HF *	KST350	41,28	1.625	18,00	.709	8
RHM42000KST350H7HF	RHM42000KST350H7HF *	KST350	42,00	1.654	18,00	.709	8

NOTE: Uncoated carbide grade K605™ is available on request.

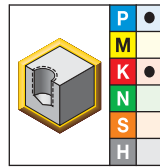
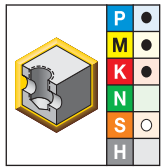
*Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Hole Finishing

- For hole tolerance H6.
- Intermediate sizes available.
- Lock screw for axial use or retention knob comes with holder.
- Allen expansion screw.



■ RHM-E • Blind Hole Expansion Reamer

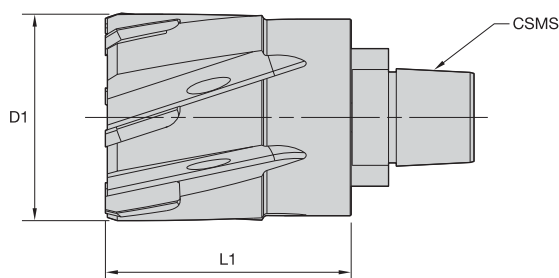
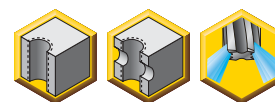


- first choice
- alternate choice

		CSMS system size	D1		L1		Z
KC6005	KC6305		mm	in	mm	in	
RHME14000KST115H6SF *	RHME14000KST115H6SF	KST115	14,00	.551	25,00	.984	6
RHME14288KST115H6SF *	RHME14288KST115H6SF *	KST115	14,29	.563	25,00	.984	6
RHME15000KST115H6SF *	RHME15000KST115H6SF	KST115	15,00	.591	25,00	.984	6
RHME16000KST135H6SF	RHME16000KST135H6SF	KST135	16,00	.630	25,00	.984	6
RHME17000KST135H6SF *	RHME17000KST135H6SF	KST135	17,00	.669	25,00	.984	6
RHME17463KST135H6SF *	RHME17463KST135H6SF *	KST135	17,46	.688	25,00	.984	6
RHME18000KST155H6SF *	RHME18000KST155H6SF *	KST155	18,00	.709	25,00	.984	6
RHME19000KST155H6SF *	RHME19000KST155H6SF *	KST155	19,00	.748	25,00	.984	6
RHME19050KST155H6SF *	RHME19050KST155H6SF *	KST155	19,05	.750	25,00	.984	6
RHME20000KST175H6SF *	RHME20000KST175H6SF *	KST175	20,00	.787	25,00	.984	6
RHME21000KST175H6SF	RHME21000KST175H6SF *	KST175	21,00	.827	25,00	.984	6
RHME22000KST175H6SF *	RHME22000KST175H6SF *	KST175	22,00	.866	25,00	.984	6
RHME22225KST175H6SF *	RHME22225KST175H6SF	KST175	22,23	.875	25,00	.984	6
RHME23000KST200H6SF *	RHME23000KST200H6SF *	KST200	23,00	.906	25,00	.984	6
RHME23813KST200H6SF *	RHME23813KST200H6SF *	KST200	23,81	.938	25,00	.984	6
RHME24000KST200H6SF	RHME24000KST200H6SF *	KST200	24,00	.945	25,00	.984	6
RHME25000KST200H6SF	RHME25000KST200H6SF	KST200	25,00	.984	30,00	1.181	6
RHME25400KST200H6SF *	RHME25400KST200H6SF *	KST200	25,40	1.000	30,00	1.181	6
RHME26000KST200H6SF *	RHME26000KST200H6SF *	KST200	26,00	1.024	30,00	1.181	8
RHME27000KST200H6SF *	RHME27000KST200H6SF	KST200	27,00	1.063	30,00	1.181	8
RHME28000KST250H6SF	RHME28000KST250H6SF	KST250	28,00	1.102	36,00	1.417	8
RHME30000KST250H6SF	RHME30000KST250H6SF	KST250	30,00	1.181	36,00	1.417	8
RHME31750KST250H6SF *	RHME31750KST250H6SF *	KST250	31,75	1.250	36,00	1.417	8
RHME32000KST250H6SF *	RHME32000KST250H6SF *	KST250	32,00	1.260	36,00	1.417	8
RHME34000KST300H6SF *	RHME34000KST300H6SF *	KST300	34,00	1.339	36,00	1.417	8
RHME36000KST300H6SF *	RHME36000KST300H6SF *	KST300	36,00	1.417	36,00	1.417	8
RHME38000KST350H6SF *	RHME38000KST350H6SF *	KST350	38,00	1.496	36,00	1.417	8
RHME40000KST350H6SF *	RHME40000KST350H6SF *	KST350	40,00	1.575	36,00	1.417	8
RHME42000KST350H6SF	RHME42000KST350H6SF *	KST350	42,00	1.654	36,00	1.417	8

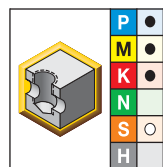
NOTE: Uncoated carbide grade K605™ is available on request.
*Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

- For hole tolerance H6.
- Intermediate sizes available.
- Lock screw for axial use or retention knob comes with holder.
- Allen expansion screw.

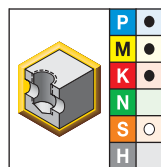


Hole Finishing

RHM-E • Through Hole Expansion Reamer



KC6005



KC6305

● first choice

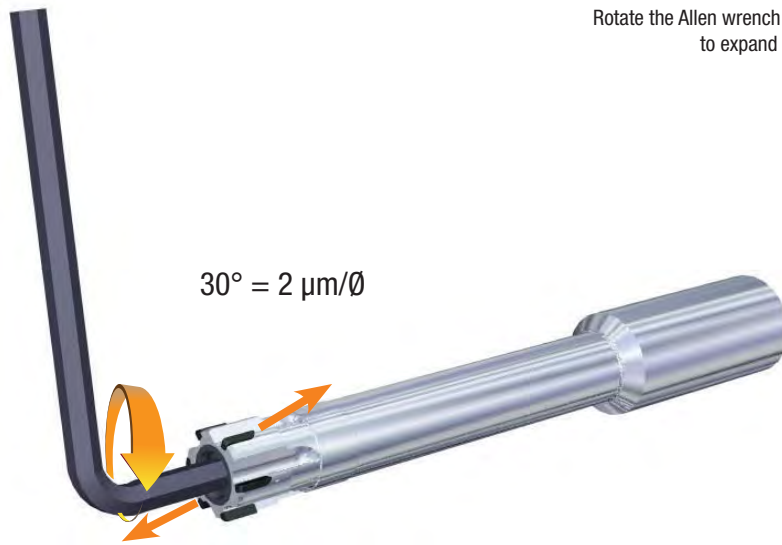
○ alternate choice

		CSMS system size		D1		L1		Z
			mm	in	mm	in		
RHME14000KST115H6HF *	RHME14000KST115H6HF *	KST115	14,00	.551	25,00	.984	6	
RHME14288KST115H6HF *	RHME14288KST115H6HF *	KST115	14,29	.563	25,00	.984	6	
RHME15000KST115H6HF *	RHME15000KST115H6HF *	KST115	15,00	.591	25,00	.984	6	
RHME16000KST135H6HF	RHME16000KST135H6HF	KST135	16,00	.630	25,00	.984	6	
RHME17000KST135H6HF	RHME17000KST135H6HF *	KST135	17,00	.669	25,00	.984	6	
RHME17463KST135H6HF	RHME17463KST135H6HF *	KST135	17,46	.688	25,00	.984	6	
RHME18000KST155H6HF *	RHME18000KST155H6HF	KST155	18,00	.709	25,00	.984	6	
RHME19000KST155H6HF *	RHME19000KST155H6HF *	KST155	19,00	.748	25,00	.984	6	
RHME19050KST155H6HF *	RHME19050KST155H6HF	KST155	19,05	.750	25,00	.984	6	
RHME20000KST175H6HF	RHME20000KST175H6HF	KST175	20,00	.787	25,00	.984	6	
RHME21000KST175H6HF *	RHME21000KST175H6HF *	KST175	21,00	.827	25,00	.984	6	
RHME22000KST175H6HF	RHME22000KST175H6HF	KST175	22,00	.866	25,00	.984	6	
RHME22225KST175H6HF *	RHME22225KST175H6HF	KST175	22,23	.875	25,00	.984	6	
RHME23000KST200H6HF *	RHME23000KST200H6HF *	KST200	23,00	.906	25,00	.984	6	
RHME23813KST200H6HF *	RHME23813KST200H6HF *	KST200	23,81	.938	25,00	.984	6	
RHME24000KST200H6HF *	RHME24000KST200H6HF *	KST200	24,00	.945	25,00	.984	6	
RHME25000KST200H6HF *	RHME25000KST200H6HF	KST200	25,00	.984	30,00	1.181	6	
RHME25400KST200H6HF	RHME25400KST200H6HF	KST200	25,40	1.000	30,00	1.181	6	
RHME26000KST200H6HF *	RHME26000KST200H6HF	KST200	26,00	1.024	30,00	1.181	8	
RHME27000KST200H6HF *	RHME27000KST200H6HF *	KST200	27,00	1.063	30,00	1.181	8	
RHME28000KST250H6HF	RHME28000KST250H6HF	KST250	28,00	1.102	36,00	1.417	8	
RHME30000KST250H6HF	RHME30000KST250H6HF	KST250	30,00	1.181	36,00	1.417	8	
RHME31750KST250H6HF *	RHME31750KST250H6HF	KST250	31,75	1.250	36,00	1.417	8	
RHME32000KST250H6HF *	RHME32000KST250H6HF *	KST250	32,00	1.260	36,00	1.417	8	
RHME34000KST300H6HF *	RHME34000KST300H6HF *	KST300	34,00	1.339	36,00	1.417	8	
RHME36000KST300H6HF *	RHME36000KST300H6HF *	KST300	36,00	1.417	36,00	1.417	8	
RHME38000KST350H6HF *	RHME38000KST350H6HF *	KST350	38,00	1.496	36,00	1.417	8	
RHME40000KST350H6HF *	—	KST350	39,99	1.574	36,00	1.417	8	
—	RHME40000KST350H6HF *	KST350	40,00	1.575	36,00	1.417	8	
RHME42000KST350H6HF *	RHME42000KST350H6HF *	KST350	42,00	1.654	36,00	1.417	8	

NOTE: Uncoated carbide grade K605™ is available on request.

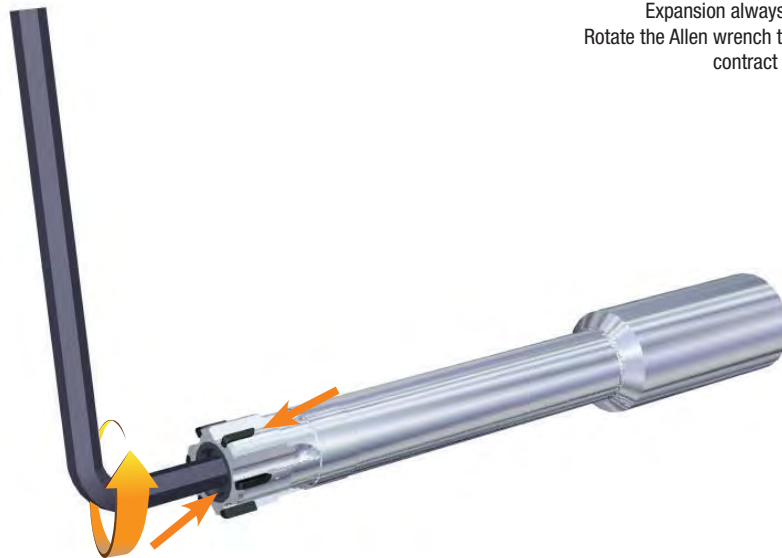
*Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

To Expand



Rotate the Allen wrench to the right
to expand the reamer.

To Contract



Expansion always reversible:
Rotate the Allen wrench to the left
to contract the reamer.

- 30° = 2 μm linear expansion.
- 720° = 2 revolutions; = 48 μm maximum expansion.
- Hard stop after 720° expansion. You cannot over expand!
- The expansion occurs in the elastic material behavior.
- You cannot reduce the diameter below D1.

■ RHR • Metric

Material Group		KCU05			Metric							
		Cutting Speed – vc			Recommended Feed Rate per Tooth							
		Range – m/min			Tool Diameter (mm)	14,00–19,99mm		20,00–32,00mm		32,50–42,00mm		
		min	Starting Value	max		Feed/Tooth	min	max	min	max	min	max
P	1	90	120	155	mm/z	0,10	0,20	0,10	0,22	0,10	0,25	
	2	90	120	155	mm/z	0,10	0,20	0,10	0,22	0,10	0,25	
	3	75	100	130	mm/z	0,10	0,20	0,10	0,22	0,10	0,25	
	4	50	80	105	mm/z	0,10	0,20	0,10	0,22	0,10	0,25	
	5	30	40	60	mm/z	0,08	0,18	0,08	0,20	0,08	0,22	
	6	30	40	60	mm/z	0,08	0,18	0,08	0,20	0,08	0,22	
M	1	15	20	40	mm/z	0,08	0,15	0,08	0,18	0,08	0,20	
	2	15	20	30	mm/z	0,08	0,15	0,08	0,18	0,08	0,20	
	3	15	20	30	mm/z	0,08	0,15	0,08	0,18	0,08	0,20	
K	1	80	110	130	mm/z	0,10	0,20	0,10	0,22	0,10	0,25	
	2	65	90	110	mm/z	0,10	0,20	0,10	0,22	0,10	0,25	
	3	50	70	90	mm/z	0,10	0,18	0,10	0,20	0,10	0,22	
S	1	15	20	30	mm/z	0,06	0,15	0,10	0,18	0,10	0,20	
	2	15	20	30	mm/z	0,06	0,15	0,10	0,18	0,10	0,20	
	3	20	30	40	mm/z	0,08	0,18	0,10	0,20	0,10	0,20	
	4	20	30	40	mm/z	0,08	0,18	0,10	0,20	0,10	0,20	



■ RHR • Inch

Material Group		KCU05			Inch							
		Cutting Speed – vc			Recommended Feed Rate per Tooth							
		Range – SFM			Tool Diameter (inch)	.551–.787"		.787–1.260"		1.260–1.654"		
		min	Starting Value	max		Feed/Tooth	min	max	min	max	min	max
P	1	295	394	509	inch/z	.004	.008	.004	.009	.004	.010	
	2	295	394	509	inch/z	.004	.008	.004	.009	.004	.010	
	3	246	328	427	inch/z	.004	.008	.004	.009	.004	.010	
	4	164	262	344	inch/z	.004	.008	.004	.009	.004	.010	
	5	98	131	197	inch/z	.003	.007	.004	.008	.004	.009	
	6	98	131	197	inch/z	.003	.007	.003	.008	.003	.009	
M	1	49	66	131	inch/z	.003	.006	.003	.007	.003	.008	
	2	49	66	98	inch/z	.003	.006	.003	.007	.003	.008	
	3	49	66	98	inch/z	.003	.006	.003	.007	.003	.008	
K	1	262	361	427	inch/z	.004	.008	.004	.009	.004	.010	
	2	213	295	361	inch/z	.004	.008	.004	.009	.004	.010	
	3	164	230	295	inch/z	.004	.007	.004	.008	.004	.009	
S	1	49	66	98	inch/z	.002	.006	.004	.007	.004	.008	
	2	49	66	98	inch/z	.002	.006	.004	.007	.004	.008	
	3	66	98	131	inch/z	.003	.007	.004	.008	.004	.008	
	4	66	98	131	inch/z	.003	.007	.004	.008	.004	.008	

■ RHM™ and RHM-E™ • Metric

Material Group	Cermet Tipped						Carbide Tipped						Metric							
	straight flute		helical flute				straight flute		helical flute											
	KT325		KT6215				K605		KC6305				Recommended Feed Rate per Tooth							
	Cutting Speed – vc																		Tool Diameter (mm)	14,00–19,99mm
	Range – m/min												Feed/Tooth	min	max	min	max	min		max
P	1	150	180	210	180	210	240	40	60	70	90	120		155	mm/z	0,10	0,20	0,10	0,22	0,10
	2	150	180	210	180	210	240	40	60	70	90	120	155	mm/z	0,10	0,20	0,10	0,22	0,10	0,25
	3	130	160	180	150	180	210	30	40	50	75	100	130	mm/z	0,10	0,20	0,10	0,22	0,10	0,25
	4	100	130	150	120	150	170	25	40	45	50	80	105	mm/z	0,10	0,20	0,10	0,22	0,10	0,25
	5	80	100	120	100	130	150	10	20	30	30	40	55	mm/z	0,08	0,18	0,08	0,20	0,08	0,22
	6	80	100	120	100	130	150	10	20	30	30	40	55	mm/z	0,08	0,18	0,08	0,20	0,08	0,22
M	1	–	–	–	–	–	–	8	10	15	15	20	28	mm/z	0,08	0,15	0,08	0,18	0,08	0,20
	2	–	–	–	–	–	–	8	10	15	15	20	28	mm/z	0,08	0,15	0,08	0,18	0,08	0,20
	3	–	–	–	–	–	–	8	10	15	15	20	28	mm/z	0,08	0,15	0,08	0,18	0,08	0,20
K	1	150	180	200	180	210	240	30	50	60	80	110	130	mm/z	0,10	0,20	0,10	0,22	0,10	0,25
	2	130	160	180	150	180	210	25	40	45	65	90	110	mm/z	0,10	0,20	0,10	0,22	0,10	0,25
	3	100	130	160	120	150	170	20	30	40	50	70	90	mm/z	0,10	0,18	0,10	0,20	0,10	0,22
N	1	–	–	–	–	–	–	110	150	195	–	–	–	mm/z	0,10	0,30	0,10	0,30	0,10	0,30
	2	–	–	–	–	–	–	110	150	195	–	–	–	mm/z	0,10	0,30	0,10	0,30	0,10	0,30
	3	–	–	–	–	–	–	110	150	195	–	–	–	mm/z	0,10	0,30	0,10	0,30	0,10	0,30
	4	–	–	–	–	–	–	110	150	195	–	–	–	mm/z	0,10	0,30	0,10	0,30	0,10	0,30
	5	–	–	–	–	–	–	105	140	180	–	–	–	mm/z	0,10	0,30	0,10	0,30	0,10	0,30
S	1	–	–	–	–	–	–	8	10	15	15	20	28	mm/z	0,06	0,15	0,10	0,18	0,10	0,20
	2	–	–	–	–	–	–	8	10	15	15	20	28	mm/z	0,06	0,15	0,10	0,18	0,10	0,20
	3	–	–	–	–	–	–	15	20	30	20	30	40	mm/z	0,08	0,18	0,10	0,20	0,10	0,20
	4	–	–	–	–	–	–	15	20	30	20	30	40	mm/z	0,08	0,18	0,10	0,20	0,10	0,20



■ RHM™ and RHM-E™ • Inch

Material Group	Cermet Tipped						Carbide Tipped						Inch							
	straight flute		helical flute				straight flute		helical flute											
	KT325		KT6215				K605		KC6305				Recommended Feed Rate per Tooth							
	Cutting Speed – vc												Tool Diameter (inch)	.551–.787"		.787–1.260"		1.280–1.654"		
	Range – SFM													Feed/Tooth	min	max	min	max	min	max
	min	Starting Value	max	min	Starting Value	max	min	Starting Value	max	min	Starting Value	max	min		max	min	max	min	max	
P	1	492	590	689	590	689	787	131	197	230	295	394	508	inch/z	.004	.008	.004	.009	.004	.010
	2	492	590	689	590	689	787	131	197	230	295	394	508	inch/z	.004	.008	.004	.009	.004	.010
	3	426	525	590	492	590	689	98	131	164	246	328	426	inch/z	.004	.008	.004	.009	.004	.010
	4	328	426	492	394	492	558	82	131	148	164	262	344	inch/z	.004	.008	.004	.009	.004	.010
	5	262	328	394	328	426	492	33	66	98	98	131	180	inch/z	.003	.007	.003	.008	.003	.009
	6	262	328	394	328	426	492	33	66	98	98	131	180	inch/z	.003	.007	.003	.008	.003	.009
M	1	–	–	–	–	–	26	33	49	49	66	92	inch/z	.003	.006	.003	.007	.003	.008	
	2	–	–	–	–	–	26	33	49	49	66	92	inch/z	.003	.006	.003	.007	.003	.008	
	3	–	–	–	–	–	26	33	49	49	66	92	inch/z	.003	.006	.003	.007	.003	.008	
K	1	492	590	656	590	689	787	98	164	197	262	361	426	inch/z	.004	.008	.004	.009	.004	.010
	2	426	525	590	492	590	689	82	131	148	213	295	361	inch/z	.004	.008	.004	.009	.004	.010
	3	328	426	525	394	492	558	66	98	131	164	230	295	inch/z	.004	.007	.004	.008	.004	.009
N	1	–	–	–	–	–	361	492	640	–	–	–	inch/z	.004	.012	.004	.012	.004	.012	
	2	–	–	–	–	–	361	492	640	–	–	–	inch/z	.004	.012	.004	.012	.004	.012	
	3	–	–	–	–	–	361	492	640	–	–	–	inch/z	.004	.012	.004	.012	.004	.012	
	4	–	–	–	–	–	361	492	640	–	–	–	inch/z	.004	.012	.004	.012	.004	.012	
	5	–	–	–	–	–	344	459	590	–	–	–	inch/z	.004	.012	.004	.012	.004	.012	
S	1	–	–	–	–	–	26	33	49	49	66	92	inch/z	.002	.006	.004	.007	.004	.008	
	2	–	–	–	–	–	26	33	49	49	66	92	inch/z	.002	.006	.004	.007	.004	.008	
	3	–	–	–	–	–	49	66	98	66	98	131	inch/z	.003	.007	.004	.008	.004	.008	
	4	–	–	–	–	–	49	66	98	66	98	131	inch/z	.003	.007	.004	.008	.004	.008	

Hole Finishing

Reaming Allowances for Multi-Blade Reaming

mm	in	reaming allowances in diameter					
		min	mm middle	mm max	in min	in middle	in max
1,40–4,80	.055–.189	0,08	0,12	0,20	.003	.005	.008
4,81–9,59	.189–.378	0,10	0,15	0,25	.004	.006	.010
9,60–15,00	.378–.591	0,15	0,20	0,30	.006	.008	.012
15,00–20,00	.591–.787	0,15	0,25	0,35	.006	.010	.014
20,00–50,00	.787–1.969	0,20	0,30	0,40	.008	.012	.016

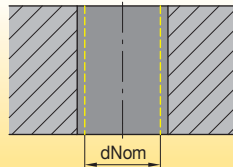
Troubleshooting

Problem

Cause

Possible Remedy

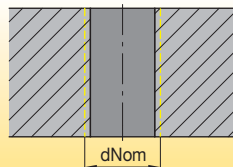
Hole diameter too large.



- Reaming tool running out-of-center.
- Concentricity of pilot hole and ream machining unsatisfactory.
- Built-up edge.
- Unsuitable cooling lubricant.
- Reaming tool diameter too large.

- Use equalizing adapter.
- Re-align, use floating head.
- Change cooling lubricant.
- Change cutting speed.
- Measure reamers and send for repairs.

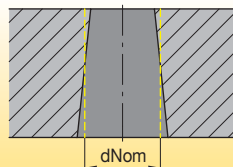
Hole diameter too small.



- Reamer worn.
- Unsuitable cooling lubricant.
- Reaming allowance too small.

- Replace and refit tool.
- Change cooling lubricant.
- Increase reaming allowance.

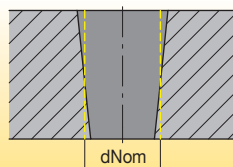
Conical hole profile wider towards drill runout.



- Concentricity of pilot hole and reaming unsatisfactory.
- Positioning accuracy of pilot hole to reaming.

- Re-align, use equalizing adapter.
- Correct positioning accuracy.

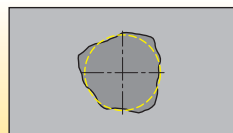
Conical hole profile wider at drill entry point.



- Concentricity of pilot hole and reaming unsatisfactory.
- Reaming tool skim cutting with ledger.

- Re-align, use floating head.
- Securely clamp reaming tool axially.

Hole out-of-center and/or showing chatter marks.



- Reaming tool running out-of-center.
- Slanted cutting surface/asymmetrical cutting.
- Workpiece twisted.

- Use equalizing adapter.
- Spot face as drilling preparation.
- Take the direction of impact into account when clamping the workpiece.

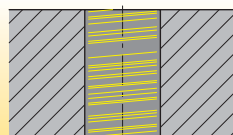
Surface quality does not meet specification.



- Tool cutters worn.
- Reaming tool running out-of-center.
- Incorrect technology data (cutting parameters).
- Inadequate chip evacuation.

- Use equalizing adapter.
- Re-align, use floating head.
- Change cooling lubricant.
- Change cutting speed.
- Measure reamers and send for repairs.

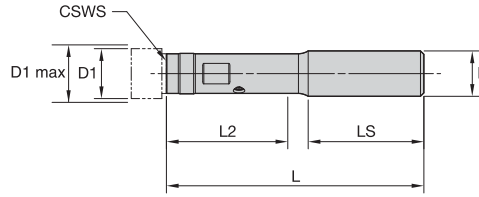
Feed grooves



- Built-up edge.

- Change cooling lubricant.
- Change cutting speed.

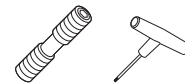
- Tool body shipped with lock screw and wrench.
- Order reamer head separately.



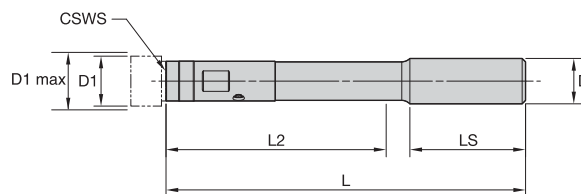
■ Straight Shank • Axial Clamping • 3 x D

Hole Finishing

order number	catalog number	CSWS system size	D1		D1 max		D		L		L2		LS		central lock screw	Torx wrench	Nm	ft. lbs.
			mm	in	mm	in	mm	in	mm	in	mm	in	mm	in				
4056174	SS16KST115AR3M	KST115	14,00	.551	15,999	.630	16,00	.630	91,00	3.583	36,00	1.420	48,00	1.89	KST115115AS	FT8	3,0	2.2
4056175	SS20KST135AR3M	KST135	16,00	.630	17,999	.709	20,00	.787	99,00	3.898	39,00	1.540	51,00	2.01	KST135155AS	FT10	4,0	3.0
4056176	SS20KST155AR3M	KST155	18,00	.709	19,999	.787	20,00	.787	106,00	4.173	45,00	1.770	51,00	2.01	KST135155AS	FT10	4,0	3.0
3861185	SS20KST175AR3M	KST175	20,00	.787	22,499	.886	20,00	.787	113,50	4.469	51,50	2.028	51,00	2.01	KST175200AS	TT15	5,0	3.7
3861186	SS20KST200AR3M	KST200	22,50	.886	27,499	1.083	20,00	.787	130,50	5.138	65,50	2.579	51,00	2.01	KST175200AS	TT15	5,0	3.7
3861187	SS25KST250AR3M	KST250	27,50	1.083	32,499	1.280	25,00	.984	152,50	6.004	80,50	3.169	56,00	2.20	KST250250AS	TT25	9,0	6.7
3861188	SS32KST300AR3M	KST300	32,50	1.280	37,499	1.476	32,00	1.260	174,00	6.850	94,00	3.701	61,00	2.40	KST300350AS	TT30	13,0	9.7
3861189	SS32KST350AR3M	KST350	37,50	1.476	42,000	1.654	32,00	1.260	190,00	7.480	108,00	4.252	61,00	2.40	KST300350AS	TT30	13,0	9.7



- Tool body shipped with lock screw and wrench.
- Order reamer head separately.

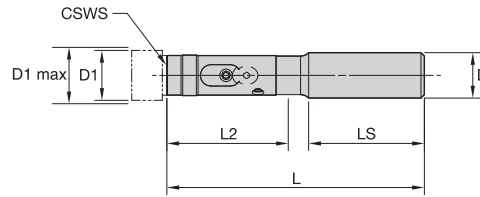


■ Straight Shank • Axial Clamping • 5 x D

order number	catalog number	CSWS system size	D1		D1 max		D		L		L2		LS		central lock screw	Torx wrench	Nm	ft. lbs.
			mm	in	mm	in	mm	in	mm	in	mm	in	mm	in				
4056177	SS16KST115AR5M	KST115	14,00	.551	15,999	.630	16,00	.630	123,00	4.843	68,00	2.680	48,00	1.89	KST115115AS	FT8	3,0	2.2
4056178	SS20KST135AR5M	KST135	16,00	.630	17,999	.709	20,00	.787	135,00	5.315	75,00	2.950	51,00	2.01	KST135155AS	FT10	4,0	3.0
4056179	SS20KST155AR5M	KST155	18,00	.709	19,999	.787	20,00	.787	146,00	5.748	85,00	3.350	51,00	2.01	KST135155AS	FT10	4,0	3.0
3861190	SS20KST175AR5M	KST175	20,00	.787	22,499	.886	20,00	.787	158,50	6.240	96,50	3.799	51,00	2.01	KST175200AS	TT15	5,0	3.7
3861191	SS20KST200AR5M	KST200	22,50	.886	27,499	1.083	20,00	.787	185,50	7.303	120,50	4.744	51,00	2.01	KST175200AS	TT15	5,0	3.7
3861192	SS25KST250AR5M	KST250	27,50	1.083	32,499	1.280	25,00	.984	217,50	8.563	145,50	5.728	56,00	2.20	KST250250AS	TT25	9,0	6.7
3861193	SS32KST300AR5M	KST300	32,50	1.280	37,499	1.476	32,00	1.260	249,00	9.803	169,00	6.654	61,00	2.40	KST300350AS	TT30	13,0	9.7
3861194	SS32KST350AR5M	KST350	37,50	1.476	42,000	1.654	32,00	1.260	274,00	10.787	192,00	7.559	61,00	2.40	KST300350AS	TT30	13,0	9.7



- Tool body shipped with retention knob, clamp set, and wrench.
- Order reamer head separately.



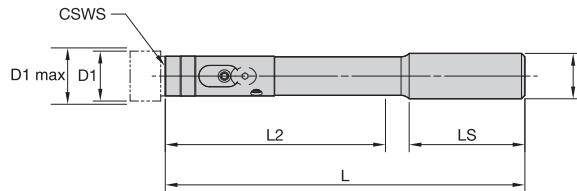
■ Straight Shank • Radial Clamping • 3 x D

order number	catalog number	CSWS system size	D1		D1 max		D		L		L2		LS		retention knob	clamp set	Torx wrench	ft.	
			mm	in	mm	in	mm	in	mm	in	mm	in	mm	in				Nm	lbs.
3861195	SS20KST175RR3M	KST175	20,00	.787	22,499	.886	20,00	.787	113,50	4.469	51,50	2.028	51,00	2.01	KST175200RK	KST175CS	TT15	5,0	3,7
3861196	SS20KST200RR3M	KST200	22,50	.886	27,499	1.083	20,00	.787	130,50	5.138	65,50	2.579	51,00	2.01	KST175200RK	KST200CS	TT15	5,0	3,7
3861197	SS25KST250RR3M	KST250	27,50	1.083	32,499	1.280	25,00	.984	152,50	6.004	80,50	3.169	56,00	2.21	KST250250RK	KST250CS	TT25	9,0	6,7
3861198	SS32KST300RR3M	KST300	32,50	1.280	37,499	1.476	32,00	1.259	174,00	6.850	94,00	3.701	61,00	2.40	KST300350RK	KST300CS	TT30	13,0	9,7
3861199	SS32KST350RR3M	KST350	37,50	1.476	42,000	1.654	32,00	1.259	190,00	7.480	108,00	4.252	61,00	2.40	KST300350RK	KST350CS	TT30	13,0	9,7



Hole Finishing

- Tool body shipped with retention knob, clamp set, and wrench.
- Order reamer head separately.



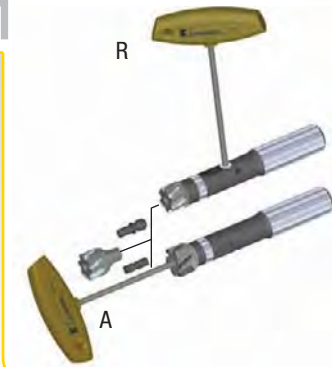
■ Straight Shank • Radial Clamping • 5 x D

order number	catalog number	CSWS system size	D1		D1 max		D		L		L2		LS		retention knob	clamp set	Torx wrench	ft.	
			mm	in	mm	in	mm	in	mm	in	mm	in	mm	in				Nm	lbs.
3861200	SS20KST175RR5M	KST175	20,00	.787	22,499	.886	20,00	.787	158,50	6.24	96,50	3.80	51,00	2.01	KST175200RK	KST175CS	TT15	5,0	3,7
3861201	SS20KST200RR5M	KST200	22,50	.886	27,499	1.083	20,00	.787	185,50	7.30	120,50	4.74	51,00	2.01	KST175200RK	KST200CS	TT15	5,0	3,7
3861202	SS25KST250RR5M	KST250	27,50	1.083	32,499	1.280	25,00	.984	217,50	8.56	145,50	5.73	56,00	2.21	KST250250RK	KST250CS	TT25	9,0	6,7
3861203	SS32KST300RR5M	KST300	32,50	1.280	37,499	1.476	32,00	1.259	249,00	9.80	169,00	6.65	61,00	2.40	KST300350RK	KST300CS	TT30	13,0	9,7
3861204	SS32KST350RR5M	KST350	37,50	1.476	42,000	1.654	32,00	1.259	274,00	10.79	192,00	7.56	61,00	2.40	KST300350RK	KST350CS	TT30	13,0	9,7

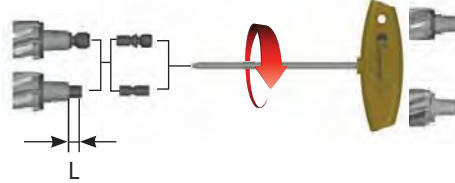


Assemble

1

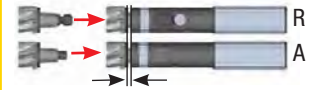


2

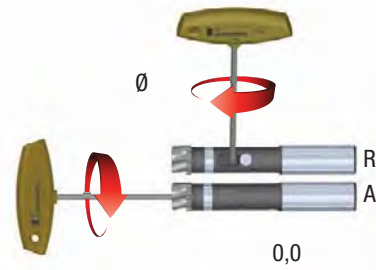


Ø (mm)		Ø (in)		L (mm)
14,000	27,499	0.549	1.078	5-5,5
27,500	42,000	1.078	1.647	5,5-6

3



4

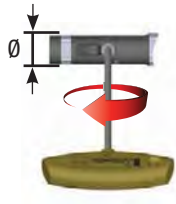


Ø (mm)		Ø (in)				
					(Nm)	(ft. lbs.)
14,000	15,999	0.549	0.627	DT - 8	2	1.5
16,000	19,999	0.627	0.784	DT - 10	3	2.2
20,000	27,499	0.784	1.078	TT - 15	4	3.7
27,500	32,499	1.078	1.274	TT - 25	5	6.7
32,500	42,000	1.275	1.647	TT - 30	13	9.7

Disassemble 4 → 3 → 2 → 1

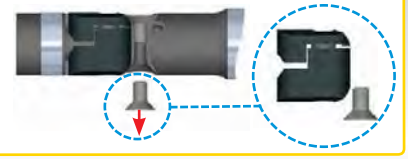
Disassemble

1

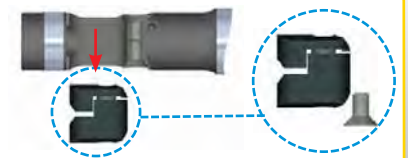


Ø (mm)	Ø (in)				
				(Nm)	(ft. lbs.)
17,5	0.686	KST175CS	2,5	2,5	1.9
20	0.784	KST200CS	2,5	2,5	1.9
25	0.980	KST250CS	3	5	3.7
30	1.176	KST300CS	4	9	6.7
35	1.373	KST350CS	4	9	9.7

2



3



Assemble 3 → 2 → 1

SIF™



Coolant flow



Application



➤ SIF™ Steerable Toolholder

Primary Application

SIF steerable toolholders should be used for easy compensation of radial runout and angular inaccuracies caused by the machine spindle or gravity. SIF tooling improves hole roundness for highest possible hole straightness and surface quality. Runout-optimized reaming tools provide higher process stability and longer tool life.

Use a separate SIF tooling package for each machine to ensure best configuration between reaming tool and spindle and HSK bushes. This enables faster tool change to avoid repeating adjustments.



Features and Benefits

Higher Productivity and Profitability

- Easy compensation of radial runout and angular inaccuracies increases process control and tool life.
- Less time-consuming adjustment due to eight radial screws.
- Increased rigidity by using a SIF back-end as a monoblock solution with the reamer.

Versatility

- Use standard DV, BT, CV, and HSK adapters in combination with SIF hydraulic chucks for precise concentric clamping, highest accuracy, and flexible clamping using hydraulic chuck sleeves.
- HSK bushes with SIF coupling enable fast tool exchange and eliminate repeated runout adjustment, reducing adjustment and downtime.

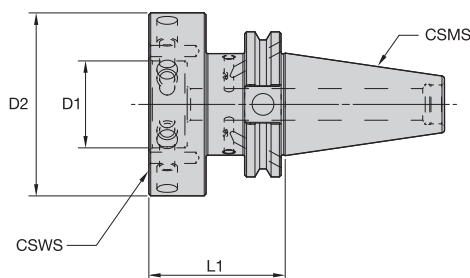
SIF™ adaptation practically eliminates all spindle errors in terms of runout and angular misalignment.



Customization

- Different length versions and coupling size combinations are available.

- Through-the-toolholder coolant capability — form AD or form B.
- Suitable for SIF adapters.



■ SIF-CV50 Form B/AD

Hole Finishing

order number	catalog number	CSMS system size	CSWS system size	D2		D1		L1		dog-point set screw	hex wrench	hex wrench	socket-head cap screw	kg	lbs
				mm	in	mm	in	mm	in						
3738506	CV50BSIF70236	CV50	SIF70	70	3	38	1.496	60	2.362	121.808	170.004	170.005	125.625	3,49	7.700
3738507	CV50BSIF100236	CV50	SIF100	100	4	58	2.283	60	2.362	121.812	170.004	170.006	—	4,14	9.140



■ SIF-CV40 Form B/AD

order number	catalog number	CSMS system size	CSWS system size	D2		D1		L1		dog-point set screw	hex wrench	hex wrench	socket-head cap screw	kg	lbs
				mm	in	mm	in	mm	in						
3738505	CV40BSIF80248	CV40	SIF80	80	3	38	1.496	63	2.480	121.812	170.004	170.005	125.625	1,77	3.900

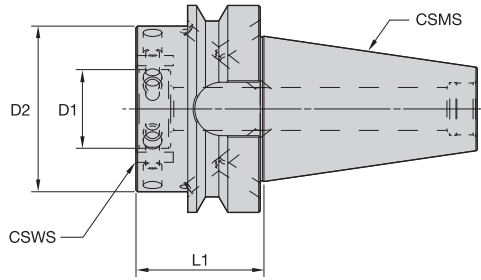


■ SIF-BT40 Form B/AD

order number	catalog number	CSMS system size	CSWS system size	D2		D1		L1		dog-point set screw	hex wrench	hex wrench	socket-head cap screw	kg	lbs
				mm	in	mm	in	mm	in						
3738492	BT40BSIF80063M	BT40	SIF80	80	3	38	1.496	63	2.480	121.812	170.004	170.005	125.625	1,86	4.110

	Form AD						
	Form B						
					40	(2x) MS2221S	2,5mm
					50	(2x) MS1296S	3mm

- Through-the-toolholder coolant capability — form AD or form B.
- Suitable for SIF adapters.



■ SIF-BT50 Form B/AD

order number	catalog number	CSMS system size	CSWS system size	D2		D1		L1		dog-point set screw	hex wrench	hex wrench	socket-head cap screw	kg	lbs
				mm	in	mm	in	mm	in						
3738503	BT50BSIF70063M	BT50	SIF70	70	3	38	1.496	63	2.480	121.808	170.004	170.005	125.625	4,08	9.000
3738504	BT50BSIF100068M	BT50	SIF100	100	4	58	2.283	68	2.677	121.812	170.004	170.006	—	4,94	10.890

Hole Finishing

■ SIF-DV40 Form B/AD

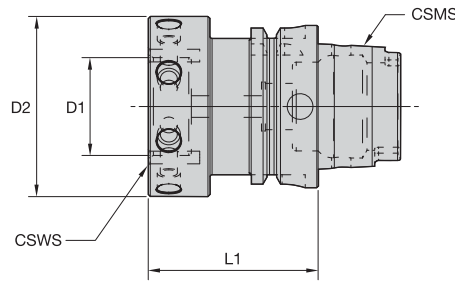
order number	catalog number	CSMS system size	CSWS system size	D2		D1		L1		dog-point set screw	hex wrench	hex wrench	socket-head cap screw	kg	lbs
				mm	in	mm	in	mm	in						
3738488	DV40BSIF80061M	DV40	SIF80	80	3	38	1.496	61	2.402	121.812	170.004	170.005	125.625	1,83	4.020

■ SIF-DV50 Form B/AD

order number	catalog number	CSMS system size	CSWS system size	D2		D1		L1		dog-point set screw	hex wrench	hex wrench	socket-head cap screw	kg	lbs
				mm	in	mm	in	mm	in						
3738490	DV50BSIF70060M	DV50	SIF70	70	3	38	1.496	60	2.362	121.808	170.004	170.005	125.625	3,60	7.930
3738491	DV50BSIF100060M	DV50	SIF100	100	4	58	2.283	60	2.362	121.812	170.004	170.006	—	4,30	9.480

Form	Checkmark	Adapter	Toolholder	Wrench	Cap Screw
Form AD	✓				
Form B	✗			40	(2x) MS2221S
				50	(2x) MS1296S
					2,5mm
					3mm

- Through-the-toolholder coolant capability.
- Suitable for SIF adapters.



SIF-HSK63 Form A

order number	catalog number	CSMS system size	CSWS system size	D2		D1		L1		dog-point set screw	hex wrench	hex wrench	socket-head cap screw	kg	lbs
				mm	in	mm	in	mm	in						
3738508	HSK63ASIF70066M	HSK63A	SIF70	70	3	38	1.496	66	2.598	121.808	170.004	170.005	125.625	1,44	3.180
3878347	HSK63ASIF80063M	HSK63A	SIF80	80	3	38	1.496	63	2.480	121.812	170.004	170.005	125.625	1,48	3.250

SIF-HSK80 Form A

order number	catalog number	CSMS system size	CSWS system size	D2		D1		L1		dog-point set screw	hex wrench	hex wrench	socket-head cap screw	kg	lbs
				mm	in	mm	in	mm	in						
3738510	HSK80ASIF70066M	HSK80A	SIF70	70	3	38	1.496	66	2.598	121.808	170.004	170.005	125.625	2,05	4.520

NOTE: HSK coolant unit and wrench are available and must be ordered separately.

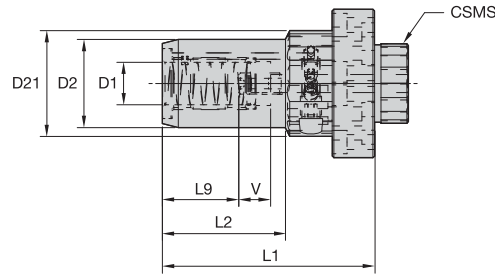
SIF-HSK100 Form A

order number	catalog number	CSMS system size	CSWS system size	D2		D1		L1		dog-point set screw	hex wrench	hex wrench	socket-head cap screw	kg	lbs
				mm	in	mm	in	mm	in						
3738511	HSK100ASIF70050M	HSK100A	SIF70	70	3	38	1.496	50	1.969	121.808	170.004	170.005	125.625	2,43	5.360
3738512	HSK100ASIF100070M	HSK100A	SIF100	100	4	58	2.283	70	2.756	121.812	170.004	170.006	—	3,84	8.460

NOTE: HSK coolant unit and wrench are available and must be ordered separately.



- Runout < .0001" (0,003mm).
- External side actuation adjustment stop, giving 3/8" (10mm) axial adjustment.



■ HC HP Line • SIF70

order number	catalog number	CSMS system size	D1		D2		D21		L1		L2		L9		V		hex wrench	T-handle hex wrench	kg	lbs
			mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in				
3667056	SIF70HC12090M	SIF70	12	.472	32	1.244	44	1.724	90	3.543	45	1.752	36	1.417	10	.394	170.002	170.135	1,13	2.49
3667057	SIF70HC20100M	SIF70	20	.787	42	1.636	44	1.724	100	3.937	58	2.283	41	1.614	10	.394	170.003	170.135	2,00	4.41

NOTE: HSK coolant unit and wrench are available and must be ordered separately.
IMPORTANT: Do not overtorque clamp screw. Use supplied wrench and tighten by hand until stop is felt.



■ HC HP Line • SIF80

order number	catalog number	CSMS system size	D1		D2		D21		L1		L2		L9		V		hex wrench	T-handle hex wrench	kg	lbs
			mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in				
3667058	SIF80HC12090M	SIF80	12	.472	32	1.244	50	1.963	90	3.543	45	1.752	36	1.417	10	.394	170.002	170.135	9,00	19.84
3667059	SIF80HC20100M	SIF80	20	.787	42	1.638	50	1.963	100	3.937	58	2.283	41	1.614	10	.394	170.003	170.135	1,60	3.53
3667060	SIF80HC25100M	SIF80	25	.984	50	1.959	54	2.118	100	3.937	51	2.008	47	1.850	10	.394	170.003	170.136	1,83	4.03

NOTE: HSK coolant unit and wrench are available and must be ordered separately.
IMPORTANT: Do not overtorque clamp screw. Use supplied wrench and tighten by hand until stop is felt.



■ HC HP Line • SIF100

order number	catalog number	CSMS system size	D1	D2	D21	L1	L2	L9	V	hex wrench	T-handle hex wrench	kg	lbs
			mm	in	mm	in	mm	in	mm				
3667061	SIF100HC12090M	SIF100	12	32	50	90	45	36	10	170.002	170.135	1,98	4.37
3667062	SIF100HC20100M	SIF100	20	42	50	100	58	41	10	170.003	170.135	2,19	4.84
3668023	SIF100HC25100M	SIF100	25	50	63	100	51	47	10	170.004	170.136	2,56	5.64

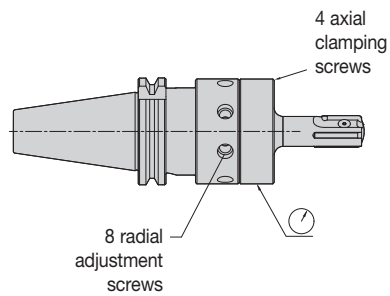
NOTE: HSK coolant unit and wrench are available and must be ordered separately.
IMPORTANT: Do not overtorque clamp screw. Use supplied wrench and tighten by hand until stop is felt.

SIF Tooling Setup

Step 1: Rough setup of runout at flange

- Set gage (TIR) at SIF flange.
- Tight axial clamping screws 4.4–5.9 ft. lbs. (6–8 Nm).
- Use radial adjustment screws to achieve .0002" (5 μm) runout.

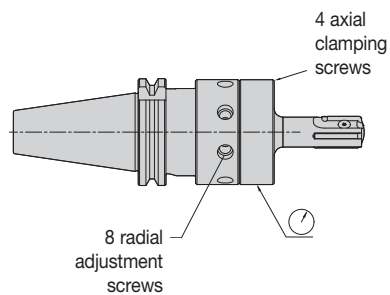
1



Step 2: Fine setup of runout at the flange

- Tight axial clamping screws crosswise:
SIF70/80 13.3 ft. lbs. (18 Nm).
SIF100 23.6 ft. lbs. (32 Nm).
- Use radial adjustment screws to achieve .00008" (2 μm) runout.
- All radial adjustment screws to be clamped tight at 3.0 ft. lbs. (4 Nm).

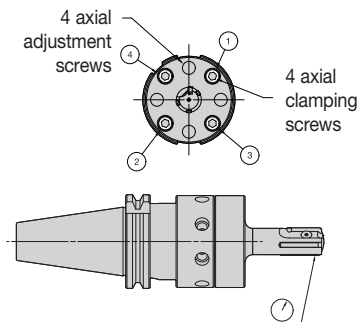
2



Step 3: Adjustment of runout at front

- Set gage (TIR) at control grind, cylindrical land, or guide pads.
- Use axial adjustment screws to achieve a maximum runout error of .00008" (2 μm).
- All axial adjustment screws to be clamped tight at 3.0 ft. lbs. (4 Nm).

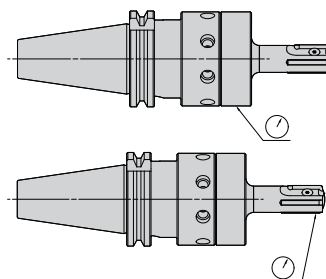
3



Step 4: Final runout check

- Check using gage (TIR) at flange; no deviation by theory.
- If needed, use radial adjustment screws to set runout below .00008" (2 μm).
- Any modification of radial setup demands an axial runout check and adjustment, if necessary.

4



➤ RIQ™ (Quattro Cut™) and RIR™ Padded Reamers

Primary Application

Master the highest precision reaming with standard inserts in almost all materials with two unique systems: RIR padded reamers for small-diameter applications and RIQ padded reamers for easy setup in large-diameter applications.

RIQ reamers are available starting at diameter 16mm (.630") with four cutting edges for lowest cost per hole. The proprietary pocket seat only requires setup of the diameter, which is a huge benefit in simplicity compared to systems that require the diameter and back taper to be adjusted simultaneously. RIR padded reamers are also proprietary and available starting at diameter 6mm (.236") with one cutting edge, and diameter 8mm (.315") with two edges.

Features and Benefits

Higher Productivity and Profitability

- Longer tool life with Kennametal grades.
- User friendly — RIQ padded reamers reduce setup time.
- Use four full edges even in PCD or PcBN styles of RIQ inserts.

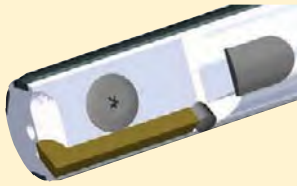

Complete Insert Portfolio

- Large standard offering of lead geometries — E13, EDS, EDR, EGU, EGR, radius, and taper inserts.
- Large offering of grades — coated and uncoated carbide, cermet, PcBN, and PCD.

Customization

- All RIQ tooling engineered to specific needs in diameters 16–245mm (.630–9.645") with internal coolant.
- All RIR tooling engineered to specific needs in diameters 6–245mm (.236–9.645") with internal coolant.
- RIR taper reamers available upon request.
- Multiflute and step reaming applications and special blade shapes available upon request.
- Measuring and adjustment equipment available as standard.



Application recommendation	RIR	RIQ
	<p>Bore tolerances less than 10 µm (can be greater). Geometric tolerances down to 2 µm. Skilled workforce experience required.</p> 	<p>Bore tolerances less than 10 µm. Geometric tolerances down to 2 µm. Lower skilled workforce, easier adjustment. Multidiameter bores.</p> 
Pocket seat	Flat with clamping groove in blade.	Serrated. Greater insert stability.
Cutting edges	2 (1 with PCD or CBN and 1 within diameter range 6–8mm [.236–.315"])	4 (SC, cermet, PCD, CBN)
Special blade forms	yes	yes
Multiple inserts on diameter	no	yes
Blade adjustment	Diameter and back taper.	Diameter only (back taper defined by serration).
Blade adjusting screws	2	1
Chamfer or valve seat machining	Yes, but adjustment required on position and angle.	Yes, only adjustment of position. Angle adjustment not required due to precision of serrated pocket seat.
General comments	For small diameters with high setup effort.	For larger diameters with low setup effort.



RIR™ Reamer



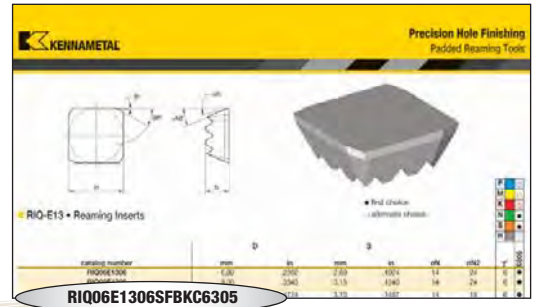
RIQ™ Reamer



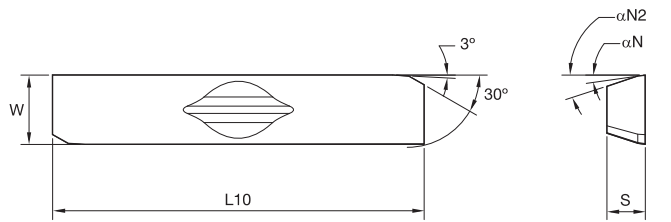
RIQ™ Valve Seat Tool

How Do Catalog Numbers Work?

Each character in our catalog number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.



RIQ	06	E13	06	S	FB	KC6305																																																											
Type	Size	Lead	Rake	Edge	Chipbreaker	Grade																																																											
<p>RIR = Reamer Insert Rectangular</p> <p>RIQ = Reamer Insert Quattro Cut™</p>	<p>Blade Size</p> <table border="1"> <thead> <tr> <th>Ø [mm]</th> <th>RIQ</th> <th>Dimensions</th> </tr> </thead> <tbody> <tr> <td>16,0–24,99</td> <td>06</td> <td>6,0 x 6,0mm</td> </tr> <tr> <td>Valve Seat</td> <td>B6</td> <td>6,0 x 6,0mm</td> </tr> <tr> <td>Valve Seat</td> <td>B7</td> <td>6,5 x 6,5mm</td> </tr> <tr> <td>Valve Seat</td> <td>07</td> <td>7,0 x 7,0mm</td> </tr> <tr> <td>Valve Seat</td> <td>08</td> <td>8,0 x 8,0mm</td> </tr> <tr> <td>>25</td> <td>09</td> <td>9,0 x 9,0mm</td> </tr> <tr> <td>>25</td> <td>12</td> <td>12,0 x 12,0mm</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Ø [mm]</th> <th>RIR</th> <th>Dimensions</th> </tr> </thead> <tbody> <tr> <td>6,0–7,99</td> <td>A0</td> <td>10,5 x 2,50mm</td> </tr> <tr> <td>8,0–10,99</td> <td>01</td> <td>15,0 x 2,80mm</td> </tr> <tr> <td>11,0–13,99</td> <td>02</td> <td>18,0 x 4,00mm</td> </tr> <tr> <td>14,0–17,99</td> <td>03</td> <td>20,0 x 4,76mm</td> </tr> <tr> <td>18,0–45,99</td> <td>04</td> <td>27,0 x 5,56mm</td> </tr> <tr> <td>>46</td> <td>05</td> <td>27,0 x 6,75mm</td> </tr> </tbody> </table> <p>Taper Reamer</p>	Ø [mm]	RIQ	Dimensions	16,0–24,99	06	6,0 x 6,0mm	Valve Seat	B6	6,0 x 6,0mm	Valve Seat	B7	6,5 x 6,5mm	Valve Seat	07	7,0 x 7,0mm	Valve Seat	08	8,0 x 8,0mm	>25	09	9,0 x 9,0mm	>25	12	12,0 x 12,0mm	Ø [mm]	RIR	Dimensions	6,0–7,99	A0	10,5 x 2,50mm	8,0–10,99	01	15,0 x 2,80mm	11,0–13,99	02	18,0 x 4,00mm	14,0–17,99	03	20,0 x 4,76mm	18,0–45,99	04	27,0 x 5,56mm	>46	05	27,0 x 6,75mm	<p>Cutting Lead</p>	<p>Rake Angle</p>	<p>S Chamfered and Rounded</p>	<p>FB = Finishing Blind Hole</p> <p>FT = Finishing Through Hole</p>	<p>Grade</p> <table border="1"> <tbody> <tr><td>Carbide</td><td>KC6005</td></tr> <tr><td>Carbide</td><td>KC6105</td></tr> <tr><td>Carbide</td><td>KC6305</td></tr> <tr><td>Cermet</td><td>KT6225</td></tr> <tr><td>Cermet</td><td>KT6315</td></tr> <tr><td>PCD</td><td>KD1415</td></tr> <tr><td>CBN</td><td>KB1610</td></tr> </tbody> </table>	Carbide	KC6005	Carbide	KC6105	Carbide	KC6305	Cermet	KT6225	Cermet	KT6315	PCD	KD1415	CBN	KB1610
Ø [mm]	RIQ	Dimensions																																																															
16,0–24,99	06	6,0 x 6,0mm																																																															
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<p>R = Radius Blade R02 R04 R05</p>																																																																	



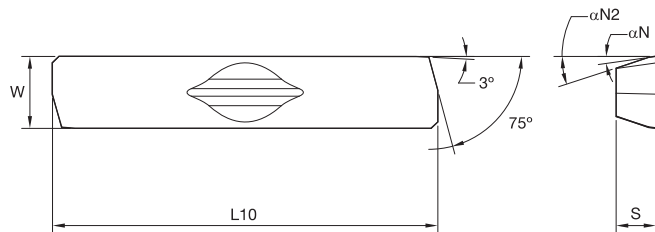
● first choice
○ alternate choice

P	●	●	○
M	○	○	●
K	●	●	●
N	○	○	○
S	○	○	○
H	○	○	○

RIR-E13 • Reaming Inserts

ISO catalog number	ANSI catalog number	L10		S		W		αN°	$\alpha N2^\circ$	γ°	KC6005	KC6105	KC6305
		mm	in	mm	in	mm	in						
RIR01E1306 *	RIR01E1306 *	15,00	.5906	1,53	.0602	2,80	.1102	8	18	6	-	●	-
RIR01E1312 *	RIR01E1312 *	15,00	.5910	1,53	.0600	2,80	.1100	8	18	12	-	●	-
RIR02E1312 *	RIR02E1312 *	18,00	.7090	1,93	.0760	4,00	.1575	8	18	12	-	●	●
RIR03E1312 *	RIR03E1312 *	20,00	.7870	2,33	.0920	4,76	.1870	8	18	12	-	-	●
RIR04E1312	RIR04E1312	27,00	1.0630	3,13	.1230	5,56	.2190	8	18	12	●	-	-
RIR04E1312 *	RIR04E1312 *	27,00	1.0630	3,13	.1230	5,56	.2190	8	18	12	-	●	-

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.



● first choice
○ alternate choice

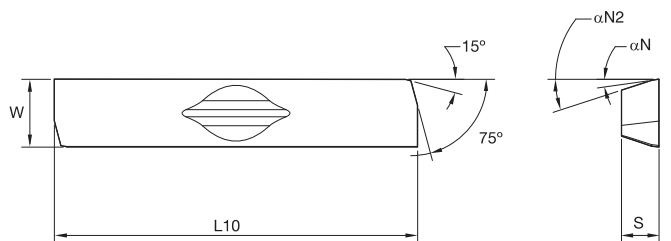
P	●	○
M	○	○
K	●	○
N	○	○
S	○	○
H	○	○

RIR-EDS • Reaming Inserts

ISO catalog number	ANSI catalog number	L10		S		W		αN°	$\alpha N2^\circ$	γ°	KD1415
		mm	in	mm	in	mm	in				
RIR04EDS06 *	RIR04EDS06 *	27,00	1.0630	3,15	.1240	5,56	.2190	8	18	6	

NOTE: All KD1415™ inserts are single tipped except full face at size RIR01.

*Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.



● first choice
○ alternate choice

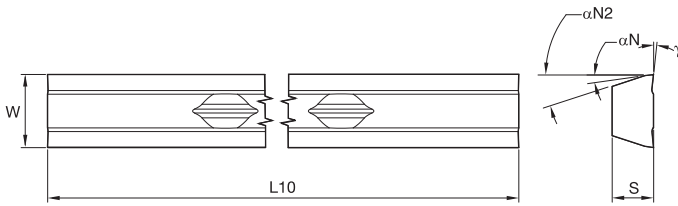
P	●	○
M	○	○
K	●	○
N	○	○
S	○	○
H	○	○

RIR-EGU • Reaming Inserts

ISO catalog number	ANSI catalog number	L10		S		W		αN°	$\alpha N2^\circ$	KC6105
		mm	in	mm	in	mm	in			
RIR01EGU00	RIR01EGU00	14,48	.5699	1,55	.0610	2,80	.1100	8	18	
RIR05EGU00 *	RIR05EGU00 *	27,00	1.0630	3,15	.1240	6,75	.2660	8	18	

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Hole Finishing



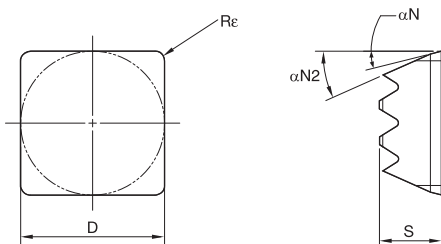
- first choice
- alternate choice

P	●
M	○
K	●
N	○
S	○
H	○

■ RIR-C45 • Reaming Inserts

ISO catalog number	ANSI catalog number	L10		S		W		αN°	$\alpha N2^\circ$	γ°	KC6005
		mm	in	mm	in	mm	in				
RIRT4C4512	RIRT4C4512	45,00	1.7720	3,15	.1240	5,56	.2190	8	18	12	●

NOTE: For use with taper reamer bodies.



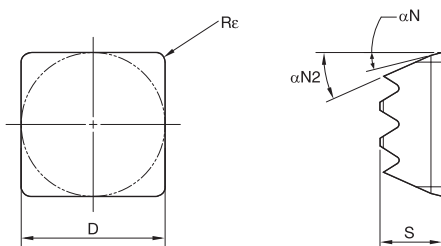
- first choice
- alternate choice

P	●
M	○
K	○
N	●
S	○
H	○

■ RIQ-R02 • Reaming Inserts

ISO catalog number	ANSI catalog number	D		S		Re		αN°	$\alpha N2^\circ$	γ°	KD1415
		mm	in	mm	in	mm	in				
RIQ06R0200 *	RIQ06R0200 *	6,00	.2362	2,60	.1024	0,20	.0079	8	18	0	●

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

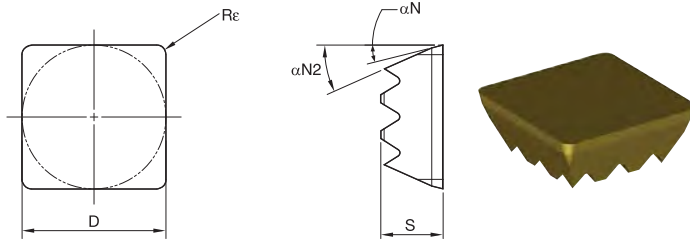


- first choice
- alternate choice

P	●
M	○
K	○
N	○
S	○
H	●

■ RIQ-R04 • Reaming Inserts

ISO catalog number	ANSI catalog number	D		S		Re		αN°	$\alpha N2^\circ$	γ°	KB1610	KT6225
		mm	in	mm	in	mm	in					
RIQ06R0400S	RIQ06R0400S	6,00	.2362	2,60	.1024	0,40	.0160	8	18	0	●	-
RIQ09R0400S	RIQ09R0400S	9,00	.3540	3,15	.1240	0,40	.0160	8	18	0	●	-



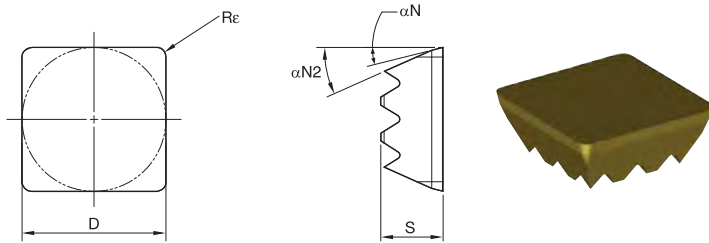
● first choice
○ alternate choice

P	■	■	○
M	■	○	○
K	■	○	○
N	■	○	○
S	■	○	○
H	■	○	○

RIQ-R04-FB • Reaming Inserts • With Chipbreaker • For Blind Holes

ISO catalog number	ANSI catalog number	D		S		Re		αN°	$\alpha N2^\circ$	γ°	KB1610	KT6225
		mm	in	mm	in	mm	in					
RIQ06R0400FB	RIQ06R0400FB	6,00	.2362	2,60	.1024	0,40	.0169	3	18	12	-	●
RIQ09R0400FB	RIQ09R0400FB	9,00	.3543	3,15	.1240	0,40	.0156	3	18	12	-	●

Hole Finishing

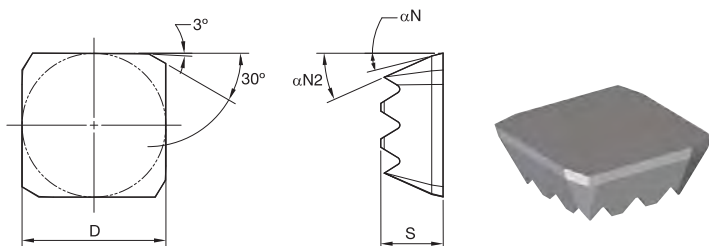


● first choice
○ alternate choice

P	■	○
M	■	○
K	■	○
N	■	○
S	■	○
H	■	○

RIQ-R05 • Reaming Inserts • With Chipbreaker • For Through Holes

ISO catalog number	ANSI catalog number	D		S		Re		αN°	$\alpha N2^\circ$	γ°	KT6315
		mm	in	mm	in	mm	in				
RIQ06R0500FT	RIQ06R0500FT	6,00	.2362	2,60	.1024	0,50	.0197	8	18	0	●
RIQ09R0506FT	RIQ09R0506FT	9,00	.3543	3,15	.1240	0,50	.0197	14	24	6	●



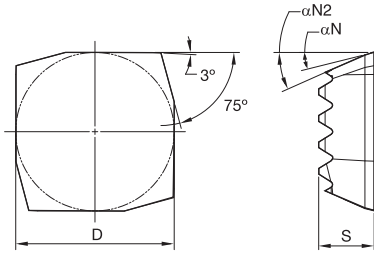
● first choice
○ alternate choice

P	■	○	○
M	■	○	○
K	■	○	○
N	■	○	○
S	■	○	○
H	■	○	○

RIQ-E13 • Reaming Inserts

ISO catalog number	ANSI catalog number	D		S		αN°	$\alpha N2^\circ$	γ°	KC6005	KC6105	KC6305
		mm	in	mm	in						
RIQ06E1300 *	RIQ06E1300 *	6,00	.2362	2,60	.1024	8	18	0	●	●	●
RIQ06E1306 *	RIQ06E1306 *	6,00	.2362	2,60	.1024	14	24	6	●	●	●
RIQ06E1312 *	RIQ06E1312 *	6,00	.2362	2,60	.1024	20	30	12	●	●	●
RIQ09E1300 *	RIQ09E1300 *	9,00	.3543	3,15	.1240	8	18	0	●	●	●
RIQ09E1306 *	RIQ09E1306 *	9,00	.3543	3,15	.1240	14	24	6	●	●	●
RIQ09E1312 *	RIQ09E1312 *	9,00	.3543	3,15	.1240	20	30	12	●	●	●

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.



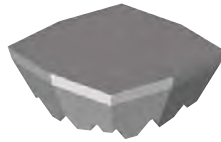
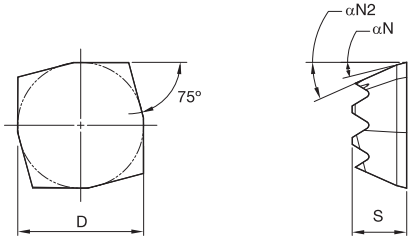
● first choice
○ alternate choice

P	●	●	○	○
M	○	○	○	○
K	●	●	●	○
N	○	○	○	●
S	○	○	○	○
H	○	○	○	○

■ RIQ-EDR • Reaming Inserts

ISO catalog number	ANSI catalog number	D		S		αN°	αN2°	γ°	KC6005	KC6105	KC6305	KD1415
		mm	in	mm	in							
RIQ06EDR00	RIQ06EDR00	6,00	.2362	2,60	.1024	8	18	0	●	-	○	-
RIQ06EDR00 *	RIQ06EDR00 *	6,00	.2362	2,60	.1024	8	18	0	-	●	-	-
RIQ06EDR06 *	RIQ06EDR06 *	6,00	.2362	2,60	.1024	14	24	6	○	-	-	-
RIQ06EDR06	RIQ06EDR06	6,00	.2362	2,60	.1024	14	24	6	-	○	-	-
RIQ06EDR12 *	RIQ06EDR12 *	6,00	.2362	2,60	.1024	20	30	12	○	○	○	-
RIQ09EDR00 *	RIQ09EDR00 *	9,00	.3543	3,15	.1240	8	18	0	●	●	●	-
RIQ09EDR06 *	RIQ09EDR06 *	9,00	.3543	3,15	.1240	14	24	6	●	●	○	-
RIQ09EDR12 *	RIQ09EDR12 *	9,00	.3543	3,15	.1240	20	30	12	●	●	○	-

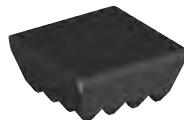
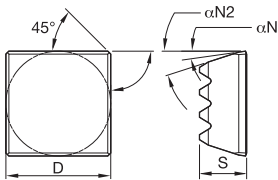
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.



■ RIQ-EGR • Reaming Inserts

ISO catalog number	ANSI catalog number	D		S		αN°	αN2°	γ°	KC6005	KC6105	KC6305	KD1415
		mm	in	mm	in							
RIQ06EGR00	RIQ06EGR00	6,00	.2362	2,60	.1020	8	18	0	○	-	-	-
RIQ06EGR00 *	RIQ06EGR00 *	6,00	.2362	2,60	.1020	8	18	0	-	○	-	-
RIQ06EGR06	RIQ06EGR06	6,00	.2362	2,60	.1020	14	24	6	○	-	-	○
RIQ06EGR06 *	RIQ06EGR06 *	6,00	.2362	2,60	.1020	14	24	6	-	○	-	○
RIQ06EGR12 *	RIQ06EGR12 *	6,00	.2362	2,60	.1020	20	30	12	○	○	○	-
RIQ09EGR00	RIQ09EGR00	9,00	.3543	3,15	.1240	8	18	0	○	-	-	-
RIQ09EGR00 *	RIQ09EGR00 *	9,00	.3543	3,15	.1240	8	18	0	-	○	-	-
RIQ09EGR06 *	RIQ09EGR06 *	9,00	.3543	3,15	.1240	14	24	6	○	○	-	-
RIQ09EGR06	RIQ09EGR06	9,00	.3543	3,15	.1240	14	24	6	-	-	○	-
RIQ09EGR12 *	RIQ09EGR12 *	9,00	.3543	3,15	.1240	20	30	12	○	○	○	-

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.



● first choice
○ alternate choice

P	●	○	○
M	○	○	○
K	●	○	○
N	○	○	○
S	○	○	○
H	○	○	○

■ RIQ-C45 • Valve Seat Finishing

ISO catalog number	ANSI catalog number	D		S		αN°	αN2°	KBHK10	KBHK15
		mm	in	mm	in				
RIQB6C4500S	RIQB6C4500S	6,00	.2362	2,60	.1024	8	18	●	●
RIQB7C4500S	RIQB7C4500S	6,50	.2559	2,60	.1024	8	18	●	●
RIQ07C4500S	RIQ07C4500S	7,00	.2756	3,15	.1240	8	18	●	●
RIQ08C4500S	RIQ08C4500S	8,00	.3150	3,15	.1240	8	18	●	●
RIQ09C4500S	RIQ09C4500S	9,00	.3540	3,15	.1240	8	18	●	●



■ RIR™/RIQ™ • Metric

Hole Finishing

Material Group	Grade	Cutting Speed – vc			Hole Types								
		Range – m/min			Metric								
		min	Starting Value	max	Recommended Feed Rate per Tooth								
					E13	EDS	EDR	EGR	EGU	R0X	C45*		
P	1	KC6005	30	60	100	mm/r	0,10–0,20	–	–	–	–	–	0,20–0,30
	2	KC6005	20	50	90	mm/r	0,10–0,20	–	–	–	–	–	0,20–0,30
	3	KC6005	20	40	80	mm/r	0,05–0,20	–	–	–	–	–	0,20–0,30
		KT6225	120	180	240	mm/r	–	–	–	–	–	0,15–0,20	–
	4	KC6005	15	30	50	mm/r	0,05–0,20	–	–	–	–	–	0,20–0,30
		KC6105	15	30	50	mm/r	0,05–0,20	–	–	–	–	–	–
KT6225		120	180	240	mm/r	–	–	–	–	–	0,15–0,20	–	
6	KT6315	120	180	240	mm/r	–	–	–	–	–	0,15–0,20	–	
M	1	KC6305	10	25	40	mm/r	0,05–0,20	–	–	–	–	–	–
	2	KC6305	10	25	40	mm/r	0,05–0,20	–	–	–	–	–	–
	3	KC6305	10	25	40	mm/r	0,05–0,20	–	–	–	–	–	–
K	1	KC6005	20	70	100	mm/r	0,10–0,20	0,15–0,20	0,15–0,20	0,18–0,20	–	–	0,20–0,30
	2	K6105	20	70	100	mm/r	–	–	–	–	0,20	–	–
		KC6005	20	60	100	mm/r	0,10–0,20	0,15–0,20	0,15–0,20	0,18–0,20	–	–	0,20–0,30
3	K6105	20	60	100	mm/r	–	–	–	–	0,20	–	–	
N	1	KD1415	100	250	600+	mm/r	–	0,10–0,20	0,10–0,20	0,10–0,20	–	–	–
	2	KD1415	100	250	600+	mm/r	–	0,10–0,20	0,10–0,20	0,10–0,20	–	–	–
	3	KD1415	100	250	600+	mm/r	–	0,10–0,20	0,10–0,20	0,10–0,20	–	–	–
	4	KD1415	100	250	600+	mm/r	–	0,10–0,20	0,10–0,20	0,10–0,20	–	–	–
S	1	–	–	–	–	mm/r	Recommendations available on request						
	2	–	–	–	–	mm/r							
	3	–	–	–	–	mm/r							
	4	–	–	–	–	mm/r							
H	1	KB1610	150	180	200	mm/r	–	–	–	–	–	0,05–0,10	–

*For taper reamers vc min 16 SFM (5 m/min), starting vc 33 SFM (10 m/min), max. vc 66 SFM (20 m/min).

■ RIR™/RIQ™ • Inch

Material Group	Grade	Cutting Speed – vc			Hole Types													
		min	Starting Value	max	1					2				3				
					Inch													
					Recommended Feed Rate per Tooth													
												E13	EDS	EDR	EGR	EGU	R0X	C45*
P	1	KC6005	98	197	328	IPR	0.004–0.008	–	–	–	–	–	–	–	–	–	0.008–0.012	
	2	KC6005	66	164	295	IPR	0.004–0.008	–	–	–	–	–	–	–	–	–	0.008–0.012	
	3	KC6005	66	131	262	IPR	0.002–0.008	–	–	–	–	–	–	–	–	–	0.008–0.012	
		KT6225	394	590	787	IPR	–	–	–	–	–	–	–	0.006–0.008	–	–	–	
		KT6315	394	590	787	IPR	–	–	–	–	–	–	–	0.006–0.008	–	–	–	
	4	KC6005	49	98	164	IPR	0.002–0.008	–	–	–	–	–	–	–	–	–	0.008–0.012	
		KC6105	49	98	164	IPR	0.002–0.008	–	–	–	–	–	–	–	–	–	–	
		KT6225	394	590	787	IPR	–	–	–	–	–	–	–	0.006–0.008	–	–	–	
		KT6315	394	590	787	IPR	–	–	–	–	–	–	–	0.006–0.008	–	–	–	
	5	KC6105	33	82	131	IPR	0.002–0.008	–	–	–	–	–	–	–	–	–	–	
	6	KC6105	33	82	131	IPR	0.002–0.008	–	–	–	–	–	–	–	–	–	–	
	M	1	KC6305	33	82	131	IPR	0.002–0.008	–	–	–	–	–	–	–	–	–	–
2		KC6305	33	82	131	IPR	0.002–0.008	–	–	–	–	–	–	–	–	–	–	
3		KC6305	33	82	131	IPR	0.002–0.008	–	–	–	–	–	–	–	–	–	–	
K	1	KC6005	66	230	328	IPR	0.004–0.008	0.006–0.008	0.006–0.008	0.007–0.008	–	–	–	–	–	–	0.008–0.012	
		K6105	66	230	328	IPR	–	–	–	–	0.008	–	–	–	–	–	–	
	2	KC6005	66	197	328	IPR	0.004–0.008	0.006–0.008	0.006–0.008	0.007–0.008	–	–	–	–	–	–	0.008–0.012	
		K6105	66	197	328	IPR	–	–	–	–	0.008	–	–	–	–	–	–	
3	KC6005	66	197	328	IPR	0.004–0.008	0.005–0.008	0.005–0.008	0.006–0.008	0.007–0.008	–	–	–	–	–	0.008–0.012		
N	1	KD1415	328	820	1968+	IPR	–	0.004–0.008	0.004–0.008	0.004–0.008	–	–	–	–	–	–	–	
	2	KD1415	328	820	1968+	IPR	–	0.004–0.008	0.004–0.008	0.004–0.008	–	–	–	–	–	–	–	
	3	KD1415	328	820	1968+	IPR	–	0.004–0.008	0.004–0.008	0.004–0.008	–	–	–	–	–	–	–	
	4	KD1415	328	820	1968+	IPR	–	0.004–0.008	0.004–0.008	0.004–0.008	–	–	–	–	–	–	–	
S	1	–	–	–	–	IPR	Recommendations available on request											
	2	–	–	–	–	IPR												
	3	–	–	–	–	IPR												
	4	–	–	–	–	IPR												
H	1	KB1610	492	590	656	IPR	–	–	–	–	–	–	–	0.002–0.004	–	–		



*For taper reamers vc min 16 SFM (5 m/min), starting vc 33 SFM (10 m/min), max. vc 66 SFM (20 m/min).

Overview of RIR and RIQ insert leads

Alternative insert lead that can be used

Tool designed for below listed lead	Alternative insert lead that can be used											R			
	E06	E13	EDS	EGS	EKS	EGU	EGR	EDR	EKR	ESR	EUR	R02	R04	R06	R08
E06	●	—	—	—	—	—	—	—	—	—	—	●	—	—	—
E13	●	●	—	—	—	—	○	○	○	○	○	●	○	—	—
EDS	●	—	●	●	—	—	●	●	○	—	—	●	○	—	—
EGS	○	—	—	●	—	—	●	—	—	—	—	●	○	—	—
EKS	●	—	—	—	●	—	●	●	●	—	—	●	○	—	—
EGU	○	—	○	○	○	●	●	○	○	○	○	●	○	○	—
EGR	●	—	—	—	—	—	●	—	—	—	—	●	○	—	—
EDR	●	—	—	○	—	—	●	●	●	●	○	●	○	—	—
EKR	●	—	—	○	—	—	●	●	●	●	○	●	○	—	—
ESR	●	—	—	○	—	—	●	●	●	●	○	●	○	—	—
EUR	●	—	—	○	—	—	●	●	●	●	●	●	●	—	—
R02	—	—	—	—	—	—	○	—	—	—	—	●	—	—	—
R04	—	—	—	—	—	—	○	—	—	—	—	●	●	—	—
R06	●	—	—	—	—	—	●	●	●	●	●	●	●	●	—
R08	●	—	—	—	—	—	●	●	●	●	●	●	●	●	●

Insert Lead

Surface finish	●●●	●●●	●●	●	●●	●●	●	●●	●●	●●	●●	●●	●●	●●	●●
Positioning accuracy	—	—	●●	●●●	●●	●●	●●●	●●	●●	●●	●●	●	●	●	●

Legend

●	Alternative Inserts	Delivery condition of tool. Insert lead = tool lead.
●		90% compatible. Later support of guide pads at the bore entrance can happen, if leads are not identical.
○		Under certain circumstances compatible. Refer to a Kennametal expert for further support.
—		Do not use in this tool. Can lead to tool damage.

●●●	Surface/ Positioning	Excellent results
●●		Good results
●		Sufficient results
—		Not given

General advice: To mount an insert, where the lead is not identical to the tool lead, the rake angle and insert size have to be identical.

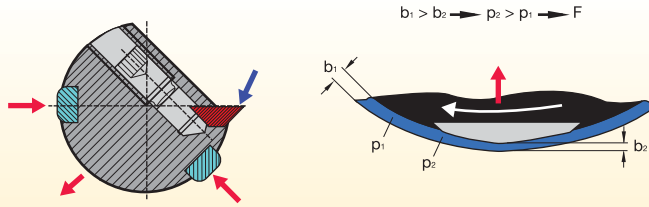
coolant selection		
material type	recommended	alternative
	mineral-oil-based emulsions	semi-synthetic
steel	6%	10%
nickel chrome steel	6%	12%
stainless steel	6%	12%
cast iron	6%	6%
aluminum	6%	12%
zinc alloys	6%	12%
copper	6%	12%
brass	6%	6%

pressure and flow rates					
cut diameter (mm)	cut diameter (in)	flow rate (L/min)	flow rate (gal/min)	pressure (bar)	pressure (psi)
6-12	.25-.468	15-20	55-75	>10	>150
12-16	.468-.625	20-40	75-150	>8	>120
16-20	.625-.781	30-50	115-190	>7	>100
20-32	.781-1.25	40-75	150-285	>5	>75
32-50	1.25-2.0	65-250	245-950	>4	>50
50-100	2.0-4.0	175-350	660-1325	>3	>40

Basic Principle

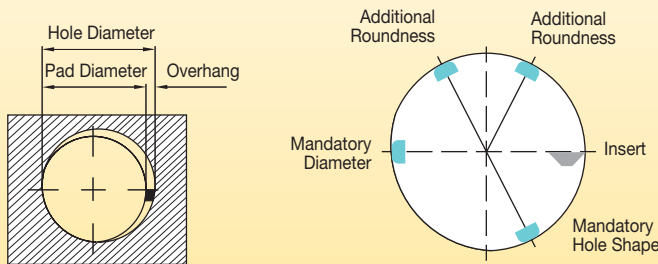
The Kennametal padded reaming tools follow two basic rules. The result, perfectly cylindrical bores with exceptional straightness and superior surface finishes combined with a bore diameter tolerance held to microns:

1. A SINGLE-POINT BORING TOOL SUPPORTED BY BEARING PADS, FLOATING ON A COOLANT FILM.
2. A TOOL MUST DEFLECT ONTO THE PADS, ON ENTERING THE HOLE, IN ORDER TO OBTAIN THE CORRECT SIZE.



Each padded reamer hosts a selection of guide pads that are positioned to resist the cutting forces created during machining. A minimum of two guide pads are necessary guiding the reamer in the predrilled hole.

The lubricant, in the form of coolant, gets between the pad and component surface, resulting in frictionless stability during cutting.



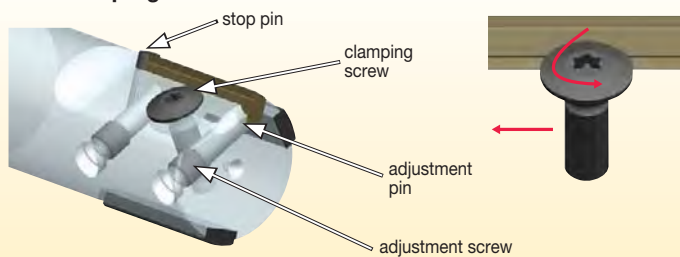
Guide pads are ground slightly smaller than the targeted diameter, this allows for blade/insert wear. Most common is a 10 µm overhang but can vary depending on the material to be cut.

As padded reamers are specifically ground, relative to diameter and tolerance, guide pads are not flexible or adjustable. The pad below the insert ensures hole roundness while the pad opposite the insert defines the bore diameter. Each further pad improves the roundness, straightness, and bridges interruptions within the bore.

These carbide, cermet, PCD, and ceramic guide pads are selected and brazed or bonded to the body depending on coolant availability/type and abrasiveness of the material to be cut. Especially with high L/D ratio tooling (e.g., cam and crank boring bars), bonding of guide pads offers higher precision due to less thermal influence to the steel base body.

	P	M	K	N	S	H	MQL
carbide	●	○	●	●		○	○
cermet	●	○	●			○	●
PCD			○		●		●

RIR Clamping



RIR reaming inserts are clamped by a single screw to avoid weakening of the pocket seat against common clamping wedges. This clamp screw has a left hand thread to move and securely hold the blade against the stop pin. The stop pin ensures correct advancement of cutting insert to guiding pad.

Like other types of padded reamers using rectangular reaming inserts, two adjustment screws and wedges are required to adjust diameter and back taper accurately. Therefore, RIR is the preferred solution for diameters below RIQ range.

RIQ Clamping



There is no need to adjust back taper as this is already predefined by the serrations. Only the overhang of the cutting edge, relative to the guide pads, needs to be adjusted.

The right-hand clamp screw locks the insert securely onto the high-precision serration. The three cutting edges that are not in use are completely protected by the body while not touching them. All four cutting edges of full-face CBN and PCD inserts can be completely used without the danger of accidentally damaging one of them.

Adjustment Pin and Screw



The special form of the clamp screw provides the highest clamping forces enabling less loss of diameter by bedding in effects than known on finger-clamp systems

The proprietary adjustment wedge prevents any unpredictable rotation. This avoids errors during setup that cause tool damages.

RIR Tooling Setup

1 1/2 x LH

2 2-3 x RH

3

4

5

LH

Torque (Nm): see table below.

		Nm	ft. lbs.
RIR 0	M 1.6-LH	0,3	.22
RIR 1	M 2.5-LH	1,2	.89
RIR 2	M 2.5-LH	1,2	.89
RIR 3	M 3.0-LH	2,2	1.62
RIR 4	M 4.5-LH	4,1	3.02

6

A B

A B

RIQ Tooling Setup

1 1/2 x LH

2 2-3 x LH

3

4

RH

Torque (Nm): see table below.

		Nm	ft. lbs.
RIQ 06	M 3.0-RH	1,8	1.32
RIQ 09	M 3.0-RH	2,2	1.62
RIQ 12	M 6.0-RH	6,0	4.42

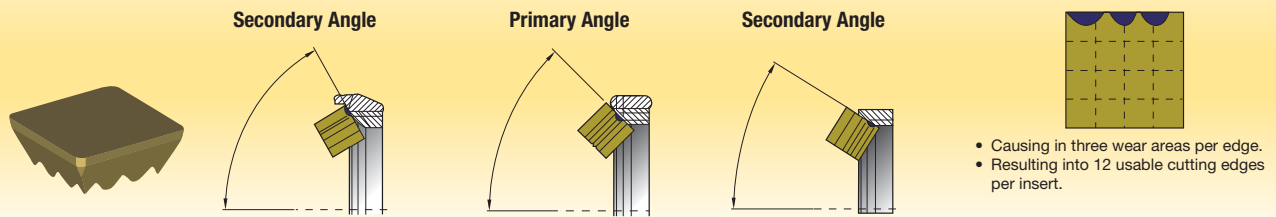
5

A

A

Valve Seat Tools • RIQ™ Quattro Cut™ Based Tooling

RIQ technology enables bypassing any angular adjustment of the insert and provides up to 12 cutting edges.



Valve Seat Tools • Machining Center Solutions

RIQ valve seat tooling with integrated hydraulic chuck to clamp multiflute RMS™ or RIR™ guide pad reamer.

Machining Center • Integrated Hydraulic Chuck

RMS Multiflute Reamer

for regular runout accuracy of valve seat to value guide demands



RIR Guide Pad Reamer

for highest requests regarding valve guide roundness and cylindricity



Machining Center Process • All Angles Formed to Finish Specifications in TWO Passes

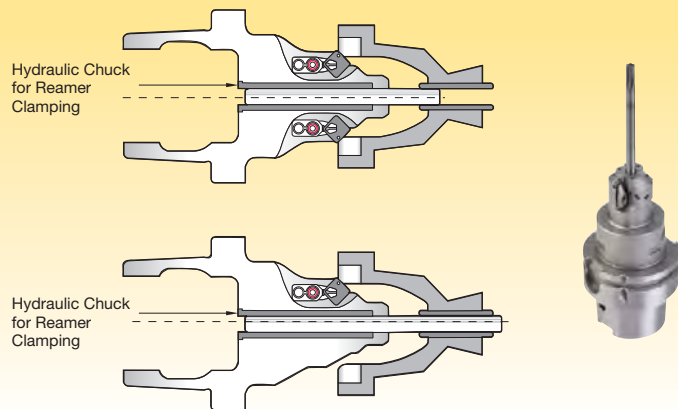
Process A (Preferred)

Tool 1 • Semi-Finish:

- Finish of secondary angles.
- Semi-finish of primary angles.
- Create pilot bore (short version of RMS or RIR reamer).

Tool 2 • Finish:

- Finish of primary angles.
- Finish of guide bore (long version of RMS or RIR reamer).



Process B (Alternate)

Tool 1 • Finish Valve Seat:

- Finish of primary and secondary angles.
- Create pilot bore (short version of RMS or RIR reamer).

Tool 2 • Finish Valve Guide:

- Finish of guide bore (long version of RMS or RIR reamer).

Valve Seat Tools • Transfer Line Solutions

RIQ valve seat tooling with carbide bushing guiding RMS or RIR reamer machining the valve guide on transfer lines.

Transfer Line • Integrated Carbide Bushing

Multiflute Reamer RMS

for regular runout accuracy of valve seat to value guide demands



RIR Guide Pad Reamer

for highest requests regarding valve guide roundness and cylindricity



Transfer Line Process • All Angles Formed to Finish Specifications in TWO Passes/ONE Pass

Process A (Preferred)

Tool 1 • Semi-Finish:

- Semi-finish of secondary angles.
- Semi-finish of primary angles.

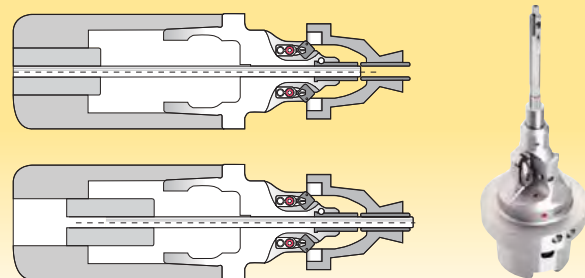
Tool 2 • Finish:

- Finish of primary angles.
- Finish of secondary angles.
- Finish of guide bore with feed out multiflute or guide pad reamer (squirt-through type).

Process B (Alternate)

Tool 1 • Semi-Finish and Finish Combined:

- Finish of primary and secondary seat angles.
- Finish of guide bore with feed out multiflute or guide pad reamer (squirt-through type).



Fine Boring Application Sheet

Feature tolerances, surface finishes, and geometric tolerances have to be content of the workpiece drawing

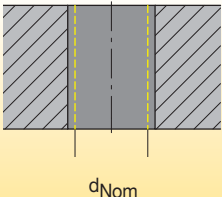
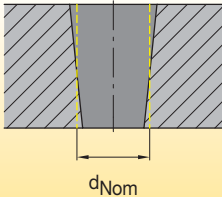
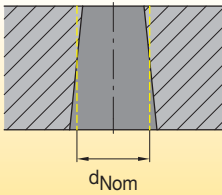
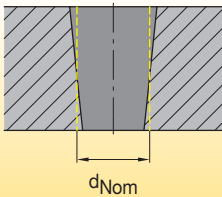
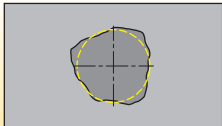

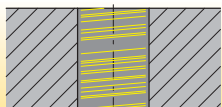
Q-Number:						Date:	
Customer:						Sales eng.:	
Location:						Application eng.:	
Contact person:						Competitors:	
General							
Status:	<input type="checkbox"/> Launch		<input type="checkbox"/> Running progress		<input type="checkbox"/> Process change		
Volume:				Holes/Year	Similar tool:		
Workpiece							
Operation name:							
Diameters/features to be machined	1:	2:	3:	4:	5:	6:	
Tolerance target:	<input type="checkbox"/> Upper third <input type="checkbox"/> Middle third (e.g., if CpK is needed) <input type="checkbox"/> Lower third (e.g., if Go/NoGo Gage)			Interrupted cut: <input type="checkbox"/> Yes <input type="checkbox"/> No Facing included: <input type="checkbox"/> Yes <input type="checkbox"/> No Max lead length: _____			
CpK-value:	<input type="checkbox"/> Yes <input type="checkbox"/> No			Hole type: <input type="checkbox"/> Blind <input type="checkbox"/> Through			
Workpiece material:				Hardness/ strength:			(N/mm ² , HRC,...)
Premachining: <small>(detailed description including stock amounts)</small>							
Machine/Fixture/Hole Gaging							
Machine type:	<input type="checkbox"/> Machining center		<input type="checkbox"/> Transfer line		<input type="checkbox"/> Lathe		<input type="checkbox"/> Special purpose machine
Machine name:							
Tool:	<input type="checkbox"/> Rotating		<input type="checkbox"/> Stationary		Spindle connection:	(HSK80A, DV50, BT40,...)	
Spindle orientation:	<input type="checkbox"/> Horizontal		<input type="checkbox"/> Vertical		Number of spindles:	(for same operation on same machine)	
Workpiece clamping:	<input type="checkbox"/> Rigid		<input type="checkbox"/> Weak		M/C spindle adjustment:	<input type="checkbox"/> Radial runout <input type="checkbox"/> Axial runout <input type="checkbox"/> No	
Setting device available: <small>(only for adjustable tools)</small>	<input type="checkbox"/> Yes:					Description	<input type="checkbox"/> No
Gauging method:	<input type="checkbox"/> Go/NoGo-gage		<input type="checkbox"/> Air or electronic gage		<input type="checkbox"/> Other		
Coolant type	<input type="checkbox"/> Soluble		<input type="checkbox"/> Semi-synthetic		<input type="checkbox"/> Synthetic		<input type="checkbox"/> MQL
Coolant supply:	<input type="checkbox"/> Internal		<input type="checkbox"/> External		<input type="checkbox"/> None		
Coolant pressure:			bar		Coolant concentration:	%	
					Coolant flow:	l/min	
Additional Information: (e.g. interferences, weight or dimensional restrictions, customer reason for change, known issues,...)							

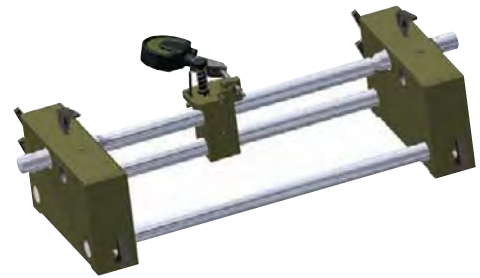
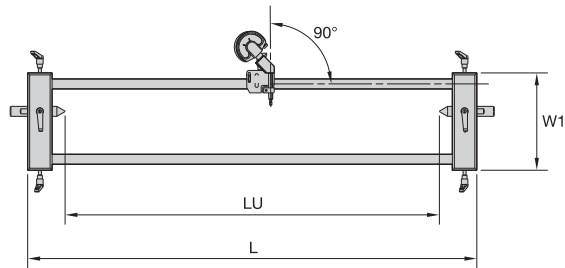
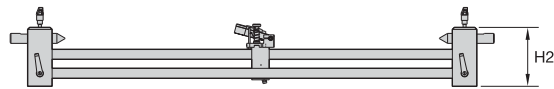
Quotation Processing Only with Workpiece Drawing and Filled Out Form

■ Reaming Allowances for Single Blade Reaming

mm	in	reaming allowance in diameter					
		min	mm middle	max	min	in middle	max
6,00–9,59	.189–.378	0,10	0,15	0,25	.004	.006	.010
9,60–15,00	.378–.591	0,15	0,20	0,30	.006	.008	.012
15,00–20,00	.591–.787	0,15	0,25	0,35	.006	.010	.014
20,00–50,00	.787–1.969	0,20	0,30	0,40	.008	.012	.016

■ Causes of and Remedies for Reaming Problems

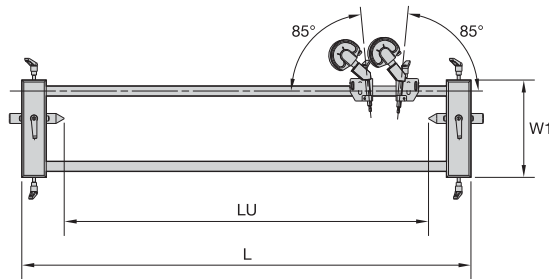
Problem	Cause	Possible Remedy
Drill diameter too large 	<ol style="list-style-type: none"> 1. Reaming tool running out-of-center. 2. Concentricity of pilot hole and ream machining unsatisfactory. 3. Built-up edge. 4. Unsuitable cooling lubricant. 5. Reaming tool \emptyset too large. 	<ul style="list-style-type: none"> • Use SIF™ equalizing adapter. • Re-align, use floating head. • Change cooling lubricant. • Change cutting speed. • Measure reamers and send for repairs.
Drill diameter too small 	<ol style="list-style-type: none"> 1. Reamer worn. 2. Unsuitable cooling lubricant. 3. Reaming allowance too small. 	<ul style="list-style-type: none"> • Replace and refit tool. • Change cooling lubricant. • Increase reaming allowance.
Conical drill profile wider towards drill runout 	<ol style="list-style-type: none"> 1. Concentricity of pilot hole and reaming unsatisfactory. 2. Positioning accuracy of pilot hole to reaming. 	<ul style="list-style-type: none"> • Re-align, use SIF equalizing adapter. • Correct positioning accuracy.
Conical drill profile wider at drill entry point 	<ol style="list-style-type: none"> 1. Concentricity of pilot hole and reaming unsatisfactory. 2. Reaming tool skim cutting with ledger. 	<ul style="list-style-type: none"> • Re-align, use floating head. • Securely clamp reaming tool axially.
Hole out-of-center and/or showing chatter marks 	<ol style="list-style-type: none"> 1. Reaming tool running out-of-center. 2. Slanted cutting surface/asymmetrical cutting. 3. Workpiece twisted. 	<ul style="list-style-type: none"> • Use SIF equalizing adapter. • Flatten surface before drilling or reaming. • Take the direction of impact into account when clamping the workpiece.
Surface quality does not meet specification 	<ol style="list-style-type: none"> 1. Tool cutters worn. 2. Reaming tool running out-of-center. 3. Incorrect technology data (cutting parameters). 4. Inadequate chip evacuation. 	<ul style="list-style-type: none"> • Replace and refit tool. • Use SIF equalizing adapter. • Change cutting parameters in machining range. • Optimize coolant supply; increase coolant pressure and volume.
Feed grooves 	<ol style="list-style-type: none"> 1. Built-up edge. 	<ul style="list-style-type: none"> • Change cooling lubricant. • Change cutting speed.



Setting Fixture • One Gage

Hole Finishing

order number	catalog number	H2		L		LU		W1	
		mm	in	mm	in	mm	in	mm	in
5025599	SF300M1RS	118	4.646	450	17.717	300	11.811	195	7.677
5025670	SF750M1RS	118	4.646	900	35.443	750	29.527	195	7.677



Setting Fixture • Two Gage

order number	catalog number	H2		L		LU		W1	
		mm	in	mm	in	mm	in	mm	in
5025597	SF300M1LA1RA	118	4.646	450	17.717	300	11.811	195	7.677
5025598	SF750M1LA1RA	118	4.646	900	35.443	750	29.527	195	7.677



Left Hand

Right Hand

■ Axial Slide • 90° with Angle Fine Adjustment

order number	catalog number
5025672	SFSLLS
5025671	SFSLRS



SM Screw Sets
for Slides

■ Axial Slides

order number	catalog number
5025683	SFSLSS



Left Hand

Right Hand

■ Axial Slide • 85°

order number	catalog number
5025674	SFSLLA
5025673	SFSLRA



■ Base Plate for Vertical Setup

order number	catalog number
5025680	SFVB



Hole Finishing



SM Clamp Handle

■ Clamp Handle for End Blocks and Axial Slides

order number	catalog number
5025682	SFEBCH



SM End Block

■ End Block Including Screws

order number	catalog number
5025681	SFEBS



■ Contact Pins Set

order number	catalog number
5025686	SFCPS



■ Support Bars (450mm and 900mm)

order number	catalog number
5025684	SFSB450
5025685	SFSB900

Hole Finishing



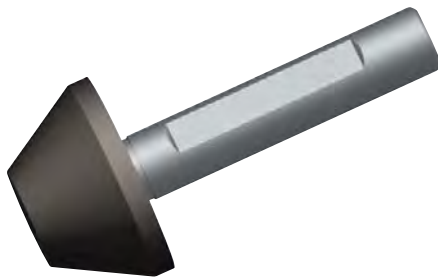
■ Gage Set

order number	catalog number
5025675	SFMGS



■ Spring-Loaded Center Ø 20mm

order number	catalog number
5025679	SFCR20S



■ HSK Center

order number	catalog number
5025677	SFCRHSK3263
5025678	SFCRHSK63100



■ Standard Center Ø 20mm

order number	catalog number
5025676	SFCR20



Hole Finishing

➤ Romicron™ Fine-Boring System

Primary Application

The Romicron tooling portfolio has a diameter range of 4–213mm (.1575–8.3858") and reduces setup time and scrap rates while increasing overall equipment efficiency. This premium fine-boring system can be used in most materials in metalcutting applications by applying the latest Kennametal standard ISO turning inserts. Its closed loop boring (CLB) provides a unique opportunity to automate insert wear compensation with minimal investment due to the precise 2 µm diameter adjustment per increment.

The Romicron system should be used where extremely close tolerances are critical to the overall process or where fast and easy diameter adjustments are needed.



Features and Benefits

Higher Productivity and Profitability

- Reduce scrap rates and setup time with backlash-free adjustment.
- Diameter adjustment can be done inside the machine, avoiding routine insert changes in the setup room.
- Avoid time-consuming control cuts or sister tooling.
- No training or experience needed for use, resulting in less stressful adjustments.

Versatility

- Retrofit existing machines to automated wear compensation using standard CLB pin. No electronic equipment needed, except hole measuring device.
- AVS00B-SVS6B prebalanced heads are preferred solution for diameter 25–139mm (.984–5.472").
- SVUBB1 tooling for high-speed applications 4–16,5mm (.157–.650").
- Broad diameter range of 6–100mm (.236–3.937") using SVUBB2 tooling.
- SVU65 and SVU92 for larger diameters of 71–213mm (2.79–8.386").

100% mechanical system with micron adjustment by hand or fully automated.



Ease of Adjustment

- No tools are needed so adjustment is done on the machine tool. Eliminates need to remove and return boring head to the presetting area, increasing productivity.
- SEE, FEEL, and HEAR the adjustment mechanism for fail-safe size control.






Customization

- Engineered solutions available for multistep or high length-to-diameter tooling.
- Anti-chatter devices and various non-standard machine spindle coupling sizes available.

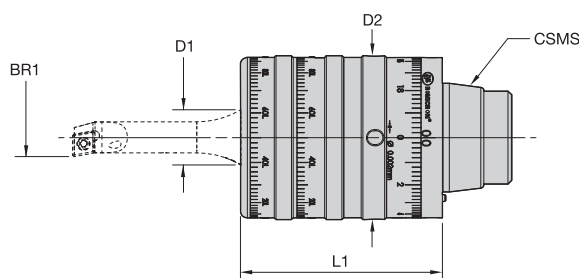


Boring range, coolant capacity, and maximum RPM features for all Romicron boring heads.

	head size	bore range
<ul style="list-style-type: none"> • 25,000 RPM max. • Balanceable. • 1,050 psi coolant capacity. • 1,050 psi/70 bar coolant capacity. • Movable zero reference. 	SVUBB1 .157" 4mm	.650" 16,5mm
<ul style="list-style-type: none"> • 10,000 RPM max. • Balanceable. • 1,050 psi coolant capacity. • 1,050 psi/70 bar coolant capacity. • Movable zero reference. 	SVUBB2 .236" 6mm	1.00" 25,5mm
<hr/>		
<ul style="list-style-type: none"> • 20,000 RPM. • Prebalanced. • 1740 psi/120 bar coolant capacity. 	AVS00B .984" 25mm	1.26" 32mm
<ul style="list-style-type: none"> • 20,000 RPM. • Prebalanced. • 1740 psi/120 bar coolant capacity. 	AVS0B 1.24" 31,5mm	1.67" 42,5mm
<ul style="list-style-type: none"> • 20,000 RPM. • Prebalanced. • 1740 psi/120 bar coolant capacity. 	AVS1B 1.65" 42mm	2.08" 53mm
<ul style="list-style-type: none"> • 20,000 RPM. • Prebalanced. • 1740 psi/120 bar coolant capacity. 	AVS2B 2.04" 52mm	2.59" 66mm
<ul style="list-style-type: none"> • 20,000 RPM. • Prebalanced. • 1740 psi/120 bar coolant capacity. 	AVS3B 2.55" 65mm	3.11" 79mm
<ul style="list-style-type: none"> • 4,500 RPM. • Prebalanced. • 300 psi/20 bar coolant capacity. 	SVS4B 3.07" 78mm	3.85" 98mm
<ul style="list-style-type: none"> • 4,500 RPM. • Prebalanced. • 300 psi/20 bar coolant capacity. 	SVS5B 3.81" 97mm	4.60" 117mm
<ul style="list-style-type: none"> • 3,500 RPM. • Prebalanced. • 300 psi/20 bar coolant capacity. 	SVS6B 4.56" 116mm	5.47" 139mm
<hr/>		
<ul style="list-style-type: none"> • 6,000 RPM. • Balanceable. • 300 psi/20 bar coolant capacity. • Movable zero reference. 	SVU65 2.79" 71mm	4.37" 111mm
<ul style="list-style-type: none"> • 6,000 RPM. • Balanceable. • 300 psi/20 bar coolant capacity. • Movable zero reference. 	SVU92 3.97" 101mm	8.38" 213mm
<ul style="list-style-type: none"> • 6,000 RPM. • Balanceable. • 300 psi/20 bar coolant capacity. • Movable zero reference. 	SVU120 5.47" 139mm	12.83" 326mm

range		order number	catalog number	content	
mm	in				
4,00–16,50	.1575–.6496	4046076	SVUBB1KR32KIT	KR32SVUBB1060M KRBB10FADRS102C KRBB10SCLDRS4060C KRBB10SCFPR06085C KRBB10SCFPR06110C KRBB10SCFPR06135C	
6,00–25,50	.2362–1.0040	4046077	SVUBB2KR32KITD025M	KR32SVUBB2085M KRBB16SCLDRS4060A KRBB16SCFPR06085A KRBB16SCFPR06110A KRBB16SCFPR06135A KRBB16SCFPR06160A KRBB16SCFPR06190A KRBB16SCFPR06220A	
6,00–25,50	.2362–1.0040	4046078	SVUBB2KR50KITD025M	KRBB16SCFPR06220A KR50SVUBB2075M KRBB16SCLDRS4060A KRBB16SCFPR06085A KRBB16SCFPR06110A KRBB16SCFPR06135A KRBB16SCFPR06160A KRBB16SCFPR06190A KRBB16SCFPR06220A	
6,00–100,00	.2362–3.9370	4052608	SVUBB2KR32KITD100M	KR32SVUBB2085M KRBB16SCLDRS4060A KRBB16SCFPR06085A KRBB16SCFPR06110A KRBB16SCFPR06135A KRBB16SCFPR06160A KRBB16SCFPR06190A KRBB16SCFPR06220A	KRDEA046AM KRDE025010M KRDE033010M KRDEA051AM KRDE043010M KRDEA012AM KRDE065012M KRCW032A 
6,00–100,00	.2362–3.9370	4052609	SVUBB2KR50KITD100M	KR50SVUBB2075M KRBB16SCLDRS4060A KRBB16SCFPR06085A KRBB16SCFPR06110A KRBB16SCFPR06135A KRBB16SCFPR06160A KRBB16SCFPR06190A KRBB16SCFPR06220A	KRDEA046AM KRDE025010M KRDE033010M KRDEA051AM KRDE043010M KRDEA012AM KRDE065012M KRCW032A 

- For correct balance ring settings, see page K100–K101.
- Order boring bar separately; see page K78.
- Order taper shank separately; see page K91.

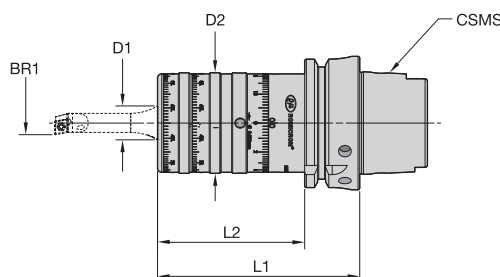


SVU BB1 • KR Back End with CLB Capability

Hole Finishing

order number	catalog number	BR1 bore range		CSMS system size	D1		D2		L1		Torx wrench	hex wrench	kg	lbs
		mm	in		mm	in	mm	in	mm	in				
4054737	KR32SVUBB1060MCLB	4,000-16,500	0.1575-0.6496	KR32	10,0	.39	46,5	1.83	58,6	2.31	KT8	170.000	0,94	2.07

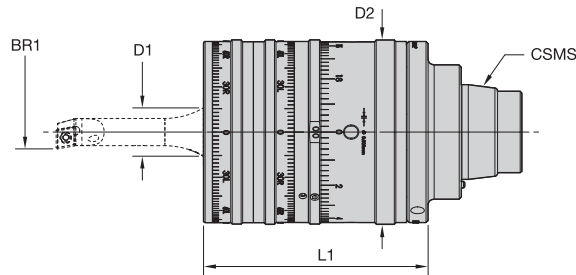
- For correct balance ring settings, see page K100–K101.
- Order boring bar separately; see page K78.



SVU BB1 • HSK Back End with CLB Capability

order number	catalog number	BR1 bore range		CSMS system size	D1		D2		L1		L2		Torx wrench	radial adjusting screw	kg	lbs
		mm	in		mm	in	mm	in	mm	in						
4054734	HSK63ASVUBB1095MCLB	4,000-16,500	0.1575-0.6496	HSK63A	10,0	.39	46,5	1.83	95,5	3.76	69,4	2.73	KT15	191.282	1,45	3.20

- For correct balance ring settings, see page K102–K107.
- Order boring bar separately; see page K79.
- Order taper shank separately; see page K91.

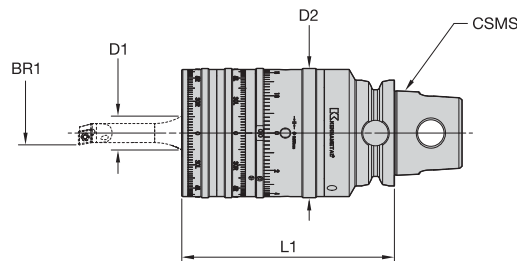


■ **SVU BB2 • KR Back End with CLB Capability**

order number	catalog number	BR1 bore range		CSMS system size	D1		D2		L1		Torx wrench	kg	lbs
		mm	in		mm	in	mm	in	mm	in			
4054738	KR32SVUBB2085MCLB	6,000-25,500	0.2362-1.0039	KR32	16,0	.63	60,0	2.36	85,0	3.35	KT27	1,81	3.99
4054739	KR50SVUBB2075MCLB	6,000-25,500	0.2362-1.0039	KR50	16,0	.63	60,0	2.36	75,0	2.95	KT27	1,61	3.55



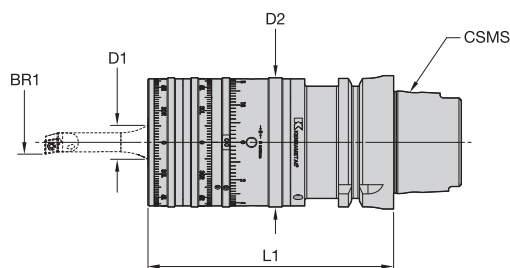
- For correct balance ring settings, see page K102–K107.
- Order boring bar separately; see page K79.



■ **SVU BB2 • KM™ Back End with CLB Capability**

order number	catalog number	BR1 bore range		CSMS system size	D1		D2		L1		Torx wrench	kg	lbs
		mm	in		mm	in	mm	in	mm	in			
4054736	KM50TSSVUBB2100MCLB	6,000-25,500	0.2362-1.0039	KM50TS	16,0	.63	60,0	2.36	100,0	3.94	KT27	1,91	4.21

- For correct balance ring settings, see page K102–K107.
- Order boring bar separately; see page K79.

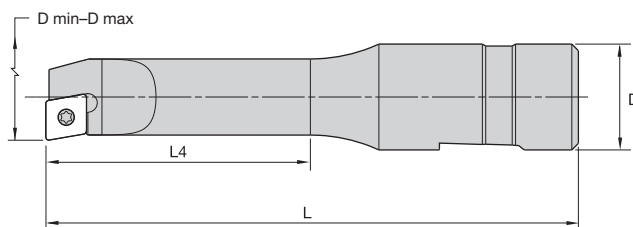
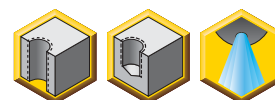


SVU BB2 • HSK Back End with CLB Capability

Hole Finishing

order number	catalog number	BR1 bore range		CSMS system size	D1		D2		L1		Torx wrench	kg	lbs
		mm	in		mm	in	mm	in					
4054735	HSK63ASVUBB2116MCLB	6,000-25,500	0.2362-1.0039	HSK63A	16,0	.63	60,0	2.36	116,0	4.57	KT27	2,52	5.56
4054733	HSK100ASVUBB2124MCLB	6,000-25,500	0.2362-1.0039	HSK100A	16,0	.63	60,0	2.36	124,4	4.90	KT27	4,21	9.28

- Order inserts separately.

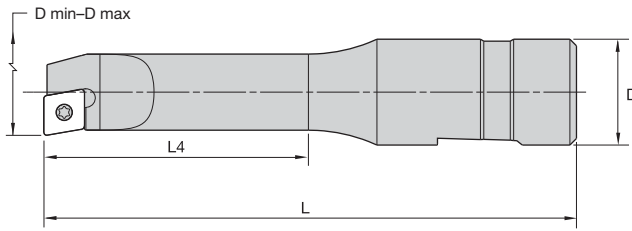
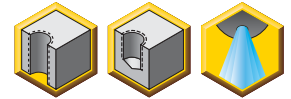


SVU BB1 • Universal Boring Bars

order number	catalog number	D min		D max		D		L		L4		gage insert	insert screw	Torx wrench	kg	lbs
		mm	in	mm	in	mm	in	mm	in	mm	in					
2202438	KRBB10FABDRS204C	4,00	.158	7,00	.276	10	.394	57	2.23	14	.56	—	—	—	0,05	.11
2202439	KRBB10SCLDR4060C	6,00	.236	9,00	.354	10	.394	53	2.09	22	.85	CD..S4T004	MS1454	FT5	0,05	.11
2202440	KRBB10SCFPR06085C	8,50	.335	11,50	.453	10	.394	58	2.28	31	1.20	CP..060204	MS2005	FT7	0,08	.17
2202450	KRBB10SCFPR06110C	11,00	.433	14,00	.551	10	.394	60	2.36	33	1.28	CP..060204	MS2005	FT7	0,08	.18
2202451	KRBB10SCFPR06135C	13,50	.532	16,50	.650	10	.394	65	2.56	39	1.52	CP..060204	MS1153	FT7	0,09	.20

NOTE: Carbide shank and customized boring bars are available upon request to meet your specific requirements. Please contact Kennametal for a design and quotation.

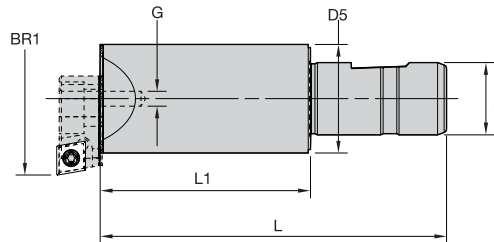
• Order inserts separately.



■ SVU BB2 • Universal Boring Bars

order number	catalog number	D min		D max		D		L		L4		gage insert	insert screw	Torx wrench	kg	lbs
		mm	in	mm	in	mm	in	mm	in	mm	in					
1522063	KRBB16SCFPR06085A	8,50	.335	12,00	.472	16	.630	68	2.70	26	1.04	CP..060204	MS1153	FT7	0,06	.14
1522062	KRBB16SCLDRS406A	6,00	.236	9,50	.374	16	.630	62	2.44	20	.80	CD..S4T004	MS1454	FT6	0,06	.13
1522064	KRBB16SCFPR0611A	11,00	.433	14,50	.571	16	.630	78	3.09	36	1.42	CP..060204	MS1153	FT7	0,08	.17
1522068	KRBB16SCFPR06135A	13,50	.532	17,00	.669	16	.630	80	3.17	40	1.57	CP..060204	MS1153	FT7	0,09	.20
1522069	KRBB16SCFPR0616A	16,00	.630	19,50	.768	16	.630	90	3.54	55	2.17	CP..060204	MS1153	FT7	0,11	.25
1522070	KRBB16SCFPR0619A	19,00	.748	22,50	.886	16	.630	90	3.54	60	2.36	CP..060204	MS1153	FT7	0,12	.27
1522071	KRBB16SCFPR0622A	22,00	.866	25,50	1.004	16	.630	90	3.54	60	2.36	CP..060204	MS1153	FT7	0,15	.32

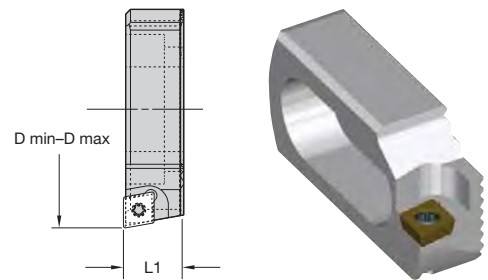
NOTE: Carbide shank and customized boring bars are available upon request to meet your specific requirements. Please contact Kennametal for a design and quotation.



■ SVU BB2 • Universal Adapters

order number	catalog number	BR1 bore range		D		D5		G	L		L1		kg	lbs
		mm	in	mm	in	mm	in		mm	in	mm	in		
2541200	KRDEA046AM	25,500-43,500	1.0039-1.7126	16	.63	24,0	.94	M4X0.70	76,4	3.01	46,4	1.83	0,2	.50
2541201	KRDEA051AM	43,000-65,000	1.6929-2.5591	16	.63	25,0	.98	M6X1.00	81,7	3.22	51,7	2.04	0,2	.52
2541202	KRDEA012AM	65,000-100,000	2.5591-3.9371	16	.63	63,5	2.50	M8X1.25	42,5	1.67	12,5	.49	0,2	.42

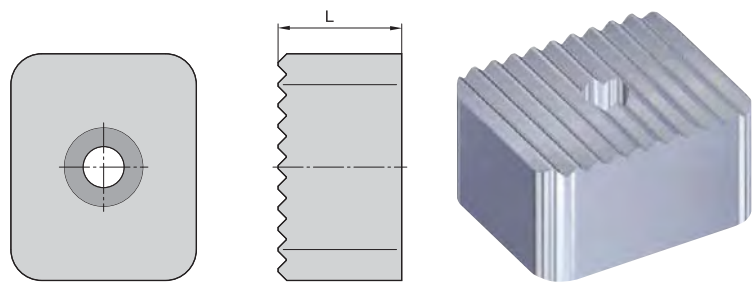
- Order inserts separately.



■ SVU BB2 • Universal Diameter Extenders

Hole Finishing

order number	catalog number	D min		D max		L1		gage insert	insert screw	Torx wrench	kg	lbs
		mm	in	mm	in	mm	in					
2541213	KRDE025010M	25,50	1.004	33,50	1.319	10,0	.39	CP..0602../CP..215...	MS1153	FT7	0,02	.04
2541214	KRDE033010M	33,50	1.319	43,50	1.713	10,0	.39	CP..0602../CP..215...	MS1153	FT7	0,02	.05
2541215	KRDE043010M	43,00	1.693	65,00	2.559	10,0	.39	CP..0602../CP..215...	MS1153	FT7	0,03	.07
2541216	KRDE065012M	65,00	2.559	100,00	3.937	12,0	.47	CP..0602../CP..215...	MS1153	FT7	0,05	.10



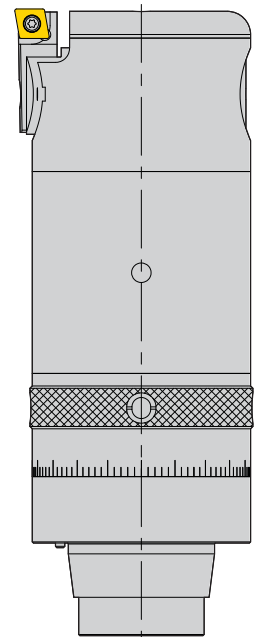
■ SVU BB2 • Counterweight

order number	catalog number	L		kg	lbs
		mm	in		
2541217	KRCW032A	12,0	.47	0,04	.08

NOTE: Counterweight must be used with KRDEA012M adapter and KRDEA065012M extender.

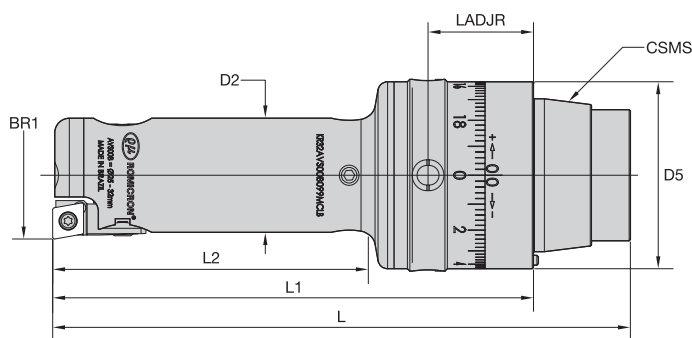
■ AVS and SVS Systems • Tooling Tree

cartridge range	cartridge size	bore range	head size
.984–1.083" (25–27,5mm)	1Y	.984–1.260" (25–32mm)	AVS00B
1.073–1.171" (27,25–29,75mm)	2Y		
1.161–1.260" (29,5–32mm)	3Y		
1.240–1.398" (31,5–35,5mm)	1X	1.240–1.673" (31,5–42,5mm)	AVS0B
1.378–1.535" (35–39mm)	2X		
1.516–1.673" (38,5–42,5mm)	3X		
1.654–1.811" (42–46mm)	1X	1.654–2.087" (42–53mm)	AVS1B
1.791–1.949" (45,5–49,5mm)	2X		
1.929–2.087" (49–53mm)	3X		
2.047–2.244" (52–57mm)	1W	2.047–2.598" (52–66mm)	AVS2B
2.224–2.421" (56,5–61,5mm)	2W		
2.402–2.598" (61–66mm)	3W		
2.559–2.756" (65–70mm)	1W	2.559–3.110" (65–79mm)	AVS3B
2.736–2.933" (69,5–74,5mm)	2W		
2.913–3.110" (74–79mm)	3W		



Hole Finishing

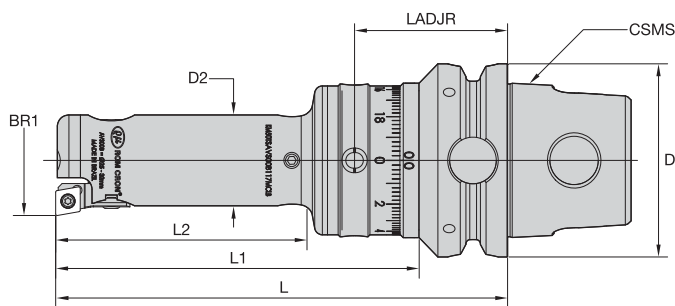
- Order cartridges separately.
- Order taper shank separately.



AVS • KR Back End with CLB Capability

order number	catalog number	BR1 bore range		CSMS system size	D2		D5		L		L1		L2		LADJR		kg	lbs
		mm	in		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in		
5124812	KR32AVS00B099MCLB	25,000-32,000	0.9840-1.2600	KR32	23,5	.93	39,5	1.56	119,0	4.68	99,0	3.90	64,0	2.50	21,7	.86	0,6	1.20
5124814	KR32AVS0B116MCLB	31,500-42,500	1.2400-1.6730	KR32	30,0	1.18	39,5	1.55	136,0	5.36	116,0	4.57	85,0	3.35	21,7	.86	0,8	1.81
5124816	KR32AVS1B100MCLB	42,000-53,000	1.6530-2.0860	KR32	38,5	1.52	39,5	1.55	120,0	4.73	100,0	3.94	100,0	3.94	21,7	.85	1,0	2.13
5124818	KR32AVS2B115MCLB	52,000-66,000	2.0470-2.5980	KR32	47,0	1.85	48,0	1.89	135,0	5.32	115,0	4.53	115,0	4.53	29,2	1.15	1,5	3.27
5124820	KR32AVS3B115MCLB	65,000-79,000	2.5590-3.1100	KR32	47,0	1.85	48,0	1.89	135,0	5.32	115,0	4.53	115,0	4.53	29,2	1.15	1,5	3.36

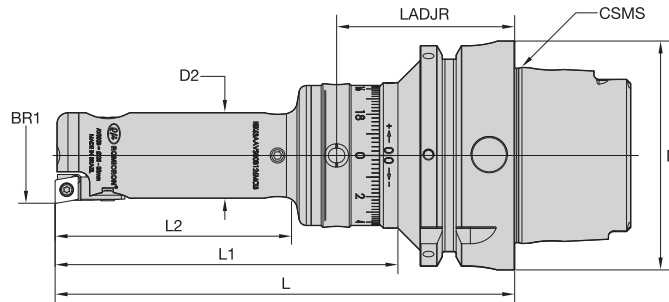
- Order cartridges separately.



AVS • KM™ Back End with CLB Capability

order number	catalog number	BR1 bore range		CSMS system size	D		D2		L		L1		L2		LADJR		kg	lbs
		mm	in		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in		
5124801	KM40TSAVS00B111MCLB	25,000-32,000	0.9840-1.2600	KM40TS	40,000	1.5730	23,5	.93	136,0	5.36	111,0	4.38	63,5	2.50	34,0	1.34	0,6	1.36
5124802	KM40TSAVS0B128MCLB	31,500-42,500	1.2400-1.6730	KM40TS	40,000	1.5730	30,0	1.18	153,0	6.04	128,0	5.06	—	—	34,0	1.34	0,8	1.82
5124803	KM40TSAVS1B112MCLB	42,000-53,000	1.6530-2.0860	KM40TS	40,000	1.5730	38,5	1.52	137,0	5.40	112,0	4.42	112,0	4.42	34,0	1.34	1,0	2.18
5124804	KM40TSAVS2B127MCLB	52,000-66,000	2.0470-2.5980	KM40TS	40,000	1.5730	47,0	1.85	152,0	6.00	127,0	5.01	127,0	5.01	41,3	1.63	1,6	3.41
5124805	KM50TSAVS00B117MCLB	25,000-32,000	0.9840-1.2600	KM50TS	50,000	1.9670	23,5	.93	149,0	5.86	117,0	4.60	63,5	2.50	39,7	1.56	0,8	1.79
5124807	KM50TSAVS0B134MCLB	31,500-42,500	1.2400-1.6730	KM50TS	50,000	1.9670	30,0	1.18	166,0	6.53	134,0	5.27	83,0	3.27	39,7	1.56	1,0	2.25
5124808	KM50TSAVS1B118MCLB	42,000-53,000	1.6530-2.0860	KM50TS	50,000	1.9670	38,5	1.52	150,0	5.90	118,0	4.65	—	—	39,6	1.56	1,2	2.57
5124809	KM50TSAVS2B128MCLB	52,000-66,000	2.0470-2.5980	KM50TS	50,000	1.9670	47,0	1.85	160,0	6.31	128,0	5.05	128,0	5.05	42,3	1.67	1,7	3.67
5124810	KM50TSAVS3B128MCLB	65,000-79,000	2.5590-3.1100	KM50TS	50,000	1.9670	47,0	1.85	160,0	6.31	128,0	5.05	128,0	5.05	42,3	1.67	1,7	3.82
5124811	KM63TSAVS3B130MCLB	65,000-79,000	2.5590-3.1100	KM63TS	63,000	2.4780	47,0	1.85	170,0	6.70	130,0	5.13	130,0	5.13	44,3	1.74	2,0	4.46

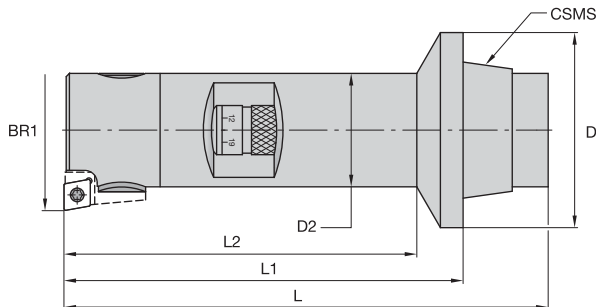
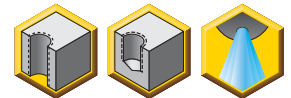
- Order cartridges separately.



■ AVS • HSK Back End with CLB Capability

order number	catalog number	BR1 bore range		CSMS system size	D		D2		L		L1		L2		LADJR		kg	lbs
		mm	in		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in		
5124576	HSK63AAVS00B126MCLB	25.000-32.000	0.9840-1.2600	HSK63A	63,000	.2478	23,5	.93	158,0	6.23	126,0	4.97	63,5	2.50	49,0	1.93	1,22.71	
5124577	HSK63AAVS0B143MCLB	31.500-42.500	1.2400-1.6730	HSK63A	63,000	.2478	30,0	1.18	175,0	6.89	143,0	5.64	83,0	3.27	49,0	1.93	1,43.17	
5124578	HSK63AAVS1B127MCLB	42.000-53.000	1.6530-2.0860	HSK63A	63,000	.2478	38,5	1.52	159,0	6.27	127,0	5.02	95,0	3.75	49,0	1.93	1,63.53	
5124579	HSK63AAVS2B139MCLB	52.000-66.000	2.0400-2.5900	HSK63A	63,000	.2478	47,0	1.85	171,0	6.75	139,0	5.47	109,0	4.31	53,5	2.11	2,24.73	
5124800	HSK63AAVS3B139MCLB	65.000-79.000	2.5500-3.1100	HSK63A	63,000	.2478	47,0	1.85	171,0	6.75	139,0	5.47	109,0	4.30	53,5	2.11	2,24.85	

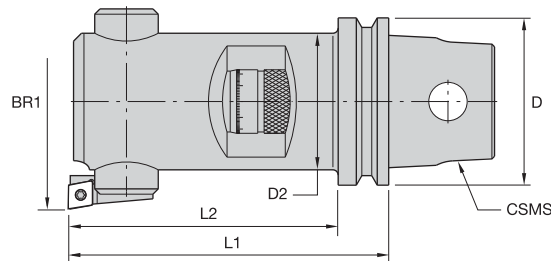
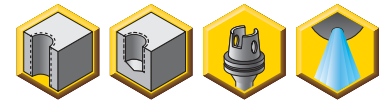
- Order cartridges separately; see page K86.
- Order taper shank separately; see page K91.



■ SVS • KR Back End

order number	catalog number	BR1 bore range		CSMS system size	D2		L		L1		kg	lbs
		mm	in		mm	in	mm	in	mm	in		
1192281	KR50SVS4B094M	78,000-98,000	3.0709-3.8583	KR50	65,0	2.56	119,0	4.69	94,0	3.70	2,4	5.21
1279787	KR50SVS5B094M	97,000-117,000	3.8189-4.6063	KR50	65,0	2.56	119,0	4.69	94,0	3.70	3,0	6.49
1279793	KR63SVS6B126M	116,000-139,000	4.5669-5.4724	KR63	85,0	3.35	162,0	6.38	126,0	4.96	5,7	12.63

- Order cartridges separately; see page K86.

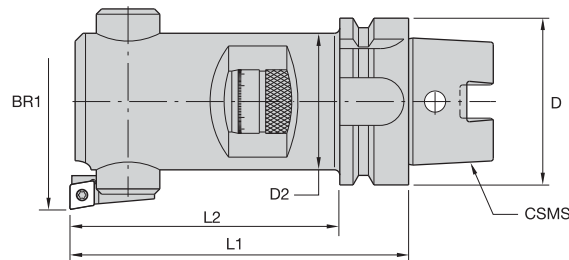
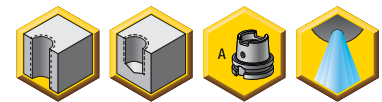


SVS • KM™ Back End

Hole Finishing

order number	catalog number	BR1 bore range		CSMS system size	D		D2		L1		L2		kg	lbs
		mm	in		mm	in	mm	in	mm	in	mm	in		
1763375	KM50SVS4B125M	78,000-98,000	3.0710-3.8580	KM50	50,000	1.9685	65,0	2.56	125,0	4.92	110,0	4.33	2,2	4.90
1763378	KM50SVS5B125M	97,000-117,000	3.8190-4.6060	KM50	50,000	1.9685	65,0	2.56	125,0	4.92	110,0	4.33	3,2	7.10
1763376	KM63SVS4B110M	78,000-98,000	3.0710-3.8580	KM63	63,000	2.4803	65,0	2.56	110,0	4.33	92,0	3.62	2,4	5.30
1763379	KM63SVS5B110M	97,000-117,000	3.8190-4.6060	KM63	63,000	2.4803	65,0	2.56	110,0	4.33	92,0	3.62	3,2	7.10
1763382	KM80SVS6B150M	116,000-139,000	4.5670-5.4720	KM80	80,000	3.1496	85,0	3.35	150,0	5.91	128,0	5.04	7,8	17.20

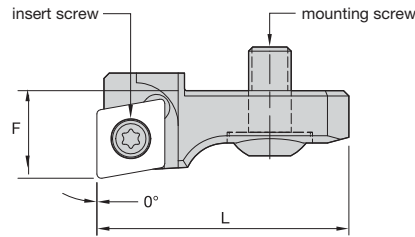
- Order cartridges separately.



SVS • HSK Back End

order number	catalog number	BR1 bore range		CSMS system size	D		D2		L1		L2		kg	lbs
		mm	in		mm	in	mm	in	mm	in				
1763116	HSK63ASVS4B139M	78,000-98,000	3.0710-3.8580	HSK63A	63,000	2.4803	65,0	2.56	139,0	5.47	113,0	4.45	3,6	8.00
1763118	HSK63ASVS5B139M	97,000-117,000	3.8190-4.6060	HSK63A	63,000	2.4803	65,0	2.56	139,0	5.47	113,0	4.45	5,9	13.00

- Order inserts separately.



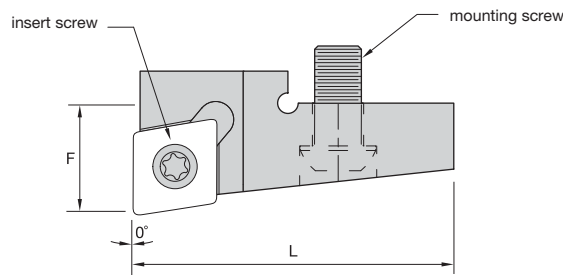
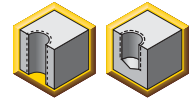
■ AVS • Cartridges SCF

order number	catalog number	L		F		gage insert	reference head	cartridge size	mounting screw	Torx wrench	insert screw	Torx wrench	kg	lbs
		mm	in	mm	in									
5124822	KRCSCFPR061Y	19,20	.76	4,76	.19	CP..0602../CP..215...	AVS00B	1Y	MS2006	FT8	MS2005	FT7	0,00	.010
5124823	KRCSCFPR062Y	19,20	.76	5,88	.23	CP..0602../CP..215...	AVS00B	2Y	MS2006	FT8	MS2005	FT7	0,00	.010
5124824	KRCSCFPR063Y	19,20	.76	7,01	.28	CP..0602../CP..215...	AVS00B	3Y	MS2006	FT8	MS2005	FT7	0,00	.010
5124825	KRCSCFPR061X	23,75	.94	6,46	.25	CP..0602../CP..215...	AVS1B,AVS0B	1X	MS-1896	FT15	MS1153	FT7	0,01	.020
5124826	KRCSCFPR062X	23,60	.93	8,21	.32	CP..0602../CP..215...	AVS1B,AVS0B	2X	MS-1896	FT15	MS1153	FT7	0,01	.020
5124827	KRCSCFPR063X	23,60	.93	9,96	.39	CP..0602../CP..215...	AVS1B,AVS0B	3X	MS-1896	FT15	MS1153	FT7	0,01	.020
5124828	KRCSCFPR061W	26,60	1.05	6,45	.25	CP..0602../CP..215...	AVS3B1,AVS2B1	1W	MS-1896	FT15	MS1153	FT7	0,01	.030
5124829	KRCSCFPR062W	26,75	1.05	8,70	.34	CP..0602../CP..215...	AVS2B1,AVS3B1	2W	MS-1896	FT15	MS1153	FT7	0,01	.030
5124850	KRCSCFPR063W	26,60	1.05	10,95	.43	CP..0602../CP..215...	AVS3B1,AVS2B1	3W	MS-1896	FT15	MS1153	FT7	0,01	.020



Hole Finishing

- Order inserts separately.

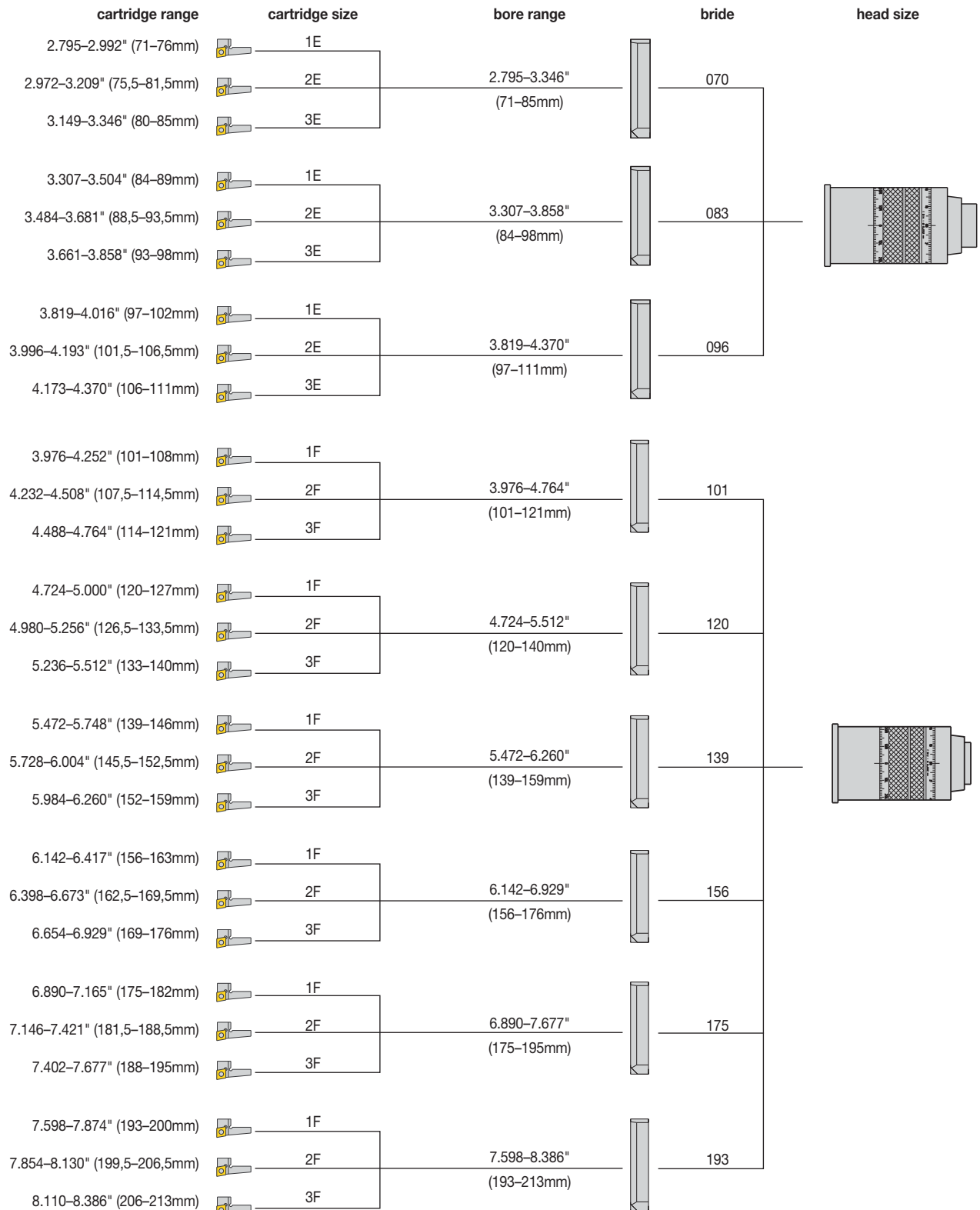


SVS • Cartridges SCF

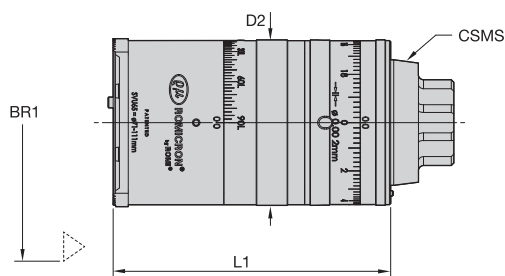
Hole Finishing

order number	catalog number	L		F		gage insert	reference head	cartridge size	kg	lbs
		mm	in	mm	in					
1501356	KRCSCFPR061L	19,15	.75	4,76	.19	CP..0602../CP..215...	AVS00B	1L.	0,01	.02
1500650	KRCSCFPR062L	19,15	.75	5,89	.23	CP..0602../CP..215...	KRMSVS00M50049M,AVS00B	2L.	0,01	.02
1501357	KRCSCFPR063L	19,15	.75	7,01	.28	CP..0602../CP..215...	AVS00B	3L.	0,01	.03
1099162	KRCSCFPR061A	23,65	.93	6,45	.25	CP..0602../CP..215...	AVS0B,AVS1B,AVS1B	1A.	0,01	.02
1099163	KRCSCFPR062A	23,70	.93	8,20	.32	CP..0602../CP..215...	AVS0B,AVS1B,AVS1B	2A.	0,01	.02
1099164	KRCSCFPR063A	23,70	.93	9,95	.39	CP..0602../CP..215...	AVS0B,AVS1B,AVS1B	3A.	0,01	.03
1099166	KRCSCFPR062B	24,65	.97	8,70	.34	CP..0602../CP..215...	SVS3B,SVS2B	2B.	0,01	.03
1099167	KRCSCFPR063B	24,65	.97	10,95	.43	CP..0602../CP..215...	SVS3B,SVS2B	3B.	0,02	.04
1099165	KRCSCFPR061B	24,70	.97	6,45	.25	CP..0602../CP..215...	SVS3B,SVS2B	1B.	0,01	.02
1099168	KRCSCFPR061C	30,70	1.21	8,45	.33	CP..0602../CP..215...	SVS5B,SVS4B	1C.	0,02	.05
1099169	KRCSCFPR062C	30,70	1.21	11,70	.46	CP..0602../CP..215...	SVS5B,SVS4B	2C.	0,03	.06
1099170	KRCSCFPR063C	30,70	1.21	14,95	.59	CP..0602../CP..215...	SVS5B,SVS4B	3C.	0,04	.08
1099171	KRCSCFPR061D	38,70	1.52	8,45	.33	CP..0602../CP..215...	SVS8B,SVS7B,SVS6B	1D.	0,03	.07
1099172	KRCSCFPR062D	38,70	1.52	12,20	.48	CP..0602../CP..215...	SVS8B,SVS7B,SVS6B	2D.	0,05	.10
1099173	KRCSCFPR063D	38,70	1.52	15,95	.63	CP..0602../CP..215...	SVS8B,SVS7B,SVS6B	3D.	0,06	.13

■ **SVU System • Tooling Tree**



- For correct balance ring settings, see page K108–K109.
- Order diameter extenders, cartridges, and taper shanks separately.

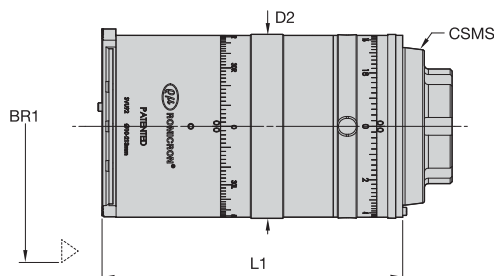


SVU65 • KR Boring Head with CLB Capability

Hole Finishing

order number	catalog number	BR1 bore range		CSMS system size	D2		L1		Torx wrench	kg	lbs
		mm	in		mm	in	mm	in			
1582600	KR50SVU65110MCLB	71,000-111,000	2.7950-4.3700	KR50	65,0	2.56	110,0	4.33	KT27	2,8	6.20

- For correct balance ring settings, see page K110–K114.
- Order diameter extenders, cartridges, and taper shanks separately.



SVU92 • KR Boring Head with CLB Capability

order number	catalog number	BR1 bore range		CSMS system size	D2		L1		Torx wrench	kg	lbs
		mm	in		mm	in	mm	in			
4054740	KR80SVU92152MCLB	101,000-213,000	3.9764-8.3858	KR80	92,0	3.62	152,0	5.98	KT27	7,5	16.54

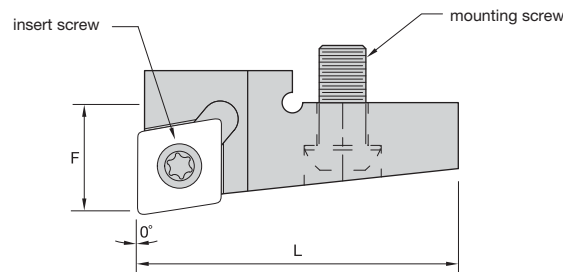


■ SVU • Diameter Extenders

order number	catalog number	BR1 bore range		L1 assy		kg	lbs
		mm	in	mm	in		
1279736	KRDE070019M	70,000-85,000	2.7559-3.3465	19,2	.76	0,2	.48
1279739	KRDE083019M	83,000-98,000	3.2677-3.8583	19,2	.76	0,3	.62
1279740	KRDE096019M	96,000-111,000	3.7795-4.3701	19,2	.76	0,3	.76
1279741	KRDE101023M	101,000-121,000	3.9764-4.7638	23,2	.91	0,6	1.25
1279742	KRDE120023M	120,000-140,000	4.7244-5.5118	23,2	.91	0,7	1.54
1279743	KRDE139026M	139,000-159,000	5.4724-6.2598	26,2	1.03	1,0	2.15
1279745	KRDE156026M	156,000-176,000	6.1417-6.9291	26,2	1.03	1,1	2.51
1279746	KRDE175026M	175,000-195,000	3.8898-7.6772	26,2	1.03	1,3	2.83
1279748	KRDE193026M	193,000-213,000	7.5984-8.3858	26,2	1.03	1,4	3.14

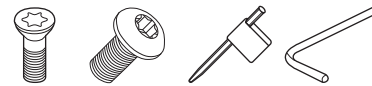


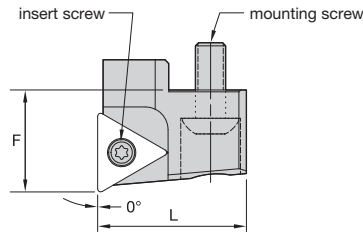
- Order inserts separately.



■ SVU • Cartridges SCF

order number	catalog number	reference head	F		L		gage insert	insert screw	mounting screw	insert Torx wrench	Torx wrench	cartridge size	kg	lbs
			mm	in	mm	in								
1099174	KRCSCFPR061E	SVU65	6,75	.27	19,70	.78	CP..0602../CP..215...	MS1375	MS1153	FT7	KT15	1E.	0,01	.02
1099175	KRCSCFPR062E	SVU65	9,00	.35	19,70	.78	CP..0602../CP..215...	MS1375	MS1153	FT7	KT15	2E.	0,01	.02
1099176	KRCSCFPR063E	SVU65	11,25	.44	19,70	.78	CP..0602../CP..215...	MS1375	MS1153	FT7	KT15	3E.	0,01	.03
1099177	KRCSCFPR061F	SVU92	6,75	.27	19,70	.78	CP..0602../CP..215...	MS1375	MS1153	FT7	KT15	1F.	0,01	.02
1099178	KRCSCFPR062F	SVU92	10,00	.39	19,70	.78	CP..0602../CP..215...	MS1375	MS1153	FT7	KT15	2F.	0,01	.03
1099179	KRCSCFPR063F	SVU92	13,25	.52	19,70	.78	CP..0602../CP..215...	MS1375	MS1153	FT7	KT15	3F.	0,02	.03





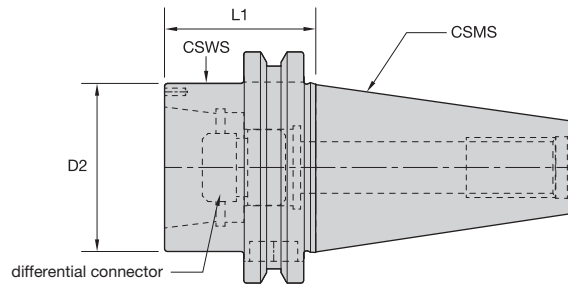
■ SVU92 • Cartridges STF 0° Lead Angle

order number	catalog number	reference head	F		L		gage insert	insert screw	mounting screw	insert Torx wrench	Torx wrench	kg	lbs
			mm	in	mm	in							
1279732	KRCSTFPR113F	SVU92	13,25	.52	19,70	.78	TP..1102../TP..215...	MS1375	MS1153	FT7	KT15	0,02	.03



Hole Finishing

- Differential connector included.



CV to KR Adapters AD/B

order number	catalog number	CSMS system size	CSWS system size	D2		L1		differential connector	kg	lbs	reference head
				mm	in	mm	in				
3554366	CV40BKR32157	CV40	KR32	47	1.85	40	1.58	KRDCKR32M	1,08	2.40	AVS00B,0B,1B,2B,3B,SVUBB1,BB2
3554367	CV40BKR50236	CV40	KR50	65	2.56	60	2.37	KRDCKR50M	1,23	2.70	SVS4B,5B,SVU65,SVUBB2
3554368	CV50BKR32157	CV50	KR32	50	1.97	40	1.57	KRDCKR32M	3,25	7.20	AVS00B,0B,1B,2B,3B,SVUBB1,BB2
3554369	CV50BKR50157	CV50	KR50	65	2.56	40	1.57	KRDCKR50M	3,05	6.70	SVS4B,5B,SVU65,SVUBB2
3554370	CV50BKR63236	CV50	KR63	85	3.35	60	2.36	KRDCKR63M	3,50	7.70	SVS6B,7B,8B
3554371	CV50BKR80275	CV50	KR80	95	3.74	70	2.75	KRDCKR80M	4,28	9.40	SVU92,120

Hole Finishing

DV to KR DIN 69871 AD/B

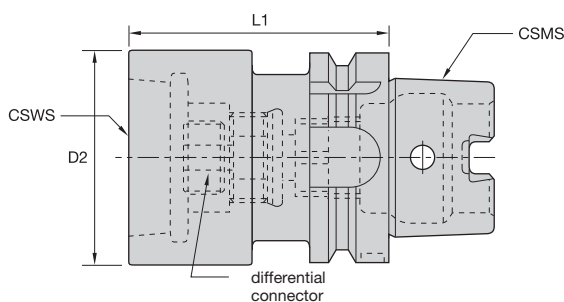
order number	catalog number	CSMS system size	CSWS system size	D2		L1		differential connector	kg	lbs	reference head
				mm	in	mm	in				
1539005	DV40BKR32041M	DV40	KR32	44	1.75	41	1.61	KRDCKR32M	1,00	2.20	AVS00B,0B,1B,2B,3B,SVUBB1,BB2
1263816	DV40BKR50060M	DV40	KR50	65	2.56	60	2.36	KRDCKR50M	1,40	3.08	SVS4B,5B,SVU65,SVUBB2
1528328	DV50BKR32041M	DV50	KR32	50	1.96	41	1.61	KRDCKR32M	2,80	6.16	AVS00B,0B,1B,2B,3B,SVUBB1,BB2
1191970	DV50BKR32040M	DV50	KR32	50	1.96	40	1.57	KRDCKR32M	2,80	6.16	AVS0B, AVS2B, AVS3B
1191971	DV50BKR50040M	DV50	KR50	65	2.56	40	1.57	KRDCKR50M	2,80	6.16	SVS4B,5B,SVU65,SVUBB2
1264135	DV50BKR63060M	DV50	KR63	85	3.34	60	2.36	KRDCKR63M	3,30	7.26	SVS6B,7B,8B
1264136	DV50BKR80070M	DV50	KR80	95	3.73	70	2.76	KRDCKR80M	4,10	9.02	SVU92,120

BT to KR JIS B6339 Adapters AD/B

order number	catalog number	CSMS system size	CSWS system size	D2		L1		differential connector	kg	lbs	reference head
				mm	in	mm	in				
3554372	BT40BKR32030M	BT40	KR32	50	1.97	30	1.18	KRDCKR32M	1,20	2.63	AVS00B,0B,1B,2B,3B,SVUBB1,BB2
3554373	BT40BKR50050M	BT40	KR50	63	2.48	50	1.97	KRDCKR50M	1,26	2.80	SVS4B,5B,SVU65,SVUBB2
3554374	BT50BKR32040M	BT50	KR32	50	1.97	40	1.57	KRDCKR32M	3,90	8.60	AVS00B,0B,1B,2B,3B,SVUBB1,BB2
3554375	BT50BKR50040M	BT50	KR50	65	2.56	40	1.57	KRDCKR50M	3,17	7.00	SVS4B,5B,SVU65,SVUBB2
3554376	BT50BKR63060M	BT50	KR63	85	3.35	60	2.36	KRDCKR63M	4,31	9.50	SVS6B,7B,8B
3554377	BT50BKR80060M	BT50	KR80	95	3.74	60	2.36	KRDCKR80M	4,53	9.98	SVU92,120

Form	Checkmark	Tool	Head	Head	Head
Form AD	✓				
Form B	✗				

- Differential connector included.



ERICKSON

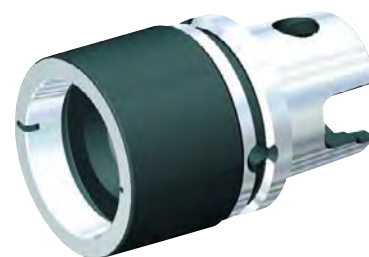
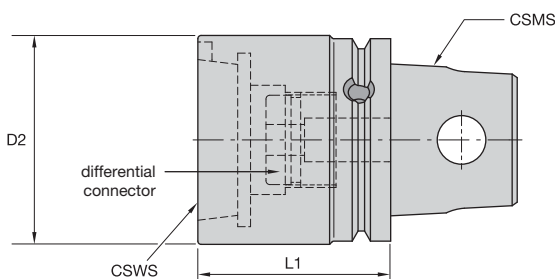
■ HSK Form A to KR Adapters

Hole Finishing

order number	catalog number	CSMS system size	CSWS system size	D2		L1		differential connector	kg	lbs	reference head
				mm	in	mm	in				
1153403	HSK63AKR32075M	HSK63A	KR32	50	1.96	75	2.95	KRDCKR32M	1,20	2.64	AVS00B,0B,1B,2B,3B,SVUBB1,BB2
1153604	HSK63AKR50080M	HSK63A	KR50	65	2.56	80	3.15	KRDCKR50M	1,60	3.52	SVS4B,5B,SVU65,SVUBB2
1153606	HSK100AKR32075M	HSK100A	KR32	50	1.96	75	2.95	KRDCKR32M	2,56	5.64	AVS00B,0B,1B,2B,3B,SVUBB1,BB2
1107188	HSK100AKR50085M	HSK100A	KR50	65	2.56	85	3.35	KRDCKR50M	3,12	6.87	SVS4B,5B,SVU65,SVUBB2
1173988	HSK100AKR63100M	HSK100A	KR63	85	3.34	100	3.94	KRDCKR63M	4,26	9.40	SVS6B,7B,8B
1153612	HSK100AKR80090M	HSK100A	KR80	95	3.73	90	3.54	KRDCKR80M	4,36	9.62	SVU92,120

NOTE: Plug may need to be removed to access the differential screw drive through the HSK taper.

- Differential connector included.

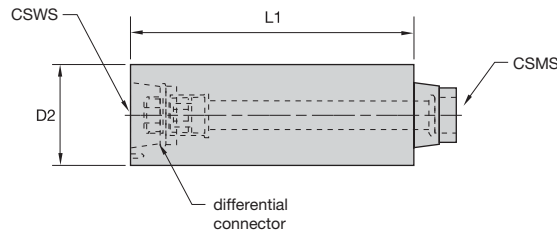


■ KM63XMZ to KR Adapters

order number	catalog number	CSMS system size	CSWS system size	D2		L1		differential connector	kg	lbs	reference head
				mm	in	mm	in				
1831590	KM63XMZKR5060Y	KM63XMZ	KR50	65	2.56	60	2.36	KRDCKR50M	1,37	3.02	SVS4B,5B,SVU65,SVUBB2

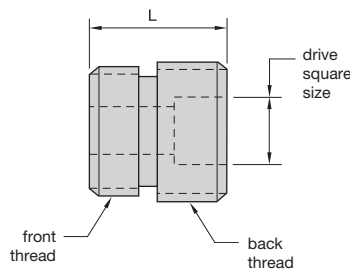
NOTE: Do not overtighten lock screw; use torque recommendations above.
Supplied with lock screw.
Lock screw wrench not included.

- Differential connector included.



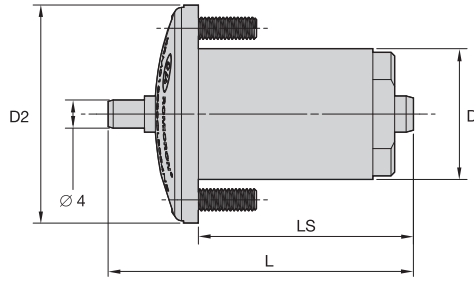
Length Extenders and Spare Differential Connectors

order number	catalog number	CSWS system size	CSMS system size	D2		L1		differential connector	kg	lbs	reference head
				mm	in	mm	in				
1279772	KR32KR32038050M	KR32	KR32	38	1.50	50	1.97	KRDCKR32M	0,45	.99	AVS00B,1B
1192275	KR32KR32038100M	KR32	KR32	38	1.50	100	3.94	KRDCKR32M	0,82	1.81	AVS00B,1B
1279775	KR32KR32047050M	KR32	KR32	47	1.85	50	1.97	KRDCKR32M	0,69	1.52	AVS0B,2B,3B,SVUBB1
1192276	KR32KR32047100M	KR32	KR32	47	1.85	100	3.94	KRDCKR32M	1,28	2.82	AVS0B,2B,3B,SVUBB1
1279785	KR50KR50065050M	KR50	KR50	65	2.56	50	1.97	KRDCKR50M	1,16	2.56	SVS4B,5B,SVU65,SVUBB2
1192280	KR50KR50065100M	KR50	KR50	65	2.56	100	3.94	KRDCKR50M	2,25	4.96	SVS4B,5B,SVU65,SVUBB2
1279791	KR63KR63085050M	KR63	KR63	85	3.35	50	1.97	KRDCKR63M	2,00	4.41	SVS6B,7B,8B
1279792	KR63KR63085100M	KR63	KR63	85	3.35	100	3.94	KRDCKR63M	4,02	8.86	SVS6B,7B,8B
1279797	KR80KR80095050M	KR80	KR80	95	3.74	50	1.97	KRDCKR80M	2,50	5.51	SVU92,120
1279798	KR80KR80095100M	KR80	KR80	95	3.74	100	3.94	KRDCKR80M	5,00	11.02	SVU92,120



Spare Differential Connectors

order number	catalog number	L		back thread	front thread	drive square size
		mm	in			
1192295	KRDCKR32M	22	.87	M20 X 2	M18 X 1	3/8 SQ
1192296	KRDCKR50M	22	.87	M28 X 2	M26 X 1	3/8 SQ
1279733	KRDCKR63M	25	.98	M36 X 2	M32 X 1	1/2 SQ
1279734	KRDCKR80M	28	1.10	M42 X 2	M38 X 1	1/2 SQ



■ KRM • CLB Pin

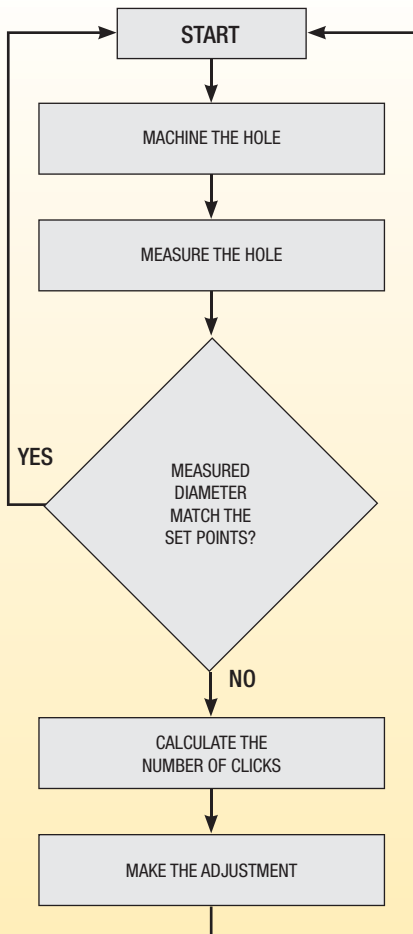
order number	catalog number	D		D2		LS		L		kg	lbs
		mm	in	mm	in	mm	in	mm	in		
4052592	KRM018030CLB04NE	18,0	.71	30,0	1.18	29,6	1.17	42,0	1.65	0,1	.15



Hole Finishing

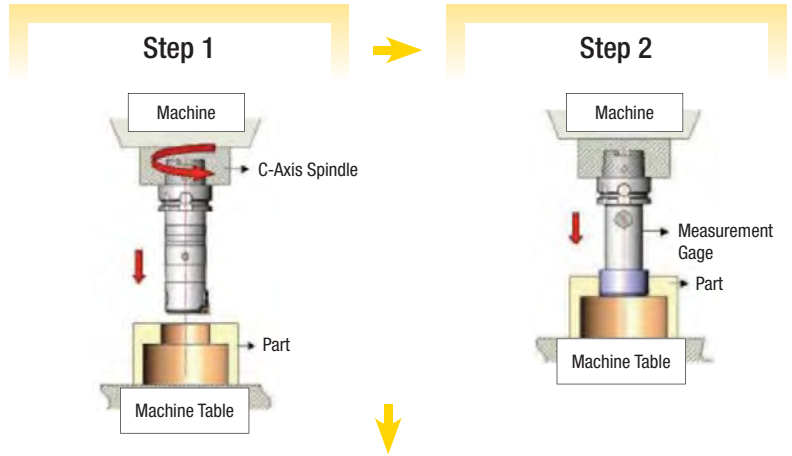
The Romicon Closed Loop Boring Process

Closed Loop Boring (CLB) provides the unique possibility to automate the insert wear compensation with minimal investment due to the precise 2 µm adjustment in diameter of these tools per increment. Retrofit existing machines to automated wear compensation using the standard CLB pin without any electronic equipment needed besides a measuring device of holes produced.



NOTE: This process is only possible with the Romicon system because it does not require tools to make the adjustment.

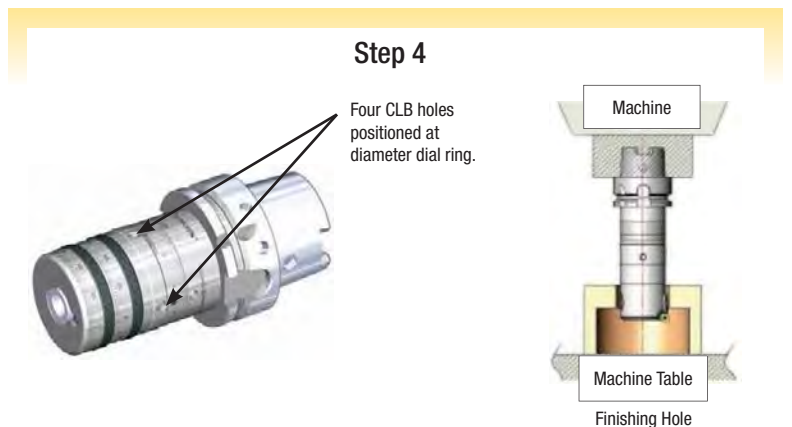
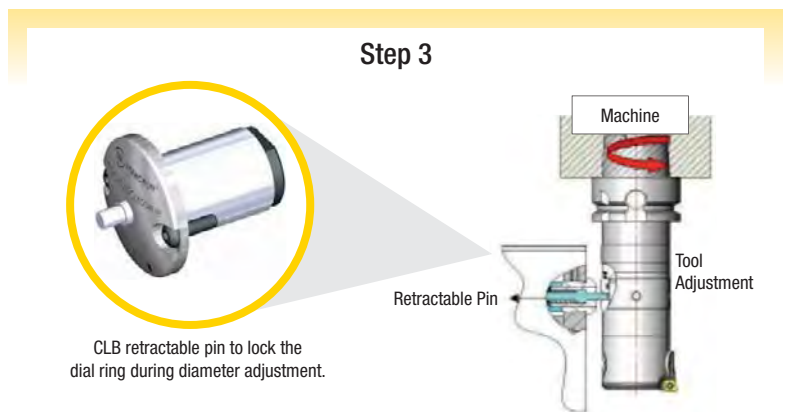
1. A precision system measures the holes after the machine process. The data is sent to the CNC.
2. The values are compared to the set points.
3. If the diameter is in the range of the specified set points, the machine goes to the next hole. Otherwise, the software calculates the necessary increment and automatically adjusts the Romicon using the CLB pin.



CNC Machine Command



CNC calculates the correction and commands the tool.



■ Romicon™ • Cutting Data



Material Group	Condition	Geometry				Cutting Speed – vc m/min			Feed Rate mm/r			
		-LF	-UF	-FP	-FW	min	Starting Value	max	-LF	-UF	-FP	-FW
P	1	KCP05				180	435	495	0,06–0,25	0,04–0,16	0,06–0,25	–
		–	–	KTP10	–	180	435	495	–	–	0,06–0,25	–
		KT315	–	–	KT315	180	400	495	0,06–0,25	–	–	0,08–0,30
		KCP10				180	395	465	0,06–0,25	0,04–0,16	0,06–0,25	–
		KC9110	–	–	–	180	395	495	0,06–0,25	0,04–0,16	–	–
		KCP25				140	280	360	0,06–0,10	0,04–0,08	0,06–0,12	0,08–0,16
	2	KCP05				180	265	400	0,06–0,25	0,04–0,16	0,06–0,25	–
		–	–	KTP10	–	180	265	400	–	–	0,06–0,25	–
		KT315	–	–	KT315	190	270	390	0,06–0,25	–	–	0,08–0,30
		KCP10				180	240	330	0,06–0,25	0,04–0,16	0,06–0,25	–
		KC9110	–	–	–	180	240	330	0,06–0,25	0,04–0,16	–	–
		KCP25				145	195	320	0,06–0,10	0,04–0,08	0,06–0,12	0,08–0,16
	3	KCP05				180	205	275	0,06–0,25	0,04–0,16	0,06–0,25	–
		–	–	KTP10	–	180	205	275	–	–	0,06–0,25	–
		KT315	–	–	KT315	180	210	275	0,06–0,25	–	–	0,08–0,30
		KCP10				160	190	250	0,06–0,25	0,04–0,16	0,06–0,25	–
		KC9110	–	–	–	155	190	240	0,06–0,25	0,04–0,16	–	–
		KCP25				135	155	225	0,06–0,10	0,04–0,08	0,06–0,12	0,08–0,16
	4	KCP05				90	160	220	0,06–0,25	0,04–0,16	0,06–0,25	–
		–	–	KTP10	–	90	160	220	–	–	0,06–0,25	–
		KT315	–	–	KT315	90	180	220	0,06–0,25	–	–	0,08–0,30
		KCP10				90	145	195	0,06–0,25	0,04–0,16	0,06–0,25	–
		KC9110	–	–	–	90	145	195	0,06–0,25	0,04–0,16	–	–
		KCP25				75	105	180	0,06–0,10	0,04–0,08	0,06–0,12	0,08–0,16
5	KCP05				150	240	315	0,06–0,25	0,04–0,16	0,06–0,25	–	
	–	–	KTP10	–	150	240	315	–	–	0,06–0,25	–	
	KT315	–	–	KT315	150	250	315	0,06–0,25	–	–	0,08–0,30	
	KCP10				150	215	300	0,06–0,25	0,04–0,16	0,06–0,25	–	
	KC9110	–	–	–	150	215	300	0,06–0,25	0,04–0,16	–	–	
	KCP25				120	195	255	0,06–0,10	0,04–0,08	0,06–0,12	0,08–0,16	
6	KCP05				140	200	300	0,06–0,25	0,04–0,16	0,06–0,25	–	
	–	–	KTP10	–	140	200	300	–	–	0,06–0,25	–	
	KT315	–	–	KT315	140	200	300	0,06–0,25	–	–	0,08–0,30	
	KCP10				120	180	275	0,06–0,25	0,04–0,16	0,06–0,25	–	
	KC9110	–	–	–	120	180	225	0,06–0,25	0,04–0,16	–	–	
	KCP25				105	150	225	0,06–0,10	0,04–0,08	0,06–0,12	0,08–0,16	

Material Group	Condition	Geometry				Cutting Speed – vc m/min			Feed Rate mm/r			
		-LF	-UF	-FP	-FW	min	Starting Value	max	-LF	-UF	-FP	-FW
M	1	–	–	KTP10	–	140	230	315	–	–	0,06–0,25	–
		KT315	–	–	KT315	140	230	315	0,06–0,25	–	–	0,08–0,30
		KC5010	–	–	KC5010	130	215	245	0,06–0,25	–	–	0,08–0,30
		KCM15	–	KCM15	–	105	180	240	0,06–0,12	–	0,06–0,12	–
		KC9225	–	–	KC9225	105	180	240	0,06–0,12	–	–	0,08–0,16
		–	–	KTP10	–	140	215	295	–	–	0,06–0,25	–
	2	KT315	–	–	KT315	140	215	295	0,06–0,25	–	–	0,08–0,30
		KC5010	–	–	KC5010	130	200	245	0,06–0,25	–	–	0,08–0,30
		KCM15	–	KCM15	–	105	165	250	0,06–0,12	–	0,06–0,12	–
		KC9225	–	–	KC9225	100	160	230	0,06–0,12	–	–	0,08–0,16
		–	–	KTP10	–	140	200	300	–	–	0,06–0,25	–
		KT315	–	–	KT315	140	200	300	0,06–0,25	–	–	0,08–0,30
	3	KC5010	–	–	KC5010	130	185	230	0,06–0,25	–	–	0,08–0,30
		KCM15	–	KCM15	–	115	150	255	0,06–0,12	–	0,06–0,12	–
		KC9225	–	–	KC9225	110	150	230	0,06–0,12	–	–	0,08–0,16

■ Romicon™ • Cutting Data

Material Group	Condition	Geometry				Cutting Speed – vc m/min			Feed Rate mm/r				
		-LF	-UF	-FP	-FW	min	Starting Value	max	-LF	-UF	-FP	-FW	
K	1	○	KCK20	-	KCK20	200	300	540	0,06–0,25	-	0,06–0,25	0,08–0,30	
		○	KT315	-	KT315	165	275	490	0,06–0,25	-	-	0,08–0,30	
		○	KC9315	-	-	-	110	275	450	0,06–0,25	-	-	-
	2	○	○	KCK20	-	KCK20	150	240	420	0,06–0,25	-	0,06–0,25	0,08–0,30
			○	KT315	-	KT315	180	275	360	0,06–0,25	-	-	0,08–0,30
		○	KC5010		-	KC5010	100	200	265	0,06–0,25	0,04–0,16	-	0,08–0,30
		○	KC9315	-	-	-	145	260	360	0,06–0,25	-	-	-
		○	KC9320	-	-	-	140	240	330	0,06–0,12	-	-	-
		○	KCK20	-	KCK20	140	210	350	0,06–0,25	-	0,06–0,25	0,08–0,30	
	3	○	○	KT315	-	KT315	180	230	320	0,06–0,25	-	-	0,08–0,30
			○	KC5010		-	KC5010	120	150	225	0,06–0,25	0,04–0,16	-
		○	KC9315	-	-	-	145	215	275	0,06–0,25	-	-	-
○		KC9320	-	-	-	140	210	260	0,06–0,12	-	-	-	
○		-	-	-	-	-	-	-	-	-	-		

Material Group	Condition	Geometry				Cutting Speed – vc m/min			Feed Rate mm/r					
		-LF	-FWL20	-	-	min	Starting Value	max	-LF	-FWL20	-	-		
N	1	○	KC5410		-	-	200	550	1000	0,10–0,40	0,20–0,50	-	-	
		○	KC5410	-	-	-	200	550	1000	0,10–0,20	-	-	-	
	2	○	-	-	KD1400	-	450	765	3000	-	-	0,06–0,15	-	
		○	-	-	KD1425	-	375	580	1150	-	-	0,06–0,25	-	
	3	○	○	-	-	KD1400	-	400	650	1250	-	-	0,06–0,15	-
			○	KC5410		-	-	125	275	525	0,10–0,40	0,20–0,50	-	-
		○	○	-	-	KD1425	-	250	500	875	-	-	0,06–0,25	-
			○	KC5410	-	-	-	125	275	525	0,10–0,20	-	-	-
			○	-	-	KD1400	-	375	520	1000	-	-	0,06–0,12	-
	5	○	○	KC5410	-	-	125	200	375	0,10–0,40	-	-	-	
○			KC5410	-	-	-	125	200	375	0,10–0,20	-	-	-	

Material Group	Condition	Geometry				Cutting Speed – vc m/min			Feed Rate mm/r					
		-LF	-UF	-FP	-FW	min	Starting Value	max	-LF	-UF	-FP	-FW		
S	1	○	-	-	KCU10	-	30	55	125	-	-	0,06–0,25	-	
			○	K313	-	-	-	10	30	60	0,06–0,25	-	-	-
		○	○	KC5010		-	KC5010	30	55	120	0,06–0,25	0,04–0,16	-	0,08–0,30
			○	-	-	KCU10	-	30	55	125	-	-	0,06–0,25	-
			○	KC5010		-	KC5010	30	55	120	0,06–0,25	0,04–0,16	-	0,08–0,30
			○	-	-	KCU25	-	10	40	50	-	-	0,06–0,12	-
	2	○	○	-	-	KCU10	-	30	35	125	-	-	0,06–0,25	-
			○	K313	-	-	-	10	35	60	0,06–0,25	-	-	-
		○	○	KC5010		-	KC5010	30	60	120	0,06–0,25	0,04–0,16	-	0,08–0,30
			○	-	-	KCU10	-	30	35	125	-	-	0,06–0,25	-
			○	KC5010		-	KC5010	30	60	120	0,06–0,25	0,04–0,16	-	0,08–0,30
			○	-	-	KCU25	-	10	30	50	-	-	0,06–0,12	-
	3	○	○	-	-	KCU10	-	30	70	125	-	-	0,06–0,25	-
			○	K313	-	-	-	10	40	60	0,06–0,25	-	-	-
		○	○	KC5010		-	KC5010	30	70	120	0,06–0,25	0,04–0,16	-	0,08–0,30
			○	-	-	KCU10	-	30	35	125	-	-	0,06–0,25	-
			○	KC5010		-	KC5010	30	70	120	0,06–0,25	0,04–0,16	-	0,08–0,30
			○	-	-	KCU25	-	25	40	60	-	-	0,06–0,12	-
	4	○	○	-	-	KCU10	-	25	40	60	0,06–0,10	-	-	
			○	-	-	KCU10	-	45	70	140	-	-	0,06–0,25	-
		○	○	K313	-	-	-	15	45	65	0,06–0,25	-	-	-
			○	KC5010		-	KC5010	45	70	140	0,06–0,25	0,04–0,16	-	0,08–0,30
			○	-	-	KCU10	-	45	70	140	-	-	0,06–0,25	-
			○	KC5010		-	KC5010	45	70	140	0,06–0,25	0,04–0,16	-	0,08–0,30
○	○	-	-	KCU25	-	25	55	90	-	-	0,06–0,12	-		
	○	KC5025	-	-	-	15	55	90	0,06–0,10	-	-	-		

Romicon Assembly Instructions

The required parts for the adapter assembly are identified on Figures 1 and 2. The SVS model is shown. The instructions are also valid to the SVU and SVUBB models.

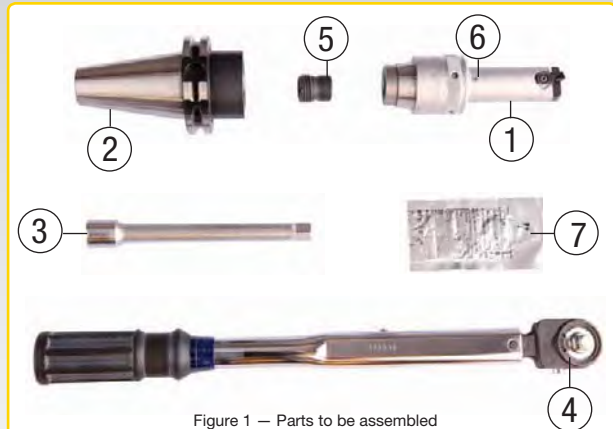


Figure 1 — Parts to be assembled

1	Boring head
2	Taper shank
3	Square extension (3/8" or 1/2")
4	Torque wrench
5	Differential connector
6	Positioning pin
7	Lubricant ASL-3G

WARNING:

Before starting the assembly procedure, ensure that all surfaces to be assembled together are free of dirt and completely clean.



Figure 2 — Assembled Tool



A. Remove the Differential Connector (5) from the Taper Shank (2).



B. Lubricate the thread on the Differential Connector (5) with Lubricant ASL-3G (7), supplied with the Taper Shank (2).



C. Screw the Differential Connector (5) into the rear thread on the Boring Head (1) until the end of the thread. At this time it is not necessary to tighten the Differential Connector (5). Remember that the Differential Connector (5) has two different screws, so there is no way to assemble the wrong side.

Romicron Assembly Instructions



D. Screw the front end of the Taper Shank (2) onto the Differential Connector (5), now located at the back on the Boring Head (1). Screw carefully until the Positioning Pin (6) gently touches the Taper (2) face. Stop!



F. Insert the square end of the Extension (3) through the Taper Shank (2) and into the Differential Connector (5). Keeping the Positioning Pin (6) and the positioning slot aligned, turn the Extensions (3) counter-clockwise until you see that two Romicron faces are meshing. Ensure that the Positioning Pin (6) is inserted into the slot on the Taper Shank (2).



E. Unscrew the Taper Shank (2) a little bit until the Positioning Pin (6) is aligned with the positioning slot mark in the Taper Shank (2) face.



G. Tighten the Differential Connector (5) with the specified required torque, as shown on the table below. Use the Torque Wrench (4) to do this.

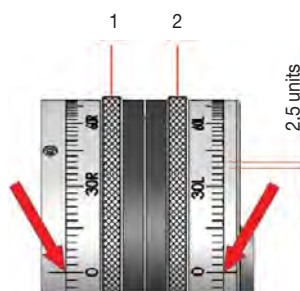
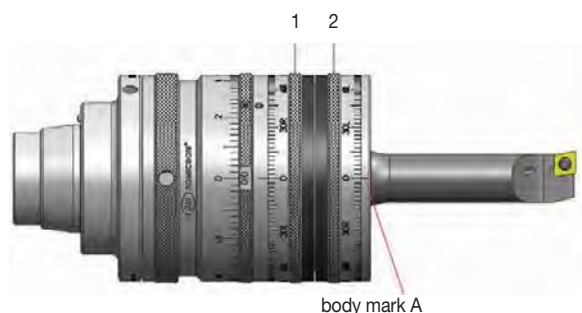
Tightening Torque Specifications

joint size	Torque Nm	drive square
KR32	30	3/8"
KR50	40	3/8"
KR63	55	1/2"
KR80	65	1/2"

Following these procedures will result in a rigid surface contact between the taper and the boring head face.

1. There are 2 balancing dials on the SVUBB system. Align ring 2 “zero” with body mark A. Align “zero” mark of ring 1 with the “zero” mark of ring 2.

2. Look up your diameter in the table below and read the setting values for ring 1 and ring 2.



Balancing Table • SVU-BB1 Boring Head

Hole Finishing

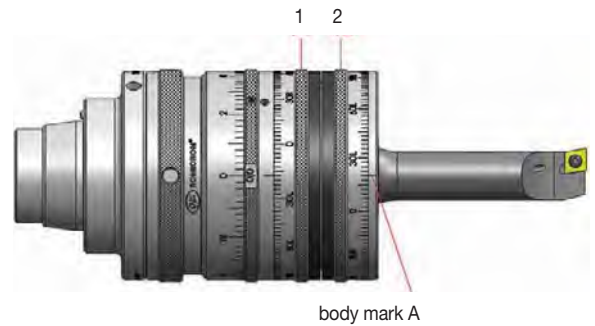
KRBB10FABDRS204C 4–6,4mm						KRBB10SCLDR4060C 6–9mm						KRBB10SCFPR06085C 8,5–11,5mm					
diameter		ring 1		ring 2		diameter		ring 1		ring 2		diameter		ring 1		ring 2	
mm	in					mm	in					mm	in				
4	0.1575	40	L	58	L	6	0.2362	34	L	66	L	8,5	0.3346	34	L	66	L
4,1	0.1614	42	L	58	L	6,1	0.2402	36	L	66	L	8,6	0.3386	36	L	68	L
4,2	0.1654	42	L	54	L	6,2	0.2441	36	L	64	L	8,7	0.3425	36	L	64	L
4,3	0.1693	44	L	54	L	6,3	0.2480	38	L	62	L	8,8	0.3465	38	L	62	L
4,4	0.1732	44	L	50	L	6,4	0.2520	38	L	62	L	8,9	0.3504	36	L	60	L
4,5	0.1772	46	L	50	L	6,5	0.2559	40	L	60	L	9	0.3543	40	L	60	L
4,6	0.1811	46	L	48	L	6,6	0.2598	40	L	58	L	9,1	0.3583	40	L	58	L
4,7	0.1850	46	L	46	L	6,7	0.2638	40	L	56	L	9,2	0.3622	42	L	56	L
4,8	0.1890	46	L	42	L	6,8	0.2677	40	L	54	L	9,3	0.3661	40	L	54	L
4,9	0.1929	46	L	40	L	6,9	0.2717	42	L	52	L	9,4	0.3701	42	L	52	L
5	0.1969	22	R	20	R	7	0.2756	42	L	54	L	9,5	0.3740	42	L	50	L
5,1	0.2008	32	R	26	R	7,1	0.2795	54	R	60	R	9,6	0.3780	40	L	46	L
5,2	0.2047	40	R	32	R	7,2	0.2835	54	R	60	R	9,7	0.3819	38	L	42	L
5,3	0.2087	44	R	34	R	7,3	0.2874	60	R	60	R	9,8	0.3858	30	L	32	L
5,4	0.2126	48	R	36	R	7,4	0.2913	70	R	72	R	9,9	0.3898	24	R	22	R
5,5	0.2165	50	R	36	R	7,5	0.2953	42	R	40	R	10	0.3937	24	R	22	R
5,6	0.2205	52	R	34	R	7,6	0.2992	48	R	44	R	10,1	0.3976	26	R	22	R
5,7	0.2244	54	R	34	R	7,7	0.3031	50	R	42	R	10,2	0.4016	44	R	38	R
5,8	0.2283	56	R	32	R	7,8	0.3071	50	R	42	R	10,3	0.4055	48	R	38	R
5,9	0.2323	58	R	32	R	7,9	0.3110	52	R	40	R	10,4	0.4094	52	R	38	R
6	0.2362	60	R	30	R	8	0.3150	54	R	40	R	10,5	0.4134	52	R	38	R
6,1	0.2402	62	R	30	R	8,1	0.3189	54	R	38	R	10,6	0.4173	56	R	36	R
6,2	0.2441	64	R	28	R	8,2	0.3228	56	R	38	R	10,7	0.4213	56	R	36	R
6,3	0.2480	66	R	28	R	8,3	0.3268	58	R	36	R	10,8	0.4252	58	R	34	R
6,4	0.2520	68	R	24	R	8,4	0.3307	58	R	34	R	10,9	0.4291	58	R	32	R
-	-	-	-	-	-	8,5	0.3346	60	R	36	R	11	0.4331	62	R	32	R
-	-	-	-	-	-	8,6	0.3386	62	R	34	R	11,1	0.4370	60	R	30	R
-	-	-	-	-	-	8,7	0.3425	62	R	32	R	11,2	0.4409	62	R	28	R
-	-	-	-	-	-	8,8	0.3465	62	R	32	R	11,3	0.4449	62	R	28	R
-	-	-	-	-	-	8,9	0.3504	66	R	28	R	11,4	0.4488	68	R	26	R
-	-	-	-	-	-	9	0.3543	66	R	28	R	11,5	0.4528	68	R	26	R

(continued)

(Balancing Table • SVU-BB1 Boring Head — continued)

3. Set ring 1 first, referencing to body mark B (one dial mark equals 2.5 units).

4. Set ring 2, referencing to body mark A (one dial mark equals 2.5 units).



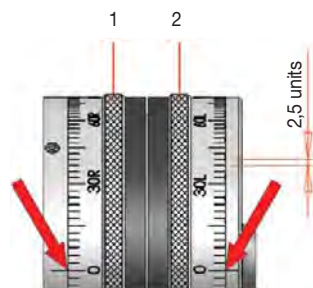
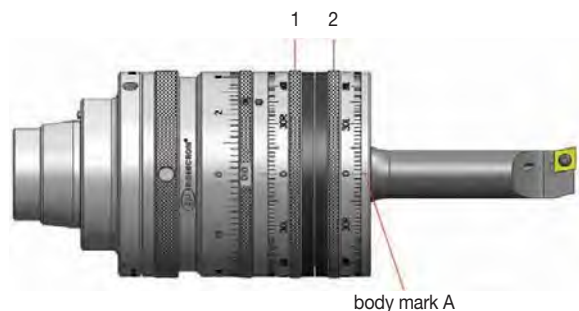
KRBB10SCFPR06110C 11–14mm					KRBB10SCFPR06135C 13,5–16,5mm						
diameter		ring 1		ring 2		diameter		ring 1		ring 2	
mm	in					mm	in				
11	0.4331	32	L	66	L	13,5	0.5315	34	L	62	L
11,1	0.4370	34	L	64	L	13,6	0.5354	36	L	60	L
11,2	0.4409	34	L	62	L	13,7	0.5394	38	L	58	L
11,3	0.4449	36	L	60	L	13,8	0.5433	38	L	56	L
11,4	0.4488	36	L	58	L	13,9	0.5472	40	L	56	L
11,5	0.4528	38	L	58	L	14	0.5512	42	L	44	L
11,6	0.4567	38	L	56	L	14,1	0.5551	42	L	52	L
11,7	0.4606	40	L	54	L	14,2	0.5591	44	L	50	L
11,8	0.4646	40	L	52	L	14,3	0.5630	42	L	46	L
11,9	0.4685	40	L	52	L	14,4	0.5669	34	L	36	L
12	0.4724	38	L	46	L	14,5	0.5709	18	L	20	L
12,1	0.4764	34	L	42	L	14,6	0.5748	10	R	6	R
12,2	0.4803	26	L	30	L	14,7	0.5787	18	R	10	R
12,3	0.4843	24	R	22	R	14,8	0.5827	40	R	30	R
12,4	0.4882	28	L	26	L	14,9	0.5866	44	R	32	R
12,5	0.4921	44	L	38	R	15	0.5906	48	R	34	R
12,6	0.4961	44	R	36	R	15,1	0.5945	48	R	32	R
12,7	0.5000	50	R	40	R	15,2	0.5984	50	R	30	R
12,8	0.5039	50	R	38	R	15,3	0.6024	52	R	30	R
12,9	0.5079	52	R	36	R	15,4	0.6063	56	R	32	R
13	0.5118	52	R	36	R	15,5	0.6102	54	R	28	R
13,1	0.5157	54	R	34	R	15,6	0.6142	58	R	28	R
13,2	0.5197	54	R	32	R	15,7	0.6181	60	R	26	R
13,3	0.5236	56	R	32	R	15,8	0.6220	64	R	26	R
13,4	0.5276	56	R	30	R	15,9	0.6260	64	R	26	R
13,5	0.5315	60	R	28	R	16	0.6299	66	R	24	R
13,6	0.5354	60	R	28	R	16,1	0.6339	66	R	22	R
13,7	0.5394	62	R	26	R	16,2	0.6378	70	R	20	R
13,8	0.5433	64	R	26	R	16,3	0.6417	74	R	18	R
13,9	0.5472	68	R	24	R	16,4	0.6457	76	R	16	R
14	0.5512	68	R	24	R	16,5	0.6496	78	R	14	R



Hole Finishing

1. There are 2 balancing dials on the SVUBB system. Align ring 2 “zero” with body mark A. Align “zero” mark of ring 1 with the “zero” mark of ring 2.

2. Look up your diameter in the table below and read the setting values for ring 1 and ring 2.



Balancing Table • SVU-BB2 Boring Head

Hole Finishing

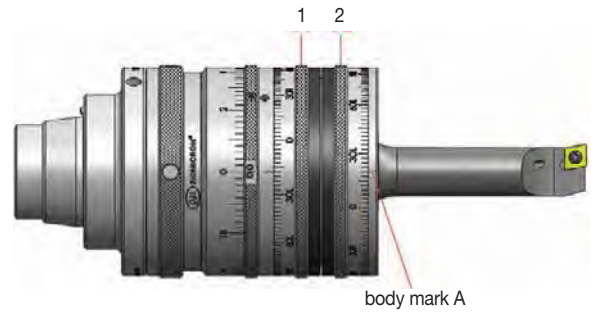
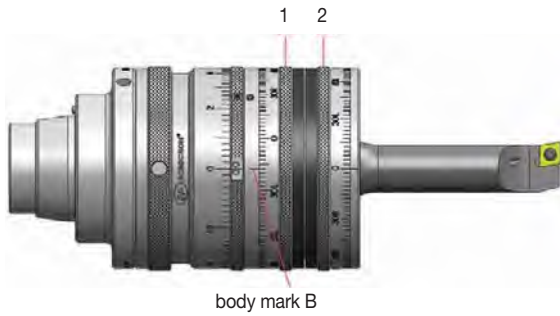
KRBB16SCLDRS406A 6–9,5mm				KRBB16SCFPR06085A 8,5–12mm				KRBB16SCFPR0611A 11–14,5mm				KRBB16SCFPR06135A 13,5–17mm					
diameter		ring 1		ring 2		diameter		ring 1		ring 2		diameter		ring 1		ring 2	
mm	in					mm	in					mm	in				
6	0.2362	67.5	L	67.5	L	8,5	0.3346	67.5	L	67.5	L	11	0.4331	67.5	L	70	L
6,1	0.2402	62.5	L	62.5	L	8,6	0.3386	62.5	L	62.5	L	11,1	0.4370	60	L	62.5	L
6,2	0.2441	57.5	L	57.5	L	8,7	0.3425	57.5	L	57.5	L	11,2	0.4409	57.5	L	60	L
6,3	0.2480	55	L	55	L	8,8	0.3465	52.5	L	55	L	11,3	0.4449	52.5	L	55	L
6,4	0.2520	50	L	50	L	8,9	0.3504	50	L	50	L	11,4	0.4488	47.5	L	50	L
6,5	0.2559	47.5	L	47.5	L	9	0.3543	47.5	L	47.5	L	11,5	0.4528	45	L	47.5	L
6,6	0.2598	45	L	45	L	9,1	0.3583	42.5	L	45	L	11,6	0.4567	42.5	L	45	L
6,7	0.2638	40	L	40	L	9,2	0.3622	40	L	40	L	11,7	0.4606	37.5	L	42.5	L
6,8	0.2677	37.5	L	37.5	L	9,3	0.3661	37.5	L	37.5	L	11,8	0.4646	35	L	37.5	L
6,9	0.2717	35	L	35	L	9,4	0.3701	35	L	35	L	11,9	0.4685	32.5	L	35	L
7	0.2756	32.5	L	32.5	L	9,5	0.3740	30	L	32.5	L	12	0.4724	30	L	32.5	L
7,1	0.2795	30	L	30	L	9,6	0.3780	27.5	L	30	L	12,1	0.4764	27.5	L	30	L
7,2	0.2835	27.5	L	27.5	L	9,7	0.3819	25	L	27.5	L	12,2	0.4803	25	L	27.5	L
7,3	0.2874	25	L	25	L	9,8	0.3858	22.5	L	25	L	12,3	0.4843	22.5	L	25	L
7,4	0.2913	22.5	L	22.5	L	9,9	0.3898	20	L	22.5	L	12,4	0.4882	17.5	L	25	L
7,5	0.2953	20	L	20	L	10	0.3937	17.5	L	20	L	12,5	0.4921	15	L	22.5	L
7,6	0.2992	17.5	L	17.5	L	10,1	0.3976	15	L	17.5	L	12,6	0.4961	12.5	L	20	L
7,7	0.3031	15	L	15	L	10,2	0.4016	12.5	L	15	L	12,7	0.5000	10	L	17.5	L
7,8	0.3071	12.5	L	12.5	L	10,3	0.4055	10	L	15	L	12,8	0.5039	5	L	17.5	L
7,9	0.3110	10	L	12.5	L	10,4	0.4094	7.5	L	12.5	L	12,9	0.5079	2.5	L	15	L
8	0.3150	7.5	L	10	L	10,5	0.4134	5	L	10	L	13	0.5118	2.5	R	15	L
8,1	0.3189	5	L	7.5	L	10,6	0.4173	0	L	10	L	13,1	0.5157	10	R	17.5	L
8,2	0.3228	2.5	L	5	L	10,7	0.4213	5	R	10	L	13,2	0.5197	25	R	30	L
8,3	0.3268	2.5	R	5	L	10,8	0.4252	45	R	45	L	13,3	0.5236	62.5	L	65	R
8,4	0.3307	10	L	12.5	R	10,9	0.4291	10	L	15	R	13,4	0.5276	17.5	L	22.5	R
8,5	0.3346	0	R	5	R	11	0.4331	2.5	L	10	R	13,5	0.5315	5	L	15	R
8,6	0.3386	2.5	R	7.5	R	11,1	0.4370	2.5	R	10	R	13,6	0.5354	0	R	15	R
8,7	0.3425	7.5	R	7.5	R	11,2	0.4409	5	R	12.5	R	13,7	0.5394	5	R	15	R
8,8	0.3465	10	R	10	R	11,3	0.4449	10	R	12.5	R	13,8	0.5433	7.5	R	17.5	R
8,9	0.3504	12.5	R	12.5	R	11,4	0.4488	12.5	R	15	R	13,9	0.5472	10	R	20	R
9	0.3543	12.5	R	15	R	11,5	0.4528	15	R	17.5	R	14	0.5512	15	R	20	R
9,1	0.3583	15	R	17.5	R	11,6	0.4567	17.5	R	20	R	14,1	0.5551	17.5	R	22.5	R
9,2	0.3622	17.5	R	20	R	11,7	0.4606	20	R	22.5	R	14,2	0.5591	20	R	25	R
9,3	0.3661	20	R	22.5	R	11,8	0.4646	22.5	R	25	R	14,3	0.5630	22.5	R	27.5	R
9,4	0.3701	22.5	R	25	R	11,9	0.4685	25	R	27.5	R	14,4	0.5669	25	R	30	R
9,5	0.3740	25	R	27.5	R	12	0.4724	27.5	R	30	R	14,5	0.5709	27.5	R	32.5	R

(continued)

(Balancing Table • SVU-BB2 Boring Head — continued)

3. Set ring 1 first, referencing to body mark B (one dial mark equals 2.5 units).

4. Set ring 2, referencing to body mark A (one dial mark equals 2.5 units).



KRBB16SCFPR0616A 16–19,5mm					KRBB16SCFPR0619A 19–22,5mm					KRBB16SCFPR0622A 22–25,5mm							
diameter		ring 1		ring 2		diameter		ring 1		ring 2		diameter		ring 1		ring 2	
mm	in					mm	in					mm	in				
16	0.6299	65	L	72.5	L	19	0.7480	60	L	75	L	22	0.8661	57.5	L	80	L
16,1	0.6339	57.5	L	65	L	19,1	0.7520	55	L	70	L	22,1	0.8701	50	L	72.5	L
16,2	0.6378	52.5	L	62.5	L	19,2	0.7559	50	L	65	L	22,2	0.8740	45	L	70	L
16,3	0.6417	47.5	L	57.5	L	19,3	0.7598	45	L	60	L	22,3	0.8780	37.5	L	65	L
16,4	0.6457	42.5	L	52.5	L	19,4	0.7638	40	L	57.5	L	22,4	0.8819	32.5	L	62.5	L
16,5	0.6496	40	L	50	L	19,5	0.7677	35	L	52.5	L	22,5	0.8858	27.5	L	60	L
16,6	0.6535	35	L	47.5	L	19,6	0.7717	30	L	50	L	22,6	0.8898	22.5	L	57.5	L
16,7	0.6575	32.5	L	45	L	19,7	0.7756	27.5	L	47.5	L	22,7	0.8937	20	L	55	L
16,8	0.6614	27.5	L	42.5	L	19,8	0.7795	22.5	L	45	L	22,8	0.8976	15	L	52.5	L
16,9	0.6654	25	L	40	L	19,9	0.7835	20	L	42.5	L	22,9	0.9016	10	L	52.5	L
17	0.6693	20	L	37.5	L	20	0.7874	15	L	42.5	L	23	0.9055	5	L	50	L
17,1	0.6732	17.5	L	35	L	20,1	0.7913	10	L	40	L	23,1	0.9094	0	R	50	L
17,2	0.6772	12.5	L	32.5	L	20,2	0.7953	5	L	40	L	23,2	0.9134	7.5	R	52.5	L
17,3	0.6811	10	L	30	L	20,3	0.7992	0	L	40	L	23,3	0.9173	12.5	R	52.5	L
17,4	0.6850	5	L	30	L	20,4	0.8031	5	R	40	L	23,4	0.9213	20	R	55	L
17,5	0.6890	0	L	30	L	20,5	0.8071	10	R	40	L	23,5	0.9252	30	R	60	L
17,6	0.6929	5	R	30	L	20,6	0.8110	17.5	R	42.5	L	23,6	0.9291	40	R	65	L
17,7	0.6969	12.5	R	32.5	L	20,7	0.8150	27.5	R	47.5	L	23,7	0.9331	52.5	R	75	L
17,8	0.7008	22.5	R	37.5	L	20,8	0.8189	40	R	57.5	L	23,8	0.9370	67.5	R	90	L
17,9	0.7047	35	R	47.5	L	20,9	0.8228	57.5	R	72.5	L	23,9	0.9409	77.5	L	97.5	R
18	0.7087	60	R	67.5	L	21	0.8268	80	R	92.5	L	24	0.9449	60	L	82.5	R
18,1	0.7126	75	L	82.5	R	21,1	0.8307	65	L	77.5	R	24,1	0.9488	47.5	L	72.5	R
18,2	0.7165	45	L	55	R	21,2	0.8346	45	L	60	R	24,2	0.9528	35	L	62.5	R
18,3	0.7205	25	L	40	R	21,3	0.8386	30	L	50	R	24,3	0.9567	25	L	57.5	R
18,4	0.7244	15	L	32.5	R	21,4	0.8425	20	L	45	R	24,4	0.9606	17.5	L	55	R
18,5	0.7283	7.5	L	30	R	21,5	0.8465	12.5	L	40	R	24,5	0.9646	10	L	52.5	R
18,6	0.7323	2.5	L	30	R	21,6	0.8504	5	L	40	R	24,6	0.9685	5	L	50	R
18,7	0.7362	2.5	R	30	R	21,7	0.8543	0	L	40	R	24,7	0.9724	2.5	R	50	R
18,8	0.7402	7.5	R	30	R	21,8	0.8583	5	R	40	R	24,8	0.9764	7.5	R	50	R
18,9	0.7441	12.5	R	32.5	R	21,9	0.8622	10	R	40	R	24,9	0.9803	12.5	R	52.5	R
19	0.7480	15	R	35	R	22	0.8661	12.5	R	42.5	R	25	0.9843	17.5	R	52.5	R
19,1	0.7520	20	R	35	R	22,1	0.8701	17.5	R	42.5	R	25,1	0.9882	20	R	55	R
19,2	0.7559	22.5	R	37.5	R	22,2	0.8740	22.5	R	45	R	25,2	0.9921	25	R	57.5	R
19,3	0.7598	27.5	R	40	R	22,3	0.8780	25	R	47.5	R	25,3	0.9961	30	R	60	R
19,4	0.7638	30	R	42.5	R	22,4	0.8819	30	R	50	R	25,4	1.0000	35	R	62.5	R
19,5	0.7677	35	R	45	R	22,5	0.8858	35	R	52.5	R	25,5	1.0039	40	R	67.5	R

(continued)

(Balancing Table • SVU-BB2 Boring Head – continued)

KRDEA051AM • KRDE043010M 43–65,9mm

diameter						diameter						diameter						diameter					
mm	in	ring 1	ring 2	mm	in	ring 1	ring 2	mm	in	ring 1	ring 2	mm	in	ring 1	ring 2	mm	in	ring 1	ring 2	mm	in	ring 1	ring 2
43,0	1.6929	55	L 65	46,0	1.8110	42,5	L 55	49,0	1.9291	32,5	L 47,5	52,0	2.0472	25	L 40								
43,1	1.6969	47,5	L 57,5	46,1	1.8150	37,5	L 50	49,1	1.9331	27,5	L 42,5	52,1	2.0512	20	L 37,5								
43,2	1.7008	40	L 52,5	46,2	1.8189	30	L 45	49,2	1.9370	22,5	L 40	52,2	2.0551	12,5	L 35								
43,3	1.7047	35	L 47,5	46,3	1.8228	25	L 42,5	49,3	1.9409	17,5	L 35	52,3	2.0591	7,5	L 32,5								
43,4	1.7087	30	L 42,5	46,4	1.8268	20	L 37,5	49,4	1.9449	12,5	L 32,5	52,4	2.0630	0	L 32,5								
43,5	1.7126	22,5	L 40	46,5	1.8307	15	L 35	49,5	1.9488	5	L 32,5	52,5	2.0669	7,5	R 32,5								
43,6	1.7165	17,5	L 37,5	46,6	1.8346	7,5	L 32,5	49,6	1.9528	2,5	R 32,5	52,6	2.0709	20	R 37,5								
43,7	1.7205	12,5	L 32,5	46,7	1.8386	2,5	L 30	49,7	1.9567	12,5	R 35	52,7	2.0748	42,5	R 52,5								
43,8	1.7244	5	L 32,5	46,8	1.8425	7,5	R 32,5	49,8	1.9606	27,5	R 42,5	52,8	2.0787	85	L 92,5								
43,9	1.7283	2,5	R 32,5	46,9	1.8465	17,5	R 35	49,9	1.9646	60	R 70	52,9	2.0827	40	L 52,5								
44,0	1.7323	50	L 60	47,0	1.8504	40	L 52,5	50,0	1.9685	30	L 45	53,0	2.0866	22,5	L 37,5								
44,1	1.7362	42,5	L 55	47,1	1.8543	35	L 47,5	50,1	1.9724	25	L 40	53,1	2.0906	17,5	L 35								
44,2	1.7402	37,5	L 50	47,2	1.8583	27,5	L 42,5	50,2	1.9764	20	L 37,5	53,2	2.0945	10	L 32,5								
44,3	1.7441	32,5	L 45	47,3	1.8622	22,5	L 40	50,3	1.9803	12,5	L 35	53,3	2.0984	2,5	L 32,5								
44,4	1.7480	25	L 42,5	47,4	1.8661	17,5	L 35	50,4	1.9843	7,5	L 32,5	53,4	2.1024	5	R 32,5								
44,5	1.7520	20	L 37,5	47,5	1.8701	12,5	L 32,5	50,5	1.9882	0	L 32,5	53,5	2.1063	15	R 35								
44,6	1.7559	15	L 35	47,6	1.8740	5	L 32,5	50,6	1.9921	7,5	R 32,5	53,6	2.1102	30	R 45								
44,7	1.7598	10	L 32,5	47,7	1.8780	2,5	R 32,5	50,7	1.9961	20	R 37,5	53,7	2.1142	62,5	R 72,5								
44,8	1.7638	2,5	L 30	47,8	1.8819	12,5	R 35	50,8	2.0000	40	R 52,5	53,8	2.1181	57,5	L 67,5								
44,9	1.7677	7,5	R 32,5	47,9	1.8858	27,5	R 42,5	50,9	2.0039	87,5	R 95	53,9	2.1220	27,5	L 42,5								
45,0	1.7717	47,5	L 57,5	48,0	1.8898	37,5	L 50	51,0	2.0079	27,5	L 42,5	54,0	2.1260	20	L 37,5								
45,1	1.7756	40	L 52,5	48,1	1.8937	30	L 45	51,1	2.0118	22,5	L 40	54,1	2.1299	12,5	L 35								
45,2	1.7795	35	L 47,5	48,2	1.8976	25	L 40	51,2	2.0157	17,5	L 35	54,2	2.1339	7,5	L 32,5								
45,3	1.7835	30	L 42,5	48,3	1.9016	20	L 37,5	51,3	2.0197	10	L 35	54,3	2.1378	0	L 32,5								
45,4	1.7874	22,5	L 40	48,4	1.9055	15	L 35	51,4	2.0236	5	L 32,5	54,4	2.1417	7,5	R 32,5								
45,5	1.7913	17,5	L 35	48,5	1.9094	7,5	L 32,5	51,5	2.0276	2,5	R 30	54,5	2.1457	20	R 37,5								
45,6	1.7953	12,5	L 32,5	48,6	1.9134	0	L 32,5	51,6	2.0315	12,5	R 32,5	54,6	2.1496	45	R 55								
45,7	1.7992	5	L 32,5	48,7	1.9173	7,5	R 32,5	51,7	2.0354	30	R 45	54,7	2.1535	82,5	L 90								
45,8	1.8031	2,5	R 32,5	48,8	1.9213	20	R 37,5	51,8	2.0394	60	R 70	54,8	2.1575	40	L 52,5								
45,9	1.8071	12,5	R 35	48,9	1.9252	40	R 52,5	51,9	2.0433	60	L 70	54,9	2.1614	20	L 37,5								
55,0	2.1654	17,5	L 35	58,0	2.2835	7,5	L 32,5	61,0	2.4016	5	R 32,5	64,0	2.5197	25	R 40								
55,1	2.1693	10	L 32,5	58,1	2.2874	0	R 30	61,1	2.4055	15	R 35	64,1	2.5236	55	R 65								
55,2	2.1732	2,5	L 32,5	58,2	2.2913	10	R 32,5	61,2	2.4094	35	R 47,5	64,2	2.5276	67,5	L 77,5								
55,3	2.1772	5	R 32,5	58,3	2.2953	22,5	R 40	61,3	2.4134	75	R 82,5	64,3	2.5315	32,5	L 45								
55,4	2.1811	15	R 35	58,4	2.2992	47,5	R 57,5	61,4	2.4173	50	L 60	64,4	2.5354	15	L 35								
55,5	2.1850	32,5	R 45	58,5	2.3031	75	L 82,5	61,5	2.4213	25	L 40	64,5	2.5394	5	L 32,5								
55,6	2.1890	65	R 75	58,6	2.3071	35	L 47,5	61,6	2.4252	10	L 32,5	64,6	2.5433	2,5	R 32,5								
55,7	2.1929	55	L 65	58,7	2.3110	17,5	L 37,5	61,7	2.4291	0	L 30	64,7	2.5472	10	R 32,5								
55,8	2.1969	27,5	L 42,5	58,8	2.3150	5	L 32,5	61,8	2.4331	5	R 32,5	64,8	2.5512	15	R 35								
55,9	2.2008	12,5	L 35	58,9	2.3189	2,5	R 32,5	61,9	2.4370	12,5	R 35	64,9	2.5551	22,5	R 37,5								
56,0	2.2047	12,5	L 35	59,0	2.3228	2,5	L 32,5	62,0	2.4409	10	R 32,5	65,0	2.5591	37,5	R 50								
56,1	2.2087	7,5	L 32,5	59,1	2.3268	5	R 32,5	62,1	2.4449	25	R 40	65,1	2.5630	80	R 87,5								
56,2	2.2126	0	R 32,5	59,2	2.3307	15	R 35	62,2	2.4488	52,5	R 62,5	65,2	2.5669	47,5	L 57,5								
56,3	2.2165	10	R 32,5	59,3	2.3346	35	R 47,5	62,3	2.4528	70	L 77,5	65,3	2.5709	22,5	L 40								
56,4	2.2205	22,5	R 40	59,4	2.3386	72,5	R 80	62,4	2.4567	35	L 47,5	65,4	2.5748	7,5	L 32,5								
56,5	2.2244	47,5	R 57,5	59,5	2.3425	52,5	L 62,5	62,5	2.4606	15	L 35	65,5	2.5787	0	L 32,5								
56,6	2.2283	80	L 87,5	59,6	2.3465	25	L 40	62,6	2.4646	5	L 32,5	65,6	2.5827	7,5	R 32,5								
56,7	2.2323	37,5	L 50	59,7	2.3504	10	L 32,5	62,7	2.4685	2,5	R 32,5	65,7	2.5866	12,5	R 35								
56,8	2.2362	17,5	L 35	59,8	2.3543	2,5	L 32,5	62,8	2.4724	10	R 32,5	65,8	2.5906	17,5	R 37,5								
56,9	2.2402	7,5	L 32,5	59,9	2.3583	5	R 32,5	62,9	2.4764	15	R 35	65,9	2.5945	25	R 40								
57,0	2.2441	10	L 32,5	60,0	2.3622	0	R 30	63,0	2.4803	17,5	R 37,5	–	–	–	–								
57,1	2.2480	2,5	L 32,5	60,1	2.3661	10	R 32,5	63,1	2.4843	37,5	R 50	–	–	–	–								
57,2	2.2520	5	R 32,5	60,2	2.3701	25	R 40	63,2	2.4882	77,5	R 85	–	–	–	–								
57,3	2.2559	15	R 35	60,3	2.3740	50	R 60	63,3	2.4921	47,5	L 57,5	–	–	–	–								
57,4	2.2598	32,5	R 45	60,4	2.3780	72,5	L 80	63,4	2.4961	22,5	L 40	–	–	–	–								
57,5	2.2638	67,5	R 77,5	60,5	2.3819	35	L 47,5	63,5	2.5000	10	L 32,5	–	–	–	–								
57,6	2.2677	52,5	L 62,5	60,6	2.3858	15	L 35	63,6	2.5039	0	L 30	–	–	–	–								
57,7	2.2717	25	L 40	60,7	2.3898	5	L 32,5	63,7	2.5079	7,5	R 32,5	–	–	–	–								
57,8	2.2756	10	L 32,5	60,8	2.3937	2,5	R 32,5	63,8	2.5118	12,5	R 35	–	–	–	–								
57,9	2.2795	2,5	L 32,5	60,9	2.3976	10	R 32,5	63,9	2.5157	17,5	R 37,5	–	–	–	–								

(continued)



(Balancing Table • SVU-BB2 Boring Head — continued)

						KRDEA012AM • KRDE065012M 65–82,9mm											
diameter			ring 1			ring 2			diameter			ring 1			ring 2		
mm	in					mm	in				mm	in					
65,0	2.5591	5	L	37.5	R	68,0	2.6772	12.5	R	37.5	R	71,0	2.7953	25	R	45	R
65,1	2.5630	2.5	R	37.5	R	68,1	2.6811	17.5	R	40	R	71,1	2.7992	32.5	R	47.5	R
65,2	2.5669	10	R	37.5	R	68,2	2.6850	22.5	R	42.5	R	71,2	2.8031	37.5	R	52.5	R
65,3	2.5709	15	R	40	R	68,3	2.6890	27.5	R	47.5	R	71,3	2.8071	42.5	R	57.5	R
65,4	2.5748	20	R	42.5	R	68,4	2.6929	32.5	R	50	R	71,4	2.8110	47.5	R	62.5	R
65,5	2.5787	25	R	45	R	68,5	2.6969	40	R	55	R	71,5	2.8150	55	R	67.5	R
65,6	2.5827	30	R	47.5	R	68,6	2.7008	45	R	60	R	71,6	2.8189	65	R	77.5	R
65,7	2.5866	35	R	52.5	R	68,7	2.7047	52.5	R	65	R	71,7	2.8228	65	R	77.5	R
65,8	2.5906	42.5	R	57.5	R	68,8	2.7087	60	R	72.5	R	71,8	2.8268	65	R	77.5	R
65,9	2.5945	47.5	R	62.5	R	68,9	2.7126	70	R	82.5	R	71,9	2.8307	65	R	77.5	R
66,0	2.5984	2.5	R	35	R	69,0	2.7165	17.5	R	40	R	72,0	2.8346	30	R	47.5	R
66,1	2.6024	7.5	R	37.5	R	69,1	2.7205	22.5	R	42.5	R	72,1	2.8386	35	R	52.5	R
66,2	2.6063	12.5	R	40	R	69,2	2.7244	27.5	R	45	R	72,2	2.8425	40	R	55	R
66,3	2.6102	20	R	40	R	69,3	2.7283	32.5	R	50	R	72,3	2.8465	47.5	R	60	R
66,4	2.6142	25	R	45	R	69,4	2.7323	37.5	R	52.5	R	72,4	2.8504	55	R	67.5	R
66,5	2.6181	30	R	47.5	R	69,5	2.7362	45	R	57.5	R	72,5	2.8543	62.5	R	75	R
66,6	2.6220	35	R	52.5	R	69,6	2.7402	50	R	62.5	R	72,6	2.8583	80	R	90	R
66,7	2.6260	40	R	55	R	69,7	2.7441	57.5	R	70	R	72,7	2.8622	80	R	90	R
66,8	2.6299	47.5	R	60	R	69,8	2.7480	67.5	R	80	R	72,8	2.8661	80	R	90	R
66,9	2.6339	55	R	67.5	R	69,9	2.7520	67.5	R	80	R	72,9	2.8701	80	R	90	R
67,0	2.6378	7.5	R	37.5	R	70,0	2.7559	22.5	R	42.5	R	73,0	2.8740	40	R	55	R
67,1	2.6417	12.5	R	40	R	70,1	2.7598	27.5	R	45	R	73,1	2.8780	47.5	R	60	R
67,2	2.6457	17.5	R	42.5	R	70,2	2.7638	32.5	R	50	R	73,2	2.8819	52.5	R	65	R
67,3	2.6496	22.5	R	45	R	70,3	2.7677	37.5	R	52.5	R	73,3	2.8858	62.5	R	75	R
67,4	2.6535	30	R	47.5	R	70,4	2.7717	42.5	R	57.5	R	73,4	2.8898	75	R	87.5	R
67,5	2.6575	35	R	50	R	70,5	2.7756	50	R	62.5	R	73,5	2.8937	75	R	87.5	R
67,6	2.6614	40	R	55	R	70,6	2.7795	57.5	R	70	R	73,6	2.8976	75	R	87.5	R
67,7	2.6654	45	R	60	R	70,7	2.7835	65	R	77.5	R	73,7	2.9016	75	R	87.5	R
67,8	2.6693	52.5	R	65	R	70,8	2.7874	65	R	77.5	R	73,8	2.9055	75	R	87.5	R
67,9	2.6732	60	R	72.5	R	70,9	2.7913	65	R	77.5	R	73,9	2.9094	75	R	87.5	R
74,0	2.9134	40	R	55	R	77,0	3.0315	55	R	67.5	R	80,0	3.1496	22.5	L	45	L
74,1	2.9173	45	R	60	R	77,1	3.0354	65	R	77.5	R	80,1	3.1535	17.5	L	42.5	L
74,2	2.9213	52.5	R	65	R	77,2	3.0394	65	R	77.5	R	80,2	3.1575	12.5	L	40	L
74,3	2.9252	60	R	72.5	R	77,3	3.0433	65	R	77.5	R	80,3	3.1614	5	L	40	L
74,4	2.9291	70	R	82.5	R	77,4	3.0472	65	R	77.5	R	80,4	3.1654	2.5	R	40	L
74,5	2.9331	70	R	82.5	R	77,5	3.0512	65	R	77.5	R	80,5	3.1693	10	R	40	L
74,6	2.9370	70	R	82.5	R	77,6	3.0551	65	R	77.5	R	80,6	3.1732	22.5	R	45	L
74,7	2.9409	70	R	82.5	R	77,7	3.0591	65	R	77.5	R	80,7	3.1772	37.5	R	55	L
74,8	2.9449	70	R	82.5	R	77,8	3.0630	65	R	77.5	R	80,8	3.1811	65	R	77.5	L
74,9	2.9488	70	R	82.5	R	77,9	3.0669	65	R	77.5	R	80,9	3.1850	70	L	82.5	R
75,0	2.9528	52.5	R	65	R	78,0	3.0709	62.5	R	75	R	81,0	3.1890	20	L	42.5	L
75,1	2.9567	57.5	R	70	R	78,1	3.0748	82.5	R	92.5	R	81,1	3.1929	12.5	L	40	L
75,2	2.9606	70	R	82.5	R	78,2	3.0787	82.5	R	92.5	R	81,2	3.1969	5	L	40	L
75,3	2.9646	70	R	82.5	R	78,3	3.0827	82.5	R	92.5	R	81,3	3.2008	0	R	37.5	L
75,4	2.9685	70	R	82.5	R	78,4	3.0866	82.5	R	92.5	R	81,4	3.2047	10	R	40	L
75,5	2.9724	70	R	82.5	R	78,5	3.0906	82.5	R	92.5	R	81,5	3.2087	20	R	45	L
75,6	2.9764	70	R	82.5	R	78,6	3.0945	82.5	R	92.5	R	81,6	3.2126	35	R	52.5	L
75,7	2.9803	70	R	82.5	R	78,7	3.0984	82.5	R	92.5	R	81,7	3.2165	57.5	R	72.5	L
75,8	2.9843	70	R	82.5	R	78,8	3.1024	82.5	R	92.5	R	81,8	3.2205	75	L	87.5	R
75,9	2.9882	70	R	82.5	R	78,9	3.1063	82.5	R	92.5	R	81,9	3.2244	45	L	60	R
76,0	2.9921	50	R	62.5	R	79,0	3.1102	75	R	87.5	R	82,0	3.2283	15	L	40	L
76,1	2.9961	57.5	R	70	R	79,1	3.1142	75	R	87.5	R	82,1	3.2323	7.5	L	40	L
76,2	3.0000	67.5	R	80	R	79,2	3.1181	75	R	87.5	R	82,2	3.2362	0	L	40	L
76,3	3.0039	67.5	R	80	R	79,3	3.1220	75	R	87.5	R	82,3	3.2402	7.5	R	40	L
76,4	3.0079	67.5	R	80	R	79,4	3.1260	75	R	87.5	R	82,4	3.2441	17.5	R	42.5	L
76,5	3.0118	67.5	R	80	R	79,5	3.1299	75	R	87.5	R	82,5	3.2480	30	R	50	L
76,6	3.0157	67.5	R	80	R	79,6	3.1339	75	R	87.5	R	82,6	3.2520	52.5	R	67.5	L
76,7	3.0197	67.5	R	80	R	79,7	3.1378	75	R	87.5	R	82,7	3.2559	82.5	L	95	R
76,8	3.0236	67.5	R	80	R	79,8	3.1417	75	R	87.5	R	82,8	3.2598	50	L	65	R
76,9	3.0276	67.5	R	80	R	79,9	3.1457	75	R	87.5	R	82,9	3.2638	30	L	50	R

(continued)

Hole Finishing

(Balancing Table • SVU-BB2 Boring Head — continued)

KRDEA012AM • KRDE065012M 65–100mm														
diameter					diameter					diameter				
mm	in	ring 1	ring 2	mm	in	ring 1	ring 2	mm	in	ring 1	ring 2			
83,0	3.2677	10 L	40 L	86,0	3.3858	10 R	40 L	89,0	3.5039	42.5 R	57.5 L			
83,1	3.2717	2.5 L	37.5 L	86,1	3.3898	20 R	45 L	89,1	3.5079	72.5 R	85 L			
83,2	3.2756	5 R	40 L	86,2	3.3937	35 R	52.5 L	89,2	3.5118	62.5 L	75 R			
83,3	3.2795	15 R	42.5 L	86,3	3.3976	57.5 R	72.5 L	89,3	3.5157	37.5 L	55 R			
83,4	3.2835	27.5 R	47.5 L	86,4	3.4016	75 L	87.5 R	89,4	3.5197	22.5 L	45 R			
83,5	3.2874	47.5 R	62.5 L	86,5	3.4055	45 L	60 R	89,5	3.5236	10 L	40 R			
83,6	3.2913	77.5 R	90 L	86,6	3.4094	27.5 L	47.5 R	89,6	3.5276	0 L	37.5 R			
83,7	3.2953	55 L	70 R	86,7	3.4134	15 L	42.5 R	89,7	3.5315	5 R	40 R			
83,8	3.2992	32.5 L	50 R	86,8	3.4173	5 L	40 R	89,8	3.5354	12.5 R	40 R			
83,9	3.3031	17.5 L	42.5 R	86,9	3.4213	2.5 R	40 R	89,9	3.5394	17.5 R	42.5 R			
84,0	3.3071	5 L	37.5 L	87,0	3.4252	17.5 R	42.5 L	90,0	3.5433	65 R	77.5 L			
84,1	3.3110	2.5 R	37.5 L	87,1	3.4291	30 R	50 L	90,1	3.5472	70 L	82.5 R			
84,2	3.3150	12.5 R	40 L	87,2	3.4331	52.5 R	67.5 L	90,2	3.5512	40 L	57.5 R			
84,3	3.3189	25 R	47.5 L	87,3	3.4370	82.5 L	95 R	90,3	3.5551	22.5 L	45 R			
84,4	3.3228	42.5 R	57.5 L	87,4	3.4409	50 L	65 R	90,4	3.5591	12.5 L	40 R			
84,5	3.3268	72.5 R	85 L	87,5	3.4449	30 L	50 R	90,5	3.5630	2.5 L	37.5 R			
84,6	3.3307	62.5 L	75 R	87,6	3.4488	17.5 L	42.5 R	90,6	3.5669	5 R	37.5 R			
84,7	3.3346	37.5 L	55 R	87,7	3.4528	7.5 L	40 R	90,7	3.5709	10 R	40 R			
84,8	3.3386	22.5 L	45 R	87,8	3.4567	2.5 R	37.5 R	90,8	3.5748	17.5 R	42.5 R			
84,9	3.3425	10 L	40 R	87,9	3.4606	7.5 R	40 R	90,9	3.5787	22.5 R	45 R			
85,0	3.3465	2.5 R	40 L	88,0	3.4646	27.5 R	47.5 L	91,0	3.5827	75 L	87.5 R			
85,1	3.3504	10 R	40 L	88,1	3.4685	47.5 R	62.5 L	91,1	3.5866	47.5 L	62.5 R			
85,2	3.3543	22.5 R	45 L	88,2	3.4724	77.5 R	90 L	91,2	3.5906	27.5 L	47.5 R			
85,3	3.3583	37.5 R	55 L	88,3	3.4764	55 L	70 R	91,3	3.5945	15 L	42.5 R			
85,4	3.3622	65 R	77.5 L	88,4	3.4803	35 L	52.5 R	91,4	3.5984	5 L	40 R			
85,5	3.3661	70 L	82.5 R	88,5	3.4843	17.5 L	42.5 R	91,5	3.6024	2.5 R	40 R			
85,6	3.3701	40 L	57.5 R	88,6	3.4882	7.5 L	40 R	91,6	3.6063	10 R	40 R			
85,7	3.3740	22.5 L	45 R	88,7	3.4921	0 R	40 R	91,7	3.6102	15 R	42.5 R			
85,8	3.3780	12.5 L	40 R	88,8	3.4961	7.5 R	40 R	91,8	3.6142	22.5 R	45 R			
85,9	3.3819	2.5 L	37.5 R	88,9	3.5000	12.5 R	42.5 R	91,9	3.6181	27.5 R	47.5 R			
92,0	3.6220	50 L	65 R	95,0	3.7402	12.5 L	40 R	98,0	3.8583	7.5 R	40 R			
92,1	3.6260	30 L	50 R	95,1	3.7441	2.5 L	37.5 R	98,1	3.8622	12.5 R	42.5 R			
92,2	3.6299	17.5 L	42.5 R	95,2	3.7480	5 R	37.5 R	98,2	3.8661	20 R	42.5 R			
92,3	3.6339	7.5 L	40 R	95,3	3.7520	10 R	40 R	98,3	3.8701	25 R	47.5 R			
92,4	3.6378	2.5 R	37.5 R	95,4	3.7559	17.5 R	42.5 R	98,4	3.8740	30 R	50 R			
92,5	3.6417	7.5 R	40 R	95,5	3.7598	22.5 R	45 R	98,5	3.8780	37.5 R	55 R			
92,6	3.6457	15 R	40 R	95,6	3.7638	27.5 R	47.5 R	98,6	3.8819	42.5 R	60 R			
92,7	3.6496	20 R	45 R	95,7	3.7677	35 R	52.5 R	98,7	3.8858	50 R	65 R			
92,8	3.6535	25 R	47.5 R	95,8	3.7717	40 R	57.5 R	98,8	3.8898	57.5 R	72.5 R			
92,9	3.6575	32.5 R	50 R	95,9	3.7756	47.5 R	62.5 R	98,9	3.8937	70 R	82.5 R			
93,0	3.6614	35 L	52.5 R	96,0	3.7795	5 L	40 R	99,0	3.8976	12.5 R	40 R			
93,1	3.6654	17.5 L	42.5 R	96,1	3.7835	2.5 R	40 R	99,1	3.9016	17.5 R	42.5 R			
93,2	3.6693	7.5 L	40 R	96,2	3.7874	10 R	40 R	99,2	3.9055	25 R	45 R			
93,3	3.6732	0 R	37.5 R	96,3	3.7913	15 R	42.5 R	99,3	3.9094	30 R	50 R			
93,4	3.6772	7.5 R	40 R	96,4	3.7953	22.5 R	45 R	99,4	3.9134	35 R	52.5 R			
93,5	3.6811	12.5 R	42.5 R	96,5	3.7992	27.5 R	47.5 R	99,5	3.9173	42.5 R	57.5 R			
93,6	3.6850	20 R	42.5 R	96,6	3.8031	32.5 R	52.5 R	99,6	3.9213	47.5 R	62.5 R			
93,7	3.6890	25 R	47.5 R	96,7	3.8071	40 R	55 R	99,7	3.9252	55 R	70 R			
93,8	3.6929	30 R	50 R	96,8	3.8110	45 R	60 R	99,8	3.9291	62.5 R	80 R			
93,9	3.6969	37.5 R	55 R	96,9	3.8150	52.5 R	67.5 R	99,9	3.9331	67.5 R	80 R			
94,0	3.7008	22.5 L	45 R	97,0	3.8189	2.5 R	37.5 R	100,0	3.9370	17.5 R	42.5 R			
94,1	3.7047	10 L	40 R	97,1	3.8228	7.5 R	40 R	100,1	3.9409	22.5 R	45 R			
94,2	3.7087	2.5 L	40 R	97,2	3.8268	15 R	40 R	100,2	3.9449	27.5 R	47.5 R			
94,3	3.7126	5 R	40 R	97,3	3.8307	20 R	45 R	100,3	3.9488	35 R	52.5 R			
94,4	3.7165	12.5 R	40 R	97,4	3.8346	25 R	47.5 R	100,4	3.9528	40 R	57.5 R			
94,5	3.7205	17.5 R	42.5 R	97,5	3.8386	32.5 R	50 R	100,5	3.9567	47.5 R	62.5 R			
94,6	3.7244	25 R	45 R	97,6	3.8425	37.5 R	55 R	100,6	3.9606	55 R	70 R			
94,7	3.7283	30 R	50 R	97,7	3.8465	45 R	60 R	100,7	3.9646	65 R	77.5 R			
94,8	3.7323	35 R	52.5 R	97,8	3.8504	50 R	65 R	100,8	3.9685	65 R	77.5 R			
94,9	3.7362	42.5 R	57.5 R	97,9	3.8543	60 R	72.5 R	100,9	3.9724	65 R	77.5 R			



■ Balancing Table • SVU-65 Boring Head



1. There is one balancing dial on the SVU system.
2. Look up your diameter in the table below and read the setting values for ring 1.
3. Set ring 1, referencing to the body mark (one dial mark equals 2.5 units).

Hole Finishing

KRDE070019M												KRDE083019M											
KRCSCFPR061E 71–76mm				KRCSCFPR062E 75,5–81,5mm				KRCSCFPR063E 80–85mm				KRCSCFPR061E 84–89mm				KRCSCFPR062E 88,5–93,5mm							
diameter		balancing ring setting		diameter		balancing ring setting		diameter		balancing ring setting		diameter		balancing ring setting		diameter		balancing ring setting					
mm	in			mm	in			mm	in			mm	in			mm	in						
70,99	2.795	40	L	75,49	2.972	35	L	80,01	3.150	30	L	84,00	3.307	47.5	L	88,49	3.484	40	L				
71,12	2.800	37.5	L	75,59	2.976	32.5	L	80,16	3.156	27.5	L	84,12	3.312	45	L	88,65	3.490	37.5	L				
71,27	2.806	35	L	75,77	2.983	30	L	80,34	3.163	25	L	84,25	3.317	42.5	L	88,80	3.496	35	L				
71,42	2.812	32.5	L	75,95	2.990	27.5	L	80,52	3.170	22.5	L	84,38	3.322	40	L	88,95	3.502	32.5	L				
71,60	2.819	30	L	76,10	2.996	25	L	80,70	3.177	20	L	84,51	3.327	37.5	L	89,08	3.507	30	L				
71,78	2.826	27.5	L	76,28	3.003	22.5	L	80,87	3.184	17.5	L	84,66	3.333	35	L	89,26	3.514	27.5	L				
71,96	2.833	25	L	76,48	3.011	20	L	81,08	3.192	15	L	84,81	3.339	32.5	L	89,41	3.520	25	L				
72,14	2.840	22.5	L	76,66	3.018	17.5	L	81,25	3.199	12.5	L	84,96	3.345	30	L	89,56	3.526	22.5	L				
72,31	2.847	20	L	76,84	3.025	15	L	81,46	3.207	10	L	85,12	3.351	27.5	L	89,74	3.533	20	L				
72,49	2.854	17.5	L	77,04	3.033	12.5	L	81,64	3.214	7.5	L	85,27	3.357	25	L	89,89	3.539	17.5	L				
72,69	2.862	15	L	77,22	3.040	10	L	81,84	3.222	5	L	85,42	3.363	22.5	L	90,07	3.546	15	L				
72,87	2.869	12.5	L	77,42	3.048	7.5	L	82,02	3.229	2.5	L	85,60	3.370	20	L	90,22	3.552	12.5	L				
73,08	2.877	10	L	77,62	3.056	5	L	82,22	3.237	0	–	85,78	3.377	17.5	L	90,40	3.559	10	L				
73,25	2.884	7.5	L	77,80	3.063	2.5	L	82,42	3.245	2.5	R	85,93	3.383	15	L	90,58	3.566	7.5	L				
73,46	2.892	5	L	78,00	3.071	0	–	82,60	3.252	5	R	86,11	3.390	12.5	L	90,75	3.573	5	L				
73,66	2.900	2.5	L	78,21	3.079	2.5	R	82,80	3.260	7.5	R	86,28	3.397	10	L	90,93	3.580	2.5	L				
73,86	2.908	0	–	78,38	3.086	5	R	82,98	3.267	10	R	86,46	3.404	7.5	L	91,11	3.587	0	–				
74,04	2.915	2.5	R	78,59	3.094	7.5	R	83,19	3.275	12.5	R	86,64	3.411	5	L	91,29	3.594	2.5	R				
74,24	2.923	5	R	78,77	3.101	10	R	83,36	3.282	15	R	86,82	3.418	2.5	L	91,47	3.601	5	R				
74,45	2.931	7.5	R	78,97	3.109	12.5	R	83,57	3.290	17.5	R	87,00	3.425	0	–	91,64	3.608	7.5	R				
74,63	2.938	10	R	79,15	3.116	15	R	83,74	3.297	20	R	87,17	3.432	2.5	R	91,80	3.614	10	R				
74,83	2.946	12.5	R	79,35	3.124	17.5	R	83,92	3.304	22.5	R	87,33	3.438	5	R	91,97	3.621	12.5	R				
75,01	2.953	15	R	79,53	3.131	20	R	84,10	3.311	25	R	87,50	3.445	7.5	R	92,15	3.628	15	R				
75,21	2.961	17.5	R	79,71	3.138	22.5	R	84,28	3.318	27.5	R	87,68	3.452	10	R	92,33	3.635	17.5	R				
75,39	2.968	20	R	79,88	3.145	25	R	84,46	3.325	30	R	87,86	3.459	12.5	R	92,48	3.641	20	R				
75,57	2.975	22.5	R	80,06	3.152	27.5	R	84,61	3.331	32.5	R	88,04	3.466	15	R	92,66	3.648	22.5	R				
75,74	2.982	25	R	80,24	3.159	30	R	84,79	3.338	35	R	88,21	3.473	17.5	R	92,81	3.654	25	R				
75,92	2.989	27.5	R	80,42	3.166	32.5	R	84,94	3.344	37.5	R	88,37	3.479	20	R	92,96	3.660	27.5	R				
76,00	2.992	30	R	80,49	3.169	35	R	84,99	3.346	40	R	88,54	3.486	22.5	R	93,12	3.666	30	R				
–	–	–	–	–	–	–	–	–	–	–	–	88,70	3.492	25	R	93,27	3.672	32.5	R				
–	–	–	–	–	–	–	–	–	–	–	–	88,85	3.498	27.5	R	93,42	3.678	35	R				
–	–	–	–	–	–	–	–	–	–	–	–	89,00	3.504	30	R	93,50	3.681	37.5	R				

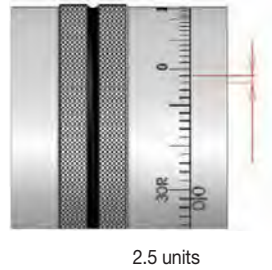
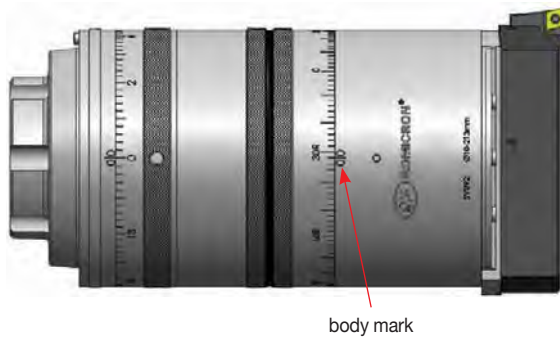
(continued)

(Balancing Table • SVU-65 Boring Head — continued)

KRDE083019M				KRDE096019M											
KRCSCFPR063E				KRCSCFPR061E				KRCSCFPR062E				KRCSCFPR063E			
93–98mm				97–102mm				101,5–106,5mm				106–111mm			
diameter		balancing		diameter		balancing		diameter		balancing		diameter		balancing	
mm	in	ring	setting	mm	in	ring	setting	mm	in	ring	setting	mm	in	ring	setting
92,99	3.661	35	L	97,00	3.819	55	L	101,50	3.996	45	L	105,99	4.173	37.5	L
93,14	3.667	32.5	L	97,05	3.821	52.5	L	101,60	4.000	42.5	L	106,17	4.180	35	L
93,29	3.673	30	L	97,16	3.825	50	L	101,73	4.005	40	L	106,32	4.186	32.5	L
93,45	3.679	27.5	L	97,28	3.830	47.5	L	101,85	4.010	37.5	L	106,45	4.191	30	L
93,60	3.685	25	L	97,38	3.834	45	L	101,98	4.015	35	L	106,58	4.196	27.5	L
93,78	3.692	22.5	L	97,51	3.839	42.5	L	102,13	4.021	32.5	L	106,73	4.202	25	L
93,93	3.698	20	L	97,61	3.843	40	L	102,26	4.026	30	L	106,88	4.208	22.5	L
94,11	3.705	17.5	L	97,74	3.848	37.5	L	102,41	4.032	27.5	L	107,04	4.214	20	L
94,26	3.711	15	L	97,87	3.853	35	L	102,54	4.037	25	L	107,19	4.220	17.5	L
94,44	3.718	12.5	L	98,02	3.859	32.5	L	102,69	4.043	22.5	L	107,34	4.226	15	L
94,62	3.725	10	L	98,15	3.864	30	L	102,84	4.049	20	L	107,49	4.232	12.5	L
94,79	3.732	7.5	L	98,30	3.870	27.5	L	103,00	4.055	17.5	L	107,65	4.238	10	L
94,95	3.738	5	L	98,45	3.876	25	L	103,15	4.061	15	L	107,82	4.245	7.5	L
95,12	3.745	2.5	L	98,58	3.881	22.5	L	103,30	4.067	12.5	L	107,98	4.251	5	L
95,30	3.752	0	–	98,73	3.887	20	L	103,48	4.074	10	L	108,13	4.257	2.5	L
95,48	3.759	2.5	R	98,88	3.893	17.5	L	103,63	4.080	7.5	L	108,31	4.264	0	–
95,66	3.766	5	R	99,06	3.900	15	L	103,78	4.086	5	L	108,46	4.270	2.5	R
95,83	3.773	7.5	R	99,21	3.906	12.5	L	103,96	4.093	2.5	L	108,61	4.276	5	R
96,01	3.780	10	R	99,36	3.912	10	L	104,11	4.099	0	–	108,79	4.283	7.5	R
96,19	3.787	12.5	R	99,52	3.918	7.5	L	104,27	4.105	2.5	R	108,94	4.289	10	R
96,34	3.793	15	R	99,70	3.925	5	L	104,44	4.112	5	R	109,09	4.295	12.5	R
96,52	3.800	17.5	R	99,85	3.931	2.5	L	104,60	4.118	7.5	R	109,25	4.301	15	R
96,67	3.806	20	R	100,03	3.938	0	–	104,75	4.124	10	R	109,40	4.307	17.5	R
96,85	3.813	22.5	R	100,18	3.944	2.5	R	104,90	4.130	12.5	R	109,55	4.313	20	R
97,00	3.819	25	R	100,33	3.950	5	R	105,08	4.137	15	R	109,70	4.319	22.5	R
97,16	3.825	27.5	R	100,51	3.957	7.5	R	105,23	4.143	17.5	R	109,86	4.325	25	R
97,31	3.831	30	R	100,66	3.963	10	R	105,38	4.149	20	R	110,01	4.331	27.5	R
97,46	3.837	32.5	R	100,81	3.969	12.5	R	105,54	4.155	22.5	R	110,13	4.336	30	R
97,61	3.843	35	R	100,97	3.975	15	R	105,69	4.161	25	R	110,29	4.342	32.5	R
97,76	3.849	37.5	R	101,14	3.982	17.5	R	105,82	4.166	27.5	R	110,41	4.347	35	R
97,89	3.854	40	R	101,30	3.988	20	R	105,97	4.172	30	R	110,54	4.352	37.5	R
97,99	3.858	42.5	R	101,45	3.994	22.5	R	106,10	4.177	32.5	R	110,67	4.357	40	R
–	–	–	–	101,57	3.999	25	R	106,25	4.183	35	R	110,79	4.362	42.5	R
–	–	–	–	101,73	4.005	27.5	R	106,38	4.188	37.5	R	110,90	4.366	45	R
–	–	–	–	104,39	4.110	30	R	106,43	4.190	40	R	111,00	4.370	47.5	R
–	–	–	–	102,01	4.016	32.5	R	106,53	4.194	42.5	R	–	–	–	–



■ Balancing Table • SVU-92 Boring Head



1. There is one balancing dial on the SVU system.
2. Look up your diameter in the table below and read the setting values for ring 1.
3. Set ring 1, referencing to the body mark (one dial mark equals 2.5 units).

Hole Finishing

KRDE101023M												KRDE120023M											
KRCSCFPR061F 101–108mm				KRCSCFPR062F 107,5–114,5mm				KRCSCFPR063F 114–121mm				KRCSCFPR061F 120–127mm				KRCSCFPR062F 126,5–133,5mm							
diameter		balancing ring setting		diameter		balancing ring setting		diameter		balancing ring setting		diameter		balancing ring setting		diameter		balancing ring setting					
mm	in			mm	in			mm	in			mm	in			mm	in						
100,99	3.976	36	L	107,49	4.232	34	L	114,00	4.488	30	L	119,99	4.724	40	L	126,49	4.980	36	L				
101,19	3.984	34	L	107,62	4.237	32	L	114,22	4.497	28	L	120,19	4.732	38	L	126,72	4.989	34	L				
101,40	3.992	32	L	107,80	4.244	30	L	114,40	4.504	26	L	120,35	4.738	36	L	126,90	4.996	32	L				
101,57	3.999	30	L	108,00	4.252	28	L	114,60	4.512	24	L	120,52	4.745	34	L	127,08	5.003	30	L				
101,78	4.007	28	L	108,20	4.260	26	L	114,81	4.520	22	L	120,70	4.752	32	L	127,25	5.010	28	L				
101,98	4.015	26	L	108,41	4.268	24	L	115,01	4.528	20	L	120,88	4.759	30	L	127,43	5.017	26	L				
102,18	4.023	24	L	108,61	4.276	22	L	115,24	4.537	18	L	121,06	4.766	28	L	127,61	5.024	24	L				
102,39	4.031	22	L	108,81	4.284	20	L	115,44	4.545	16	L	121,23	4.773	26	L	127,81	5.032	22	L				
102,59	4.039	20	L	109,02	4.292	18	L	115,67	4.554	14	L	121,41	4.780	24	L	127,99	5.039	20	L				
102,79	4.047	18	L	109,25	4.301	16	L	115,87	4.562	12	L	121,62	4.788	22	L	128,19	5.047	18	L				
103,02	4.056	16	L	109,45	4.309	14	L	116,10	4.571	10	L	121,79	4.795	20	L	128,40	5.055	16	L				
103,23	4.064	14	L	109,68	4.318	12	L	116,31	4.579	8	L	122,00	4.803	18	L	128,57	5.062	14	L				
103,45	4.073	12	L	109,88	4.326	10	L	116,54	4.588	6	L	122,20	4.811	16	L	128,78	5.070	12	L				
103,66	4.081	10	L	110,11	4.335	8	L	116,76	4.597	4	L	122,38	4.818	14	L	128,98	5.078	10	L				
103,89	4.090	8	L	110,34	4.344	6	L	116,97	4.605	2	L	122,58	4.826	12	L	129,18	5.086	8	L				
104,11	4.099	6	L	110,57	4.353	4	L	117,20	4.614	0	-	122,78	4.834	10	L	129,39	5.094	6	L				
104,32	4.107	4	L	110,77	4.361	2	L	117,42	4.623	2	R	122,99	4.842	8	L	129,59	5.102	4	L				
104,55	4.116	2	L	111,00	4.370	0	-	117,65	4.632	4	R	123,19	4.850	6	L	129,79	5.110	2	L				
104,78	4.125	0	-	111,23	4.379	2	R	117,86	4.640	6	R	123,39	4.858	4	L	130,00	5.118	0	-				
105,00	4.134	2	R	111,46	4.388	4	R	118,08	4.649	8	R	123,60	4.866	2	L	130,20	5.126	2	R				
105,23	4.143	4	R	111,66	4.396	6	R	118,31	4.658	10	R	123,80	4.874	0	-	130,40	5.134	4	R				
105,44	4.151	6	R	111,89	4.405	8	R	118,52	4.666	12	R	124,00	4.882	2	R	130,61	5.142	6	R				
105,66	4.160	8	R	112,12	4.414	10	R	118,75	4.675	14	R	124,21	4.890	4	R	130,81	5.150	8	R				
105,89	4.169	10	R	107,19	4.220	12	R	118,95	4.683	16	R	124,41	4.898	6	R	131,01	5.158	10	R				
106,10	4.177	12	R	112,55	4.431	14	R	119,18	4.692	18	R	124,61	4.906	8	R	131,22	5.166	12	R				
106,32	4.186	14	R	112,75	4.439	16	R	119,38	4.700	20	R	124,82	4.914	10	R	131,42	5.174	14	R				
106,53	4.194	16	R	112,98	4.448	18	R	119,58	4.708	22	R	125,02	4.922	12	R	131,62	5.182	16	R				
106,76	4.203	18	R	113,18	4.456	20	R	119,79	4.716	24	R	125,22	4.930	14	R	131,80	5.189	18	R				
106,96	4.211	20	R	113,39	4.464	22	R	119,99	4.724	26	R	125,43	4.938	16	R	132,00	5.197	20	R				
107,16	4.219	22	R	113,59	4.472	24	R	120,19	4.732	28	R	125,63	4.946	18	R	132,18	5.204	22	R				
107,37	4.227	24	R	113,79	4.480	26	R	120,37	4.739	30	R	125,81	4.953	20	R	132,38	5.212	24	R				
107,57	4.235	26	R	114,00	4.488	28	R	120,57	4.747	32	R	126,01	4.961	22	R	132,56	5.219	26	R				
107,77	4.243	28	R	114,20	4.496	30	R	120,75	4.754	34	R	126,19	4.968	24	R	132,74	5.226	28	R				
107,98	4.251	30	R	114,38	4.503	32	R	120,93	4.761	36	R	126,37	4.975	26	R	132,92	5.233	30	R				
108,00	4.252	32	R	114,50	4.508	34	R	121,01	4.764	38	R	126,57	4.983	28	R	133,10	5.240	32	R				
-	-	-	-	-	-	-	-	-	-	-	-	126,75	4.990	30	R	133,27	5.247	34	R				
-	-	-	-	-	-	-	-	-	-	-	-	126,92	4.997	32	R	133,45	5.254	36	R				
-	-	-	-	-	-	-	-	-	-	-	-	127,00	5.000	34	R	133,50	5.256	38	R				

(continued)

(Balancing Table • SVU-92 Boring Head — continued)

KRDE120023M				KRDE139026M											
KRCSCFPR063F				KRCSCFPR061F				KRCSCFPR062F				KRCSCFPR063F			
133–140mm				139–146mm				145,5–152,5mm				152–159mm			
diameter		balancing		diameter		balancing		diameter		balancing		diameter		balancing	
mm	in	ring	setting	mm	in	ring	setting	mm	in	ring	setting	mm	in	ring	setting
132,99	5.236	34	L	138,99	5.472	50	L	145,49	5.728	44	L	151,99	5.984	40	L
133,10	5.240	32	L	139,09	5.476	48	L	145,67	5.735	42	L	152,12	5.989	38	L
133,27	5.247	30	L	139,22	5.481	46	L	145,80	5.740	40	L	152,27	5.995	36	L
133,45	5.254	28	L	139,34	5.486	44	L	145,95	5.746	38	L	152,40	6.000	34	L
133,63	5.261	26	L	139,47	5.491	42	L	146,08	5.751	36	L	152,55	6.006	32	L
133,81	5.268	24	L	139,60	5.496	40	L	146,23	5.757	34	L	152,70	6.012	30	L
133,99	5.275	22	L	139,73	5.501	38	L	146,35	5.762	32	L	152,86	6.018	28	L
134,19	5.283	20	L	139,88	5.507	36	L	146,51	5.768	30	L	153,01	6.024	26	L
134,37	5.290	18	L	140,00	5.512	34	L	146,66	5.774	28	L	153,16	6.030	24	L
134,57	5.298	16	L	140,16	5.518	32	L	146,81	5.780	26	L	153,31	6.036	22	L
134,77	5.306	14	L	140,31	5.524	30	L	146,99	5.787	24	L	153,49	6.043	20	L
134,98	5.314	12	L	140,46	5.530	28	L	147,14	5.793	22	L	153,64	6.049	18	L
135,18	5.322	10	L	140,61	5.536	26	L	147,29	5.799	20	L	153,82	6.056	16	L
135,36	5.329	8	L	140,77	5.542	24	L	147,47	5.806	18	L	153,97	6.062	14	L
135,56	5.337	6	L	140,92	5.548	22	L	147,62	5.812	16	L	154,15	6.069	12	L
135,76	5.345	4	L	141,10	5.555	20	L	147,80	5.819	14	L	154,33	6.076	10	L
135,97	5.353	2	L	141,25	5.561	18	L	147,96	5.825	12	L	154,48	6.082	8	L
136,17	5.361	0	–	141,43	5.568	16	L	148,13	5.832	10	L	154,66	6.089	6	L
136,37	5.369	2	R	141,58	5.574	14	L	148,31	5.839	8	L	154,84	6.096	4	L
136,58	5.377	4	R	141,76	5.581	12	L	148,49	5.846	6	L	155,02	6.103	2	L
162,18	6.385	6	R	141,94	5.588	10	L	148,64	5.852	4	L	155,19	6.110	0	–
136,98	5.393	8	R	142,11	5.595	8	L	148,82	5.859	2	L	155,35	6.116	2	R
137,19	5.401	10	R	142,27	5.601	6	L	149,00	5.866	0	–	155,52	6.123	4	R
137,39	5.409	12	R	142,44	5.608	4	L	149,17	5.873	2	R	155,70	6.130	6	R
137,59	5.417	14	R	142,62	5.615	2	L	149,35	5.880	4	R	155,88	6.137	8	R
137,80	5.425	16	R	142,80	5.622	0	–	149,53	5.887	6	R	156,03	6.143	10	R
137,97	5.432	18	R	142,98	5.629	2	R	149,68	5.893	8	R	156,21	6.150	12	R
138,18	5.440	20	R	143,15	5.636	4	R	149,86	5.900	10	R	156,39	6.157	14	R
138,38	5.448	22	R	143,31	5.642	6	R	150,04	5.907	12	R	156,54	6.163	16	R
138,56	5.455	24	R	143,48	5.649	8	R	150,19	5.913	14	R	156,72	6.170	18	R
138,73	5.462	26	R	143,66	5.656	10	R	150,37	5.920	16	R	156,87	6.176	20	R
138,91	5.469	28	R	143,84	5.663	12	R	150,55	5.927	18	R	157,05	6.183	22	R
139,09	5.476	30	R	143,99	5.669	14	R	150,70	5.933	20	R	157,20	6.189	24	R
139,27	5.483	32	R	144,17	5.676	16	R	150,85	5.939	22	R	157,35	6.195	26	R
139,45	5.490	34	R	144,32	5.682	18	R	151,03	5.946	24	R	157,51	6.201	28	R
139,60	5.496	36	R	144,50	5.689	20	R	151,18	5.952	26	R	157,66	6.207	30	R
139,78	5.503	38	R	144,65	5.695	22	R	151,33	5.958	28	R	157,81	6.213	32	R
139,93	5.509	40	R	144,83	5.702	24	R	151,49	5.964	30	R	157,96	6.219	34	R
140,00	5.512	42	R	144,98	5.708	26	R	151,64	5.970	32	R	158,09	6.224	36	R
–	–	–	–	145,14	5.714	28	R	151,79	5.976	34	R	158,24	6.23	38	R
–	–	–	–	145,29	5.720	30	R	151,92	5.981	36	R	158,37	6.235	40	R
–	–	–	–	145,44	5.726	32	R	152,07	5.987	38	R	158,50	6.24	42	R
–	–	–	–	145,57	5.731	34	R	152,20	5.992	40	R	158,62	6.245	44	R
–	–	–	–	145,72	5.737	36	R	152,32	5.997	42	R	158,75	6.25	46	R
–	–	–	–	145,87	5.743	38	R	152,45	6.002	44	R	158,88	6.255	48	R
–	–	–	–	145,97	5.747	40	R	152,50	6.004	46	R	158,98	6.259	50	R
–	–	–	–	146,00	5.748	42	R	–	–	–	–	159,00	6.26	52	R



(continued)

(Balancing Table • SVU-92 Boring Head — continued)

KRDE156026M

KRCSFPR061F 156–163mm				KRCSFPR062F 162,5–169,5mm				KRCSFPR063F 169–176mm			
diameter		balancing ring setting		diameter		balancing ring setting		diameter		balancing ring setting	
mm	in			mm	in			mm	in		
156,01	6.142	56	L	162,51	6.398	50	L	169,01	6.654	44	L
156,11	6.146	54	L	162,61	6.402	48	L	169,11	6.658	42	L
156,21	6.150	52	L	162,71	6.406	46	L	169,24	6.663	40	L
156,31	6.154	50	L	162,81	6.410	44	L	169,37	6.668	38	L
156,41	6.158	48	L	162,94	6.415	42	L	169,49	6.673	36	L
156,51	6.162	46	L	163,07	6.420	40	L	169,62	6.678	34	L
156,62	6.166	44	L	163,20	6.425	38	L	169,75	6.683	32	L
156,74	6.171	42	L	163,32	6.430	36	L	169,90	6.689	30	L
156,87	6.176	40	L	163,45	6.435	34	L	170,03	6.694	28	L
157,00	6.181	38	L	163,58	6.440	32	L	170,18	6.700	26	L
157,12	6.186	36	L	163,70	6.445	30	L	170,33	6.706	24	L
157,25	6.191	34	L	163,86	6.451	28	L	170,46	6.711	22	L
157,38	6.196	32	L	164,01	6.457	26	L	170,61	6.717	20	L
157,53	6.202	30	L	164,13	6.462	24	L	170,76	6.723	18	L
157,66	6.207	28	L	164,29	6.468	22	L	170,92	6.729	16	L
157,81	6.213	26	L	164,44	6.474	20	L	171,07	6.735	14	L
157,94	6.218	24	L	164,59	6.480	18	L	171,22	6.741	12	L
158,09	6.224	22	L	164,74	6.486	16	L	171,37	6.747	10	L
158,24	6.230	20	L	164,90	6.492	14	L	171,55	6.754	8	L
158,39	6.236	18	L	165,05	6.498	12	L	171,70	6.760	6	L
158,55	6.242	16	L	165,20	6.504	10	L	171,86	6.766	4	L
158,70	6.248	14	L	165,35	6.510	8	L	172,01	6.772	2	L
158,85	6.254	12	L	165,53	6.517	6	L	172,19	6.779	0	–
159,00	6.260	10	L	165,68	6.523	4	L	172,34	6.785	2	R
159,18	6.267	8	L	165,84	6.529	2	L	172,49	6.791	4	R
159,33	6.273	6	L	165,99	6.535	0	–	172,64	6.797	6	R
159,49	6.279	4	L	166,17	6.542	2	R	172,82	6.804	8	R
159,64	6.285	2	L	166,32	6.548	4	R	172,97	6.810	10	R
159,82	6.292	0	–	166,47	6.554	6	R	173,13	6.816	12	R
159,97	6.298	2	R	166,62	6.560	8	R	173,28	6.822	14	R
160,12	6.304	4	R	166,80	6.567	10	R	173,43	6.828	16	R
160,27	6.310	6	R	166,95	6.573	12	R	173,58	6.834	18	R
160,45	6.317	8	R	167,11	6.579	14	R	173,74	6.840	20	R
160,60	6.323	10	R	167,26	6.585	16	R	173,89	6.846	22	R
160,76	6.329	12	R	167,41	6.591	18	R	174,04	6.852	24	R
160,91	6.335	14	R	167,56	6.597	20	R	174,17	6.857	26	R
161,06	6.341	16	R	167,72	6.603	22	R	174,32	6.863	28	R
161,21	6.347	18	R	167,87	6.609	24	R	174,45	6.868	30	R
161,37	6.353	20	R	168,00	6.614	26	R	174,60	6.874	32	R
161,52	6.359	22	R	168,15	6.620	28	R	174,73	6.879	34	R
161,67	6.365	24	R	168,28	6.625	30	R	174,85	6.884	36	R
161,82	6.371	26	R	168,43	6.631	32	R	174,98	6.889	38	R
161,95	6.376	28	R	168,55	6.636	34	R	175,11	6.894	40	R
162,10	6.382	30	R	168,68	6.641	36	R	175,23	6.899	42	R
162,23	6.387	32	R	168,81	6.646	38	R	175,34	6.903	44	R
162,36	6.392	34	R	168,94	6.651	40	R	175,46	6.908	46	R
162,51	6.398	36	R	169,06	6.656	42	R	175,56	6.912	48	R
162,64	6.403	38	R	169,16	6.660	44	R	175,67	6.916	50	R
162,74	6.407	40	R	169,29	6.665	46	R	175,77	6.920	52	R
162,86	6.412	42	R	169,39	6.669	48	R	175,87	6.924	54	R
162,99	6.417	44	R	169,49	6.673	50	R	175,95	6.927	56	R
162,99	6.417	46	R	169,49	6.673	52	R	176,00	6.929	58	R

(continued)



Hole Finishing

(Balancing Table • SVU-92 Boring Head — continued)

KRDE175026M

KRCSCFPR061F 175–182mm				KRCSCFPR062F 181,5–188,5mm				KRCSCFPR063F 188–195mm			
diameter		balancing ring setting		diameter		balancing ring setting		diameter		balancing ring setting	
mm	in			mm	in			mm	in		
175,01	6.890	64	L	181,51	7.146	56	L	188,0108	7.402	48	L
175,06	6.892	62	L	181,56	7.148	54	L	188,1124	7.406	46	L
175,13	6.895	60	L	181,64	7.151	52	L	188,214	7.410	44	L
175,21	6.898	58	L	181,74	7.155	50	L	188,3156	7.414	42	L
175,29	6.901	56	L	181,84	7.159	48	L	188,4426	7.419	40	L
175,36	6.904	54	L	181,94	7.163	46	L	188,5442	7.423	38	L
175,46	6.908	52	L	182,04	7.167	44	L	188,6712	7.428	36	L
175,56	6.912	50	L	182,14	7.171	42	L	188,7982	7.433	34	L
175,64	6.915	48	L	182,27	7.176	40	L	188,8998	7.437	32	L
175,74	6.919	46	L	182,37	7.180	38	L	189,0268	7.442	30	L
175,87	6.924	44	L	182,50	7.185	36	L	189,1792	7.448	28	L
175,97	6.928	42	L	182,63	7.190	34	L	189,3062	7.453	26	L
176,07	6.932	40	L	182,75	7.195	32	L	189,4332	7.458	24	L
176,20	6.937	38	L	182,88	7.200	30	L	189,5602	7.463	22	L
176,30	6.941	36	L	183,01	7.205	28	L	189,7126	7.469	20	L
176,43	6.946	34	L	183,13	7.210	26	L	189,8396	7.474	18	L
176,56	6.951	32	L	183,26	7.215	24	L	189,992	7.480	16	L
176,68	6.956	30	L	183,41	7.221	22	L	190,1444	7.486	14	L
176,81	6.961	28	L	183,54	7.226	20	L	190,2714	7.491	12	L
176,96	6.967	26	L	183,69	7.232	18	L	190,4238	7.497	10	L
177,09	6.972	24	L	183,82	7.237	16	L	114,3762	4.503	8	L
177,22	6.977	22	L	183,97	7.243	14	L	190,7286	7.509	6	L
177,37	6.983	20	L	184,12	7.249	12	L	190,8556	7.514	4	L
177,50	6.988	18	L	184,25	7.254	10	L	191,008	7.520	2	L
177,65	6.994	16	L	184,40	7.260	8	L	191,1604	7.526	0	–
177,80	7.000	14	L	184,56	7.266	6	L	191,3128	7.532	2	R
177,93	7.005	12	L	184,71	7.272	4	L	191,4652	7.538	4	R
178,08	7.011	10	L	184,86	7.278	2	L	191,6176	7.544	6	R
178,23	7.017	8	L	184,99	7.283	0	–	191,7446	7.549	8	R
178,38	7.023	6	L	185,14	7.289	2	R	191,897	7.555	10	R
178,54	7.029	4	L	185,29	7.295	4	R	192,0494	7.561	12	R
178,66	7.034	2	L	185,45	7.301	6	R	192,2018	7.567	14	R
178,82	7.040	0	–	185,60	7.307	8	R	192,3288	7.572	16	R
178,97	7.046	2	R	185,75	7.313	10	R	192,4812	7.578	18	R
179,12	7.052	4	R	185,88	7.318	12	R	192,6082	7.583	20	R
179,27	7.058	6	R	186,03	7.324	14	R	192,7606	7.589	22	R
179,43	7.064	8	R	186,18	7.330	16	R	192,8876	7.594	24	R
179,55	7.069	10	R	186,31	7.335	18	R	193,04	7.600	26	R
179,71	7.075	12	R	186,46	7.341	20	R	193,167	7.605	28	R
179,86	7.081	14	R	186,59	7.346	22	R	193,294	7.610	30	R
180,01	7.087	16	R	186,74	7.352	24	R	193,421	7.615	32	R
180,14	7.092	18	R	186,87	7.357	26	R	193,548	7.620	34	R
180,29	7.098	20	R	186,99	7.362	28	R	193,675	7.625	36	R
180,42	7.103	22	R	187,12	7.367	30	R	193,7766	7.629	38	R
180,57	7.109	24	R	187,25	7.372	32	R	193,9036	7.634	40	R
180,70	7.114	26	R	187,38	7.377	34	R	194,0052	7.638	42	R
180,82	7.119	28	R	187,50	7.382	36	R	194,1068	7.642	44	R
180,95	7.124	30	R	187,63	7.387	38	R	194,2338	7.647	46	R
181,08	7.129	32	R	187,73	7.391	40	R	194,3354	7.651	48	R
181,20	7.134	34	R	187,86	7.396	42	R	194,4116	7.654	50	R
181,33	7.139	36	R	187,96	7.400	44	R	194,5132	7.658	52	R
181,46	7.144	38	R	188,06	7.404	46	R	194,6148	7.662	54	R
181,56	7.148	40	R	188,16	7.408	48	R	194,691	7.665	56	R
181,69	7.153	42	R	188,26	7.412	50	R	194,7672	7.668	58	R
181,79	7.157	44	R	188,37	7.416	52	R	194,8434	7.671	60	R
181,89	7.161	46	R	188,44	7.419	54	R	194,9196	7.674	62	R
181,99	7.165	48	R	188,49	7.421	56	R	194,9958	7.677	64	R
181,99	7.165	50	R	–	–	–	–	194,9958	7.677	66	R



(continued)

(Balancing Table • SVU-92 Boring Head — continued)

KRDE193026M

KRCSCFPR061F 193–200mm				KRCSCFPR062F 199,5–206,5mm				KRCSCFPR063F 206–213mm			
diameter		balancing ring setting		diameter		balancing ring setting		diameter		balancing ring setting	
mm	in			mm	in			mm	in		
192,99	7.598	64	L	199,49	7.854	54	L	205,994	8.11	46	L
193,07	7.601	62	L	199,62	7.859	52	L	206,1464	8.116	44	L
193,14	7.604	60	L	199,72	7.863	50	L	206,248	8.12	42	L
193,22	7.607	58	L	199,80	7.866	48	L	206,375	8.125	40	L
193,29	7.610	56	L	199,90	7.870	46	L	206,4766	8.129	38	L
193,37	7.613	54	L	200,03	7.875	44	L	206,6036	8.134	36	L
193,47	7.617	52	L	200,13	7.879	42	L	206,7306	8.139	34	L
193,57	7.621	50	L	200,23	7.883	40	L	206,8576	8.144	32	L
193,65	7.624	48	L	200,36	7.888	38	L	206,9846	8.149	30	L
193,75	7.628	46	L	200,48	7.893	36	L	207,1116	8.154	28	L
193,88	7.633	44	L	200,61	7.898	34	L	207,2386	8.159	26	L
193,98	7.637	42	L	200,71	7.902	32	L	207,391	8.165	24	L
194,08	7.641	40	L	200,86	7.908	30	L	207,518	8.17	22	L
194,21	7.646	38	L	200,99	7.913	28	L	207,6704	8.176	20	L
194,34	7.651	36	L	201,12	7.918	26	L	207,7974	8.181	18	L
194,46	7.656	34	L	201,24	7.923	24	L	207,9498	8.187	16	L
194,59	7.661	32	L	201,40	7.929	22	L	208,1022	8.193	14	L
194,72	7.666	30	L	201,52	7.934	20	L	208,2292	8.198	12	L
194,84	7.671	28	L	201,68	7.940	18	L	208,3816	8.204	10	L
194,97	7.676	26	L	201,80	7.945	16	L	208,534	8.21	8	L
195,10	7.681	24	L	201,96	7.951	14	L	208,6864	8.216	6	L
195,25	7.687	22	L	202,11	7.957	12	L	208,8388	8.222	4	L
195,38	7.692	20	L	202,26	7.963	10	L	208,9912	8.228	2	L
195,53	7.698	18	L	202,41	7.969	8	L	209,1182	8.233	0	–
195,68	7.704	16	L	202,54	7.974	6	L	209,2706	8.239	2	R
195,81	7.709	14	L	202,69	7.980	4	L	209,423	8.245	4	R
195,96	7.715	12	L	202,84	7.986	2	L	209,5754	8.251	6	R
196,11	7.721	10	L	203,00	7.992	0	–	209,7278	8.257	8	R
196,27	7.727	8	L	203,15	7.998	2	R	209,8802	8.263	10	R
196,42	7.733	6	L	203,30	8.004	4	R	210,0326	8.269	12	R
196,57	7.739	4	L	203,45	8.010	6	R	210,1596	8.274	14	R
196,70	7.744	2	L	203,61	8.016	8	R	210,312	8.28	16	R
196,85	7.750	0	–	203,76	8.022	10	R	210,4644	8.286	18	R
197,00	7.756	2	R	203,89	8.027	12	R	210,5914	8.291	20	R
197,15	7.762	4	R	204,04	8.033	14	R	210,7438	8.297	22	R
197,31	7.768	6	R	204,19	8.039	16	R	210,8708	8.302	24	R
197,46	7.774	8	R	204,32	8.044	18	R	210,9978	8.307	26	R
197,61	7.780	10	R	204,47	8.050	20	R	211,1502	8.313	28	R
197,76	7.786	12	R	204,60	8.055	22	R	211,2772	8.318	30	R
197,89	7.791	14	R	204,75	8.061	24	R	211,4042	8.323	32	R
198,04	7.797	16	R	204,88	8.066	26	R	211,5312	8.328	34	R
198,20	7.803	18	R	205,03	8.072	28	R	211,6582	8.333	36	R
198,32	7.808	20	R	205,16	8.077	30	R	211,7598	8.337	38	R
198,48	7.814	22	R	205,28	8.082	32	R	84,8868	3.342	40	R
198,60	7.819	24	R	205,41	8.087	34	R	211,9884	8.346	42	R
198,76	7.825	26	R	205,54	8.092	36	R	212,1154	8.351	44	R
198,88	7.830	28	R	205,64	8.096	38	R	212,217	8.355	46	R
199,01	7.835	30	R	205,77	8.101	40	R	212,3186	8.359	48	R
199,14	7.840	32	R	205,87	8.105	42	R	212,4202	8.363	50	R
199,26	7.845	34	R	205,99	8.110	44	R	212,4964	8.366	52	R
199,39	7.850	36	R	206,10	8.114	46	R	212,598	8.37	54	R
199,52	7.855	38	R	206,20	8.118	48	R	212,6742	8.373	56	R
199,62	7.859	40	R	206,30	8.122	50	R	212,7758	8.377	58	R
199,75	7.864	42	R	206,38	8.125	52	R	212,852	8.38	60	R
199,85	7.868	44	R	206,48	8.129	54	R	212,9028	8.382	62	R
199,95	7.872	46	R	206,50	8.130	56	R	212,979	8.385	64	R
200,00	7.874	48	R	–	–	–	–	213,0044	8.386	66	R

Hole Finishing

Ready for Takeoff

Machining carbon-fiber reinforced polymers (CFRP) is a common challenge in the aerospace industry, and these solid carbide drills address the challenge head on. Our SPF drills feature a material-specific design and grade to machine CFRP composite materials by minimizing delamination and increasing tool life. These drills feature a combination of point design, substrate, and coating for longer tool life and substantially less cutting force.

The new PCD-tipped PDC251_ drill provides outstanding wear resistance and tool life, and withstands the most abrasive CFRP materials with high-fiber content. Multiple regrinds are possible with these drills, making them extremely economical to use.

SPF DRILL
For composite exits



FULL PCD-TIP DRILL
For composite/
metal stacks

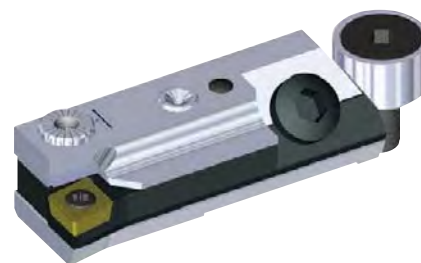
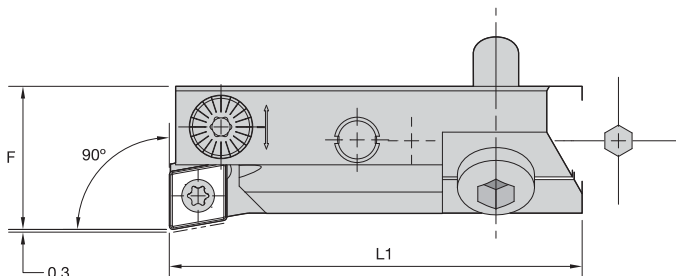
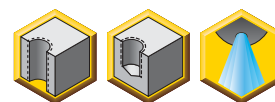
Experience the advantages at your Authorized Kennametal Distributor or at kennametal.com.

Hole Finishing • Boring Systems

90° Lead • Micro-Adjustable Cartridge • C-Style
 95° Lead • Micro-Adjustable Cartridge • C-Style



- All cartridges have internal coolant supply directed to the cutting edge.
- .0004" (0,01mm) diameter adjustment respective 0.00008" (2 µm) with vernier scale within a range of .0118" (0,3mm).
- Radial adjustment without influence on axial position.
- Axial adjustment range of .039" (1mm).
- Smallest diameters can be machined starting from 1.102" (28,0mm).

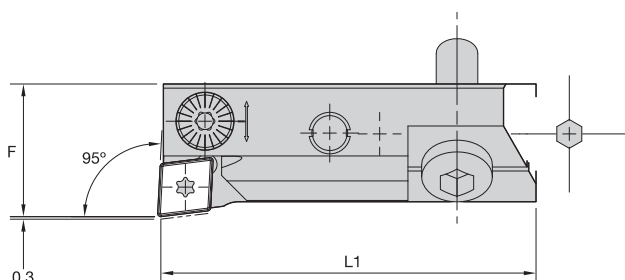
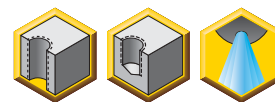


90° Lead • Micro-Adjustable Cartridge • C-Style

order number	catalog number	F		L1		gage insert	insert screw	set screw
		mm	in	mm	in			
right hand								
3784474	FBSCFCR09CA06F	16,15	.636	45,50	1.791	CCMT060204	12148068700	12147629800
left hand								
3784475	FBSCFCL09CA06F	16,15	.636	45,50	1.791	CCMT060204	12148068700	12147629800

NOTE: For use with custom solution fine-boring and countersinking tools.

- All cartridges have internal coolant supply directed to the cutting edge.
- .0004" (0,01mm) diameter adjustment respective 0.00008" (2 µm) with vernier scale within a range of .0118" (0,3mm).
- Radial adjustment without influence on axial position.
- Axial adjustment range of .039" (1mm).
- Smallest diameters can be machined starting from 1.102" (28,0mm).



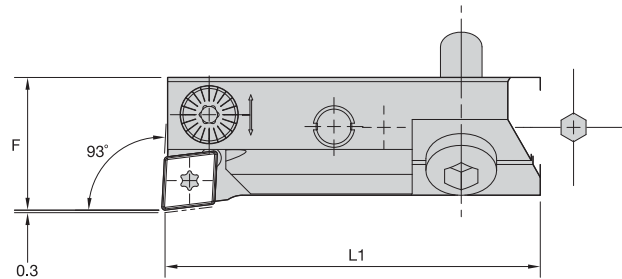
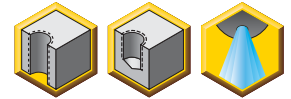
95° Lead • Micro-Adjustable Cartridge • C-Style

order number	catalog number	F		L1		gage insert	insert screw	set screw
		mm	in	mm	in			
right hand								
3784476	FBSCLCR09CA06F	16,15	.636	45,50	1.791	CCMT060204	12148068700	12147629800
left hand								
3784477	FBSCCLL09CA06F	16,15	.636	45,50	1.791	CCMT060204	12148068700	12147629800

NOTE: For use with custom solution fine-boring and countersinking tools.

Hole Finishing

- All cartridges have internal coolant supply directed to the cutting edge.
- .0004" (0,01mm) diameter adjustment respective 0.00008" (2 μm) with vernier scale within a range of .0118" (0,3mm).
- Radial adjustment without influence on axial position.
- Axial adjustment range of .039" (1mm).
- Smallest diameters can be machined starting from 1.102" (28,0mm).

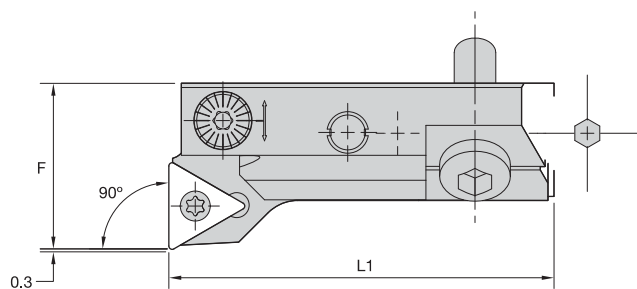
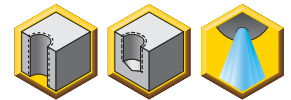


■ 93° Lead • Micro-Adjustable Cartridge • C-Style

order number	catalog number	F		L1		gage insert	insert screw	set screw
		mm	in	mm	in			
right hand								
2907289	FBSCUCR09CA06F	16,15	.636	45,50	1.791	CCMT060204	12148068700	12147629800

NOTE: For use with custom solution fine-boring and countersinking tools.

- All cartridges have internal coolant supply directed to the cutting edge.
- .0004" (0,01mm) diameter adjustment respective 0.00008" (2 μm) with vernier scale within a range of .0118" (0,3mm).
- Radial adjustment without influence on axial position.
- Axial adjustment range of .039" (1mm).
- Smallest diameters can be machined starting from 1.102" (28,0mm).



■ 90° Lead • Micro-Adjustable Cartridge • T-Style

order number	catalog number	F		L1		gage insert	insert screw	set screw
		mm	in	mm	in			
right hand								
2907291	FBSTFCR09CA11F	20,15	.793	45,50	1.791	TCMT110204	12148068700	12147629800

NOTE: For use with custom solution fine-boring and countersinking tools.

Hole Finishing

ModBORE™

One system includes highly flexible roughing and fine-boring heads to large bridge tooling with optimum amount of tooling components.

Primary Application

This premium boring line enables roughing to fine-boring operations using one system with a large diameter range from 9,75–2,205mm (.384–86.8"). The ModBORE system can be used in most workpiece materials in metalcutting applications along with the latest Kennametal standard ISO turning inserts.

Features and Benefits

Complete System

- Twin blade heads for roughing to semi-finishing operations starting from diameter 23,5mm (.925").
- Fine-boring heads for finishing in diameters 9,75–2,205mm (.384–86.8").
- Bridge tooling for large diameters up to 2,205mm (86.8") standard with both roughing and fine-finishing heads.
- Through-coolant capability in all styles.

Resolution

- Fine adjustable roughing heads.
- 0,01mm (.0004") diameter adjustment respective 2 µm (.00008") with easy-to-read large vernier scale with fine-boring heads.

Highest versatility possible on the shop floor with the ModBORE™ roughing and fine boring systems.



Product Variety

- KM™ shanks for use in all spindles with compatible adapters.
- HSK shanks for use without adapters.
- Inch shanks are most economical to use with compatible adapters.

Customization

- Engineered solutions available.
- Anti-chatter devices available.
- Cartridges can be designed into standard boring heads for added versatility.



➤ ModBORE™ Fine-Boring System

Based on KM™, HSK, and inch SSF couplings, match all spindle specifications direct or indirect via adapters. The ModBORE fine-boring system uses standard ISO/ANSI turning inserts for maximum performance and flexibility.

RBHT • Twin Cutters for Rough and Semi-Finish Boring

- Diameters 23,5–153mm (.925–6.024").
- KM, HSK, and inch straight shank back end versions available.
- Preloaded serration and ground support face for stable connection, minimal vibration, and maximum accuracy, with easy diameter adjustment.
- Large selection of blades sets:
 - Staggered — efficient machining of large depths of cut.
 - 70° — for challenging applications requiring stable corner radii and full use of inserts.
 - 90° — most precise machining results.
- Generous clearance and through coolant enable free chip flow and improved tool life.
- All toolholders accept positive standard inserts. Toolholders in diameter 65,5mm (2.58") and greater for negative standard inserts.



FBHM • Offset Boring Bar and Cartridge Heads for Fine Finishing

- Diameters 9,75–320mm (.384–12.59").
- KM-TS™, HSK, CV, DV, and BT steep taper back end styles available.
- Precision-ground micrometric screw enables fine adjustment of 2 μm (.00008"). Large TiN-coated dial is easy to adjust and read.
- Standard steel and carbide boring bars adjust in length for maximum stability.
- Aluminum diameter extender with insert cartridges and counterweight used for diameters starting at 3.38" (86mm) for maximum flexibility.
- Through coolant at the cutting edge improves tool life, surface finish, and chip evacuation.



FBHO • Offset Boring Bar Heads for Fine Finishing

- Diameters 9,75–88,1 mm (.384–3.46").
- KM™, HSK, and inch straight shank back end styles available.
- Precision-ground micrometric screw enables fine adjustment of 2 μm (.00008") via easy-to-read vernier scale.
- Standard steel and carbide boring bars can be adjusted in length for maximum stability.
- Through coolant at the cutting edge improves tool life, surface finish, and chip evacuation.



FBHS • Cartridge Boring Heads for Fine Finishing

- Diameters 23,5–153mm (.925–6.024").
- KM, HSK, and inch straight shank back end styles available.
- Precision-ground micrometric screw enables fine adjustment of 2 μm (.00008") via easy-to-read vernier scale.
- Large selection of insert holders:
 - 95° — for use with wiper turning inserts.
 - 90° regular diameter — for efficient machining in large depths of cut.
 - 90° oversized diameter — for enhanced boring head diameter capabilities.
- Generous clearance and through coolant at the cutting edge improve tool life, surface finish, and chip evacuation.

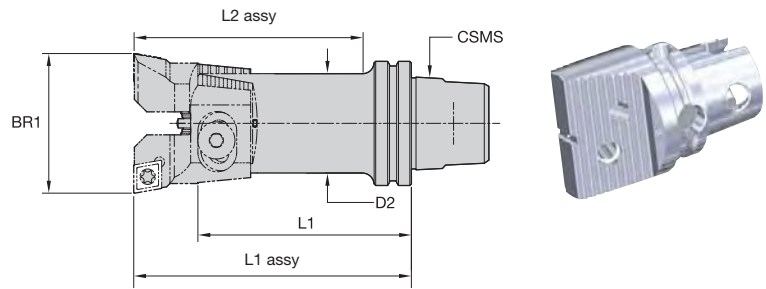
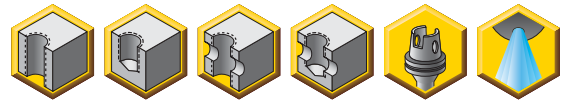


BT • Bridge Tools for Rough and Finish Boring

- Diameters 150–2,205mm (5.91–86.81").
- Sophisticated ground serration and T-style bolt clamping provide high cutting forces, and prevent diameter changes when heads are clamped.
- Only 10 bridge consoles are needed for diameters up to 655mm (25.7").
- KM, HSK, and some steep taper adapters with ground serration available as standard. Through coolant at the cutting edge improves tool life and surface finish.
- Diameters 650–2,205mm (25.5–86.81") covered by three aluminum-based consoles and two sets of steel slides for mounting rough and finish boring heads.
- 90° roughing head sets ensure precise height alignment, and negative standard inserts enable high metal removal rates.
- Counterweight for better balancing and fine-boring head with precision-ground micrometric screw for adjustments of 2 μm (.00008").



• Order blade sets separately; see page K124–K126.

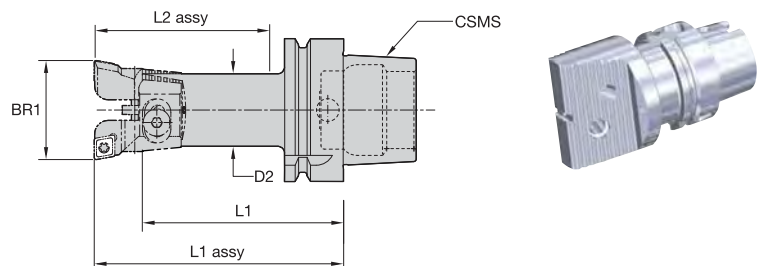
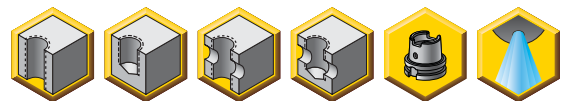


RBHT • KM™ Rough-Boring Twin Cutters

Hole Finishing

order number	catalog number	BR1 bore range		CSMS system size	D2		L1		L1 assy		L2 assy		blade screw	washer	pin
		mm	in		mm	in	mm	in	mm	in	mm	in			
3586519	KM32RBHT24	23.500-30.500	0.9252-1.2008	KM32	20,0	.79	75,4	2.97	90,0	3.54	76,0	2.99	840.142.200	841.142.200	841.342.200
3586520	KM32RBHT30	29.500-40.000	1.1614-1.5748	KM32	25,0	.98	83,8	3.30	100,0	3.94	86,0	3.39	840.142.250	841.142.250	841.342.200
3586521	KM40RBHT40	39.500-50.500	1.5551-1.9882	KM40	32,0	1.26	68,8	2.71	90,0	3.54	74,0	2.91	840.142.320	841.142.320	841.342.200
3586522	KM50RBHT50	49.500-66.500	1.9488-2.6181	KM50	42,0	1.65	62,2	2.45	90,0	3.54	70,0	2.76	840.142.420	841.142.200	841.342.420
3586543	KM50RBHT66	65.500-87.500	2.5787-3.4449	KM50	55,0	2.17	63,0	2.48	100,0	3.94	100,0	3.94	840.142.550	841.142.550	841.342.420
3586544	KM50RBHT87	86.500-115.500	3.4055-4.5472	KM50	72,0	2.83	70,5	2.78	120,0	4.72	120,0	4.72	840.142.720	841.142.720	841.342.420
3586545	KM63UTRBHT87	86.500-115.500	3.4055-4.5472	KM63UT	72,0	2.83	70,5	2.78	120,0	4.72	120,0	4.72	840.142.720	841.142.720	841.342.420
3586546	KM63UTRBHT115	114.500-153.000	4.5079-6.0236	KM63UT	94,0	3.70	83,2	3.28	150,0	5.91	150,0	5.91	840.142.940	841.142.940	841.342.420

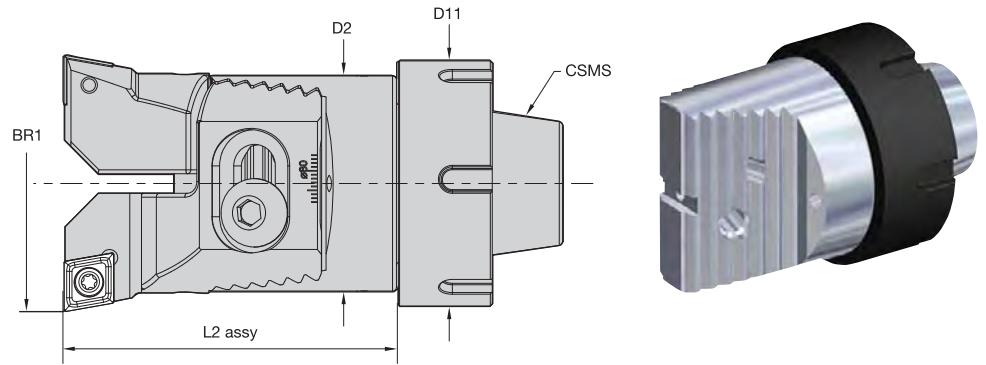
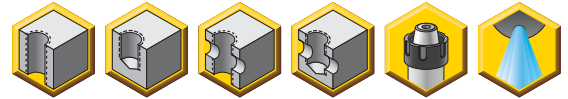
• Order blade sets separately; see page K124–K126.



RBHT • HSK Rough-Boring Twin Cutters

order number	catalog number	BR1 bore range		CSMS system size	D2		L1		L1 assy		L2 assy		blade screw	washer	pin
		mm	in		mm	in	mm	in	mm	in	mm	in			
3586547	HSK63RBHT24	23.500-30.500	0.9252-1.2008	HSK63A	20,0	.79	75,4	2.97	90,0	3.54	64,1	2.52	840.142.200	841.142.200	841.342.200
3586548	HSK63RBHT30	29.500-40.000	1.1614-1.5748	HSK63A	25,0	.98	88,8	3.50	105,0	4.13	79,1	3.11	840.142.250	841.142.250	841.342.200
3586549	HSK63RBHT40	39.500-50.500	1.5551-1.9882	HSK63A	32,0	1.26	92,2	3.63	110,0	4.33	84,1	3.31	840.142.320	841.142.320	841.342.200
3586550	HSK63RBHT50	49.500-66.500	1.9488-2.6181	HSK63A	42,0	1.65	92,2	3.63	120,0	4.72	94,1	3.70	840.142.420	841.142.420	841.342.200
3586551	HSK63RBHT66	65.500-87.500	2.5787-3.4449	HSK63A	55,0	2.17	95,5	3.76	125,0	4.92	125,0	4.92	840.142.550	841.142.720	841.342.420
3586563	HSK63RBHT87	86.500-115.500	3.4055-4.5472	HSK63A	72,0	2.83	95,5	3.76	145,0	5.71	145,0	5.71	840.142.720	841.142.720	841.342.420

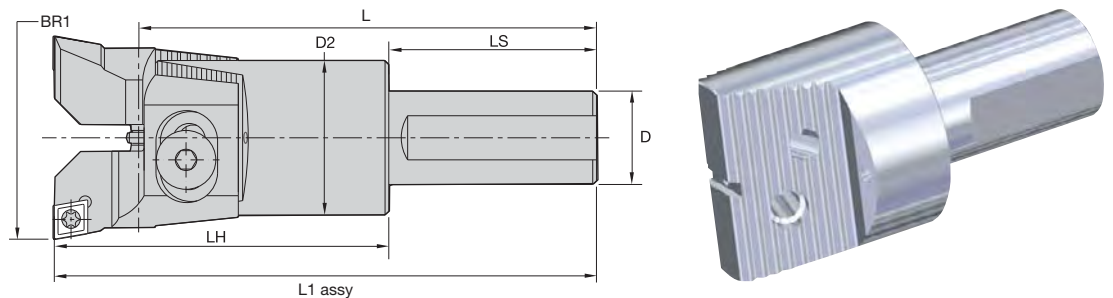
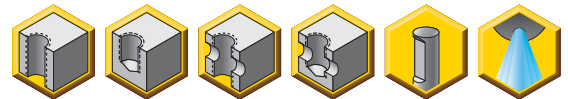
- Order blade sets separately; see page K124–K126.



■ RBHT • ER Rough-Boring Twin Cutters

order number	catalog number	BR1 bore range		CSMS system size	D11		D2		L2 assy		blade screw	washer	pin
		mm	in		mm	in	mm	in	mm	in			
5544148	ER25RBHT40	39,500-50,500	1.5550-1.9880	ER25	39,0	1.5	32,0	1.26	65,5	2.58	840.142.320	841.142.320	841.342.200
5544190	ER32RBHT50	49,500-66,500	1.9480-2.6180	ER32	49,5	1.9	42,0	1.65	75,5	2.97	840.142.420	841.142.200	841.342.420
5544192	ER40RBHT66	65,500-87,500	2.5780-3.4440	ER40	62,7	2.5	55,0	2.17	85,5	3.37	840.142.550	841.142.550	841.342.420

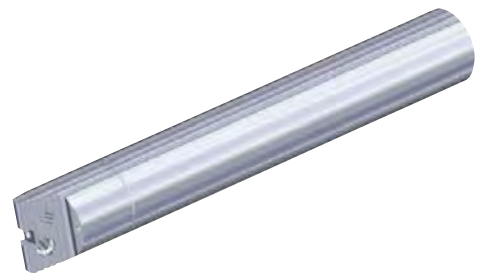
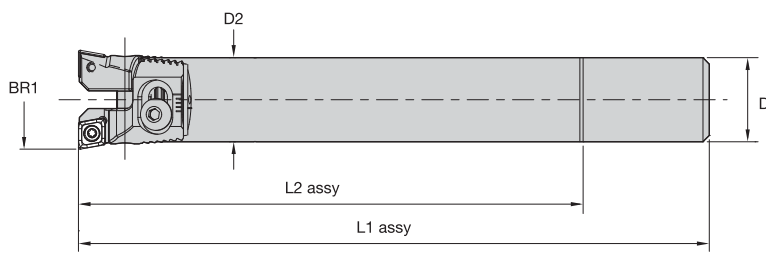
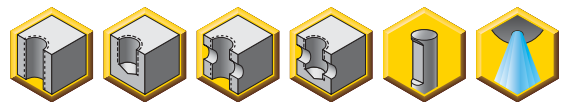
- Order blade sets separately; see page K124–K126.



■ RBHT • Steel Straight Shank Rough Boring Twin Cutters

order number	catalog number	BR1 bore range		D	D2	L	LH	L1 assy	LS	blade screw	washer	pin						
		mm	in										mm	in	mm	in	mm	in
3586564	SF075RBHT24	23,500-30,500	0.9252-1.2008	19,1	.75	20,0	.79	135,4	5.33	27,8	1.09	150,0	5.91	107,6	4.24	840.142.200	841.142.200	841.342.200
3586565	SF100RBHT30	29,500-40,000	1.1614-1.5748	25,4	1.00	25,0	.98	153,8	6.06	30,6	1.20	170,0	6.69	123,2	1.85	840.142.250	841.142.250	841.342.200
3586566	SF125RBHT40	39,500-50,500	1.5551-1.9882	31,8	1.25	32,0	1.26	168,8	6.65	31,3	1.23	190,0	7.48	137,5	5.41	840.142.320	841.142.320	841.342.200
3586567	SF100RBHT50	49,500-66,500	1.9488-2.6181	25,4	1.00	42,0	1.65	118,1	4.65	62,2	2.45	145,9	5.74	55,9	2.20	840.142.420	841.142.420	841.342.420
3586569	SF125RBHT66	65,500-87,500	2.5787-3.4449	31,8	1.25	55,0	2.17	123,7	4.87	63,0	2.48	160,7	6.33	60,7	2.39	840.142.550	841.142.720	841.342.420
3586570	SF150RBHT87	86,500-115,500	3.4055-4.5472	38,1	1.50	72,0	2.83	142,1	5.59	70,5	2.78	191,6	7.54	71,6	2.82	840.142.720	841.142.720	841.342.420
3586571	SF200RBHT115	114,500-153,000	4.5079-6.0236	50,8	2.00	94,0	3.70	169,1	6.66	82,6	3.25	235,9	9.29	86,5	3.41	840.142.940	841.142.940	841.342.420

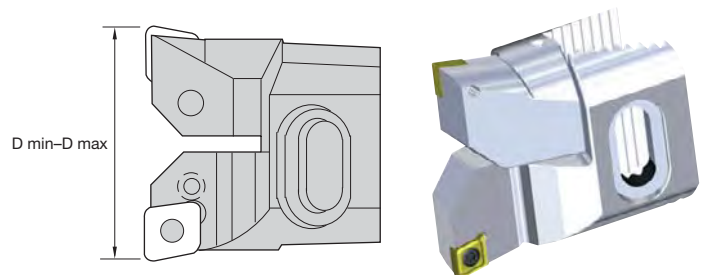
• Order blade sets separately; see page K124–K126.



RBHT • Straight Shank Rough-Boring Twin Cutters • Metric

Hole Finishing

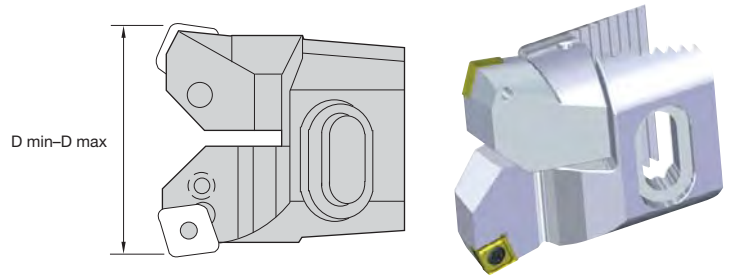
order number	catalog number	BR1 bore range		D		D2		L1 assy		L2 assy		blade screw	washer	pin
		mm	in	mm	in	mm	in	mm	in	mm	in			
5544143	SS20RBHT24	23,500-30,500	0.9250-1.2000	20,0	.79	20,0	.79	150,0	5.10	120,0	4.72	840.142.200	841.142.200	841.342.200
5544145	SS25RBHT30	29,500-40,000	1.1610-1.5740	25,0	.98	25,0	.98	170,0	6.69	140,0	5.51	840.142.250	841.142.250	841.342.200



90° Lead Blade Sets

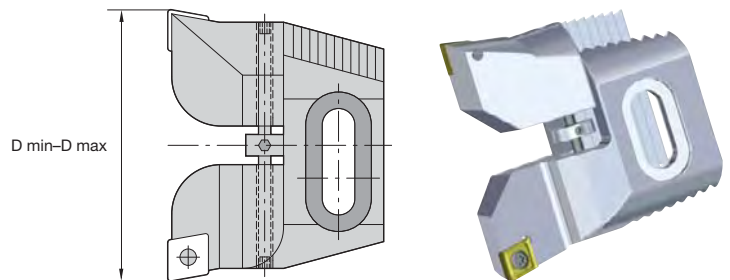
order number	catalog number	D min		D max		gage insert	adjusting screw	insert screw	shim	shim pin	toggle lever	Torx wrench	Torx size
		mm	in	mm	in								
3556346	MB24RBHT06F	23,50	.925	30,50	1.201	CC..0602../CC..215..	848.200.407	843.006.000	—	—	—	FT7	T7
3556347	MB30RBHT06F	29,50	1.161	40,10	1.579	CC..0602../CC..215..	848.250.409	843.006.000	—	—	—	FT7	T7
3556348	MB40RBHT09F	39,50	1.555	50,50	1.988	CC..09T3../CC..325..	848.320.413	843.009.000	—	—	—	FT15	T15
3556349	MB50RBHT09F	49,50	1.949	66,50	2.618	CC..09T3../CC..325..	848.420.614	843.009.000	—	—	—	FT15	T15
3556350	MB66RBHT12F	65,50	2.579	87,50	3.445	CC..1204../CC..43..	848.550.620	843.012.000	—	—	—	FT20	T20
3556352	MB66RBHT12LF	65,50	2.579	87,50	3.445	CN..1204../CN..43..	847.012.000	—	845.012.000	844.012.000	846.012.000	—	—
3556393	MB87RBHT12F	86,50	3.406	115,50	4.547	CC..1204../CC..43..	848.720.000	843.012.000	—	—	—	FT20	T20
3556394	MB87RBHT16LF	86,50	3.406	115,50	4.547	CN..1606../CN..54..	847.016.000	—	845.016.000	844.016.000	846.016.000	—	—
3556395	MB115RBHT12F	114,50	4.508	153,00	6.024	CC..1204../CC..43..	848.940.640	843.012.000	—	—	—	FT20	T20
3556396	MB115RBHT16LF	114,50	4.508	153,00	6.024	CN..1606../CN..54..	847.016.000	—	845.016.000	844.016.000	846.016.000	—	—



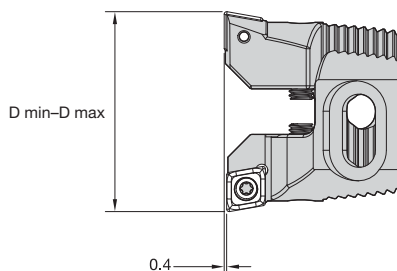
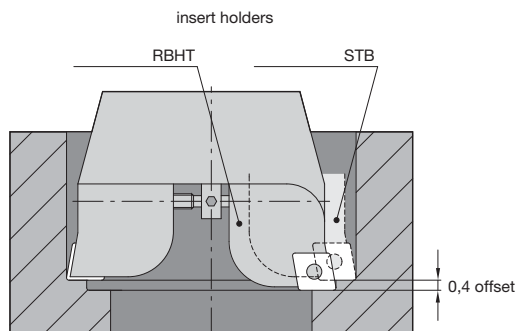

70° Lead Blade Sets

order number	catalog number	D min		D max		gage insert	adjusting screw	insert screw	shim	shim pin	toggle lever	Torx wrench	Torx size	hex size
		mm	in	mm	in									
3556397	MB24RBHT06K	23,50	.925	30,50	1.201	CC..0602../CC..215..	848.200.407	843.006.000	—	—	—	FT7	T7	—
3556398	MB30RBHT06K	29,50	1.161	40,10	1.579	CC..0602../CC..215..	848.250.409	843.006.000	—	—	—	FT7	T7	—
3556399	MB40RBHT09K	39,50	1.555	50,50	1.988	CC..09T3../CC..325..	848.320.413	843.009.000	—	—	—	FT15	T15	—
3556400	MB50RBHT09K	49,50	1.949	66,50	2.618	CC..09T3../CC..325..	848.420.614	843.009.000	—	—	—	FT15	T15	—
3556401	MB66RBHT12K	65,50	2.579	87,50	3.445	CC..1204../CC..43..	848.550.620	843.012.000	—	—	—	FT20	T20	—
3556402	MB66RBHT12LK	65,50	2.579	87,50	3.445	CN..1204../CN..43..	847.012.000	—	845.012.000	844.012.000	846.012.000	—	—	3 mm
3556403	MB87RBHT12K	86,50	3.406	115,50	4.547	CC..1204../CC..43..	848.720.000	843.012.000	—	—	—	FT20	T20	—
3556404	MB87RBHT16LK	86,50	3.406	115,50	4.547	CN..1606../CN..54..	847.016.000	—	845.016.000	844.016.000	846.016.000	—	—	3 mm
3556405	MB115RBHT16LK	114,50	4.508	153,00	6.024	CN..1606../CN..54..	847.016.000	—	845.016.000	844.016.000	846.016.000	—	—	3 mm

Hole Finishing


90° Lead Simultaneous Adjusting Blade Sets

order number	catalog number	D min		D max		gage insert	adjusting screw	insert screw	simultaneous adj spindle	shim	shim pin	toggle lever
		mm	in	mm	in							
2652965	SYB24RBHT06F	23,50	.925	30,50	1.201	CC..0602../CC..215..	848.200.407	843.006.000	848.200.005	—	—	—
2652967	SYB30RBHT06F	29,50	1.161	40,10	1.579	CC..0602../CC..215..	848.250.409	843.006.000	848.250.005	—	—	—
2652968	SYB40RBHT09F	39,50	1.555	50,50	1.988	CC..09T3../	848.320.413	843.009.000	848.320.005	—	—	—
2652969	SYB50RBHT09F	49,50	1.949	66,50	2.618	CC..09T3../	848.420.614	843.009.000	848.420.005	—	—	—
2652970	SYB66RBHT12F	65,50	2.579	87,50	3.445	CC..1204../CC..43..	—	843.012.000	848.550.005	—	—	—
2652971	SYB66RBHT12LF	65,50	2.579	87,50	3.445	CN..1204../CN..43..	—	848.550.620	848.550.005	845.012.000	844.012.000	846.012.000
2652972	SYB87RBHT12F	86,50	3.406	115,50	4.547	CC..1204../CC..43..	—	843.012.000	848.720.005	—	—	—
2652983	SYB87RBHT16LF	86,50	3.406	115,50	4.547	CNMG543	847.016.000	—	848.720.005	845.016.000	844.016.000	846.016.000
2652984	SYB115RBHT16LF	114,50	4.508	153,00	6.024	CNMG543	847.016.000	—	848.720.005	845.016.000	844.016.000	846.016.000



■ 90° Lead Split Depth of Cut Blades

Hole Finishing

order number	catalog number	D min		D max		gage insert	adjusting screw	insert screw	shim	shim pin	toggle lever
		mm	in	mm	in						
4063996	SDB24RBHT06F	23,50	.925	30,50	1.201	CC..0602../CC..215..	848.200.407	843.006.000	—	—	—
4063997	SDB30RBHT06F	29,50	1.161	40,10	1.579	CC..0602../CC..215..	848.250.409	843.006.000	—	—	—
4063998	SDB40RBHT09F	39,50	1.555	50,50	1.988	CC..09T3../CC..325..	848.320.413	843.009.000	—	—	—
4063999	SDB50RBHT09F	49,50	1.949	66,50	2.618	CC..09T3../CC..325..	848.420.614	843.009.000	—	—	—
4064000	SDB66RBHT12F	65,50	2.579	87,50	3.445	CC..1204../CC..43..	848.550.620	843.012.000	—	—	—
4064001	SDB66RBHT12LF	65,50	2.579	87,50	3.445	CN..1204../CN..43..	847.012.000	—	845.012.000	844.012.000	846.012.000
4064002	SDB87RBHT12F	86,50	3.406	115,50	4.547	CC..1204../CC..43..	848.720.000	843.012.000	—	—	—
4064203	SDB87RBHT16LF	86,50	3.406	115,50	4.547	CN..1606../CN..54..	847.016.000	—	845.016.000	844.016.000	846.016.000
4064204	SDB115RBHT16LF	114,50	4.508	153,00	6.024	CN..1606../CN..54..	847.016.000	—	845.016.000	844.016.000	846.016.000
4064205	SDB115RBHT12F	114,50	4.508	153,00	6.024	CC..1204../CC..43..	848.940.640	843.012.000	—	—	—

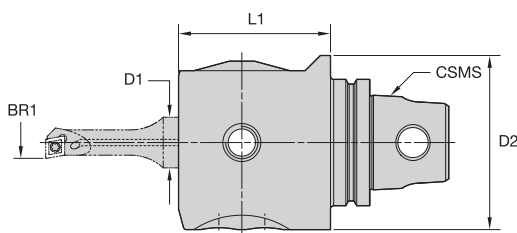
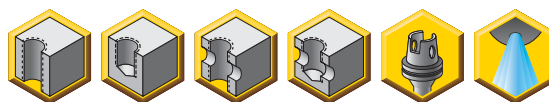
■ FBHM • Fine-Boring Kits

order number	catalog number	range		contents
		mm	in	
4057101	KM50TSFBHMKIT164M	9,75-164,0	.383-6.456	KM50TSFBHM1677 AFB09075SCFCR06 AFB13085SCFCR06 AFB17100SCFCR06 AFB21110SCFCR09 AFB24115SCFCR09 AFM29115 AFM47115 EBM8015086 AFM29SCFPR06 AFM47SCFPR09
4057098	HSK63FBHMKIT164M	9,75-164,0	.383-6.456	HSK63FBHM1696 AFB09075SCFCR06 AFB13085SCFCR06 AFB17100SCFCR06 AFB21110SCFCR09 AFB24115SCFCR09 AFM29115 AFM47115 EBM8015086 AFM29SCFPR06 AFM47SCFPR09
4057099	DV40FBHMKIT164M	9,75-164,0	.383-6.456	DV40FBHM1691 AFB09075SCFCR06 AFB13085SCFCR06 AFB17100SCFCR06 AFB21110SCFCR09 AFB24115SCFCR09 AFM29115 AFM47115 EBM8015086 AFM29SCFPR06 AFM47SCFPR09
4057100	BT40FBHMKIT164M	9,75-164,0	.383-6.456	BT40FBHM1691 AFB09075SCFCR06 AFB13085SCFCR06 AFB17100SCFCR06 AFB21110SCFCR09 AFB24115SCFCR09 AFM29115 AFM47115 EBM8015086 AFM29SCFPR06 AFM47SCFPR09
4167882	CV40FBHMKIT645	9,75-164,0	.383-6.456	CV40FBHM1691 AFB09075SCFCR06 AFB13085SCFCR06 AFB17100SCFCR06 AFB21110SCFCR09 AFB24115SCFCR09 AFM29115 AFM47115 EBM8015086 AFM29SCFPR06 AFM47SCFPR09

NOTE: Counterweight 886038045 is not part of the kits and needs to be ordered separately.



- Order boring bars separately for required diameter; see page K134–K135.
- .0004" (0,01mm) diameter adjustment respective .00008" (2 µm) with vernier scale.

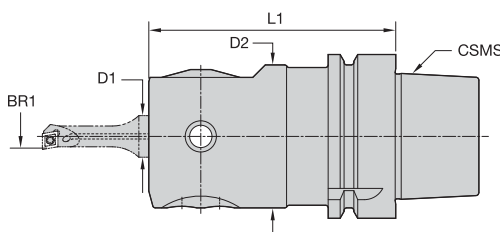
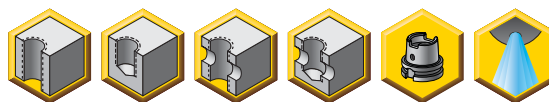


FBHO • KM™ Offset Boring Head

Hole Finishing

order number	catalog number	BR1 bore range		CSMS system size	D1		D2		L1		ModBORE FBHO parts package
		mm	in		mm	in	mm	in	mm	in	
1131111	KM40FBHO1660	9.750-53.100	0.3840-2.0910	KM40	16	.63	55,0	2.17	60,0	2.36	PKG7001
1132036	KM50FBHO1670	9.750-53.100	0.3840-2.0910	KM50	16	.63	55,0	2.17	70,0	2.76	PKG7001

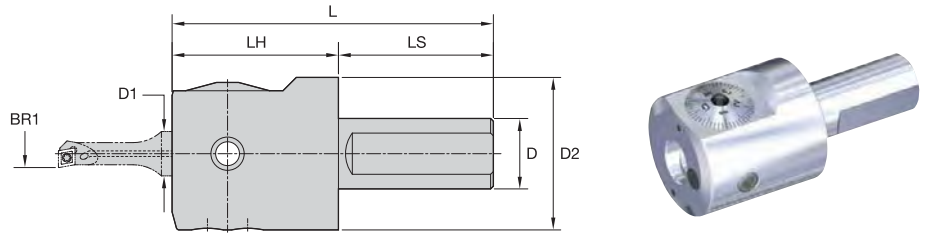
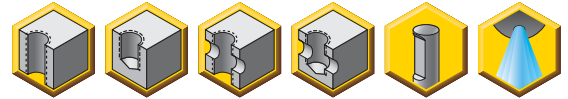
- Order boring bars separately for required diameter; see page K134–K135.
- .0004" (0,01mm) diameter adjustment respective .00008" (2 µm) with vernier scale.



FBHO • HSK Boring Head

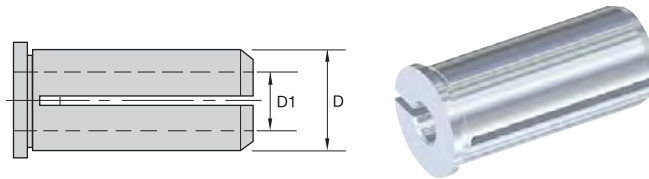
order number	catalog number	BR1 bore range		CSMS system size	D1		D2		L1		ModBORE FBHO parts package
		mm	in		mm	in	mm	in	mm	in	
2651037	HSK63FBHO1695	9.750-53.100	0.3840-2.0910	HSK63A	16	.63	55,0	2.17	95,0	3.74	PKG7001

- Order boring bars separately for required diameter; see page K134–K135.



■ FBHO • Straight Shank Boring Head

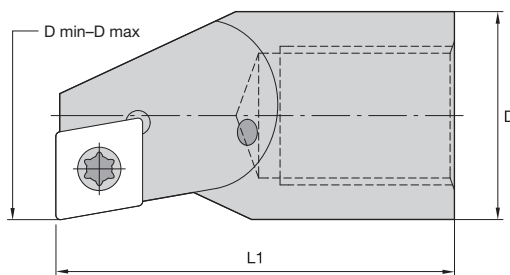
order number	catalog number	BR1 bore range		D		D1		D2		L		LH		LS	
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
3077141	SF100FBHO1660	3.000-88.100	0.1810-3.4685	25	1.000	16	.63	55,0	2.17	115,9	4.56	60,0	2.36	55,9	2.20
3077140	SF150FBHO1660	3.000-88.100	0.1811-3.4685	38	1.500	16	.63	55,0	2.17	131,6	5.18	60,0	2.36	71,6	2.82



■ RS Series Sleeves • Metric I.D.

order number	catalog number	D	D1
2651042	RS1605	16	5
1125092	RS1606	16	6
1133914	RS1608	16	8
1135642	RS1610	16	10
1135662	RS1612	16	12

- Match boring head diameter to carbide bar diameter.
- Order inserts separately.

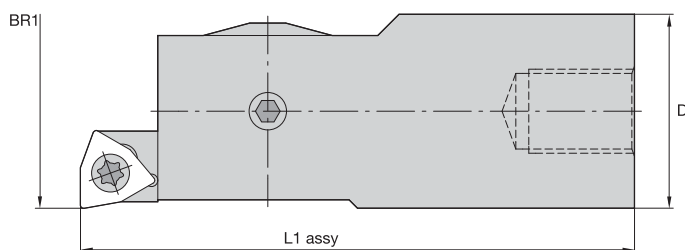
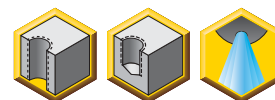


Fixed Pocket Boring Head

Hole Finishing

order number	catalog number	D min		D max		D		L1		gage insert	insert screw	Torx size
		mm	in	mm	in	mm	in	mm	in			
2651168	HFB1023SCFPR06	10,75	.423	16,10	.634	10	.39	23	0.91	CC..0602../CC..215..	PKG0011	T7
2651169	HFB1223SCFPR06	12,75	.502	18,10	.713	12	.47	23	0.91	CC..0602../CC..215..	PKG0011	T7
2651170	HFB1627SCFPR06	16,75	.659	22,10	.870	16	.63	27	1.06	CC..0602../CC..215..	PKG0011	T7
2651171	HFB2127SCFPR06	21,75	.856	27,10	1.067	16	.63	27	1.06	CC..0602../CC..215..	PKG0011	T7
2651172	HFB2427SCFPR06	24,75	.974	30,10	1.185	16	.63	27	1.06	CC..0602../CC..215..	PKG0011	T7
2651173	HFB2727SCFPR06	27,75	1.093	33,10	1.303	16	.63	27	1.06	CC..0602../CC..215..	PKG0011	T7
2651174	HFB3127SCFPR06	31,75	1.250	37,10	1.461	16	.63	27	1.06	CC..0602../CC..215..	PKG0011	T7
2651175	HFB3427SCFPR06	34,75	1.368	40,10	1.579	16	.63	27	1.06	CC..0602../CC..215..	PKG0011	T7

- Match boring head diameter to carbide bar diameter.
- Order insert cartridge separately.



Fine Adjustable Screw On Boring Head for Carbide Bars

order number	catalog number	BR1 bore range		L1 assy		D		cartridge mounting screw
		mm	in	mm	in	mm	in	
2651176	HFB14FBHS1440	14.700-17.100	0.5787-0.6732	40,0	1.57	14	0.55	PKG1402
2651177	HFB16FBHS1640	16.700-20.100	0.6575-0.7913	40,0	1.57	16	0.63	PKG1602
2651178	HFB19FBHS1840	19.700-24.100	0.7756-0.9488	40,0	1.57	18	0.71	PKG1802

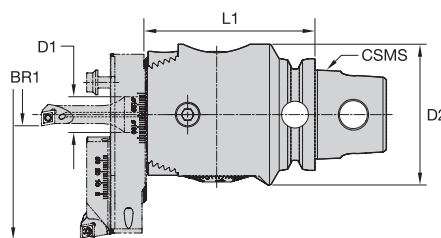
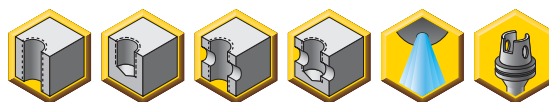
■ FBHM Fine-Boring Kits

order number	catalog number	range		contents
		mm	in	
4057101	KM50TSFBHMKIT164M	9,75-164,0	.383-6.456	KM50TSFBHM1677 AFB09075SCFCR06 AFB13085SCFCR06 AFB17100SCFCR06 AFB21110SCFCR09 AFB24115SCFCR09 AFM29115 AFM47115 EBM8015086 AFM29SCFPR06 AFM47SCFPR09
4057098	HSK63FBHMKIT164M	9,75-164,0	.383-6.456	HSK63FBHM1696 AFB09075SCFCR06 AFB13085SCFCR06 AFB17100SCFCR06 AFB21110SCFCR09 AFB24115SCFCR09 AFM29115 AFM47115 EBM8015086 AFM29SCFPR06 AFM47SCFPR09
4057099	DV40FBHMKIT164M	9,75-164,0	.383-6.456	DV40FBHM1691 AFB09075SCFCR06 AFB13085SCFCR06 AFB17100SCFCR06 AFB21110SCFCR09 AFB24115SCFCR09 AFM29115 AFM47115 EBM8015086 AFM29SCFPR06 AFM47SCFPR09
4057100	BT40FBHMKIT164M	9,75-164,0	.383-6.456	BT40FBHM1691 AFB09075SCFCR06 AFB13085SCFCR06 AFB17100SCFCR06 AFB21110SCFCR09 AFB24115SCFCR09 AFM29115 AFM47115 EBM8015086 AFM29SCFPR06 AFM47SCFPR09
4167882	CV40FBHMKIT645	9,75-164,0	.383-6.456	CV40FBHM1691 AFB09075SCFCR06 AFB13085SCFCR06 AFB17100SCFCR06 AFB21110SCFCR09 AFB24115SCFCR09 AFM29115 AFM47115 EBM8015086 AFM29SCFPR06 AFM47SCFPR09

Hole Finishing



- Order boring bars, diameter extension bridge, and cartridges separately.
- .0004" (0,01mm) diameter adjustment respective .00008" (2 μm) with vernier scale.

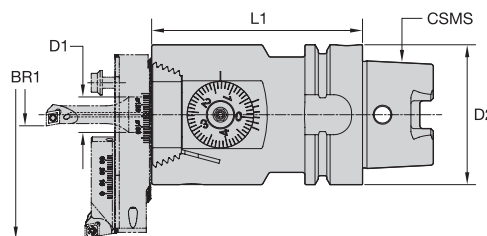
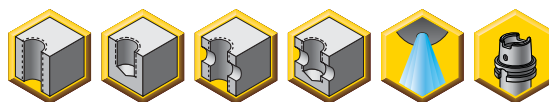


FBHM • KM™ Boring Head

Hole Finishing

order number	catalog number	BR1 bore range		CSMS system size	D1		D2		L1		ModBORE FBHS parts package	kg	lbs
		mm	in		mm	in	mm	in	mm	in			
4057060	KM50TSFBHM1677	9,750-164,000	.3838-6.4566	KM50TS	16,0	.63	63,0	2.48	76,6	3.02	PKG-8001	1,5	3.31

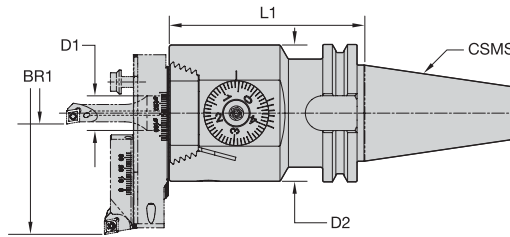
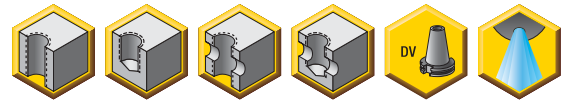
- Order boring bars, diameter extension bridge, and cartridges separately.
- .0004" (0,01mm) diameter adjustment respective .00008" (2 μm) with vernier scale.



FBHM • HSK Boring Head

order number	catalog number	BR1 bore range		CSMS system size	D1		D2		L1		ModBORE FBHS parts package	kg	lbs
		mm	in		mm	in	mm	in	mm	in			
4057057	HSK63FBHM1696	9,750-164,000	.3838-6.4566	HSK63A	16,0	.63	63,0	2.48	95,0	3.74	PKG-8001	2,0	4.30

- Order boring bars, diameter extension bridge, and cartridges separately.
- .0004" (0,01mm) diameter adjustment respective .00008" (2 µm) with vernier scale.

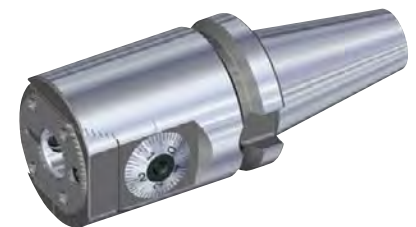
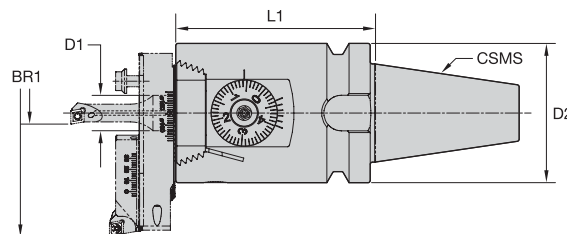
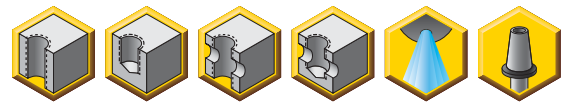


■ FBHM • DV40 Boring Head

order number	catalog number	BR1 bore range		CSMS system size	D1		D2		L1		ModBORE FBHS parts package	kg	lbs
		mm	in		mm	in	mm	in	mm	in			
4057058	DV40FBHM1691	9,750-154,000	.3838-6.0630	DV40	16,0	63.00	63,0	2.48	90,0	3.54	PKG-8001	2,1	4.64



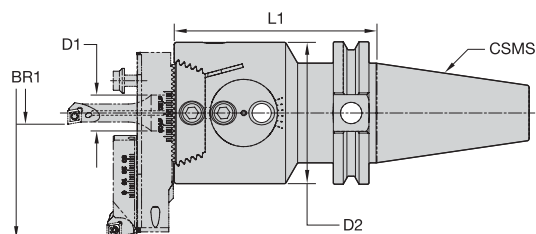
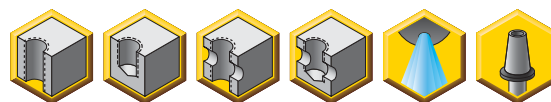
- Order boring bars, diameter extension bridge, and cartridges separately.
- .0004" (0,01mm) diameter adjustment respective .00008" (2 µm) with vernier scale.



■ FBHM • BT40 Boring Head

order number	catalog number	BR1 bore range		CSMS system size	D1		D2		L1		ModBORE FBHS parts package	kg	lbs
		mm	in		mm	in	mm	in	mm	in			
4057059	BT40FBHM1691	9,750-164,000	.3838-6.4566	BT40	16,0	.63	63,0	2.48	90,0	3.54	PKG-8001	2,2	4.94

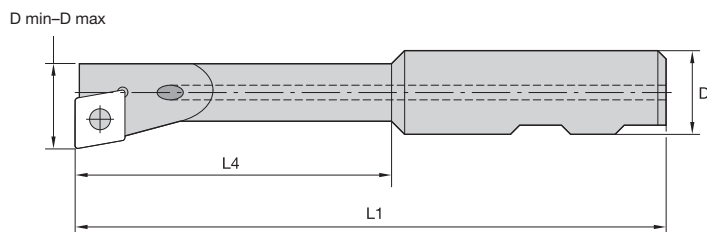
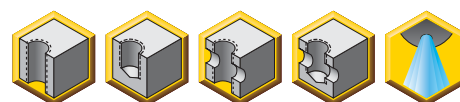
- Order boring bars, diameter extension bridge, and cartridges separately.
- .0004" (0,01mm) diameter adjustment respective .00008" (2 µm) with vernier scale.



FBHM • CV40 Boring Head

order number	catalog number	BR1 bore range		CSMS system size	D1		D2		L1		ModBORE FBHS parts package	kg	lbs
		mm	in		mm	in	mm	in					
4167881	CV40FBHM1691	9,750-164,000	.3838-6.4566	CV40	16,0	.63	63,0	2.48	91,2	3.59	PKG-8001	2,1	4.52

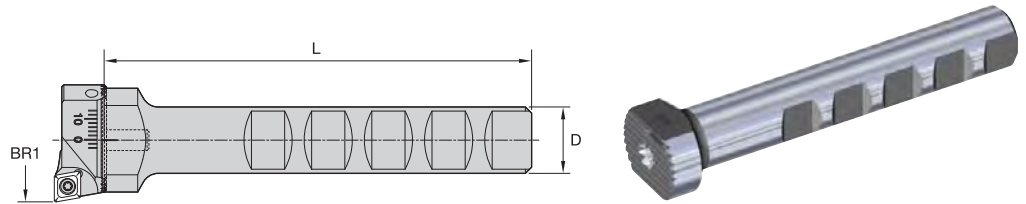
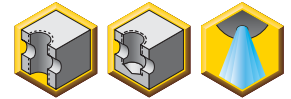
- Order inserts separately.



FBHO/FBHM • Universal Boring Bars

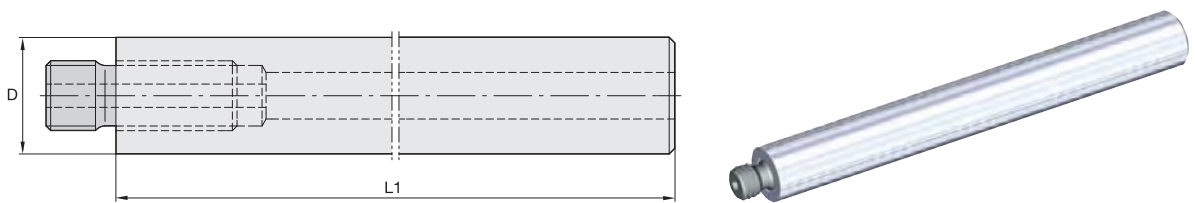
order number	catalog number	D min		D max		D		L1		L4		gage insert	insert screw	Torx size
		mm	in	mm	in	mm	in	mm	in	mm	in			
1125110	AFB09075SCFCR06	9,75	.384	14,75	.581	16	.63	75,0	2.95	30,0	1.18	CC..0602../CC..215..	PKG2025	T7
1133883	AFB13085SCFCR06	13,75	.541	18,75	.738	16	.63	85,0	3.35	40,0	1.57	CC..0602../CC..215..	PKG2025	T7
1133894	AFB17100SCFCR06	17,75	.699	22,75	.896	16	.63	100,0	3.94	55,0	2.17	CC..0602../CC..215..	PKG2025	T7
1137835	AFB21110SCFCR09	21,75	.856	26,75	1.053	16	.63	110,0	4.33	60,0	2.36	CC..09T3../CC..325..	PKG3242	T15
1128324	AFB24115SCFCR09	24,75	.974	29,75	1.171	16	.63	115,0	4.53	65,0	2.56	CC..09T3../CC..325..	PKG3242	T15
1126838	AFB27115SCFCR09	27,75	1.093	32,75	1.289	16	.63	115,0	4.53	70,0	2.76	CC..09T3../CC..325..	PKG3242	T15
1120731	AFB31115SCFCR09	31,75	1.250	36,75	1.447	16	.63	115,0	4.53	70,0	2.76	CC..09T3../CC..325..	PKG3242	T15
1127271	AFB34115SCFCR09	34,75	1.368	39,75	1.565	16	.63	115,0	4.53	70,0	2.76	CC..09T3../CC..325..	PKG3242	T15
2651038	AFB38115SCFPR09	38,75	1.526	44,10	1.736	16	.63	115,0	4.53	85,0	3.35	CC..09T3../CC..325..	PKG3242	T15
2651039	AFB42115SCFPR09	42,75	1.683	48,10	1.894	16	.63	115,0	4.53	85,0	3.35	CC..09T3../CC..325..	PKG3242	T15
2651040	AFB47115SCFPR09	47,75	1.880	53,10	2.091	16	.63	115,0	4.53	85,0	3.35	CC..09T3../CC..325..	PKG3242	T15

- Order AFM insert cartridge separately.



■ FBHO/FBHM • AFM Boring Bars

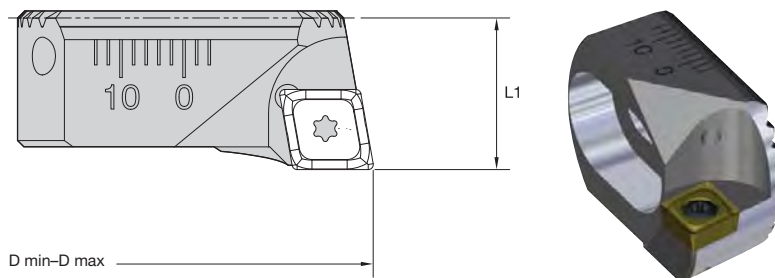
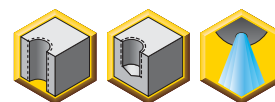
order number	catalog number	BR1 bore range		D		D2		L	
		mm	in	mm	in	mm	in	mm	in
4057061	AFM29115	29.750-48.100	1.1712-1.8940	16,0	.63	25,0	.98	103,000	4.06
4057062	AFM47115	47.750-88.100	1.8800-3.4680	16,0	.63	44,0	1.73	101,580	4.00



■ Carbide Shanks for Screw-On Boring Heads

order number	catalog number	D		L1	
		mm	in	mm	in
2651163	CFB10082	10	.39	82	3.23
2651164	CFB12096	12	.47	96	3.78
2651165	CFB14110	14	.55	110	4.33
2651166	CFB16120	16	.63	120	4.72
2651167	CFB18140	18	.71	140	5.51

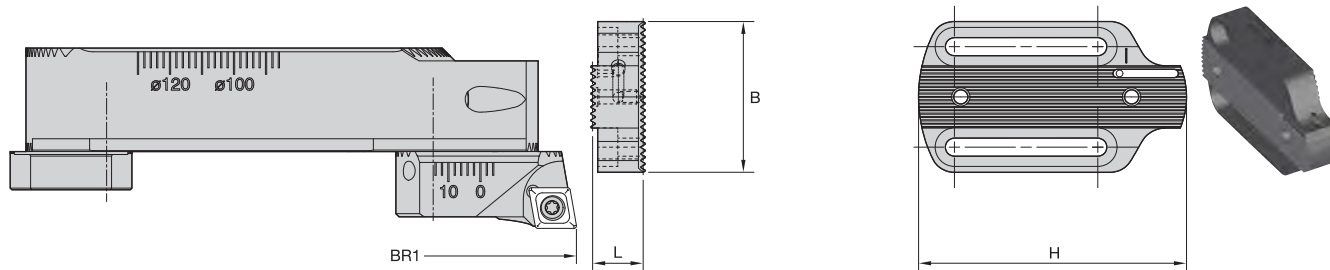
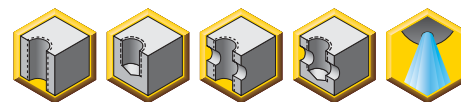
- For use with AFM boring bars.
- Order inserts separately.



AFM • Insert Cartridges

order number	catalog number	D min		D max		L1		gage insert	ModBORE parts package	insert screw ID drive size
		mm	in	mm	in	mm	in			
4057093	AFM29SCFPR06	29,75	1.171	48,10	1.894	12,0	.472	CC..0602../CC..2151..	PKG2025	T7
4057094	AFM47SCFPR09	47,75	1.880	88,10	3.469	14,0	.551	CC..09T3../CC..3252..	PKG3242	T15

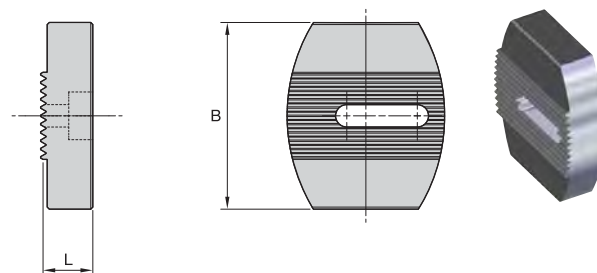
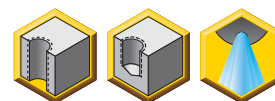
- For use with FBHM insert holders and FBHM counterweight.
- Order AFM47SCFPR09 insert cartridge separately to achieve diameter range.



FBHM • Extension Bridge

order number	catalog number	BR1 bore range		B		H		L	
		mm	in	mm	in	mm	in	mm	in
4057095	EBM8015086	86.000-164.000	3.3900-6.4600	45,0	1.77	80,0	3.15	15,0	.59
4168063	EBM1580160162	162.000-320.000	6.3778-12.5984	45,0	1.77	158,0	6.22	16,2	.64

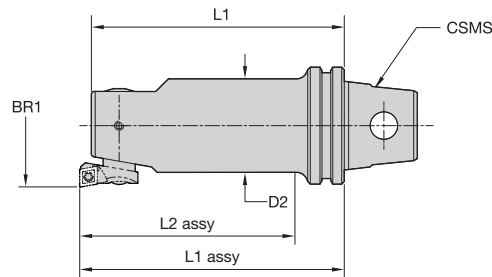
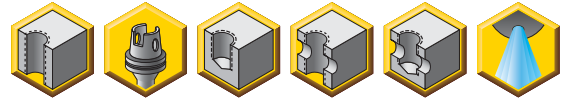
- For use with FBHM extension bridge.



FBHM • Counterweight

order number	catalog number	B		L	
		mm	in	mm	in
4057096	886038045	45	1.77	12	.47

- .0004" (0,01mm) diameter adjustment respective .00008" (2 µm) with vernier scale.
- Internal coolant directed to indexable insert.
- Order insert cartridges separately for required bore range; see page K140.



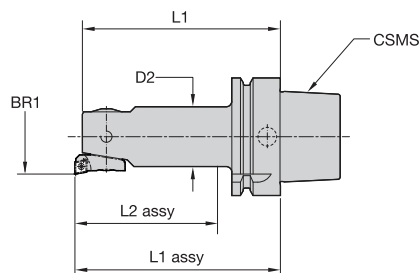
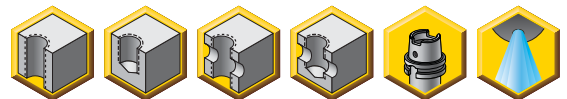
■ FBHS • KM™ Fine-Boring Single Cutters

order number	catalog number	BR1 bore range		CSMS system size	D2		L1		L1 assy		L2 assy		cartridge mounting screw	lock screw
		mm	in		mm	in	mm	in	mm	in	mm	in		
3586572	KM32FBHS24	23,900-37,100	0.9409-1.4606	KM32	20,0	.79	86,0	3.39	90,0	3.54	76,1	2.99	880.252.200	881.252.200
3586573	KM32FBHS31	30,900-47,100	1.2165-1.8543	KM32	25,0	.98	96,0	3.78	100,0	3.94	86,1	3.39	880.252.250	881.252.250
3586574	KM40FBHS40	39,900-59,100	1.5709-2.3268	KM40	32,0	1.26	86,0	3.39	90,0	3.54	74,0	2.92	880.252.320	881.252.320
3586575	KM50FBHS51	50,900-81,100	2.0039-3.1929	KM50	42,0	1.65	86,0	3.39	90,0	3.54	70,0	2.76	880.252.420	881.252.420
3586576	KM50FBHS67	66,900-105,100	2.6339-4.1378	KM50	55,0	2.17	96,0	3.78	100,0	3.94	100,0	3.94	880.252.550	881.252.550
3586577	KM50FBHS87	86,900-134,100	3.4213-5.2795	KM50	72,0	2.84	116,0	4.57	120,0	4.72	120,0	4.72	880.252.550	881.252.720
3586578	KM63UTFBHS87	86,900-134,100	3.4213-5.2795	KM63UT	72,0	2.84	116,0	4.57	120,0	4.72	120,0	4.72	880.252.550	881.252.720
3586579	KM63UTFBHS116	115,900-191,100	4.5630-7.5236	KM63UT	94,0	3.70	146,0	5.75	150,0	5.91	150,0	5.91	880.252.550	881.252.940



Hole Finishing

- .0004" (0,01mm) diameter adjustment respective .00008" (2 µm) with vernier scale.
- Internal coolant directed to indexable insert.
- Order insert cartridges separately for required bore range; see page K140.

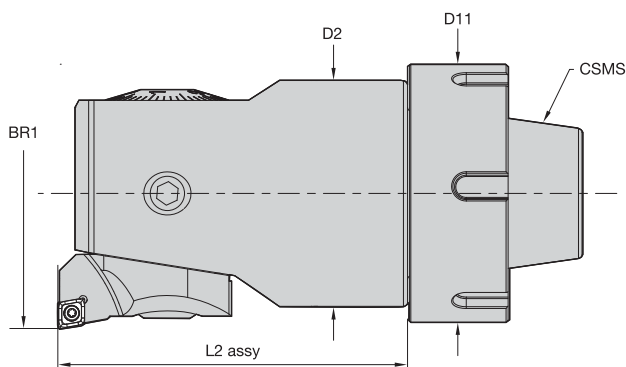
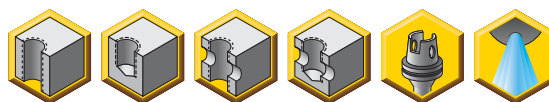


■ FBHS • HSK Fine-Boring Single Cutters

order number	catalog number	BR1 bore range		CSMS system size	D2		L1		L1 assy		L2 assy		cartridge mounting screw	lock screw
		mm	in		mm	in	mm	in	mm	in				
3586580	HSK63FBHS24	23,900-37,100	0.9409-1.4606	HSK63A	20,0	.79	86,0	3.39	90,0	3.54	61,1	2.40	880.252.200	881.252.200
3586581	HSK63FBHS31	30,900-47,100	1.2165-1.8543	HSK63A	25,0	.98	101,0	3.98	105,0	4.13	76,1	2.99	880.252.250	881.252.250
3586582	HSK63FBHS40	39,900-59,100	1.5709-2.3268	HSK63A	32,0	1.26	106,0	4.17	110,0	4.33	81,1	3.19	880.252.320	881.252.320
3586583	HSK63FBHS51	50,900-81,100	2.0039-3.1929	HSK63A	42,0	1.65	116,0	4.57	120,0	4.72	91,1	3.58	880.252.420	881.252.420
3586584	HSK63FBHS67	66,900-105,100	2.6339-4.1378	HSK63A	55,0	2.17	121,0	4.76	125,0	4.92	99,1	3.90	880.252.550	881.252.550
3586585	HSK63FBHS87	86,900-134,100	3.4213-5.2795	HSK63A	72,0	2.84	141,0	5.55	145,0	5.71	145,0	5.71	880.252.550	881.252.720



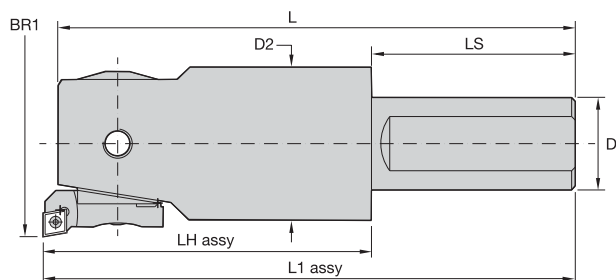
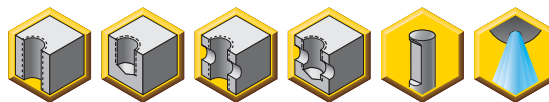
- .0004" (0,01mm) diameter adjustment respective .00008" (2 μm) with vernier scale.
- Internal coolant directed to indexable insert.
- Order insert cartridges separately for required bore range; see page K140.



■ FBHS • ER Fine-Boring Single Cutters

order number	catalog number	BR1 bore range		CSMS system size	D11		D2		L2 assy		cartridge mounting screw	lock screw
		mm	in		mm	in	mm	in	mm	in		
5544149	ER25FBHS40	39,900-59,100	1.5700-2.3260	ER25	39,0	1.54	32,0	1.26	65,5	2.58	880.252.320	881.252.320
5544191	ER32FBHS51	50,900-81,100	2.0030-3.1920	ER32	49,5	1.95	42,0	1.65	75,5	2.97	880.252.420	881.252.420
5544193	ER40FBHS67	66,900-105,100	2.6330-4.1370	ER40	62,7	2.47	55,0	2.17	85,5	3.37	880.252.550	881.252.550

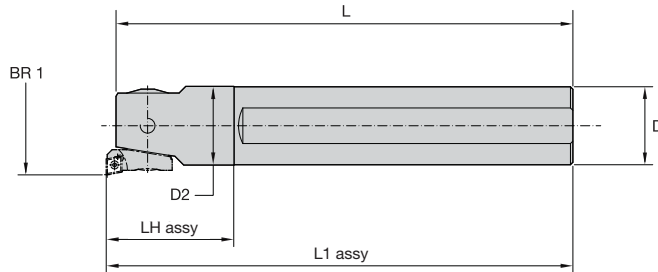
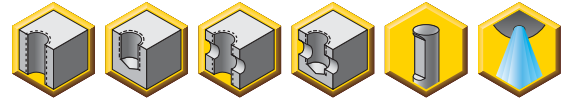
- .0004" (0.01mm) diameter adjustment respective .00008" (2 μm) with vernier scale.
- Internal coolant directed to indexable insert.
- Order insert cartridges separately for required bore range; see page K140.



■ FBHS • Straight Shank Fine-Boring Single Cutters

order number	catalog number	BR1 bore range		D	D2	L	LH assy	L1 assy	LS	cartridge mounting screw	lock screw
		mm	in								
3586586	SF075FBHS24	23,900-37,100	0.9409-1.4606	.75	.79	5.75	1.65	5.91	4.2370	880.252.200	881.252.200
3586587	SF100FBHS31	30,900-47,100	1.2165-1.8543	1.00	.98	6.54	1.85	6.69	.8940	880.252.250	881.252.250
3586588	SF125FBHS40	39,900-59,100	1.5709-2.3268	1.25	1.26	7.32	2.05	7.48	5.4130	880.252.320	881.252.320
3586589	SF100FBHS51	50,900-81,100	2.0039-3.1929	1.00	1.65	5.59	3.54	5.74	2.2008	880.252.420	881.252.420
3586590	SF125FBHS67	66,900-105,100	2.6339-4.1378	1.25	2.17	6.17	3.94	6.33	2.3898	880.252.550	881.252.550
3586591	SF150FBHS87	86,900-134,100	3.4213-5.2795	1.50	2.84	7.39	4.72	7.54	2.8189	880.252.550	881.252.720
3586592	SF200FBHS116	115,900-191,100	4.5630-7.5236	2.00	3.70	9.13	5.91	9.29	3.3819	880.252.550	881.252.940

- 0.0004" (0,01mm) diameter adjustment respective 0.00008" (2 μm) with vernier scale.
- Order insert cartridges separately for required bore range, see page K140.

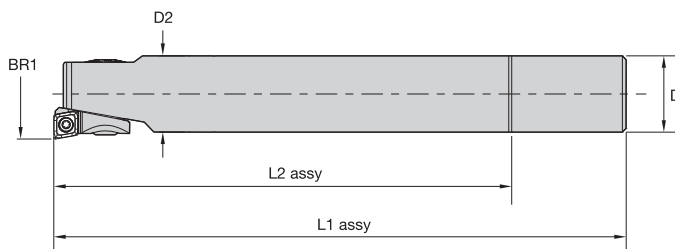
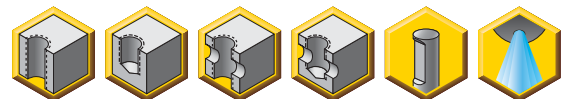


■ FBHS • Fine Boring Single Cutters • Carbide Straight Shank Series

order number	catalog number	BR1 bore range		D	D2	L	LH assy	L1 assy	cartridge mounting screw	lock screw
		mm	in							
3586593	SSE075FBHS24	23,900-37,100	0.9409-1.4606	.75	.79	9.69	3.15	9.84	880.252.200	881.252.200
3586594	SSE100FBHS31	30,900-47,100	1.2165-1.8543	1.00	.98	11.89	3.94	12.05	880.252.250	881.252.250
3586595	SSE125FBHS40	39,900-59,100	1.5709-2.3268	1.25	1.26	14.80	5.04	14.96	880.252.320	881.252.320



- .0004" (0,01mm) diameter adjustment respective .00008" (2 μm) with vernier scale.
- Internal coolant directed to indexable insert.
- Order insert cartridges separately for required bore range; see page K140.

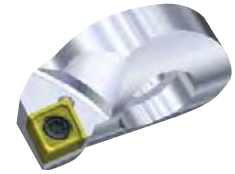
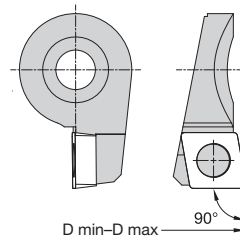


■ FBHS • Straight Shank Fine-Boring Single Cutters • Metric

order number	catalog number	BR1 bore range		D		L1 assy		L2 assy		cartridge mounting screw	lock screw		
		mm	in	mm	in	mm	in	mm	in				
5544144	SS20FBHS24	23,900-37,100	0.9400-1.4600	20,0	.79	20,0	.79	150,0	5.10	120,0	4.72	880.252.200	881.252.200
5544146	SS25FBHS31	30,900-47,100	1.2160-1.8540	25,0	.98	25,0	.98	170,0	6.69	140,0	5.51	880.252.250	881.252.250



- Order inserts separately.



■ 90° Lead • Insert Holders for FBHS Fine-Boring Heads

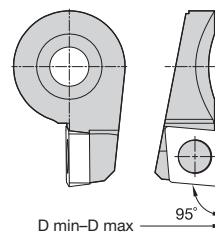


Hole Finishing

order number	catalog number	D min	D max	gage insert	Torx size	insert screw
1137487	R24FBHS06	23,9	31,1	CC..0602../CC..215..	T7	843.006.000
2649548	R30FBHS06	29,9	37,1	CC..0602../CC..215..	T7	843.006.000
1133669	R31FBHS06	30,9	40,1	CC..0602../CC..215..	T7	843.006.000
2649549	R38FBHS06	37,9	47,1	CC..0602../CC..215..	T7	843.006.000
1135369	R40FBHS06	39,9	51,1	CC..0602../CC..215..	T7	843.006.000
2649550	R48FBHS06	47,9	59,1	CC..0602../CC..215..	T7	843.006.000
1137479	R51FBHS06	50,9	67,1	CC..0602../CC..215..	T7	843.006.000
2649551	R65FBHS06	64,9	81,1	CC..0602../CC..215..	T7	843.006.000
1834274	R67FBHS06	66,9	153,1	CC..0602../CC..215..	T7	843.006.000
1137505	R67FBHS09	66,9	153,1	CC..09T3../CC..325..	T15	843.009.000
2649552	R85FBHS06	84,9	171,1	CC..0602../CC..215..	T7	843.006.000
2649553	R85FBHS09	84,9	171,1	CC..09T3../CC..325..	T15	843.009.000
2649554	R125FBHS09	153,9	191,1	CC..09T3../CC..325..	T15	843.009.000



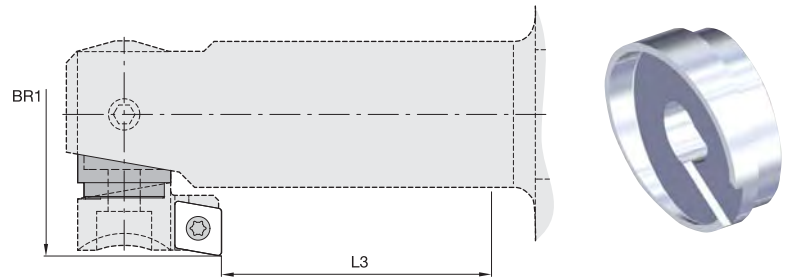
- Order inserts separately.



■ 95° Lead • Insert Holders for FBHS

order number	catalog number	D min	D max	gage insert	insert screw ID drive size	insert screw
2649555	R24FBHS06LF	23,9	31,1	CC..0602../CC..215..	T7	843.006.000
2649556	R31FBHS06LF	30,9	40,1	CC..0602../CC..215..	T7	843.006.000
2649557	R40FBHS06LF	39,9	51,1	CC..0602../CC..215..	T7	843.006.000
2649558	R51FBHS06LF	50,9	67,1	CC..0602../CC..215..	T7	843.006.000
2649559	R67FBHS09LF	66,9	153,1	CC..09T3../CC..325..	T15	843.009.000





Reversal Adapters

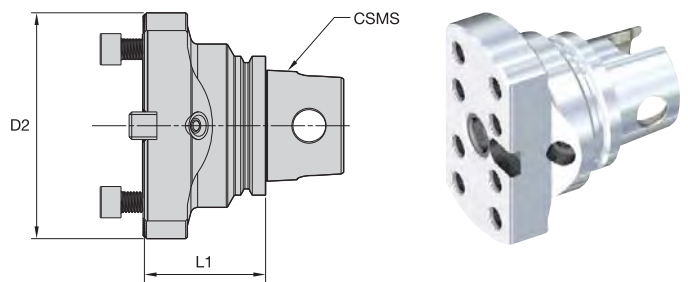
reversal adapter catalog number	use with cartridges				L3	
	90° lead	90° lead	95° lead	fine boring head series	mm	inch
R37FBHSRB	R24FBHS06	—	R24FBHS06LF	..FBHS24	13,0	0.512
R40FBHSRB	R30FBHS06	—	—	..FBHS24	13,0	0.512
R44FBHSRB	R31FBHS06	—	R31FBHS06LF	..FBHS31	17,6	0.693
R51FBHSRB	R38FBHS06	—	—	..FBHS31	17,6	0.693
R53FBHSRB	R40FBHS06	—	R40FBHS06LF	..FBHS40	31,3	1.232
R60FBHSRB	R48FBHS06	—	—	..FBHS40	31,3	1.232
R64FBHSRB	R51FBHS06	—	R51FBHS06LF	..FBHS51	49,2	1.937
R75FBHSRB	R65FBHS06	—	—	..FBHS51	49,2	1.937
R87FBHSRB	R67FBHS06	R67FBHS09	R67FBHS09LF	..FBHS-67	62,0	2.441

NOTE: Use the chart above to match the insert holder to the reversal adapter.

Hole Finishing

ModBORE™ Bridge Boring Systems

- Extension bridge required.
- Order extension bridge separately; see pages K143–K144.
- Match adapter and extension bridge series.

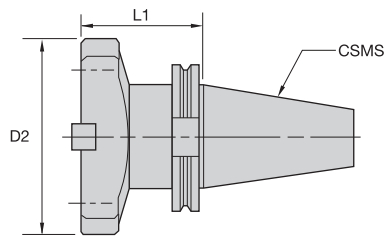


KM™ Bridge Tool Adapters

order number	catalog number	CSMS system size	extension bridge series	D2		L1		spare parts package	socket-head cap screw
				mm	in	mm	in		
1135802	KM63BT13065	KM63	A	130,0	5.12	65,0	2.56	PKG1565	MS1085PKG
1197315	KM80BT13070	KM80	B,A	130,0	5.12	70,0	2.76	PKG1565	MS1085PKG



- Extension bridge required.
- Order extension bridge separately; see pages K143–K144.
- Order coolant cartridge set separately.
- Match adapter and extension bridge series.



■ CV Bridge Tool Adapters

order number	catalog number	CSMS system size	extension bridge series	D2		L1		spare parts package	socket-head cap screw
				mm	in	mm	in		
1122185	CV50BT13069	CV50	A,B,C	130,0	5.12	69,1	2.72	PKG1565	MS1085PKG



Hole Finishing



■ BT Bridge Tool Adapters

order number	catalog number	CSMS system size	extension bridge series	D2		L1		spare parts package	socket-head cap screw
				mm	in	mm	in		
1121711	BT50BT13088	BT50	A,B,C	130,0	5.12	88,0	3.46	PKG1565	MS1085PKG

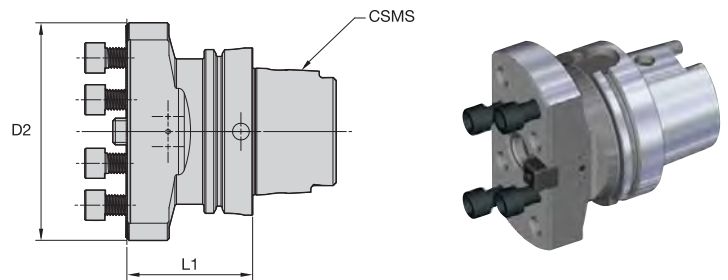


■ DV Bridge Tool Adapters

order number	catalog number	CSMS system size	extension bridge series	D2		L1		spare parts package	socket-head cap screw
				mm	in	mm	in		
1263825	DV40BT13069	DV40	A	130,0	5.12	69,1	2.72	PKG1565	MS1085PKG
1133581	DV50BT13069	DV50	A,B,C	130,0	5.12	69,1	2.72	PKG1565	MS1085PKG



- Extension bridge required.
- Order extension bridge separately; see pages K143–K144.
- Match adapter and extension bridge series.



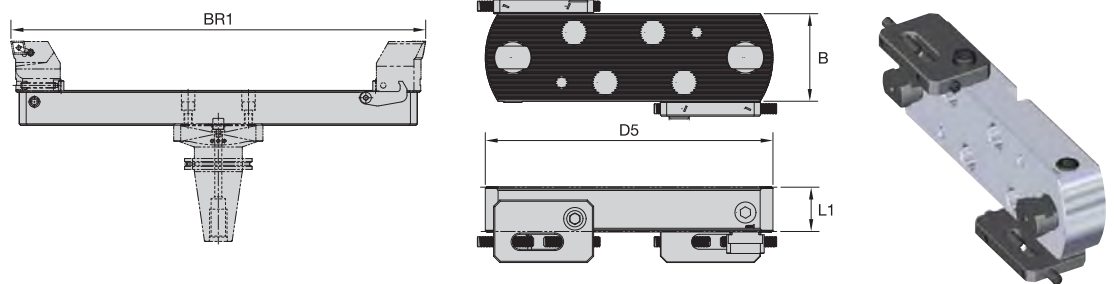
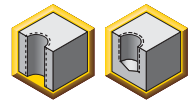
■ HSK Bridge Tool Adapters

order number	catalog number	CSMS system size	extension bridge series	D2		L1		spare parts package	socket-head cap screw
				mm	in	mm	in		
4062112	HSK100BT13075	HSK100A	A,B,C	130,0	5.12	75,0	2.95	PKG1565	MS1085PKG



NOTE: Tool adapters combined with small-scale extension bridges cover boring range 5.91–25.79" (150–655mm).
Tool adapters combined with large-scale extension bridge and bridge slides cover boring range from 25.59–86.81" (650–2205mm).

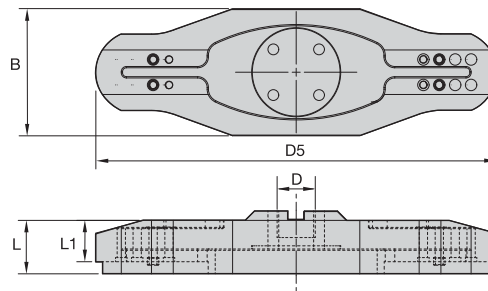
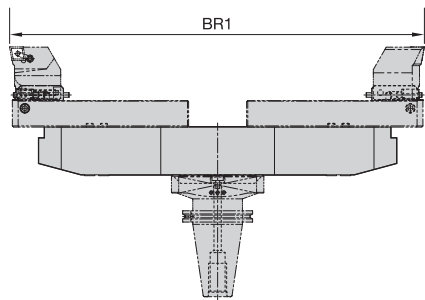
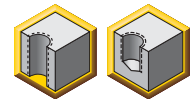
- Match extension bridge series to adapter.



■ Small-Scale Extension Bridges

order number	catalog number	BR1 bore range		max RPM	extension bridge series	B		D5		L1		spare parts package	hex size	kg	lbs
		mm	in			mm	in	mm	in	mm	in				
1133280	EB13030150	150.000-205.000	5.9055-8.0709	1250	A	70,0	2.76	130,0	5.12	30,0	1.18	PKG156502	8 mm	1,95	4.30
1125085	EB18030200	200.000-255.000	7.8740-10.0394	1000	A	70,0	2.76	180,0	7.09	30,0	1.18	PKG156502	8 mm	2,77	6.10
1132857	EB23035250	250.000-305.000	9.8425-12.0079	850	B	70,0	2.76	230,0	9.06	35,0	1.38	PKG156502	8 mm	4,00	8.80
1126830	EB28035300	300.000-355.000	11.8110-13.9764	700	B	70,0	2.76	280,0	11.02	35,0	1.38	PKG156502	8 mm	5,14	11.30
1121703	EB33040350	350.000-405.000	13.7795-15.9449	600	B	70,0	2.76	330,0	12.99	40,0	1.57	PKG156502	8 mm	6,86	15.10
1140602	EB38040400	400.000-455.000	15.7480-17.9134	530	C	70,0	2.76	380,0	14.96	40,0	1.57	PKG156502	8 mm	7,95	17.50
1121036	EB43040450	450.000-505.000	17.7165-19.8819	480	C	70,0	2.76	430,0	16.93	40,0	1.57	PKG156502	8 mm	9,23	20.30
1270619	EB48040500	500.000-550.000	19.6850-21.8504	440	C	70,0	2.76	480,0	18.90	40,0	1.57	PKG156502	8 mm	10,23	22.50
1270620	EB53050550	550.000-605.000	21.6535-23.8189	400	C	70,0	2.76	530,0	20.87	50,0	1.97	PKG156502	8 mm	13,91	30.60
1270621	EB58050600	600.000-655.000	23.6220-25.7874	370	C	70,0	2.76	580,0	22.84	50,0	1.97	PKG156502	8 mm	15,32	33.70

- For use with shell mill adapters or direct connection to the machine spindle.
- Order bridge slides separately.



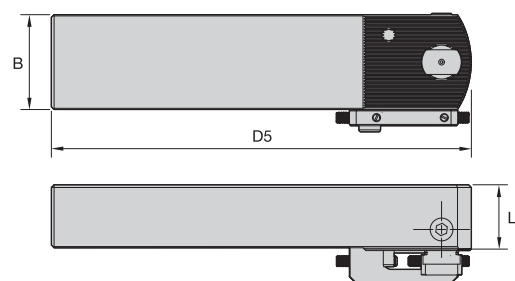
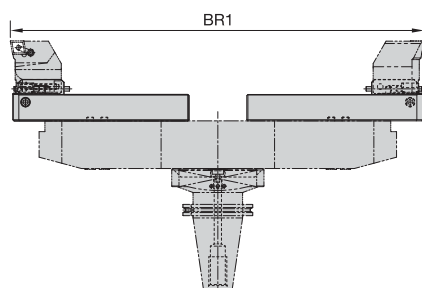
Large Scale Extension Bridge

Hole Finishing

order number	catalog number	BR1 bore range		D		D5		B		L		L1		kg	lbs
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in		
4057204	EB630128650	650.000-1105.000	25.5900-43.5000	60,0	2.36	630,0	24.80	200,0	7.87	99,0	3.90	84,0	3.31	17,20	37.84
4057205	EB10801281100	1100.000-1655.000	43.3100-65.1600	60,0	2.36	1080,0	42.52	200,0	7.87	99,0	3.90	84,0	3.31	28,10	61.82
4057206	EB16301281650	1650.000-2205.000	64.9600-86.8100	60,0	2.36	1630,0	64.17	200,0	7.87	99,0	3.90	84,0	3.31	43,00	94.60

max RPM			max RPM			max RPM		
BR1 bore range (mm)	BR1 bore range inch	maximum RPM	BR1 bore range (mm)	BR1 bore range inch	maximum RPM	BR1 bore range (mm)	BR1 bore range inch	maximum RPM
650-705	25.59-27.76	300	1100-1155	43.31-45.47	170	1650-1705	64.96-67.13	95
700-755	27.56-29.72	285	1150-1205	45.28-47.44	163	1700-1755	66.93-69.09	90
750-805	29.53-31.69	270	1200-1255	47.24-49.41	156	1750-1805	68.90-71.06	85
800-855	31.50-33.66	255	1250-1305	49.21-51.38	149	1800-1855	70.87-73.03	80
850-905	33.46-35.63	240	1300-1355	51.18-53.35	142	1850-1905	72.83-75.00	75
900-955	35.43-37.60	225	1350-1405	53.15-55.31	135	1900-1955	74.80-76.97	70
950-1005	37.40-39.57	210	1400-1455	55.12-57.28	128	1950-2005	76.77-78.94	65
1000-1055	39.37-41.54	195	1450-1505	57.09-59.25	121	2000-2055	78.74-80.91	60
1050-1105	41.34-43.50	180	1500-1555	59.06-61.22	114	2050-2105	80.71-82.87	55
			1550-1605	61.02-63.19	107	2100-2155	82.68-84.84	50
			1600-1655	62.99-65.16	100	2150-2205	84.65-86.81	45

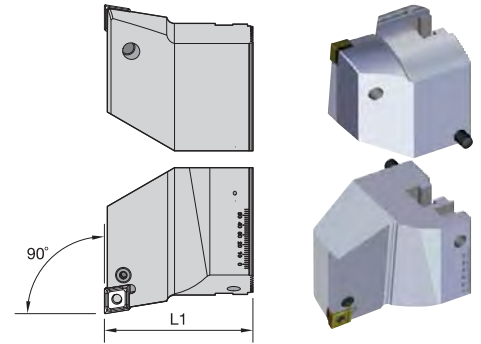
- For use with large-scale bridge extensions.
- Delivered as a set of two.



Bridge Slides

order number	catalog number	BR1 bore range		B		D5		L1		spare parts package	kg	lbs
		mm	in	mm	in	mm	in	mm	in			
4057207	EBSLD1105	650.000-1105.000	25.5900-43.5000	70,0	2.76	310,0	12.20	48,0	1.89	PKG156502	7,00	15.40
4057208	EBSLD2205	1100.000-2205.000	43.3100-86.8100	70,0	2.76	360,0	14.17	48,0	1.89	PKG156502	7,90	17.38

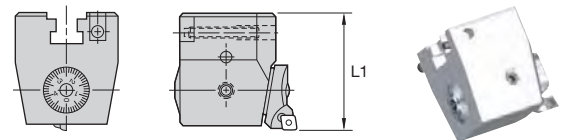
- Packaged as a matched set of two to enable twin cutting operations.



■ 90° Lead • Bridge Tool Rough-Boring Head

order number	catalog number	L1		gage insert	spare parts package	insert screw ID drive size	kg	lbs
		mm	in					
1624878	EBURF1975PKG	75,0	2.95	CN..1906../CN..64..	PKG7994	4 mm	1,64	3.60

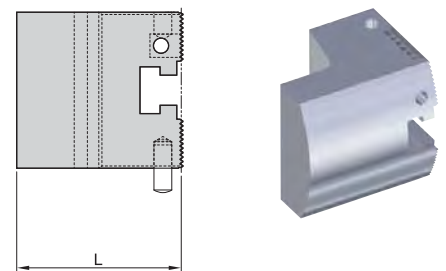
- Insert holder included.
- .0004" (0,01mm) diameter adjustment respective .00008" (2 μm) with vernier scale.
- Use with counterweight for balance.



■ 90° Lead • Bridge Tool Fine-Boring Head

order number	catalog number	L1		cartridge	spare parts package	wrench size-adjusting screw	kg	lbs
		mm	in					
1135375	EBUFF0975	75,0	2.95	R67-FBHS-09	PKG0002	5 mm	2,14	4.70

- Use to balance the extension bridge when using an EBUFF fine-boring head.



■ Bridge Tool Counterweight

order number	catalog number	L		kg	lbs
		mm	in		
4062443	EBUCW0074	74,0	2.91	2,10	4.63

■ ModBORE™ • Roughing • Inch

Material Group	Condition	Geometry			Cutting Speed SFM			Feed Rate IPR			
		-MP	-MN	-MF	min	Starting Value	max	-MP	-MN	-MF	
P	1	○	—	KCP05	—	590	1430	1620	—	.006-.025	—
		○	KCP10			590	1300	1180	.004-.016	.006-.025	.004-.016
		○	—	KC9110		590	1300	1180	—	.006-.025	.004-.016
		○	KCP25			410	900	1180	.004-.008	.006-.012	.004-.008
	2	○	—	KCP05	—	590	870	1310	—	.006-.025	—
		○	KCP10			590	790	1540	.004-.016	.006-.025	.004-.016
		○	—	KC9110		590	820	1120	—	.006-.025	.004-.016
		○	KCP25			410	640	920	.004-.008	.006-.012	.004-.008
	3	○	—	KCP05	—	590	670	900	—	.006-.025	—
		○	KCP10			520	620	1150	.004-.016	.006-.025	.004-.016
		○	—	KC9110		510	620	770	—	.006-.025	.004-.016
		○	KCP25			440	510	740	.004-.008	.006-.012	.004-.008
	4	○	—	KCP05	—	300	520	720	—	.006-.025	—
		○	KCP10			300	480	770	.004-.016	.006-.025	.004-.016
		○	—	KC9110		300	480	640	—	.006-.025	.004-.016
		○	KCP25			250	340	590	.004-.008	.006-.012	.004-.008
	5	○	—	KCP05	—	490	790	1030	—	.006-.025	—
		○	KCP10			490	710	980	.004-.016	.006-.025	.004-.016
		○	—	KC9110		490	710	980	—	.006-.025	.004-.016
		○	KCP25			390	640	850	.004-.008	.006-.012	.004-.008
	6	○	—	KCP05	—	460	660	980	—	.006-.025	—
		○	KCP10			360	590	890	.004-.016	.006-.025	.004-.016
		○	—	KC9110		390	590	740	—	.006-.025	.004-.016
		○	KCP25			340	490	740	.004-.008	.006-.012	.004-.008

■ ModBORE™ • Roughing • Inch

Material Group	Condition	Geometry		Cutting Speed SFM			Feed Rate IPR	
		-MP	-MF	min	Starting Value	max	-MP	-MF
M	1	KCM15		330	590	790	.004-.016	.003-.012
		KC5010	—	430	710	820	.004-.016	—
		KC9225		570	610	820	.004-.016	.003-.012
		KCM25	—	300	490	660	.004-.008	.003-.006
	2	KC9240		300	390	440	.004-.008	.003-.006
		KCM15	—	360	540	820	.004-.016	.003-.012
		KC5010	—	410	660	820	.004-.016	—
		KC9225	—	360	560	750	.004-.016	.003-.012
	3	KCM25		300	490	740	.004-.008	.003-.006
		KC9240		260	340	440	.004-.008	.003-.006
		KCM15	—	360	490	820	.004-.016	.003-.012
		KC5010	—	360	490	750	.004-.016	—
3	KC9225		360	490	750	.004-.016	.003-.012	
	KCM25	—	300	390	660	.004-.008	.003-.006	
3	KC9240		260	300	440	.004-.008	.003-.006	

■ ModBORE™ • Roughing • Inch

Material Group	Condition	Geometry		Cutting Speed SFM			Feed Rate IPR	
		-MP	-MW	min	Starting Value	max	-MP	-MW
K	1	KCK20		720	980	1770	.004-.016	.006-.039
		—	KT315	520	900	1610	—	.006-.039
		KCK20		720	900	1150	.004-.016	.006-.039
		—	KC9315	490	900	1150	—	.006-.039
	2	KCK20		460	690	1120	.004-.008	.006-.018
		—	KC9325	230	690	1120	—	.006-.018
		KCK20		720	900	1150	.004-.016	.006-.039
		—	KT315	590	900	1180	—	.006-.039
	3	KCK20		720	900	1150	.004-.016	.006-.039
		—	KC9315	430	850	1120	—	.006-.039
		KCK20		720	900	1150	.004-.008	.006-.018
		—	KT315	560	750	1180	—	.006-.039
3	KCK20		360	490	750	.004-.016	.006-.039	
	—	KT315	560	750	1180	—	.006-.039	
	KCK20		360	490	750	.004-.016	.006-.039	
	—	KC9315	430	710	1150	—	.006-.039	
		KCK20		360	490	750	.004-.008	.006-.018

■ ModBORE™ • Roughing • Inch

Material Group	Condition	Geometry		Cutting Speed SFM			Feed Rate IPR	
		-HP	—	min	Starting Value	max	-HP	—
N	1	KC5410		660	1800	3280	.006-.025	—
		—	KD1400	1480	2510	8200	—	.010-.025
		KC5410		660	1800	3280	.006-.012	—
	2	—		980	1710	2950	—	.010-.025
		—		980	1710	2950	—	.010-.016
	3	KC5410		330	900	1640	.006-.025	—
		K313		390	850	1610	.006-.025	—
	5	KC5410		330	900	1640	.006-.012	—
		—		330	660	1150	.006-.025	—
		KC5410		330	660	1150	.006-.012	—

■ ModBORE™ • Roughing • Inch

Material Group	Condition	Geometry			Cutting Speed SFM			Feed Rate IPR		
		-MP	-FP	-UP	min	Starting Value	max	-MP	-FP	-UP
S	1	KCU10		—	100	180	380	.004-.016	.002-.010	—
		KC5010			100	180	380	.004-.016	.002-.010	.006-.020
		KCU25		—	30	130	180	.004-.008	.002-.005	—
		KC9240	—	KC9240	30	130	200	.004-.008	—	.006-.011
	2	KCU10		—	100	200	390	.004-.016	.002-.010	—
		KC5010			100	200	380	.004-.016	.002-.010	.006-.020
		KCU25		—	30	100	180	.004-.008	.002-.005	—
		KC9240	—	KC9240	30	100	180	.004-.008	—	.006-.011
	3	KCU10		—	100	230	380	.004-.016	.002-.010	—
		KC5010			100	230	380	.004-.016	.002-.010	.006-.020
		KCU25		—	70	130	180	.004-.008	.002-.005	—
		KC9240	—	KC9240	70	130	200	.004-.008	—	.006-.011
	4	KCU10		—	150	230	460	.004-.016	.002-.010	—
		KC5010			150	230	560	.004-.016	.002-.010	.006-.020
		KCU25		—	70	180	300	.004-.008	.002-.005	—
		KC9240	—	KC9240	50	180	300	.004-.008	—	.006-.011



■ ModBORE™ • Roughing • Metric

Material Group	Condition	Geometry			Cutting Speed – vc m/min			Feed Rate mm/r				
		-MP	-MN	-MF	min	Starting Value	max	-MP	-MN	-MF		
P	1	○	-	KCP05	-	180	435	495	-	0,16–0,63	-	
		○	KCP10			180	395	360	0,10–0,40	0,16–0,63	0,10–0,40	
		○	-	KC9110			180	395	360	-	0,16–0,63	0,10–0,40
		○	KCP25			125	275	360	0,10–0,20	0,16–0,31	0,10–0,20	
	2	○	-	KCP05	-	180	265	400	-	0,16–0,63	-	
		○	KCP10			180	240	470	0,10–0,40	0,16–0,63	0,10–0,40	
		○	-	KC9110			180	250	340	-	0,16–0,63	0,10–0,40
		○	KCP25			125	195	280	0,10–0,20	0,16–0,31	0,10–0,20	
	3	○	-	KCP05	-	180	205	275	-	0,16–0,63	-	
		○	KCP10			160	190	350	0,10–0,40	0,16–0,63	0,10–0,40	
		○	-	KC9110			155	190	235	-	0,16–0,63	0,10–0,40
		○	KCP25			135	155	225	0,10–0,20	0,16–0,31	0,10–0,20	
	4	○	-	KCP05	-	90	160	220	-	0,16–0,63	-	
		○	KCP10			90	145	235	0,10–0,40	0,16–0,63	0,10–0,40	
		○	-	KC9110			90	145	195	-	0,16–0,63	0,10–0,40
		○	KCP25			75	105	180	0,10–0,20	0,16–0,31	0,10–0,20	
	5	○	-	KCP05	-	150	240	315	-	0,16–0,63	-	
		○	KCP10			150	215	300	0,10–0,40	0,16–0,63	0,10–0,40	
		○	-	KC9110			150	215	300	-	0,16–0,63	0,10–0,40
		○	KCP25			120	195	260	0,10–0,20	0,16–0,31	0,10–0,20	
	6	○	-	KCP05	-	140	200	300	-	0,16–0,63	-	
		○	KCP10			110	180	270	0,10–0,40	0,16–0,63	0,10–0,40	
		○	-	KC9110			120	180	225	-	0,16–0,63	0,10–0,40
		○	KCP25			105	150	225	0,10–0,20	0,16–0,31	0,10–0,20	
		○	-	KC9125	105	150	225	-	0,16–0,31	0,10–0,20		

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Material Group	Condition	Geometry			Cutting Speed – vc m/min			Feed Rate mm/r			
		-MP	-MF	-	min	Starting Value	max	-MP	-MF	-	
M	1	○○	KCM15		-	100	180	240	0,10–0,40	0,08–0,30	-
		○○	KC5010	-	-	130	215	250	0,10–0,40	-	-
		○○	KC9225		-	175	185	250	0,10–0,40	0,08–0,30	-
	2	○	KCM25		-	90	150	200	0,10–0,20	0,08–0,15	-
		○	KC9240		-	90	120	135	0,10–0,20	0,08–0,15	-
		○	KCM15		-	110	165	250	0,10–0,40	0,08–0,30	-
	3	○○	KC5010	-	-	125	200	250	0,10–0,40	-	-
		○○	KC9225		-	110	170	230	0,10–0,40	0,08–0,30	-
		○	KCM25		-	90	150	225	0,10–0,20	0,08–0,15	-
			○	KC9240		-	80	105	135	0,10–0,20	0,08–0,15
			○○	KCM15		-	110	150	250	0,10–0,40	0,08–0,30
			○○	KC5010	-	-	110	150	230	0,10–0,40	-
		○○	KC9225		-	110	150	230	0,10–0,40	0,08–0,30	
		○	KCM25		-	90	120	200	0,10–0,20	0,08–0,15	
		○	KC9240		-	80	90	135	0,10–0,20	0,08–0,15	

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Material Group	Condition	Geometry			Cutting Speed – vc m/min			Feed Rate mm/r		
		-MP	-MW	–	min	Starting Value	max	-MP	-MW	–
K	1	KCK20		–	220	300	540	0,10–0,40	0,16–1,00	–
		–	KT315	–	160	275	490	–	0,16–1,00	–
		KCK20		–	220	275	350	0,10–0,40	0,16–1,00	–
		–	KC9315	–	150	275	350	–	0,16–1,00	–
	2	KCK20		–	140	210	340	0,10–0,20	0,16–0,45	–
		–	KC9325	–	70	210	340	–	0,16–0,45	–
		KCK20		–	220	275	350	0,10–0,40	0,16–1,00	–
		–	KT315	–	180	275	360	–	0,16–1,00	–
	3	KCK20		–	220	275	350	0,10–0,40	0,16–1,00	–
		–	KC9315	–	130	260	340	–	0,16–1,00	–
		KCK20		–	110	150	230	0,10–0,40	0,16–1,00	–
		–	KT315	–	170	230	360	–	0,16–1,00	–
3	KCK20		–	110	150	230	0,10–0,40	0,16–1,00	–	
	–	KC9315	–	130	215	350	–	0,16–1,00	–	
	KCK20		–	110	150	230	0,10–0,20	0,16–0,45	–	
	–	KC9315	–	110	150	230	–	0,16–0,45	–	

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Material Group	Condition	Geometry			Cutting Speed – vc m/min			Feed Rate mm/r		
		-HP	–	–	min	Starting Value	max	-HP	–	–
N	1	KC5410		–	200	550	1000	0,16–0,63	–	–
		–	KD1400	–	450	765	2500	–	0,25–0,63	–
	2	KC5410		–	200	550	1000	0,16–0,31	–	–
		–	KD1425	–	300	520	900	–	0,25–0,63	–
	3	KC5410		–	100	275	500	0,16–0,63	–	–
		–	K313	–	120	260	490	0,16–0,63	–	–
	5	KC5410		–	100	275	500	0,16–0,31	–	–
		–	KC5410	–	100	200	350	0,16–0,63	–	–

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Material Group	Condition	Geometry			Cutting Speed – vc m/min			Feed Rate mm/r			
		-MP	-FP	-UP	min	Starting Value	max	-MP	-FP	-UP	
S	1	KCU10		–	30	55	115	0,10–0,40	0,06–0,25	–	
		KC5010			–	30	55	115	0,10–0,40	0,06–0,25	0,16–0,50
		KCU25	–	–	10	40	55	0,10–0,20	0,06–0,12	–	
	2	KC9240	–	KC9240	–	10	40	60	0,10–0,20	–	0,16–0,27
		KCU10		–	30	60	120	0,10–0,40	0,06–0,25	–	
		KC5010			–	30	60	115	0,10–0,40	0,06–0,25	0,16–0,50
	3	KCU25	–	–	10	30	55	0,10–0,20	0,06–0,12	–	
		KC9240	–	KC9240	–	10	30	55	0,10–0,20	–	0,16–0,27
		KCU10		–	30	70	115	0,10–0,40	0,06–0,25	–	
	4	KC5010			–	30	70	115	0,10–0,40	0,06–0,25	0,16–0,50
		KCU25	–	–	20	40	55	0,10–0,20	0,06–0,12	–	
		KC9240	–	KC9240	–	20	40	60	0,10–0,20	–	0,16–0,27
4	KCU10		–	45	70	140	0,10–0,40	0,06–0,25	–		
	KC5010			–	45	70	170	0,10–0,40	0,06–0,25	0,16–0,50	
	KCU25	–	–	20	55	90	0,10–0,20	0,06–0,12	–		
4	KC9240	–	KC9240	–	15	55	90	0,10–0,20	–	0,16–0,27	



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Material Group	Condition	Geometry				Cutting Speed – vc SFM			Feed Rate IPR				
		-LF	-UF	-FP	-FW	min	Starting Value	max	-LF	-UF	-FP	-FW	
P	1	○	KCP05		-	590	1430	1620	.002-.010	.002-.006	.002-.010	-	
			-	-	KTP10	-	590	1430	1620	-	-	.002-.010	-
			KT315	-	-	-	590	1310	1620	.002-.010	-	-	.003-.012
		○	KCP10		-	590	1300	1530	.002-.010	.002-.006	.002-.010	-	-
			KC9110		-	590	1300	1620	.002-.010	.002-.006	-	-	-
			KCP25		-	460	920	1180	.002-.004	.002-.003	.002-.005	.003-.006	-
	2	○	KCP05		-	590	870	1310	.002-.010	.002-.006	.002-.010	-	
			-	-	KTP10	-	590	870	1310	-	-	.002-.010	-
			KT315	-	-	KT315	620	890	1280	.002-.010	-	-	.003-.012
		○	KCP10		-	590	790	1080	.002-.010	.002-.006	.002-.010	-	-
			KC9110		-	590	790	1080	.002-.010	.002-.006	-	-	-
			KCP25		-	480	640	1050	.002-.004	.002-.003	.002-.005	.003-.006	-
	3	○	KCP05		-	590	670	900	.002-.010	.002-.006	.002-.010	-	
			-	-	KTP10	-	590	670	900	-	-	.002-.010	-
			KT315	-	-	KT315	590	690	900	.002-.010	-	-	.003-.012
		○	KCP10		-	520	620	820	.002-.010	.002-.006	.002-.010	-	-
			KC9110		-	510	620	790	.002-.010	.002-.006	-	-	-
			KCP25		-	440	510	740	.002-.004	.002-.003	.002-.005	.003-.006	-
	4	○	KCP05		-	300	520	720	.002-.010	.002-.006	.002-.010	-	
			-	-	KTP10	-	300	520	720	-	-	.002-.010	-
			KT315	-	-	KT315	300	590	720	.002-.010	-	-	.003-.012
		○	KCP10		-	300	480	640	.002-.010	.002-.006	.002-.010	-	-
			KC9110		-	300	480	640	.002-.010	.002-.006	-	-	-
			KCP25		-	250	340	590	.002-.004	.002-.003	.002-.005	.003-.006	-
5	○	KCP05		-	490	790	1030	.002-.010	.002-.006	.002-.010	-		
		-	-	KTP10	-	490	790	1030	-	-	.002-.010	-	
		KT315	-	-	KT315	490	820	1030	.002-.010	-	-	.003-.012	
	○	KCP10		-	490	710	980	.002-.010	.002-.006	.002-.010	-	-	
		KC9110		-	490	710	980	.002-.010	.002-.006	-	-	-	
		KCP25		-	390	640	840	.002-.004	.002-.003	.002-.005	.003-.006	-	
6	○	KCP05		-	460	660	980	.002-.010	.002-.006	.002-.010	-		
		-	-	KTP10	-	460	660	980	-	-	.002-.010	-	
		KT315	-	-	KT315	460	660	980	.002-.010	-	-	.003-.012	
	○	KCP10		-	390	590	900	.002-.010	.002-.006	.002-.010	-	-	
		KC9110		-	390	590	740	.002-.010	.002-.006	-	-	-	
		KCP25		-	340	490	740	.002-.004	.002-.003	.002-.005	.003-.006	-	

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Material Group	Condition	Geometry				Cutting Speed – vc SFM			Feed Rate IPR				
		-LF	-UF	-FP	-FW	min	Starting Value	max	-LF	-UF	-FP	-FW	
M	1	○	-	-	KTP10	-	460	750	1030	-	-	.002-.010	-
			KT315	-	-	KT315	460	750	1030	.002-.010	-	-	.003-.012
		○	KC5010		-	430	710	800	.002-.010	-	-	.003-.012	-
			KCM15		-	340	590	790	.002-.005	-	.002-.005	-	-
		2	○	KCP10		-	460	710	970	-	-	.002-.010	-
				KT315	-	-	KT315	460	710	970	.002-.010	-	-
	○		KC5010		-	430	660	800	.002-.010	-	-	.003-.012	-
			KCM15		-	340	540	820	.002-.005	-	.002-.005	-	-
	○		KC9225		-	330	520	750	.002-.005	-	-	.003-.006	-
			KCP25		-	380	490	840	.002-.005	-	.002-.005	-	-
	3	○	KCP10		-	460	660	980	-	-	.002-.010	-	
			KT315	-	-	KT315	460	660	980	.002-.010	-	-	.003-.012
○		KC5010		-	430	610	750	.002-.010	-	-	.003-.012	-	
		KCM15		-	380	490	840	.002-.005	-	.002-.005	-	-	
○		KC9225		-	360	490	750	.002-.005	-	-	.003-.006	-	
		KCP25		-	360	490	750	.002-.005	-	-	.003-.006	-	

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Material Group	Condition	Geometry				Cutting Speed – vc SFM			Feed Rate IPR			
		-LF	-UF	-FP	-FW	min	Starting Value	max	-LF	-UF	-FP	-FW
K	1	○	KCK20	–	KCK20	660	980	1770	.002-.010	–	.002-.010	.003-.012
		○	KT315	–	KT315	540	900	1610	.002-.010	–	–	.003-.012
		○	KC9315	–	–	–	360	900	1480	.002-.010	–	–
	2	○	KC9320	–	–	–	330	790	1310	.002-.005	–	–
		○	KCK20	–	KCK20	490	790	1380	.002-.010	–	.002-.010	.003-.012
		○	KT315	–	KT315	590	900	1180	.002-.010	–	–	.003-.012
		○	KC5010	–	KC5010	330	660	870	.002-.010	.002-.006	–	.003-.012
		○	KC9315	–	–	–	480	850	1180	.002-.010	–	–
		○	KC9320	–	–	–	460	790	1080	.002-.005	–	–
	3	○	KCK20	–	KCK20	460	690	1150	.002-.010	–	.002-.010	.003-.012
		○	KT315	–	KT315	590	750	1050	.002-.010	–	–	.003-.012
		○	KC5010	–	KC5010	390	490	740	.002-.010	.002-.006	–	.003-.012
○		KC9315	–	–	–	480	710	900	.002-.010	–	–	
○		KC9320	–	–	–	460	690	850	.002-.005	–	–	

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Material Group	Condition	Geometry				Cutting Speed – vc SFM			Feed Rate IPR				
		-LF	–	–	–	min	Starting Value	max	-LF	–	–	–	
N	1	○	KC5410	–	–	660	1800	3280	.004-.016	–	–	–	
		○	KC5410	–	–	660	1800	3280	.004-.008	–	–	–	
		○	–	KD1400	–	–	1480	2510	9840	–	.002-.006	–	–
	2	○	–	KD1425	–	–	1230	1900	3770	–	.002-.010	–	–
		○	–	KD1400	–	–	1310	2130	4100	–	.002-.006	–	–
	3	○	KC5410	–	–	410	900	1720	.004-.016	–	–	–	
		○	–	KD1425	–	–	820	1640	2870	–	.002-.010	–	–
		○	KC5410	–	–	410	900	1720	.004-.008	–	–	–	
	5	○	–	KD1400	–	–	1230	1710	3280	–	.002-.005	–	–
		○	KC5410	–	–	410	660	1230	.004-.016	–	–	–	

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Material Group	Condition	Geometry				Cutting Speed – vc SFM			Feed Rate IPR				
		-LF	-UF	-FP	-FW	min	Starting Value	max	-LF	-UF	-FP	-FW	
S	1	○	–	–	KCU10	100	180	410	–	–	.002-.010	–	
		○	K313	–	–	30	100	200	.002-.010	–	–	–	
		○	KC5010	–	–	KC5010	100	180	390	.002-.010	.002-.006	–	.003-.012
		○	–	–	KCU10	100	180	410	–	–	.002-.010	–	
		○	KC5010	–	–	KC5010	100	180	390	.002-.010	.002-.006	–	.003-.012
		○	–	–	KCU25	30	130	160	–	–	.002-.005	–	
	2	○	–	–	KCU10	100	110	410	–	–	.002-.010	–	
		○	K313	–	–	30	110	200	.002-.010	–	–	–	
		○	KC5010	–	–	KC5010	100	200	390	.002-.010	.002-.006	–	.003-.012
		○	–	–	KCU10	100	110	410	–	–	.002-.010	–	
		○	KC5010	–	–	KC5010	100	200	390	.002-.010	.002-.006	–	.003-.012
		○	–	–	KCU25	30	100	160	–	–	.002-.005	–	
	3	○	–	–	KCU10	100	230	410	–	–	.002-.010	–	
		○	K313	–	–	30	130	200	.002-.010	–	–	–	
		○	KC5010	–	–	KC5010	100	230	390	.002-.010	.002-.006	–	.003-.012
		○	–	–	KCU10	100	110	410	–	–	.002-.010	–	
		○	KC5010	–	–	KC5010	100	230	390	.002-.010	.002-.006	–	.003-.012
		○	–	–	KCU25	80	130	200	–	–	.002-.005	–	
	4	○	–	–	KCU10	150	230	460	–	–	.002-.010	–	
		○	K313	–	–	50	150	210	.002-.010	–	–	–	
		○	KC5010	–	–	KC5010	150	230	460	.002-.010	.002-.006	–	.003-.012
		○	–	–	KCU10	150	230	460	–	–	.002-.010	–	
		○	KC5010	–	–	KC5010	150	230	460	.002-.010	.002-.006	–	.003-.012
		○	–	–	KCU25	80	180	300	–	–	.002-.005	–	

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Material Group	Condition	Geometry				Cutting Speed – vc m/min			Feed Rate mm/r			
		-LF	-UF	-FP	-FW	min	Starting Value	max	-LF	-UF	-FP	-FW
P	1	KCP05				180	435	495	0,06–0,25	0,04–0,16	0,06–0,25	–
		–	–	KTP10	–	180	435	495	–	–	0,06–0,25	–
		KT315	–	–	KT315	180	400	495	0,06–0,25	–	–	0,08–0,30
		KCP10				180	395	465	0,06–0,25	0,04–0,16	0,06–0,25	–
		KC9110	–	–	–	180	395	495	0,06–0,25	0,04–0,16	–	–
		KCP25				140	280	360	0,06–0,10	0,04–0,08	0,06–0,12	0,08–0,16
	2	KCP05				180	265	400	0,06–0,25	0,04–0,16	0,06–0,25	–
		–	–	KTP10	–	180	265	400	–	–	0,06–0,25	–
		KT315	–	–	KT315	190	270	390	0,06–0,25	–	–	0,08–0,30
		KCP10				180	240	330	0,06–0,25	0,04–0,16	0,06–0,25	–
		KC9110	–	–	–	180	240	330	0,06–0,25	0,04–0,16	–	–
		KCP25				145	195	320	0,06–0,10	0,04–0,08	0,06–0,12	0,08–0,16
	3	KCP05				180	205	275	0,06–0,25	0,04–0,16	0,06–0,25	–
		–	–	KTP10	–	180	205	275	–	–	0,06–0,25	–
		KT315	–	–	KT315	180	210	275	0,06–0,25	–	–	0,08–0,30
		KCP10				160	190	250	0,06–0,25	0,04–0,16	0,06–0,25	–
		KC9110	–	–	–	155	190	240	0,06–0,25	0,04–0,16	–	–
		KCP25				135	155	225	0,06–0,10	0,04–0,08	0,06–0,12	0,08–0,16
	4	KCP05				90	160	220	0,06–0,25	0,04–0,16	0,06–0,25	–
		–	–	KTP10	–	90	160	220	–	–	0,06–0,25	–
		KT315	–	–	KT315	90	180	220	0,06–0,25	–	–	0,08–0,30
		KCP10				90	145	195	0,06–0,25	0,04–0,16	0,06–0,25	–
		KC9110	–	–	–	90	145	195	0,06–0,25	0,04–0,16	–	–
		KCP25				75	105	180	0,06–0,10	0,04–0,08	0,06–0,12	0,08–0,16
5	KCP05				150	240	315	0,06–0,25	0,04–0,16	0,06–0,25	–	
	–	–	KTP10	–	150	240	315	–	–	0,06–0,25	–	
	KT315	–	–	KT315	150	250	315	0,06–0,25	–	–	0,08–0,30	
	KCP10				150	215	300	0,06–0,25	0,04–0,16	0,06–0,25	–	
	KC9110	–	–	–	150	215	300	0,06–0,25	0,04–0,16	–	–	
	KCP25				120	195	255	0,06–0,10	0,04–0,08	0,06–0,12	0,08–0,16	
6	KCP05				140	200	300	0,06–0,25	0,04–0,16	0,06–0,25	–	
	–	–	KTP10	–	140	200	300	–	–	0,06–0,25	–	
	KT315	–	–	KT315	140	200	300	0,06–0,25	–	–	0,08–0,30	
	KCP10				120	180	275	0,06–0,25	0,04–0,16	0,06–0,25	–	
	KC9110	–	–	–	120	180	225	0,06–0,25	0,04–0,16	–	–	
	KCP25				105	150	225	0,06–0,10	0,04–0,08	0,06–0,12	0,08–0,16	

■ ModBORE™ • Finishing • Metric

Material Group	Condition	Geometry				Cutting Speed – vc m/min			Feed Rate mm/r			
		-LF	-UF	-FP	-FW	min	Starting Value	max	-LF	-UF	-FP	-FW
M	1	–	–	KTP10	–	140	230	315	–	–	0,06–0,25	–
		KT315	–	–	KT315	140	230	315	0,06–0,25	–	–	0,08–0,30
		KC5010	–	–	KC5010	130	215	245	0,06–0,25	–	–	0,08–0,30
		KCM15	–	KCM15	–	105	180	240	0,06–0,12	–	0,06–0,12	–
	2	KC9225	–	–	KC9225	105	180	240	0,06–0,12	–	–	0,08–0,16
		–	–	KTP10	–	140	215	295	–	–	0,06–0,25	–
		KT315	–	–	KT315	140	215	295	0,06–0,25	–	–	0,08–0,30
		KC5010	–	–	KC5010	130	200	245	0,06–0,25	–	–	0,08–0,30
	3	KCM15	–	KCM15	–	105	165	250	0,06–0,12	–	0,06–0,12	–
		KC9225	–	–	KC9225	100	160	230	0,06–0,12	–	–	0,08–0,16
		–	–	KTP10	–	140	200	300	–	–	0,06–0,25	–
		KT315	–	–	KT315	140	200	300	0,06–0,25	–	–	0,08–0,30

ModBORE™ • Finishing • Metric

Material Group	Condition	Geometry				Cutting Speed – vc m/min			Feed Rate mm/r			
		-LF	-UF	-FP	-FW	min	Starting Value	max	-LF	-UF	-FP	-FW
K	1	KCK20	-	KCK20		200	300	540	0,06–0,25	-	0,06–0,25	0,08–0,30
		KT315	-	-	KT315	165	275	490	0,06–0,25	-	-	0,08–0,30
		KC9315	-	-	-	110	275	450	0,06–0,25	-	-	-
		KC9320	-	-	-	100	240	400	0,06–0,12	-	-	-
	2	KCK20	-	KCK20		150	240	420	0,06–0,25	-	0,06–0,25	0,08–0,30
		KT315	-	-	KT315	180	275	360	0,06–0,25	-	-	0,08–0,30
		KC5010		-	KC5010	100	200	265	0,06–0,25	0,04–0,16	-	0,08–0,30
		KC9315	-	-	-	145	260	360	0,06–0,25	-	-	-
	3	KC9320	-	-	-	140	240	330	0,06–0,12	-	-	-
		KCK20	-	KCK20		140	210	350	0,06–0,25	-	0,06–0,25	0,08–0,30
		KT315	-	-	KT315	180	230	320	0,06–0,25	-	-	0,08–0,30
		KC5010		-	KC5010	120	150	225	0,06–0,25	0,04–0,16	-	0,08–0,30
	C	KC9315	-	-	-	145	215	275	0,06–0,25	-	-	-
		KC9320	-	-	-	140	210	260	0,06–0,12	-	-	-

ModBORE™ • Finishing • Metric

Material Group	Condition	Geometry				Cutting Speed – vc m/min			Feed Rate mm/r				
		-LF	-	-	-	min	Starting Value	max	-LF	-	-	-	
N	1	KC5410	-	-	-	200	550	1000	0,10–0,40	-	-	-	
		KC5410	-	-	-	200	550	1000	0,10–0,20	-	-	-	
	2	-	KD1400	-	-	450	765	3000	-	0,06–0,15	-	-	
		-	KD1425	-	-	375	580	1150	-	0,06–0,25	-	-	
	3	-	KD1400	-	-	400	650	1250	-	0,06–0,15	-	-	
		KC5410	-	-	-	125	275	525	0,10–0,40	-	-	-	
	5	C	-	KD1425	-	-	250	500	875	-	0,06–0,25	-	-
			KC5410	-	-	-	125	275	525	0,10–0,20	-	-	-
		-	KD1400	-	-	375	520	1000	-	0,06–0,12	-	-	
		KC5410	-	-	-	125	200	375	0,10–0,40	-	-	-	
		C	KC5410	-	-	-	125	200	375	0,10–0,20	-	-	-

ModBORE™ • Finishing • Metric

Material Group	Condition	Geometry				Cutting Speed – vc m/min			Feed Rate mm/r				
		-LF	-UF	-FP	-FW	min	Starting Value	max	-LF	-UF	-FP	-FW	
S	1	-	-	KCU10	-	30	55	125	-	-	0,06–0,25	-	
		K313	-	-	-	10	30	60	0,06–0,25	-	-	-	
		KC5010		-	KC5010	30	55	120	0,06–0,25	0,04–0,16	-	0,08–0,30	
		-	-	KCU10	-	30	55	125	-	-	0,06–0,25	-	
		KC5010		-	KC5010	30	55	120	0,06–0,25	0,04–0,16	-	0,08–0,30	
		-	-	KCU25	-	10	40	50	-	-	0,06–0,12	-	
	2	C	-	-	KCU10	-	30	35	125	-	-	0,06–0,25	-
			K313	-	-	-	10	35	60	0,06–0,25	-	-	-
		KC5010		-	KC5010	30	60	120	0,06–0,25	0,04–0,16	-	0,08–0,30	
		-	-	KCU10	-	30	35	125	-	-	0,06–0,25	-	
		KC5010		-	KC5010	30	60	120	0,06–0,25	0,04–0,16	-	0,08–0,30	
		-	-	KCU25	-	10	30	50	-	-	0,06–0,12	-	
	3	C	-	-	KCU10	-	30	70	125	-	-	0,06–0,25	-
			K313	-	-	-	10	40	60	0,06–0,25	-	-	-
		KC5010		-	KC5010	30	70	120	0,06–0,25	0,04–0,16	-	0,08–0,30	
		-	-	KCU10	-	30	35	125	-	-	0,06–0,25	-	
		KC5010		-	KC5010	30	70	120	0,06–0,25	0,04–0,16	-	0,08–0,30	
		-	-	KCU25	-	25	40	60	-	-	0,06–0,12	-	
	4	C	-	-	KCU10	-	25	40	60	0,06–0,10	-	-	-
			-	-	KCU10	-	45	70	140	-	-	0,06–0,25	-
		K313	-	-	-	15	45	65	0,06–0,25	-	-	-	
		KC5010		-	KC5010	45	70	140	0,06–0,25	0,04–0,16	-	0,08–0,30	
		-	-	KCU10	-	45	70	140	-	-	0,06–0,25	-	
		KC5010		-	KC5010	45	70	140	0,06–0,25	0,04–0,16	-	0,08–0,30	
	C	-	-	KCU25	-	25	55	90	-	-	0,06–0,12	-	
		KC5025	-	-	-	15	55	90	0,06–0,10	-	-	-	

➤ PCD Customized Tooling

PCD tooling offers the highest productivity and accuracy, reduced tooling costs due to long tool life, and secure process control due to close tolerances. All of this increases overall quality and reduces scrap rates and inspection costs.

Primary Application

Use Kennametal PCD tooling for machining aluminum and aluminum alloys, magnesium, copper, brass, bronze, plastics (GFRP, CFRP), MMC (Metal Matrix Composite), graphite, tungsten carbide green-stages, and ceramic. Choose from various PCD products for drilling, counterboring, and reaming. Steel- and solid carbide-based tool body designs are available for direct spindle coupling with or without adjustable PCD pocket seats or with steerable SIF™ backend.



Features and Benefits

Higher Productivity and Profitability

- Highest chip removal rates and fewer tool changes using multistep tooling.
- Extremely long tool life while maintaining very tight tolerances.
- Reduced built-up edge and bur formation, improved hole shape with multistep tooling, and better surface finish of the workpiece.

Choose Kennametal as your trusted partner for PCD applications and benefit from our years of experience and global presence.

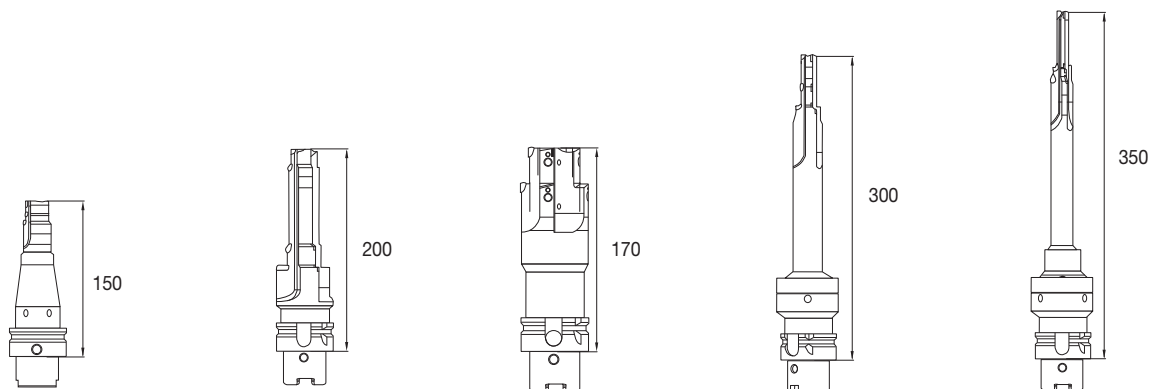
Product Platform Versatility

- All PCD drilling, counterboring, and reaming tools are designed to specific needs for diameter, shape, radii, and steps.
- Various PCD grades are available to match specific material.
- Multistep drilling, profiling, countersinking, and reaming platforms available.
- Coolant channel for optimized chip evacuation in regular and MQL styles.
- Steel-based tool body designs for direct spindle coupling or adjustable pocket seat for highest accuracy even in larger sizes.
- Carbide-based tool bodies enable highest accuracy and tool life in high L/D ratio applications.
- SIF™ steerable interface optimizes runout and enables highest accuracy and tool life.
- All PCD tooling prebalanced by design. Further precision balancing available on request.



PCD Tooling Basic Design Overview

Kennametal offers you certain PCD design platforms to optimally fulfill your machining task. These basic designs are independent, whether you are drilling, countersinking, profiling, reaming, or milling. All tooling designs are capable of internal coolant, MQL coolant, and are balanced by design.



PCD ..ST — Steel body
PCD ..SC — Solid carbide body

PCD ..STM — Steel body monoblock

PCD ..STMJ — Steel body monoblock Ø adjustable

PCD ..STA — Steel body with steerable SIF™ backend

PCD ..SCA — Solid carbide shank and steerable SIF backend

PCDRSC02CCE

PCD	R	SC	02	CC	E
	Technology	Type	Teeth	Point Geometry	Coolant
HF = Helix Flute SF = Straight Flute	D = Drilling R = Reaming C = Countersinking E = End milling F = Face milling P = Profile milling M = Multioperation tool	SC = Solid carbide body ST = Steel body STM = Steel monoblock STMJ = Steel monoblock adjustable STA = Steel steerable SCA = Carbide steerable	02 03 04 ... 12 ... 22*	RL = Reaming lead CC = Center cut CT = Drill point CTE = Drill point SW = Drill point MT = Drill point	E = Emulsion M = MQL A = Air D = Dry

*Exception for Type Reamer 22 = 2 teeth + 2 additional land = 4 guiding lands.

Runout of the Spindle

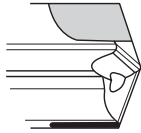
Depending on spindle runout and/or higher L/D ratios

runout ≤ 0,005mm		runout ≥ 0,006mm	
	PCD-ST PCD-SC		PCD-ST or PCD-SC with hydraulic chuck and SIF shank
	PCD-STM		PCD-STA with SIF PCD-SCA with SIF

PCD Drill-Point Design Overview

CT

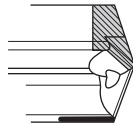
- PCD corner tipped.
- Carbide-based body design.
- Diameter $>.166"$ (4,2mm).



Use for general application at moderate cutting speeds up to 12 x D drilling depth.

CTE

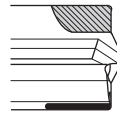
- PCD corner tipped, E point.
- Carbide-based body design.
- Diameter $>.166"$ (4,2mm).



Use at precasted holes at moderate cutting speeds up to 12 x D drilling depth.

SW

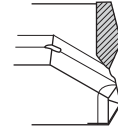
- Full-face sandwich PCD.
- Carbide-based body design.
- Diameter $>.97"$ (5mm).



Use at high cutting speeds and abrasive materials up to 5 x D drilling depth.

MT






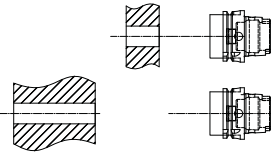










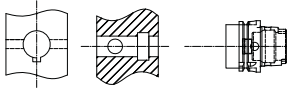










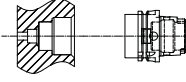










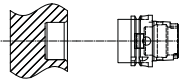










- PCD corner tipped.
- Steel- and carbide-based body design.
- Diameter $>.4736"$ (12mm).



Use for drilling casted surfaces up to 3 x D drilling depth.

Cutting Edge and Margin Land Requirements

Determine correlations between spindle to edge overhang, amount of cutting, and margin lands for guidance and increased precision.

		number of cutting edges				
						
application/shape of bore	overhang	2 lands	2 lands	3 lands	4 lands	6 lands
	short					
	long					
	short					
	long					
	short					
	long					
	short					
	long					



Cutting Grade, Tooling Design

Select cutting data and tooling design based on stability and surface quality demands.

material	coolant	drilling	counterboring	reaming	milling	grade
Al <7%	MQL, emulsion	vc = 350–600 m/min fz = 0,004–0,016 IPR	vc = 650–900 m/min fz = 0,004–0,031 IPR	vc = 400–900 m/min fz = 0,004–0,016 IPR	vc = 1.500–5.000 m/min fz = 0,004–0,010 IPR	KD1415
Al <12%	MQL, emulsion	vc = 200–800 m/min fz = 0,004–0,016 IPR	vc = 650–900 m/min fz = 0,004–0,010 IPR	vc = 400–600 m/min fz = 0,004–0,010 IPR	vc = 1.500–4.000 m/min fz = 0,004–0,010 IPR	
Al >12%	emulsion	vc = 100–700 m/min fz = 0,004–0,012 IPR	vc = 650–900 m/min fz = 0,004–0,010 IPR	vc = 400–600 m/min fz = 0,004–0,010 IPR	vc = 1.500–3.000 m/min fz = 0,004–0,010 IPR	KD1415
mg alloys	emulsion	vc = 350–1.000 m/min fz = 0,004–0,016 IPR	vc = 650–900 m/min fz = 0,004–0,010 IPR	vc = 400–600 m/min fz = 0,004–0,010 IPR	vc = 1.500–6.000 m/min fz = 0,004–0,010 IPR	
CFRP, GFRP	dry, air	vc = 350–1.800 m/min fz = 0,004–0,010 IPR	vc = 650–900 m/min fz = 0,004–0,010 IPR	vc = 60–200 m/min fz = 0,004–0,010 IPR	vc = 1.500–4.000 m/min fz = 0,004–0,010 IPR	KD1425

Quick-Ship Delivery • Tooling Ranges

Please contact us if this special service is available in your region.

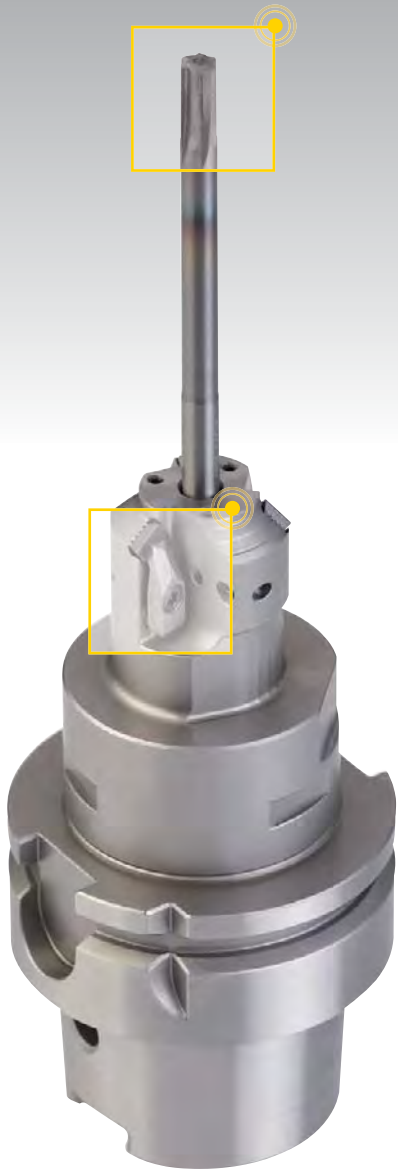
		PCD tool		flutes ¹	chip flute length ²	cutting diameter	max steps	through coolant	step difference
	non-center cutting		reamer, corner tipped	2–6	max 5 x D	–	2	axial and radial	max 50%
			countersinker, corner tipped	2–4	max 5 x D	.236–1.26"	3		max 40%
			milling tool, corner tipped	1–6	max 5 x D	–	2		max 50%
	center cutting		drilling tool, corner tipped	2	max 20 x D	.197–1.26"	3	axial and radial	max 50%
			countersinker, center cut	2–4	max 10 x D				
			drilling tool, center cut	2	max 12 x D	.197–.472"			

NOTE: 310mm max overall

¹Depending on the diameter

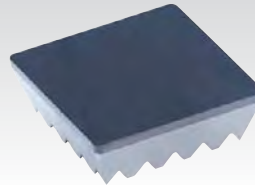
²Based on the max diameter

Valve Seat and Guide Experts



RMS™ -BASED SOLID CARBIDE REAMER

- Best stiffness and accuracy.



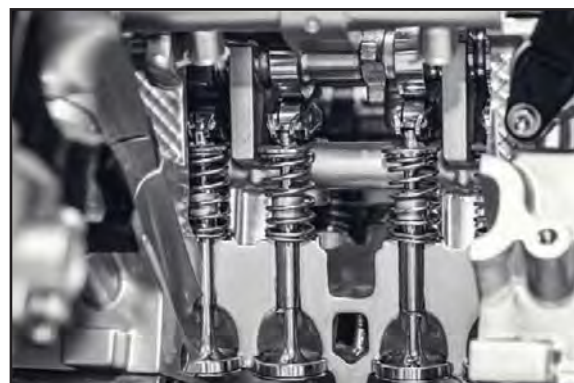
CBN-BASED RIQ™ INSERT

- Cross-serration technology for pre-defined guide chamfer angles.
- Same type of insert for all angles.
- 12 effective cutting edges.



OPTIMIZED HYDRO CHUCK

- Maximum flexural strength.
- Lowest runout error between seat and guide.



Experience the advantages at your Authorized Kennametal Distributor or at kennametal.com.

Cylinder Head



RIQ™ QUATTRO CUT™ VALVE SEAT & GUIDE PARENT BORE

- Valve seat and guide parent bore machining combined.
- Tolerance range 8 μm .
- Cast iron.
- Machining center with internal coolant.

CHALLENGE

SOLUTION

- RIQ padded reamer with integrated hydraulic chuck.
- RIQ full face CBN KB1630™ insert.
- RMS™ reamer for guide parent bore.

CUTTING DATA

- | | | |
|----------------|---------------|--------------|
| • vc 425 m/min | f 0,10 mm/rev | valve seat. |
| • vc 130 m/min | f 0,60 mm/rev | valve guide. |

RESULT

- Four usable cutting edges per CBN insert.
- CBN RIQ insert with 28,000 bore tool life.
- 1,400 bores with regrindable RMS reamer.

BENEFIT

- Cost savings due to four-edged full face CBN insert.
- No insert back taper adjustment needed.
- Same RPM at both stages saving time on spindle acceleration and deceleration.



Cylinder Head



Polished flutes for improved chip evacuation

PCD SEAT & GUIDE PARENT BORE PCDRSC04RLE

CHALLENGE

- Valve seat and guide parent bore machining combined.
- Tolerance range H7.
- Aluminum.
- Machining center with internal coolant.

SOLUTION

- PCD-tipped, steel-based tool (valve seat) with shrink in PCD tip, carbide based reamer (valve guide) with less than 4 μ m total runout.

CUTTING DATA

- | | | |
|----------------|---------------|--------------|
| • vc 344 m/min | f 0,60 mm/rev | valve seat. |
| • vc 985 m/min | f 0,60 mm/rev | valve guide. |

RESULT

- Tool life of 456,000 bores.

BENEFIT

- Productivity increases as same RPM applied to both seat and guide stages.
- Lowest possible runout resulting in higher tool life.

Cylinder Head



RIQ serration defines valve seat angle

RIQ™ QUATTRO CUT™ VALVE SEAT & GUIDE MACHINING

- Valve guide machining combined with primary and secondary seat angles.
- Sinter metal.
- Concentricity of seat to guide less than 50 µm.
- Machining center with internal coolant.

CHALLENGE

SOLUTION

- RIQ valve seat tooling with integrated hydraulic chuck.
- RIQ K68™ carbide inserts and solid carbide RMS™ multi-flute reamer.
- Alternative solution with KST coupling for higher stiffness.
- RIQ CBN inserts for valve seat machining available in KBHK10 and KBHK15.

CUTTING DATA

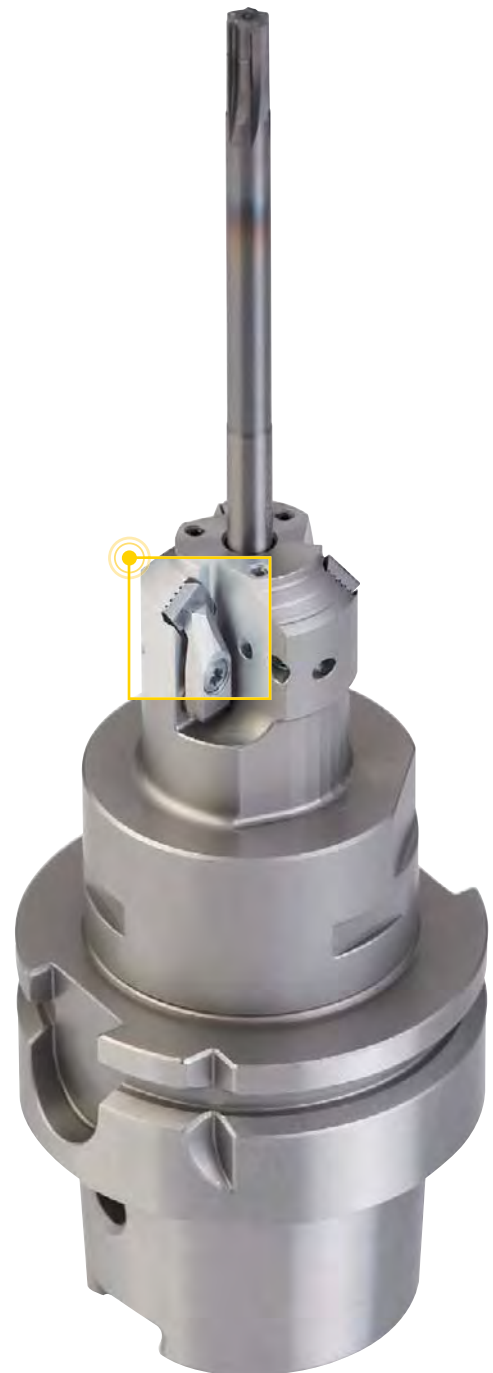
- vc 80 m/min f 0,10 mm/rev valve seat.
- vc 80 m/min f 0,32 mm/rev valve guide.

RESULT

- Tool life of 12,000 valve seats per insert.

BENEFIT

- Twelve usable cutting edges per carbide insert.
- Due to high precision RIQ pocket seat there is less setup effort as no angular adjustment of the insert is needed.
- Able to adapt RIR™ padded reamer machining the valve guide.



Cylinder Head



Polished flutes for improved chip evacuation



Chipformer in carbide body

PCD STEP REAMING

- Valve lifter bore \varnothing .472" (12mm).
- Tolerance range 18 μ m G7.
- Aluminum AISi7Mg.
- Machining center with internal coolant.

CHALLENGE

- PCD-tipped, carbide-based reamer and counter sinker with internal coolant.
- Four effective cutting and chamfering teeth.
- KD1415™.

SOLUTION

- vc 1.312 SFM (400 m/min).
- f .004 IPR (0,10 mm/rev).

CUTTING DATA

- Tool life of 125,000 holes.
- Surface finish better than Rz 1.5 μ m.

RESULT

- Secure process and very good concentricity.

BENEFIT

PCD STEP REAMING

- Injector bore \varnothing .305-.768" (7,75-19,5mm).
- Tolerance range 5 μ m.
- Aluminum G-AISI7Mg.
- Machining center with internal coolant.

CHALLENGE

- PCD-tipped, carbide based tool with PCD guide pads at \varnothing 19,5mm and internal coolant.
- Two effective cutting and chamfering teeth.
- KD1415™.

SOLUTION

- vc 722 SFM (220 m/min).
- f .014 IPR (0,35 mm/rev).

CUTTING DATA

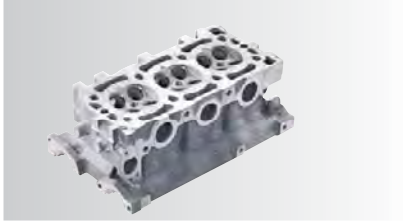
- Tool life of 400,000 bores.
- Surface finish better than Rz 3 μ m.

RESULT

- Secure process due to chipformer in carbide body improving chip formation.

BENEFIT

Cylinder Head



Self-aligning padded reamer

RIQ™ QUATTRO CUT™ PADDED REAMING

- Oil seal bore finishing \varnothing 2.220" (56,4mm).
- Tolerance range 30 μ m H7.
- Aluminum.
- Cambore to oil seal bore self alignment.
- Transfer line with internal coolant.

CHALLENGE

SOLUTION

- RIQ padded reamer with two PCD KD1415™ full-face inserts floating on finish machined cam bore.
- Self-aligning reamer body to ensure cam bore to oil seal bore concentricity.

CUTTING DATA

- vc 1.070 SFM (326 m/min).
- f .004 IPR (0,32 mm/rev).

RESULT

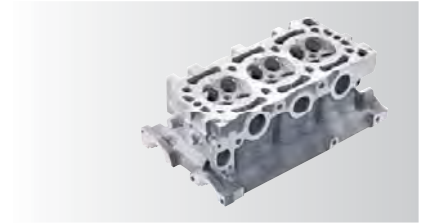
- Tool life of 80,000 cylinder heads.

BENEFIT

- No insert back taper adjustment needed.
- Cost savings due to four-edged full face PCD RIQ insert.



Cylinder Head



Semi-finish and finish stage combined

RIQ™ QUATTRO CUT™ PADDED REAMING

CHALLENGE

- Cambore finishing \emptyset .984" (25mm).
- Tolerance range 21 μ m H7.
- Aluminum.
- Deflection less than 20 μ m over total length.
- Machining center with internal coolant.

SOLUTION

- RIQ padded reamer with two PCD KD1415™ full-face inserts for semi-finishing and two PCD KD1415 full-face inserts for finishing.

CUTTING DATA

- vc 1.096 SFM (334 m/min).
- f .006 IPR (0,16 mm/rev).

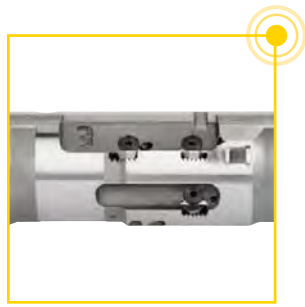
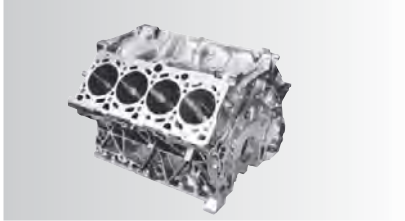
RESULT

- Tool life of 160,000 cylinder heads.
- Surface finish Ra 0.3 μ m.

BENEFIT

- No insert back taper adjustment is needed.
- Cost savings due to four-edged full face PCD RIQ insert.
- Setup time reduction from 8 hours with competitive tooling to less than 1/2 hour with RIQ.

Cylinder Block



ASYMMETRICAL LINE BORING BAR

- Crank Bore finishing.
- Material: AISI7/Sinter or AISI7/GGG60.
- Machine: Hor. M/C.
- Roundness 0.01mm.
- Concentricity 0.025mm.

CHALLENGE

- Patented asymmetrical LBB, which supports the before finished last journal of the crank bore.
- R18 inserts with 8 cutting edges per inserts in PCD or carbide.
- Hybrid body made of heavy-metal and steel.

SOLUTION

- Speed: 100m/min
- Feed/tooth: SF = 0.2/rev. ; F = 0.16/rev.

CUTTING DATA

- Roundness measured: 0.005mm.
- Concentricity measured: 0.005mm.

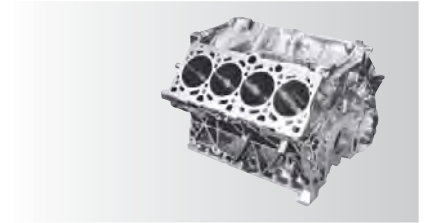
RESULT

- All advantages of a line boring bar, but applicable on MC.
- No disadvantage of typical line boring bars.
- Setup possible outside the machine on standard optical presetter.

BENEFIT



Cylinder Block



CLB screw for automatic wear compensation

MOTION TOOLING

CHALLENGE

- Cylinder bore \varnothing 2.953" (75mm).
- Cast iron GG25.
- Semi-finish and finish operation combined in one tool with coolant pressure activated finish stage.
- Machining center with internal coolant.

SOLUTION

- Motion tool with feed-out cartridges.
- Two-channel coolant system with coolant supply for inserts and feed-out cartridges.
- Solid CBN inserts with eight cutting edges; KB1340™.

CUTTING DATA

- | | | |
|----------------|---------------|--------------|
| • vc 600 m/min | f 0,05 mm/rev | semi-finish. |
| • vc 600 m/min | f 0,11 mm/rev | finish. |

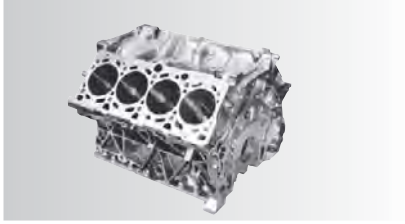
RESULT

- Tool life of 2,000 bores per tooling setup.
- Cylindricity better than 8 μ m.

BENEFIT

- Higher productivity as roughing at forward and finishing at backward movement — with coolant feed-out.
- Finish diameter adjustable with CLB process.
- Improved cylindricity in more than two separate operations.

Cylinder Block



Bayonet quick-change system

ROMICRON™ FINE BORING

- Cylinder bore \varnothing 3.108" (78,933mm).
- Cast iron GG25.
- Reduce setup and adjustment effort with roughing and finishing at various cylinder blocks.
- Engineered solutions vertical mill with internal coolant.

CHALLENGE

- Romicon engineered solutions tool with quick-change interface and drawbar actuated finish cartridge.
- SNGN090308T00520 KY1615 roughing insert.
- CPMT09T308LF KT315™ finishing insert.

SOLUTION

- | | | |
|----------------|---------------|------------|
| • vc 580 m/min | f 0,26 mm/rev | roughing. |
| • vc 580 m/min | f 0,19 mm/rev | finishing. |

CUTTING DATA

- Tool life of 100 components per setup.
- Cylindricity 13 μ m.
- Surface finish Ra 1.5 μ m.

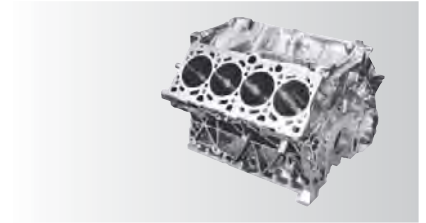
RESULT

- Bore tolerance easily and consistently achieved due to 1 μ m per click in radius adjustment.
- Weight reduction from 11 kg to 1.8 kg.
- Setup time reduction from 1.5 hours to 15 minutes.
- Secure process resulting in higher cpk value.

BENEFIT



Cylinder Block



Semi-finish and finish stage combined

FINE BORING

CHALLENGE

- Crank bore finishing \varnothing 1.457" (37mm).
- Tolerance range 5 μ m.
- Cast iron.
- Maintain tolerance for minimum of 50 bores.
- Machining center with internal coolant.

SOLUTION

- Line boring bar with tool bits adjusted by differential screw for more sensitivity.
- Dynamically balanced by design with axial holes ensuring highest stiffness of tool.

CUTTING DATA

- | | | |
|----------------|---------------|--------------|
| • vc 160 m/min | f 0,12 mm/rev | semi-finish. |
| • vc 160 m/min | f 0,08 mm/rev | finish. |

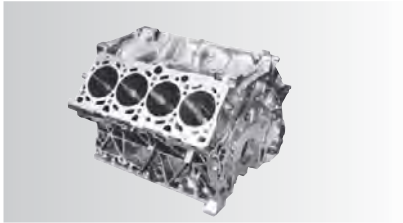
RESULT

- Customer proprietary information.

BENEFIT

- Use of standard C-style inserts in LF reduce tooling costs in KCK15.
- Reduction of cycle time.
- Easy and fine adjustments ensure a stable process.

Cylinder Block



RIQ chamfering,
plunging, and
reaming insert

RIQ™ QUATTRO CUT™ PADDED REAMING

- Balancing shaft bore \varnothing 31–39mm.
- Cast iron.
- Reaming of three diameters, machining of three chamfers, and one facing operation in one tool.
- Minimum quantity lubrication MQL.

CHALLENGE

SOLUTION

- RIQ padded reamer with one effective cutting edge combining chamfering, countersinking, and reaming stage in one tool, using two reaming RIQ and one special RIQ insert.

CUTTING DATA

- v_c 328 SFM (100 m/min).
- f .006 IPR (0,14 mm/rev).

RESULT

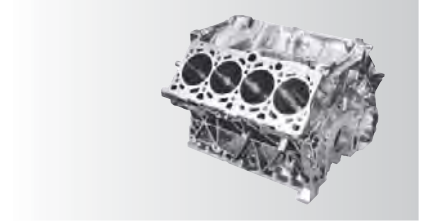
- Tool life of 8,000 bores per insert.
- Surface finish R_z 10 μm .

BENEFIT

- No insert back taper adjustment needed.
- Highest angular precision without any adjustment with RIQ at chamfering stage.



Cylinder Block



RHM™ MODULAR REAMING

CHALLENGE

- Position bore \varnothing .787" (20mm).
- Tolerance range 21 μ m N7.
- Cast iron GG26Cr.
- Replace padded double-edged reamer.
- Machining center with internal coolant.

SOLUTION

- Special RHM head with six cutting edges.
- Engineered solution KC6105 TiN coated carbide grade.

CUTTING DATA

- v_c 207 SFM (63 m/min).
- f .033 IPR (0,84 mm/rev).

RESULT

- Tool life of 336m.

BENEFIT

- 8x higher productivity due to higher feed rate.
- Tool life increased by 240% when compared to previous solution.

Conrod



ROMICRON™ FINE BORING

- Pin bore \varnothing 2.285" (58,033mm).
- Brass.
- Combine finishing of crank and pin bore into one tool to increase productivity.
- Machining center with internal coolant.

CHALLENGE

ROMICRON FINE BORING

- Crank bore \varnothing 3.692" (93,777mm).
- Steel C70.
- Combine finishing of crank and pin bore into one tool to increase productivity.
- Machining center with internal coolant.

CHALLENGE

- Romicon engineered-solution tool with two Romicon mechanisms in one tool body.
- KC5010™.

SOLUTION

- Romicon engineered solution tool with two Romicon mechanisms in one tool body.
- KT315™.

SOLUTION

- vc 1.476 SFM (450 m/min).
- f .004 IPR (0,10 mm/rev).

CUTTING DATA

- vc 1.312 SFM (400 m/min).
- f .004 IPR (0,10 mm/rev).

CUTTING DATA

- Tool life of 350 pin bores per insert.
- Surface finish better than Ra 1.0 μ m.
- Cylindricity 5 μ m.

RESULT

- Tool life of 260 crank bores per insert.
- Surface finish better than Ra 1.0 μ m.
- Cylindricity 5 μ m.

RESULT

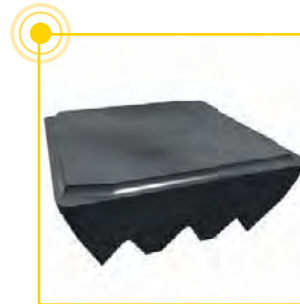
- Combination tool increases productivity.
- Bore tolerance range of 26 μ m easily and consistently achieved due to 1 μ m per click in radius adjustment.

BENEFIT

- Combination tool increases productivity.
- Bore tolerance range of 26 μ m easily and consistently achieved due to 1 μ m per click in radius adjustment.

BENEFIT

Conrod



RIQ cermet insert with chipformer geometry

RIQ™ QUATTRO CUT™ PADDED REAMING

CHALLENGE

- Pin bore \varnothing .748" (19mm).
- Tolerance range 33 μ m H8.
- Steel C70.
- Entry/exit inclined and chip control improvement.
- Transfer line with MQL internal coolant.

SOLUTION

- RIQ padded reamer with two axial staggered RIQ inserts in microfinishing setup.
- Coated cermet RIQ inserts with four edges and special chip former.

CUTTING DATA

- v_c 328 SFM (200 m/min).
- f .006 IPR (0,20 mm/rev).

RESULT

- Tool life of more than 5,000 components per insert.
- Surface finish Rz 12–14 μ m.
- Cylindricity 5 μ m.

BENEFIT

- No insert back taper adjustment needed.
- High productivity increase due to higher feed rate when compared to previous fine boring tools.
- Very short chips improve chip evacuation.
- Secure process as surface requirement of Rz 8 μ m to Rz 16 μ m are achieved.



Conrod



ROMICRON™ FINE BORING

- Pin bore Ø .660" (16,77mm).
- Crank bore Ø .818" (20,77mm).
- Steel C70.
- Combines roughing, semi-finishing, and finishing operations into one tool.

CHALLENGE

- Romicon standard head HSK63ASVUBB2116M with engineered-solution boring bar.
- CPMT060204LF KC5010™.

SOLUTION

- vc 120 m/min f 0,10 mm/rev roughing.
- vc 120 m/min f 0,05 mm/rev finishing.

CUTTING DATA

- Tool life of 2,500 components per insert edge.
- Surface finish Ra 0.5 µm.
- Cylindricity 3 µm.

RESULT

- Productivity increase due to combination tool.
- Bore tolerance range of 20 µm easily and consistently achieved due to 1 µm per click in radius adjustment.

BENEFIT



Steering Column



Adjustable cartridge with PCD insert

PCD COUNTERSINKING

CHALLENGE

- Bore \varnothing 26,2; 37,6; and 44mm.
- Tolerance range 21 μ m N7.
- Aluminum G-ALSi9Cu3.
- Varying depth of cut ca. 1,5mm.
- Machining center with internal coolant.

SOLUTION

- PCD-tipped, steel-based tool with internal coolant.
- Three effective cutting teeth; KD1415™.
- Standard cartridge SCFCR08CA06 achieves required surface finish range.

CUTTING DATA

- 1,640 SFM (vc 500 m/min).
- .012 IPR (f 0,30 mm/rev).

RESULT

- Surface finish Ra 1.6–2.3 μ m.

BENEFIT

- Secure process.

Steering Column



PCD COUNTERSINKING

- Bore \varnothing 17,07, 39,1, and 50,9mm.
- Tolerance range 21 μ m N7.
- Aluminum G-ALSi10Mg.
- Varying depth of cut ca. 2,5mm.
- Machining center with internal coolant.

CHALLENGE

SOLUTION

- PCD-tipped, steel-based tool with SIF™ steerable interface and internal coolant.
- Three effective cutting and chamfering teeth.
- KD1415™.

CUTTING DATA

- v_c 1,969 SFM (600 m/min).
- f .012 IPR (0,30 mm/rev).

RESULT

- Tool life of 2,000 meters.

BENEFIT

- Productivity increased due to higher cutting data.



Gear Housing



CHALLENGE

PCD STEP REAMING

- Bearing bore \varnothing 13,5 and 18mm.
- Tolerance range $18 \mu\text{m H7}$.
- Aluminum G-ALSi10Mg.
- Varying depth of cut ca. 0,5mm.
- Machining center with internal coolant.

SOLUTION

- PCD-tipped, carbide-based tool with SIF™ steerable interface with internal coolant.
- Four effective cutting teeth.
- KD1415™.

CUTTING DATA

- vc 755 SFM (230 m/min).
- f .010 IPR (0,25 mm/rev).

RESULT

- Surface finish Ra 0.2 μm .

BENEFIT

- Secure process.

Gear Housing



Adjustable PCD
pocket seat

PCD COUNTERSINKING

- Bearing bore \varnothing 40, 62, 85mm.
- Tolerance range 25 μ m S7.
- Aluminum AISI9Cu3.
- Machine three different diameters with one tool.
- Machining center with internal coolant.

CHALLENGE

SOLUTION

- PCD-tipped, steel-based tool with adjustable pocket seats, SIF™ steerable interface, and internal coolant.
- Four effective cutting and chamfering teeth; KD1415™.

CUTTING DATA

- v_c 630–1,340 m/min $n = 5,010$ RPM.
- f .013 IPR (0,32 mm/rev).

RESULT

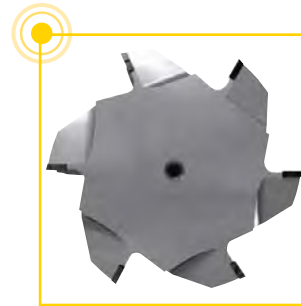
- Tool life of 500 workpieces.

BENEFIT

- Secure process with only 1.2 seconds cutting time per operation.
- Higher productivity due to combining three operations into one tool.
- Very stable process without chip control issues.



Gear Housing



Highly uneven spacing

PCD STEP REAMING

CHALLENGE

- Bearing bore \varnothing 130mm.
- Tolerance range 25 μ m S6.
- Aluminum AlSi8Cu3.
- Varying depth of cut ca. 0,5–5mm.
- Machining center with internal coolant.

SOLUTION

- PCD-tipped, steel-based tool with HSK interface and internal coolant.
- Six effective cutting and chamfering teeth in positive cutting position; KD1415™.

CUTTING DATA

- v_c 1,148 SFM (350 m/min).
- f .024 IPR (0,60 mm/rev).

RESULT

- Tool life increase versus previous solution.
- Surface finish Ra 0.2 μ m.

BENEFIT

- Secure process.



Gear Housing



PCD REAMING

- Bearing bore \varnothing .984" (35mm).
- Tolerance range 21 μ m H7.
- Aluminum G-AISI10Mg.
- Pre-drilled hole with 0,5mm depth of cut.
- Machining center HSK63A with internal coolant.

CHALLENGE

SOLUTION

- PCD-tipped, steel-based tool with SIF™ steerable interface and internal coolant.
- Three effective cutting and chamfering teeth.
- KD1415™.

CUTTING DATA

- vc 771 SFM (235 m/min).
- f .012 IPR (0,30 mm/rev).

RESULT

- Tool life of 100,000 holes.
- Surface finish Ra 0.2 μ m.

BENEFIT

- Secure process despite high L/D ratio.
- Very good surface quality.



Gear Housing



PCD REAMING

CHALLENGE

- Index bore \varnothing .435" (11,5mm).
- Tolerance range 18 μ m H7.
- Aluminum G-ALSi10Mg.
- Varying depth of cut ca. 3mm.
- Machining center HSK63A with internal coolant.

SOLUTION

- PCD-tipped, carbide based tool with shrink in HSK63A adapter with internal coolant.
- Two effective cutting and chamfering teeth.
- KD1415™.

CUTTING DATA

- v_c 3,297 SFM (1,005 m/min).
- f .024 IPR (0,16 mm/rev).

RESULT

- Tool life of 200,000 holes.
- Surface finish Ra 0.2 μ m.

BENEFIT

- Secure process and very good surface quality.
- Very short overhang length resulting in very good stability.

Gear Housing



PCD REAMING

- Bearing bore \varnothing 3.150" (80mm).
- Tolerance range 30 μ m H7.
- Aluminum G-AISI10Mg.
- Pre-drilled hole with 0,5mm depth of cut.
- Machining center HSK63A with internal coolant.

CHALLENGE

SOLUTION

- PCD-tipped, steel-based tool with SIF™ steerable interface and internal coolant.
- Four effective cutting and chamfering teeth.
- KD1415™.

CUTTING DATA

- v_c 1,312 SFM (400 m/min).
- f .013 IPR (0,32 mm/rev).

RESULT

- Tool life of more than 30,000 components.
- Surface finish Ra 0.2 μ m.

BENEFIT

- Secure process and very good surface quality.



Gear Housing



PCD REAMING

CHALLENGE

- Bearing bore \varnothing 28 and 90mm.
- Tolerance range 21 and 35 μ m H7.
- Aluminum G-ALSi10Mg.
- Pre-drilled hole with 0,5mm depth of cut.
- Machining center HSK63A with internal coolant.

SOLUTION

- PCD-tipped, steel-based tool with two individual adjustable SIF™ steerable interfaces and internal coolant.
- Four effective cutting teeth.
- KD1415™.

CUTTING DATA

- v_c 400 m/min (1,312 SFM).
- f 0,32 mm/rev (.013 IPR).

RESULT

- Tool life of more than 95,000 holes.
- Surface finish Ra 0.2 μ m.

BENEFIT

- Secure process and very good surface quality.

Gear Housing



PCD STEP REAMING

- Bearing bore \varnothing 80 and 120mm.
- Tolerance range 30 and 35 μ m H7.
- Aluminum G-AISI7Mg.
- Pre-drilled hole with 0,5mm depth of cut.
- Machining center HSK63A with internal coolant.

CHALLENGE

- PCD-tipped, steel-based tool with HSK63A interface and internal coolant.
- Four effective cutting teeth.
- KD1415™.

SOLUTION

- v_c 2,625 SFM (800 m/min).
- f .013 IPR (0,32 mm/rev).

CUTTING DATA

- Tool life of more than 400 minutes.
- Surface finish Ra 0.2 μ m.

RESULT

- Secure process and very good surface quality.
- Tool life increase versus previous solution.

BENEFIT



Gear Housing



PCD COUNTERSINKING

CHALLENGE

- Bearing bore \varnothing 81,25 and 90,3mm.
- Tolerance range 30 and 35 μ m H7.
- Aluminum G-ALSi7Mg.
- Pre drilled hole with 0,5mm depth of cut.
- Machining center HSK63A with internal coolant.

SOLUTION

- PCD-tipped, steel-based tool with SIF™ steerable interface and internal coolant.
- Three effective cutting and chamfering teeth.
- KD1415™.

CUTTING DATA

- v_c 1,312 SFM (400 m/min).
- f .012 IPR (0,30 mm/rev).

RESULT

- Tool life of 10,000 components.
- Surface finish Ra 0.2 μ m.

BENEFIT

- Secure process and very good surface quality.

Gear Housing



PCD STEP REAMING

- Bearing bore \varnothing 17,984 and 66,037mm.
- Tolerance range 8 and 20 μm .
- Aluminum GD-AISI7.
- Pre-drilled hole with 0,5mm depth of cut.
- Machining center HSK63A with internal coolant.

CHALLENGE

SOLUTION

- PCD-tipped, steel-based tool with SIF™ steerable interface and internal coolant.
- Three effective cutting teeth.
- KD1415™.

CUTTING DATA

- v_c 315 m/min f 0,24 mm/rev \varnothing 17,984mm.
- v_c 1.156 m/min f 0,15 mm/rev \varnothing 66,037mm.

RESULT

- Tool life of 35,000 components.
- Surface finish Ra 0.2 μm .

BENEFIT

- Secure process and very good surface quality.
- Achieves high concentricity and straightness.



Gear Housing



PCD PROFILE MILLING

- Retraining grooves \varnothing 60,4 and 90,7mm.
- Tolerance range 60 μ m.
- Aluminum G-AISI10Mg.
- Pre-drilled hole with 0,5mm depth of cut.
- Machining center HSK63A with internal coolant.

CHALLENGE

PCD PROFILE MILLING

- Retraining grooves \varnothing 60,4 and 90,7mm.
- Tolerance range 60 μ m.
- Aluminum G-AISI10Mg.
- Pre-drilled hole with 0,5mm depth of cut.
- Machining center HSK63A with internal coolant.

CHALLENGE

- PCD-tipped, steel-based tool with HSK63A interface and internal coolant.
- Four effective cutting teeth.
- KD1415™.

SOLUTION

- PCD-tipped, steel-based tool with HSK63A interface and internal coolant.
- Four effective cutting teeth.
- KD1415™.

SOLUTION

- vc 4,921 SFM (1,500 m/min).
- f .002 IPR (0,06 mm/rev).

CUTTING DATA

- vc 4,921 SFM (1,500 m/min).
- f .002 IPR (0,06 mm/rev).

CUTTING DATA

- Tool life of 50,000 parts.
- Surface finish better than Ra 0.4 μ m.

RESULT

- Tool life of 50,000 parts.
- Surface finish better than Ra 0.4 μ m.

RESULT

- Secure process.
- Combining two operations in one tool increases productivity.
- High accuracy in the distance between the two machined grooves.

BENEFIT

- Secure process.
- Combining two operations in one tool increases productivity.
- High accuracy in the distance between the two machined grooves.

BENEFIT

Differential Housing



REAMING AND BACK BORING

- Bearing seat finishing of gearbox.
- Material: G-AISI9Cu3.
- Machine: M/C.
- IC 40 bar, 20 l/min.
- Ae = 0,25mm.

CHALLENGE

SOLUTION

- PCD reaming/back boring combination tool.
- 2 step reapers with 6 PCD teeth.
- Back boring with Romicon™ and PCD insert.

CUTTING DATA

- Speed: 350 m/min.
- Feed per tooth: 0,12mm.
- 1500 rev/min and 1080 mm/min.

RESULT

- Roughness of Rz < 16 µm.
- One tool-chance saved.

BENEFIT

- Finish of 3 diameters with one tool.
- Perfect balanced tool, considering extreme asymmetrical shape.
- Easy adjustment with Romicon.



Differential Housing



DIFFERENTIAL HOUSING-FINISH BORING

CHALLENGE

- Bearing seat finishing of gearbox.
- Material: GGG40.
- Machine: M/C.
- Diameter: 60H6.
- Surface Finish: Ra 1.6.

SOLUTION

- Fine boring tool Romicon™ AVS.
- Cartridge for SPHX inserts.
- SPHX-inserts KC7215 with 2 cutting edges.
- Special back taper grind for similar surface finishes to wiper inserts.

CUTTING DATA

- $vc = 180$ m/min
- $fz = 0.05$ mm

RESULT

- All geometric and dimensional tolerances including surface finish achieved.
- Very robust process.
- Tool life with standard SPHX insert 4000 pieces (within this tool life, 3 diameter adjustments with the "Romicon-Click-Mechanism" were required).

BENEFIT

- Excellent surface finish similar to wiper inserts.
- Huge portfolio of SPHX-inserts for all kind of workpiece materials.
- Romicon-Click-Mechanism.
- No need for wrench or gage for the diameter adjustment.

Differential Housing



Adjustable pocket seat

DIFFERENTIAL HOUSING—FINISH BORING

- Bore \varnothing 1.575 and 2.165" (40 and 55mm).
- Tolerance range 30 μ m R7.
- Aluminum GD-AISI10Mg.
- Fine boring two diameters with one tool.
- Machining center with internal coolant.

CHALLENGE

SOLUTION

- PCD steel-based fine boring tool with four effective cutting edges, adjustable pocket seats at \varnothing 55mm, SIF™ steerable interface, and internal coolant.
- CCMT060202 KM™ – one uncoated carbide.

CUTTING DATA

- v_c 340 and 520 m/min $n = 3,000$ RPM.
- f .024 IPR (0,60 mm/rev).

RESULT

- Tool life of more than 15,000 components per insert.
- Surface finish Rz 10–12 μ m.
- Cylindricity better than 20 μ m.

BENEFIT

- All requirements regarding perpendicularity, roundness, and surface quality between Rz 8 μ m and Rz 16 μ m continuously achieved.
- Higher productivity due to combining three operations in one tool.



Water Pump Housing



PCD COUNTERSINKING

CHALLENGE

- Bore positions of \emptyset .827 and .945" (21 and 24mm).
- Tolerance range 13 and 33 μ m.
- Aluminum AlSi9Cu3.
- Pre drilled hole with 0,5mm depth of cut.
- Machining center HSK63A with internal coolant.

SOLUTION

- PCD-tipped, steel-based tool with adjustable pocket seats; SIF™ steerable interface and internal coolant.
- Four effective cutting teeth; KD1415™.

CUTTING DATA

- v_c 1,969 SFM (600 m/min).
- f .005 IPR (0,12 mm/rev).

RESULT

- Tool life of 80,000 components.
- Surface finish R_z 0.8 μ m with \emptyset 21mm and R_z 12 μ m with \emptyset 24mm.

BENEFIT

- All requirements regarding perpendicularity, roundness, and surface quality between R_z 8 μ m and R_z 15 μ m at \emptyset 24mm are continuously achieved.

Water Pump Housing



PCD MULTI-OPERATION TOOL

- Position bore \varnothing .311" (7,9mm).
- Tolerance range 22 μ m H8.
- Aluminum AlSi9Cu3.
- Combine drilling, back chamfering, and facing.
- Machining center BT40 with internal coolant.

CHALLENGE

- Solid carbide, PCD-tipped, steel-based tool with back chamfering capability and internal coolant.
- Two effective cutting teeth.
- KD1415™.

SOLUTION

- v_c 1,148 SFM (350 m/min).
- f .008 IPR (0,20 mm/rev).

CUTTING DATA

- Tool life of 50,000 components.
- Surface finish Rz 0.8 μ m.

RESULT

- Higher productivity due to combining three operations in one tool.

BENEFIT



Water Pump Housing



PCD STEP REAMING

CHALLENGE

- Bearing bores \varnothing 10,14–18,45mm.
- Tolerance range 3–10 μm .
- Aluminum GD-AISI9Cu3.
- Pre-casted hole with 0,3mm depth of cut.
- Machining center HSK32A with internal coolant.

SOLUTION

- PCD-tipped, steel-based tool with adjustable pocket seats; SIF™ steerable interface and internal coolant.
- Four effective cutting teeth.
- KD1415™.

CUTTING DATA

- $n = 2800 \text{ RPM}$ $vc \ 89\text{--}162 \text{ m/min.}$
- $f \ .015 \text{ IPR}$ $(0,4 \text{ mm/rev.})$

RESULT

- Tool life of 40,000 components.
- Surface finish $Rz \ 0.8 \ \mu\text{m}$.

BENEFIT

- The quality criterion with an exact alignment of rightness, concentricity, and a high value of surface quality was reached.

Water Pump Housing



PCD END MILLING

- Face milling of connection face \varnothing 32mm.
- Aluminum AlSi10Mg.
- Casted face with 2,5mm depth of cut.
- Machining center HSK63A with internal coolant.

CHALLENGE

- PCD-tipped, steel-based end mill with HSK63A interface and internal coolant.
- Five effective cutting teeth.
- KD1415™.

SOLUTION

- v_c 3,294 SFM (1,005 m/min).
- f .002 IPR (0,06 mm/rev).

CUTTING DATA

- Tool life of 3,000 min.
- Surface finish Ra 0.3 μ m.

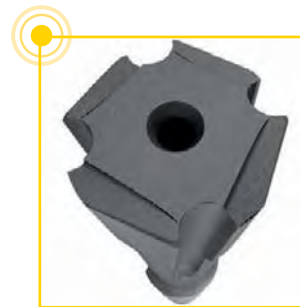
RESULT

- Very low bur formation.

BENEFIT



Planetary Gear Carrier



Chip control geometry



RMS™ MULTI-FLUTE REAMING

CHALLENGE

- Bearing bores \emptyset .346" (8,8mm).
- Tolerance range 9 μ m M6.
- Steel 42CrMo4 and 31CrMoV9.
- Increase tool life with long chipping material.
- Machining center with internal coolant.

SOLUTION

- RMS engineered-solution reamer with four effective cutting edges, internal coolant hole, and coolant channels at shank.
- KC6305™ TiAlN coated carbide.

CUTTING DATA

- vc 230 SFM (70 m/min).
- f .012 IPR (0,30 mm/rev).

RESULT

- Tool life of 300 components.
- Surface finish Rz 1.0–2.0 μ m.

BENEFIT

- All requirements regarding perpendicularity, roundness, and surface quality below Rz 4 μ m are continuously achieved.

Planetary Gear Carrier



ROMICRON™ FINE BORING

- Bearing bores \varnothing 35 and 36,5mm.
- Tolerance range 20 μ m.
- Steel 20MnCr5.
- Replace padded step reamer.
- Machining center with internal coolant.

CHALLENGE

- Romicon™ standard AVS heads.
- CCMT06020411 KT315™ cermet insert.

SOLUTION

- vc 230 SFM (290 m/min).
- f .012 IPR (0,10 mm/rev).

CUTTING DATA

- Surface finish better than Ra 1.0 μ m.
- Cylindricity better than 5 μ m.

RESULT

- More than 25% reduction in machining time.
- Removing setup of padded reamer outside of the machine results in increased uptime.
- Bore tolerance range of 20 μ m easily and consistently achieved due to 1 μ m per click in radius adjustment.

BENEFIT



Padded reaming pin machining



RIQ™ QUATTRO CUT™ PADDED REAMING

CHALLENGE

- Bearing pin machining \varnothing 1.772" (45mm).
- Tolerance range $16 \mu\text{m k6}$.
- Ductile cast iron GGG40.
- Surface quality of $R_{\text{max}} 10 \mu\text{m}$ to achieve.
- Special dimensional accuracy requirement.

SOLUTION

- RIQ padded reamer with SIF™ steerable tooling interface and special gashing for external coolant supply.
- Balanced-by-design and fine balanced.

CUTTING DATA

- v_c 344 SFM (105 m/min).
- f .002 IPR (0,06 mm/rev).

RESULT

- Surface finish better than $R_z 2.5 \mu\text{m}$.
- Roundness $3 \mu\text{m}$.
- Cylindricity $6 \mu\text{m}$.

BENEFIT

- No insert back taper adjustment needed.
- Faster setup and less scrap.

Brake Caliper



BRAKE CALIPER—ROUGHING/FINISHING MAIN BORE

- Component: Brake caliper
- Material: GGG55
- Operation: Cylinder hole
- Coolant: Yes
- Machine: Machine center
- Objective: Surface finish and roundness

CHALLENGE

- HSK100A special tool with radial adjustments and guide pad.
- Fix-Perfect™ insert.
- Internal coolant.
- Decreasing vibration by means of heavy metal shank.

SOLUTION

CUTTING DATA

- $vc = 107 \text{ m/min}$
- $vf = 300 \text{ mm/min}$
- $FPT = 0,13\text{mm}$

RESULT

- Tool life: 2.238 parts.
- Roundness 0,01mm.
- H8 — Tolerance kept, and even smaller would be feasible if requested.

BENEFIT

- From cast to finish hole in one go, i.e., with one single "One-Shot-Tool".
- 4 effective teeth.
- 4 edges per insert.
- Very fine, consistent adjustment mechanism.



Brake Caliper



RMS™ MULTIFLUTE REAMING

CHALLENGE

- Pin hole Ø .472" (12mm).
- Tolerance range 30 µm.
- Cast iron.
- Machining center HSK63A with internal coolant.

SOLUTION

- UpSharp engineered-solution solid carbide reamer with six cutting edges.
- TiCN coated carbide.

CUTTING DATA

- vc 246 SFM (75 m/min).
- f .031 IPR (0,8 mm/rev).

RESULT

- Tool life of 5,000 holes.
- Surface finish Ra 1.0 µm.

BENEFIT

- Productivity increase.
- Longer tool life than competition.
- Ease of use due to shrink technology.

Brake Caliper



RIQ™ QUATTRO CUT™ PADDED REAMING

- Main bore \varnothing 2.127" (54,02mm).
- Tolerance range 40 μ m.
- Cast iron GGG.
- Reduce setup time and cost-per-part.

CHALLENGE

SOLUTION

- RIQ padded reamer with customer specific shank.
- Coated carbide RIQ insert with four edges.
- KC6305™.

CUTTING DATA

- v_c 262 SFM (80 m/min).
- f .016 IPR (0,40 mm/rev).

RESULT

- Tool life of 16,000 bores per insert.
- Surface finish better than Ra 1.6 μ m.

BENEFIT

- No insert back taper adjustment needed.
- High cost savings due to more than 100% increase in tool life.



Brake Caliper



PCD REAMING

CHALLENGE

- Main bore \varnothing 1.654" (42mm).
- Tolerance range 8 μ m.
- Aluminum.
- Varying depth of cut between 1–2mm.
- Machining center with internal coolant.

SOLUTION

- PCD-tipped, steel-based tool with HSK63A interface and internal coolant.
- Four effective cutting teeth.
- KD1415™.

CUTTING DATA

- v_c 1,640 SFM (500 m/min).
- f .039 IPR (1 mm/rev).

RESULT

- Tool life of 400,000–600,000 bores.
- Surface finish better than Ra 1.6 μ m.

BENEFIT

- Secure process and high tool life.
- Productivity increase compared to previous solution.

Brake Caliper



Producing two different diameters

RMB™ MULTI-FLUTE REAMING

- Location holes \varnothing 39 and 40mm.
- Tolerance range 39 μ m H8.
- Cast iron GGG60.
- Produces both diameters with one tool.
- Machining center with internal coolant.

CHALLENGE

SOLUTION

- RMB engineered-solution carbide tipped reamer with 10 teeth and internal coolant supply.
- KC6305™ TiAlN coated carbide.

CUTTING DATA

- v_c 230 SFM (70 m/min).
- f .130 IPR (3,30 mm/rev).

RESULT

- Tool life of 5,000 holes.
- Surface finish Rz 20 μ m better than required Rz 25 μ m.

BENEFIT

- Very stable and highly productive process as multiple operations are combined at very high cutting data.



Brake Master Cylinder



RIQ™ QUATTRO CUT™ PADDED REAMING

CHALLENGE

- Piston bore \varnothing 1.001" (25,431mm).
- Tolerance range 10 μ m.
- Ductile cast iron.
- Replace honing process with reaming.
- Machining center with internal coolant.

SOLUTION

- RIQ padded reamer in angular micro-finishing setup with semi- and fine-finishing insert.
- RIQ full face PCD KD1415™ as finishing insert.

CUTTING DATA

- vc 394 SFM (120 m/min).
- f .008 IPR (0,20 mm/rev).

RESULT

- Tool life of 1,600 bores per insert.
- Surface finish better than Ra 0.4 μ m.
- Cylindricity 6 μ m.

BENEFIT

- No insert back taper adjustment needed.
- Higher productivity due to combining two operations in one tool.

Steering Knuckle



ROMICRON™ FINE BORING

- Main bearing bore \varnothing 3.228" (82mm).
- Replace setup of padded reamer and cover various diameters with one tool.
- Machining center with internal coolant.

CHALLENGE

SOLUTION

- Romicon™ engineered solution. HSK80ASVSB156M SVS4B head.
- CPMT 060204 FW KCK20™.

CUTTING DATA

- vc 1,312 SFM (400 m/min).
- f .008 IPR (0,20 mm/rev).

RESULT

- Tool life of 1,000 components.
- Surface finish 1.2 μ m.
- Cylindricity better than 6 μ m.

BENEFIT

- Reduce setup time and cost reduction when standard inserts are used.
- Bore tolerance range of 30 μ m easily and consistently achieved due to 1 μ m per click in radius adjustment.



Suspension Sub-frame



REAMING PIVOT BEARING

CHALLENGE

- Location hole \varnothing .728–.906" (18,5–23,0mm).
- Tolerance range 0,1°.
- Steel.
- Improvement in roundness and angularity.
- Transfer line with internal coolant.

SOLUTION

- RIR taper reamer with HSK interface.
- R904S00771 KC6005™ with two edges.

CUTTING DATA

- vc 105 SFM (32 m/min).
- f .005 IPR (0,133 mm/rev).

RESULT

- Tool life of 800 bores per insert.
- Surface finish Ra 1.6 μ m.

BENEFIT

- Predictable performance and cost savings because inserts can be reconditioned.
- Easy to set with three clock padded reamer setting fixtures.
- Roundness improvement over competitive solid carbide multi-flute reamer.

Mounting Lever



PCD COUNTERSINKING

- Reaming pre-casted hole \varnothing .787" (20mm).
- Tolerance range 21 μ m H7.
- Aluminum AlSi9Cu3.
- 220mm overhang due to workpiece fixture.
- Machining center with internal coolant.

CHALLENGE

- PCD-tipped, steel-based tool with HSK63A interface and internal coolant.
- Four effective cutting teeth.
- KD1415™.

SOLUTION

- v_c 410 SFM (125 m/min).
- f .003 IPR (0,70 mm/rev).

CUTTING DATA

- Tool life of 60,000 components.
- Surface finish Ra 0.2 μ m.

RESULT

- Secure process and less scrap than previous competitive solution.
- No adjustment effort due to solid solution.

BENEFIT



Turbocharger



RMS™ MULTI-FLUTE REAMING

CHALLENGE

- Mounting holes \varnothing .472" (12mm).
- Tolerance range 18 μ m H7.
- Ductile cast iron.
- Machining center with internal coolant

SOLUTION

- RMS standard reamer with six effective cutting edges and internal coolant.
- KC6305™ TiAlN coated carbide.

CUTTING DATA

- vc 20 m/min (66 SFM).
- f 0,30 mm/rev (.012 IPR).

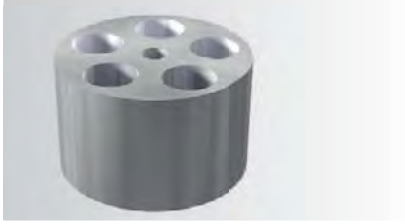
RESULT

- Tool life of 1,000 components.
- Surface finish better than Rz 10 μ m.

BENEFIT

- Productivity and tool life increase compared to previous solution.

Compressor



ROMICRON™ FINE BORING

- Piston bore \varnothing .925" (23,5mm).
- Tolerance range 18 μ m.
- Aluminum 12% Si.
- Machining center BT40 with external coolant.

CHALLENGE

SOLUTION

- Standard SVUBB2 head with KR coupling.
- Standard steel boring bar.
- CPGW060204FST KD1400™.

CUTTING DATA

- v_c 1,204 SFM (367 m/min).
- f .003 IPR (0,07 mm/rev).

RESULT

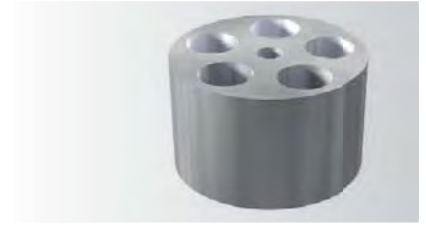
- Surface finish Ra 0.6 μ m.
- Roundness better than 5 μ m.

BENEFIT

- 2x the productivity compared to the current solution.
- 80% less adjustment time needed.
- Bore tolerance range of 18 μ m easily and consistently achieved due to 1 μ m per click in radius adjustment.



Compressor



Polished flutes improving chip evacuation



PCD COUNTERSINKING

CHALLENGE

- Bearing hole \varnothing .472–1.220" (12–31mm).
- Tolerance range 50 μ m.
- Aluminum G-ALSi12.
- Machining center HSK40 with internal coolant.

SOLUTION

- PCD-tipped, carbide-based tool with four guiding lands, flat-bottom drilling point, and internal coolant.
- Two effective cutting and chamfering teeth; KD1415™.

CUTTING DATA

- v_c 1,444 SFM (440 m/min).
- f .008 IPR (0,20 mm/rev).

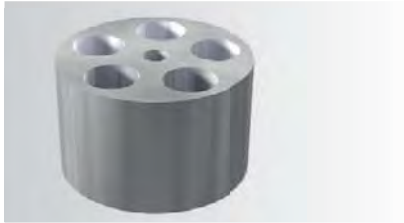
RESULT

- Surface finish Rz 1–2 μ m.
- Roundness better than 5 μ m.

BENEFIT

- Productivity increases due to combining different tools in one.
- Tool life increase versus previous solution.

Compressor



KST pre-loaded taper face contact interface

RHM™ MODULAR REAMING

- Piston bore \varnothing 1.220" (23,5mm).
- Tolerance range 10 μ m.
- Cast iron GGG60.
- Machining center HSK63 with internal coolant.

CHALLENGE

SOLUTION

- RHM modular reamer with six cutting edges.
- KT325™ uncoated cermet.
- Standard lead geometry.
- SIF™ steerable tooling.

CUTTING DATA

- v_c 410 SFM (125 m/min).
- f .030 IPR (0,75 mm/rev).

RESULT

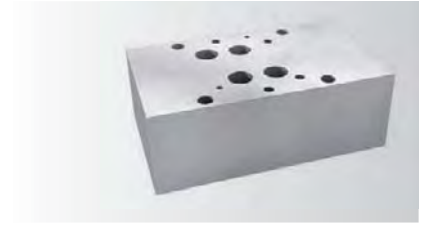
- Surface finish better than Rz 4 μ m.

BENEFIT

- Higher productivity than single-edged padded reamer.



Hydraulic Valve Block



RIR™ PADDED REAMING

CHALLENGE

- Spool bore \varnothing .728" (18,5mm).
- Tolerance range 10 μ m.
- Cast iron.
- Up to 4mm varying depth of cut.
- Machining center with internal coolant.

SOLUTION

- RIR padded reamer with up to 100mm long cermet guide pads.
- Engineered solution RIR insert with modified chipformer.

CUTTING DATA

- v_c 230 SFM (70 m/min).
- f .005 IPR (0,125 mm/rev).

RESULT

- Tool life of 400 min per double-edged insert.
- Roundness and straightness within 10 μ m.

BENEFIT

- Very stable process control and predictable performance.

Hydraulic Valve Block



RMS™ MULTI-FLUTE REAMING

- Rinse slider bore \varnothing .375" (9,534mm).
- Tolerance range 6 μ m.
- Ductile cast iron 0.7060.
- Three interrupted cuts at a reaming depth of 100mm.
- Special dimensional accuracy requirement.

CHALLENGE

SOLUTION

- RMS solid carbide reamer engineered solution.
- Special back taper configuration and support margins lands.
- KC6305™ TiAlN coated carbide.

CUTTING DATA

- vc 492 SFM (150 m/min).
- f .028 IPR (0,72 mm/rev).

RESULT

- Tool life of 500 pieces.

BENEFIT

- Speed and feed rates are almost 30x faster, resulting in higher productivity.
- Less scrap due to consistent accuracy.

Hydraulic Valve Block



PCD COUNTERSINKING

CHALLENGE

- Thread core hole \varnothing .945" (24mm).
- Tolerance range 21 μ m F7.
- Aluminum AISi9Cu3.
- Pre-drilled hole.
- Machining center DV40 with internal coolant.

SOLUTION

- PCD-tipped, carbide-based tool with internal coolant.
- Two effective cutting and chamfering teeth.
- KD1415™.

CUTTING DATA

- v_c 360–750 m/min $n = 7,500$ RPM.
- f .008 IPR (0,20 mm/rev).

RESULTS

- Tool life of 100,000 holes.
- Surface finish Ra 0.1 μ m.

BENEFITS

- Productivity increase due to combining two operations into one.
- Carbide base increases tool life and accuracy.

ABS Valve Block



PCD COUNTERSINKING

- Bearing bores \varnothing 20,99 and 24,275mm.
- Tolerance range 20 μ m.
- Aluminum AISi1.
- Pre-casted hole with 0,15mm depth of cut.
- Machining center HSK63A with internal coolant.

CHALLENGE

- PCD-tipped, steel-based tool with SIF™ steerable interface and internal coolant.
- Two effective cutting and chamfering teeth.
- KD1415™.

SOLUTION

- vc 984 SFM (300 m/min).
- f .014 IPR (0,35 mm/rev).

CUTTING DATA

- Surface finish Ra 0.4–0.6 μ m.

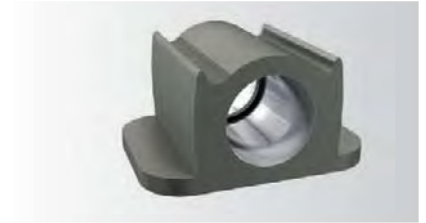
RESULT

- Very stable process control and predictable performance.
- Very favorable chip creation.

BENEFIT



Bearing Seat



KST pre-loaded taper face contact interface



RHM™ MODULAR REAMING

CHALLENGE

- Reaming \varnothing 1.378" (35mm).
- Tolerance range 20 μ m.
- Carbon steel, annealed, long-chipping.
- Blind hole limiting chip evacuation.
- Machining center with internal coolant.

SOLUTION

- RHM modular reamer with eight cutting edges.
- KT325™ uncoated cermet.
- Standard lead geometry.
- Short engineered-solution axial clamping tool body.

CUTTING DATA

- vc 394 SFM (120 m/min).
- f .046 IPR (1,18 mm/rev).

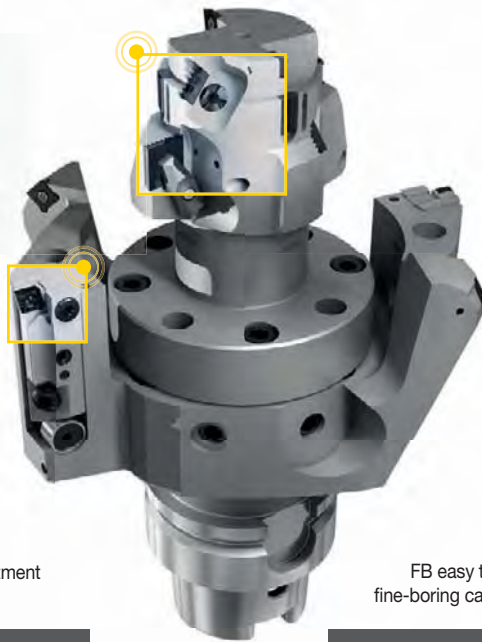
RESULT

- Tool life of 145,000 holes.
- Surface finish better than Rz 6.3 μ m.

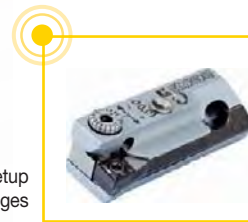
BENEFIT

- Predictable tool life as only 2 μ m diameter deviation after 10,000 holes.

Bearing Seat



RIQ single adjustment screw setup



FB easy to setup fine-boring cartridges

RIQ™ QUATTRO CUT™ PADDED REAMING

- Reaming \varnothing 1.850" (47mm).
- Tolerance range 19 μ m N6.
- Aluminum AISI9Cu3.
- Machine four different diameters, two spot faces, and four different chamfers with one tool.

CHALLENGE

FB CARTRIDGE FINE-BORING

- Reaming \varnothing 5.669" (144mm).
- Tolerance range 40 μ m H7.
- Aluminum AISI9Cu3.
- Machine two different diameters.

CHALLENGE

- RIQ padded reamer with full-face PCD KD1415™ insert having four cutting edges.
- SIF™ steerable interface between reaming and fine boring section.

SOLUTION

- Standard FB fine-boring cartridges with almost backlash-free fine adjustment.
- CCGW060204 KD1415™.

SOLUTION

- vc 774 SFM (236 m/min).
- f .003 IPR (R0,08 mm/rev).

CUTTING DATA

- vc 2,372 SFM (723 m/min).
- f .003 IPR (0,08 mm/rev).

CUTTING DATA

- Surface finish better than Rz 16 μ m.

RESULT

- Surface finish better than Rz 16 μ m.

RESULT

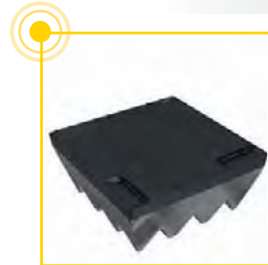
- No insert back taper adjustment needed.
- Less operations increase productivity.
- Higher accuracy than multiple operations.
- Full-face PCD inserts reduce cost per hole.

BENEFIT

- Radial adjustment does not influence axial adjustment of inserts resulting in faster setup.
- Productivity increase with less operations.
- More accurate than previous solution.

BENEFIT

Pump Housing



Full-face PCD insert with chipformer geometry



RIQ™ QUATTRO CUT™ PADDED REAMING

CHALLENGE

- Piston bore \varnothing .728" (18,5mm).
- Tolerance range 21 μ m H7.
- Aluminum.
- Heavy interrupted cut and surface finish Rz 6.3.
- Machining center with internal coolant.

SOLUTION

- RIQ padded reamer with helical chip flute and helical solid carbide guide pad.
- Full-face KD1415™ insert having four cutting edges.
- Positive wiper insert geometry.

CUTTING DATA

- v_c 755 SFM (230 m/min).
- f .006 IPR (0,15 mm/rev).

RESULT

- No chip evacuation issues.
- No bur, marks, or scratches at entrance or exit of interruptions.

BENEFIT

- No insert back taper adjustment needed.
- Half cycle time compared to previous competitive tooling.

Valve Housing



ROMICRON™ FINE BORING

- Various bore \varnothing 6.7–18.9" (170–480mm).
- Tolerance range 75 μ m.
- Cast iron GG25.
- Automated wear compensation at interrupted cut.
- Machining center HSK100 with internal coolant.

CHALLENGE

- Semi-standard SVU120 CLB head with engineered-solution diameter extender and automatic wear compensation with CLB.
- CPGW09T308S01015C KB1630™.

SOLUTION

- v_c 2,625 SFM (800 m/min).
- f .005 IPR (0,12 mm/rev).

CUTTING DATA

- Tool life of 1,200 minutes per insert.
- Surface finish better than Rz 16 μ m.

RESULT

- More than 30% reduction in manufacturing lead time.
- Third shift and weekend without operators.
- 1 μ m per click in radius adjustment executed by machine.

BENEFIT



Wind Energy Housing



1 μm per click in radius adjustment

ROMICRON™ FINE BORING

CHALLENGE

- Flange \varnothing 49.6–55.1" (1260–1400mm).
- Tolerance range 125 μm H7.
- Cast iron GGG40.
- One base bridge for multiple diameters.
- Machining center without coolant.

SOLUTION

- Romicron standard modular MF40 element with engineered-solution aluminum bridge.
- CPGT060204/08HP KC5410™.

CUTTING DATA

- v_c 650 SFM (200 m/min).
- f .005 IPR (0,12 mm/rev).

RESULT

- Tool life of 73 min.

BENEFIT

- Investment saving as only one base bridge needed.
- Use of standard off-the-shelf Romicron tool.
- Ease of use due to Romicron.

Synchronous Joint



Balanced-by-design

ROMICRON™ FINE BORING

- Pin machining $\varnothing .512"$ (13mm).
- Tolerance range $6 \mu\text{m}$.
- Steel 42CrMo4 (4140).
- Machining center with internal coolant.

CHALLENGE

- Romicron standard HSK63ASVUBB1095MCLB head with engineered solution pin boring bar.
- TCMT110202FP KTP10™.

SOLUTION

- v_c 525 SFM (160 m/min).
- f .004 IPR (0,1 mm/rev).

CUTTING DATA

- Tool life of 300–450 components per insert.
- Surface finish Ra $0.3 \mu\text{m}$.
- Cpk value $\geq 1,33$.

RESULT

- Use of standard off-the-shelf Romicron tooling.
- Bore tolerance of $6 \mu\text{m}$ consistently achieved due to $1 \mu\text{m}$ per click in radius adjustment.

BENEFIT



Wind Energy

ModBORE™

For the **Big Jobs!**

The ModBore system includes tooling ranges from highly flexible roughing and fine-boring heads to large bridge tooling, with an optimum amount of tooling components. This premium boring line enables roughing to fine-boring operations using one system with a large diameter range from 9,75–2,205mm (.384–86.8"). ModBORE can be used in most workpiece materials in metalcutting applications with the latest Kennametal standard ISO turning inserts.



Experience the advantages at your Authorized Kennametal Distributor or at kennametal.com.



kennametal.com







Tapping

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Pipe Taps	M150–M158
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Spiral-Point and Left-Hand Spiral-Flute Taps	series	grade/coating	shank/dimension	● first choice ○ alternate choice						
				P	M	K	N	S	H	
	T320	KC7542	6535 HA	●		○				
	T320	KC7542	6535 HA	●		○				
	T321	KC7542	6535 HA	●		○				
	T620	KP6525, KM6515	ANSI 302A	●	●	○	○			
	T620	KP6525	DIN 371, 376	●	○	○				
	T620	KP6525	DIN 371, 376	●	○	○				
	T621	KP6525	DIN 371, 376	●	○	○				
	T620	KP6525, KM6515	ANSI 302A	●	●	○	○			
	T620	KP6525, KM6515	DIN 371, 374, 376	●	●	○	○			
	T621	KP6525, KM6515	DIN 371, 374, 376	●	●	○	○			
	T620	KP6525	DIN 376	●	●					
	T620	KP6525	XL	●	●					
	T690	KSP27, KSS29	ANSI 302A						●	
	T690	KSP27, KSS29	ANSI 302A						●	
	T660	KSSM24, KSS20	ANSI 302A						●	
	T660	KSSM24, KSS20	ANSI 302A						●	
	T672	KSMN34	DIN/ANSI						●	
	T672	KSMN34	DIN/ANSI						●	
	T600	KSP21	DIN 371, 374, 376	●				○		
	T820	KSP32, KSMN24, KSP39	ANSI 302A	●	●	●	●			
	T820	KSP39	DIN 371, 376	○	○	○				
	T822	KSP32, KSMN24, KSP39	ANSI 302A	●	●	●	●			
	T820	KSP32, KSMN24, KSP39	ANSI 302A	●	●	●	●			
	T822	KSP32, KSMN24, KSP39	ANSI 302A	●	●	●	●			
	T820	KSP32, KSP39	DIN 371, 374, 376	●	○	●	○			
	T820	KSU31, KSU30	JIS	●	○	○	○			
	T820	KSP39	Extend 4"	○	○	○				
	T820	KSP39	Extend 6"	○	○	○				
	KHSST Spiral Point	TiCN, TiN, oxide, uncoated	ANSI 302	●	●	●	●	●		
	KHSST Spiral Point Oversized PD	uncoated	ANSI 302	●	○	○	○			
	KHSST Spiral Point Extended Length	uncoated	Extend 6"	●	○	○	○			
	KHSST Spiral Point Heavy Duty	oxide/nitride	ANSI 302	●	○	○	○			
	KHSST Spiral Point Bottoming	uncoated	ANSI 302	●	○	○	○			
	KHSST Spiral Point	TiN, uncoated	ANSI 302	●	○	○	●			

	size range min-max	hole		chamfer		helix angle	coolant		page(s)	recommended cutting parameters
		through	blind	type	form		flood	through		
	3/8-1/2"	●		plug	D	L15°	●		M4	M178
	M6-M16	●		plug	D	L15°	●		M4	M178
	M10-M16	●		plug	D	L15°		●	M5	M178
	#2-3/4"	●		plug	D	L15°	●		M6-M7	M179-M180
	#6-1/2"	●		plug	D	L15°	●		M8	M179-M180
	#6-1/2"	●		plug	D	L15°	●		M8	M179-M180
	1/4-1/2"	●		plug	D	L15°		●	M9	M179-M180
	M3-M12	●		plug	D	L15°	●		M10	M179-M180
	M3-M20	●		plug	D	L15°	●		M11	M179-M180
	M5-M18	●		plug	D	L15°		●	M12	M179-M180
	M24-M42	●		plug	D	L15°	●		M13	M179-M180
	M24-M42	●		plug	D	L15°		●	M14	M179-M180
	#2-3/4"	●		plug	D	L15°	●		M15-16	M179-M180
	M2.5-M12	●		plug	D	L15°	●		M17	M179-M180
	#2-1"	●		plug	D	L15°	●		M18	M179-M180
	M2.5-M12	●		plug	D	L15°	●		M19	M179-M180
	#2-1/2"	●		plug	D	L15°	●		M20	M179-M180
	M3-M12	●		plug	D	L15°	●		M21	M179-M180
	M3-M20	●		plug	B	0°	●		M22	M179-M180
	#2-1 1/4"	●		plug	B	0°	●		M23-M25	M181-M182
	#4-1"	●		plug	B	0°	●		M26-M27	M181-M182
	#5-#12	●		plug	B	0°	●		M28	M181-M182
	M3-M16	●		plug	B	0°	●		M29	M181-M182
	M3-M5	●		plug	B	0°	●		M30	M181-M182
	M2-M36	●		plug	B	0°	●		M31-M32	M181-M182
	M3-M20	●		plug	B	0°	●		M33	M181-M182
	#4-1/4"	●		plug	B	0°	●		M34	M181-M182
	#4-5/8"	●		plug	B	0°	●		M35	M181-M182
	#0-3/4"	●		plug	-	0°	●		M36	M183
	1/4-1/2"	●		plug	-	0°	●		M37	M183
	#6-3/8"	●		plug	-	0°	●		M38	M183
	#6-3/4"	●		plug	-	0°	●		M39	M183
	#0-5/16"		●	bottoming	-	0°	●		M40	M183
	M1.6-M20	●		plug	-	0°	●		M41	M183





Spiral-Flute Taps	series	grade/coating	shank/dimension	● first choice ○ alternate choice					
				P	M	K	N	S	H
	T331	KC7542	6535 HA	●	○				
	T331	KC7542	6535 HA	●	○				
	T630	KP6525, KM6515	ANSI 302A	●	●	○	○		
	T630	KP6525	DIN 371, 376	●	○	○			
	T630	KP6525	DIN 371, 376	●	○	○			
	T631	KP6525	DIN 371, 376	●	○	○			
	T630	KP6525, KM6515	ANSI 302A	●	●	○	○		
	T630	KP6525, KM6515	DIN 371, 374, 376	●	●	○	○		
	T631	KP6525, KM6515	DIN 371, 374, 376	●	●	○	○		
	T632	KP6525	DIN 371, 374, 376	●	○				
	T633	KP6525	DIN 371, 374, 376	●	○				
	T630	KP6525	DIN 376	●	●				
	T631	KP6525	DIN 376	●	●				
	T630	KP6525	XL	●	●				
	T631	KP6525	XL	●	●				
	T650	KP6525	DIN 376	●	●				
	T651	KP6525	DIN 376	●	●				
	T650	KP6525	XL	●	●				
	T651	KP6525	XL	●	●				
	T692	KSP27, KSS29	ANSI 302A					●	
	T692	KSP27, KSS29	ANSI 302A					●	
	T694	KSP27, KSS29	ANSI 302A					●	
	T662	KSSM24, KSS20	ANSI 302A					●	
	T662	KSSM24, KSS20	ANSI 302A					●	
	T682	KSMN34	DIN/ANSI				●		
	T682	KSMN34	DIN/ANSI				●		
	T686	KSMN34	DIN/ANSI				●		
	T686	KSMN34	DIN/ANSI				●		
	T604	KSH26	DIN 371, 374, 376	●			○		

	size range min-max	hole		chamfer		helix angle	coolant		page(s)	recommended cutting parameters
		through	blind	type	form		flood	through		
										
	1/4-1/2"		●	semi-bottoming	C	45°		●	M44	M178
	M6-M16		●	semi-bottoming	C	45°		●	M45	M178
	#2-1"		●	semi-bottoming	C	45°	●		M46	M179-M180
	#6-1/2"		●	semi-bottoming	C	45°	●		M47	M179-M180
	#6-1/2"		●	semi-bottoming	C	45°	●		M47	M179-M180
	1/4-1/2"		●	semi-bottoming	C	45°		●	M48	M179-M180
	M3-M16		●	semi-bottoming	C	45°	●		M49	M179-M180
	M3-M20		●	semi-bottoming	C	45°	●		M50	M179-M180
	M5-M18		●	semi-bottoming	C	45°		●	M51	M179-M180
	M5-M16		●	bottoming	E	45°	●		M52	M179-M180
	M5-M16		●	bottoming	E	45°		●	M53	M179-M180
	M24-M42		●	semi-bottoming	C	45°	●		M54	M179-M180
	M24-M42		●	semi-bottoming	C	45°		●	M55	M179-M180
	M24-M42		●	semi-bottoming	C	45°	●		M56	M179-M180
	M24-M42		●	semi-bottoming	C	45°		●	M57	M179-M180
	M24-M42		●	semi-bottoming	C	15°	●		M58	M179-M180
	M24-M42		●	semi-bottoming	C	15°		●	M59	M179-M180
	M24-M42		●	semi-bottoming	C	15°	●		M60	M179-M180
	M24-M42		●	semi-bottoming	C	15°		●	M61	M179-M180
	#2-3/4"		●	3-4 pitches	-	10°	●		M62-M63	M179-M180
	M2,5-M12		●	3-4 pitches	-	10°	●		M64	M179-M180
	#4-5/8"		●	bottoming	E	10°	●		M65	M179-M180
	#2-1"		●	semi-bottoming	C	10°	●		M66-M67	M179-M180
	M2,5-M12		●	semi-bottoming	C	10°	●		M68	M179-M180
	#2-1/2"		●	semi-bottoming	C	45°	●		M69	M179-M180
	M3-M12		●	semi-bottoming	C	45°	●		M70	M179-M180
	#2-1/2"		●	semi-bottoming	C	25°	●		M71	M179-M180
	M3-M12		●	semi-bottoming	C	25°	●		M72	M179-M180
	M3-M20		●	semi-bottoming	C	42°	●		M73	M179-M180

(continued)

(Spiral-Flute Taps Selection Guide — continued)

Spiral-Flute Taps	series	grade/coating	shank/dimension	● first choice ○ alternate choice					
				P	M	K	N	S	H
	T830	KSP32, KSMN24, KSP39	ANSI 302A	●	●	●	●		
	T832	KSP39	ANSI 302A	○	○	○			
	T838	KSP32, KSP39	ANSI 302A	●	○	●	○		
	T839	KSP39	ANSI 302A	○	○	○			
	T830	KSP39	DIN 371, 376	○	○	○			
	T838	KSU31, KSP39	DIN 371, 374, 376	●	○	○	○		
	T830	KSP32, KSMN24, KSP39	ANSI 302A	●	●	●	●		
	T832	KSP39	ANSI 302A	○	○	○			
	T838	KSP32, KSP39	ANSI 302A	●	○	●	○		
	T839	KSP39	ANSI 302A	○	○	○			
	T830	KSP32, KSP39	DIN 371, 374, 376	●	○	●	○		
	T832	KSP32, KSP39	DIN 371, 374, 376	●	○	●	○		
	T838	KSU31, KSP39	DIN 371, 374, 376	●	○	○	○		
	T839	KSU31, KSP39	DIN 371, 376	●	○	○	○		
	T830	KSU31, KSU30	JIS	●	○	○	○		
	T830	KSP39	Extend 4"	○	○	○			
	T832	KSP39	Extend 6"	○	○	○			
	KHSST Spiral Flute	TiN, uncoated	ANSI 302A	●	○	○	●		
	KHSST Spiral Flute	TiCN, TiN, uncoated	ANSI 302A	●	○	○	●		
	KHSST Spiral Flute Heavy Duty	Oxide	ANSI 302A	●	○	○			





	size range min-max	hole		chamfer		helix angle	coolant		page(s)	recommended cutting parameters
		through	blind	type	form		flood	through		
										
	#2-1 1/8"		●	semi-bottoming	C	45°	●		M74-M76	M181-M182
	#4-3/4"		●	bottoming	E	45°	●		M77-M78	M181-M182
	#2-1 1/8"		●	semi-bottoming	C	45°	●		M79-M81	M181-M182
	#4-3/4"		●	bottoming	E	45°	●		M82-M83	M181-M182
	#4-1"		●	semi-bottoming	C	45°	●		M84, M87	M181-M182
	#6-2"		●	semi-bottoming	C	45°	●		M85-M86	M181-M182
	M3-M18		●	semi-bottoming	C	45°	●		M88	M181-M182
	M3-M18		●	bottoming	E	45°	●		M89	M181-M182
	M3-M18		●	semi-bottoming	C	45°	●		M90	M181-M182
	M3-M18		●	bottoming	E	45°	●		M91	M181-M182
	M2-M36		●	semi-bottoming	C	45°	●		M92-M93	M181-M182
	M3-M20		●	bottoming	E	45°	●		M94	M181-M182
	M2-M52		●	semi-bottoming	C	45°	●		M95-M96	M181-M182
	M3-M20		●	bottoming	E	45°	●		M97	M181-M182
	M3-M20		●	semi-bottoming	C	45°	●		M98	M181-M182
	#4-1/4"		●	semi-bottoming	C	45°	●		M99	M181-M182
	#4-5/8"		●	semi-bottoming	C	45°	●		M100	M181-M182
	#4-7/16"		●	bottoming	E	45°	●		M101	M181-M182
	#4-3/4"		●	bottoming	-	45°	●		M102	M183
	M3-M10		●	bottoming	-	45°	●		M103	M183
	#6-3/4"		●	plug	-	45°	●		M104	M183

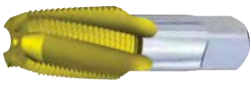


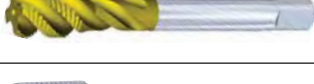
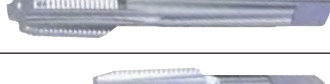


Straight-Flute Taps	series	grade/coating	shank/dimension	● first choice ○ alternate choice					
				P	M	K	N	S	H
	T340	KCK17	6535 HA	○	●				
	T340	KCK17	6535 HA	○	●				
	T351	KCK17	6535 HA	○	●				
	T351	KCK17	6535 HA	○	●				
	T351	KCK17	DIN 371, 374, 376	○	●				
	T353	KCK17	DIN 371, 376	○	●				
	T471	KCN14	6535 HA				●		
	T471	KCN14	DIN 371				●		
	T410	KCU36	DIN 371, 374, 376					●	
	T640	KP6525	ANSI 302A			●	●		
	T640	KP6525	DIN 371, 376			●	●		
	T640	KP6525	DIN 371, 376			●	●		
	T641	KP6525	DIN 371, 376			●	●		
	T640	KP6525	DIN 371, 376			●	●		
	T641	KP6525	DIN 371, 376			●	●		
	T642	KP6525	DIN 371, 374, 376			●	●		
	T643	KP6525	DIN 371, 374, 376			●	●		
	KHSST Hand Plug	TiCN, TiN, oxide, uncoated	ANSI 302	●	●	●	●	●	
	KHSST Hand Bottoming	TiCN, TiN, oxide, uncoated	ANSI 302	●	●	●	●	●	
	KHSST Hand Plug	TiN, uncoated	ANSI 302	●	○	○	●		
	KHSST Hand Bottoming	uncoated	ANSI 302	●	○	○	●		
	KHSST Hand Left Hand Plug	uncoated	ANSI 302	●	○	○	○		
	KHSST Hand Ext. Length Plug	uncoated	Extend 6"	●	○	○	○		
	KHSST Hand Ext. Length Bottoming	uncoated	Extend 6"	●	○	○	○		





* Through coolant 1/4", M6 and larger.

	size range min-max	hole		chamfer		helix angle	coolant		page(s)	recommended cutting parameters
		through	blind	type	form		flood	through		
	#6-9/16"	●		plug	D	0°	●		M108	M178
	M4-M20	●		plug	D	0°	●		M109	M178
	#6-3/4"		●	bottoming	E	0°		●	M110	M178
	M4*-M16		●	bottoming	E	0°		●	M111	M178
	M6-M14		●	bottoming	E	0°		●	M112	M178
	M4*-M14		●	semi-bottoming	C	0°		●	M113	M178
	M6-M14		●	bottoming	E	0°		●	M114	M178
	M6-M10		●	bottoming	E	0°		●	M115	M178
	M3-M16		●	semi-bottoming	C	0°	●		M116	M178
	#10-3/4"	●	●	semi-bottoming	C	0°	●		M117	M179-M180
	#6-1/2"	●	●	semi-bottoming	C	0°	●		M118	M179-M180
	#6-1/2"	●	●	semi-bottoming	C	0°	●		M118	M179-M180
	1/4-1/2"		●	semi-bottoming	C	0°		●	M119	M179-M180
	M4-M22	●	●	semi-bottoming	C	0°	●		M120	M179-M180
	M5-M20		●	semi-bottoming	C	0°		●	M121	M179-M180
	M5-M16	●	●	bottoming	E	0°	●		M122	M179-M180
	M5-M16		●	bottoming	E	0°		●	M123	M179-M180
	#0-1 1/2"	●		plug	-	0°	●		M124- M126	M183
	#0-1 1/2"		●	bottoming	-	0°	●		M127- M129	M183
	M1,6-M36	●		plug	-	0°	●		M130	M183
	M2-M24		●	bottoming	-	0°	●		M131	M183
	1/4-3/4"	●		plug	-	0°	●		M132	M183
	#6-3/8"	●		plug	-	0°	●		M133	M183
	#10-3/8"		●	bottoming	-	0°	●		M134	M183

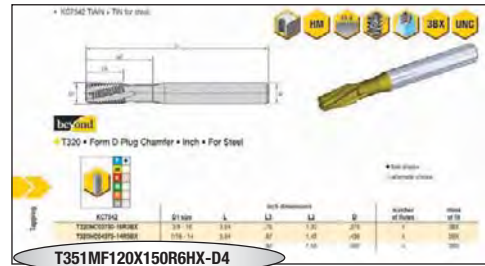
Forming Taps	series	grade/coating	shank/dimension	● first choice ○ alternate choice					
				P	M	K	N	S	H
	T491	KCN14	6535 HA				●		
	T491	KCN14	DIN 2174				●		
	T622	KSP21, KSN28	DIN 2174	●			●		
	T623	KSP21, KSN28	DIN 2174	●			●		
	T624	KSP27	DIN/ANSI	●	○				
	T625	KSP27	DIN/ANSI	●	○				
	T626	KSP27	DIN/ANSI	●	○				
	T627	KSP27	DIN/ANSI	●	○				
	T624	KSP27	DIN/ANSI	●	○				
	T625	KSP27	DIN/ANSI	●	○				
	T626	KSP27	DIN/ANSI	●	○				
	T627	KSP27	DIN/ANSI	●	○				

	size range min-max	hole		chamfer		helix angle	coolant		page(s)	recommended cutting parameters
		through	blind	type	form		flood	through		
										
	M5-M12		•	bottoming	E	-		•	M138	M178
	M6-M10		•	bottoming	E	-		•	M138	M178
	M3-M16	•	•	semi-bottoming	C	-	•		M139	M179-M180
	M5-M16		•	semi-bottoming	C	-		•	M140	M179-M180
	#6-3/4"	•	•	semi-bottoming	C	-	•		M141	M179-M180
	1/4-3/4"		•	semi-bottoming	C	-		•	M142	M179-M180
	#2-3/4"		•	bottoming	E	-	•		M143	M179-M180
	1/4-3/4"		•	bottoming	E	-		•	M144	M179-M180
	M3-M16	•	•	semi-bottoming	C	-	•		M145	M179-M180
	M6-M16		•	semi-bottoming	C	-		•	M146	M179-M180
	M3-M16		•	bottoming	E	-	•		M147	M179-M180
	M6-M16		•	bottoming	E	-		•	M148	M179-M180

Pipe Taps	series	grade/coating	shank/dimension	● first choice ○ alternate choice					
				P	M	K	N	S	H
	T854	KSU31, KSP39	ANSI	●	○	○	○		
	T846	KSU30	ANSI	○		○			
	T877	KSU31, KSP39	DIN 5156	●	○	○	○		
	T857	KSU31, KSP39	DIN 5156	●	○	○	○		
	T848	KSU30	DIN 5156	○		○			
	KHSST Taper Pipe	TiN, uncoated	ANSI	●	○	○	●		
	KHSST Straight Pipe	uncoated	ANSI	●	○	○	○		

	size range min-max	hole		chamfer		helix angle	coolant		page(s)	recommended cutting parameters
		through	blind	type	form		flood	through		
										
	1/16-1"	•	•	standard	-	15°	•		M152	M181-M182
	1/8-3/4"	•	•	standard	-	0°	•		M153	M181-M182
	1/8-1"	•		plug	B	0°	•		M154	M181-M182
	1/8-1"		•	semi-bottoming	C	42°	•		M155	M181-M182
	1/16-1"	•	•	semi-bottoming	C	0°	•		M156	M181-M182
	1/16-2"	•	•	standard	-	0°	•		M157	M183
	1/8-1"	•	•	standard	-	0°	•		M158	M183

Solid Carbide Tap Identification System



T351MF120X150R6HX-D4
T320NC05000-13R3BX

Metric							
T351	MF	120	X	150	R	6HX	-D4
T320	NC	05000	-	13	R	3BX	
Tap Design	Type of Thread	Nominal Diameter of Thread		Pitch	Cutting Direction	Tolerance Class	Taps Dimension
		mm or inch (depending on type)		mm or TPI (depending on type)			

M = Metric coarse-pitch thread (ISO form)	D1 = DIN 371
MF = Metric fine-pitch thread (ISO form)	D4 = DIN 374
NC = Unified coarse series thread	D6 = DIN 376
NF = Unified fine series thread	D74 = DIN 2174
	blank = 6535 HA

Tap design

- T320** = Steel, through holes, LH spiral flute, solid
- T321** = Steel, through holes, LH spiral flute, through coolant
- T331** = Steel, blind holes, RH spiral flute, through coolant
- T340** = Cast iron and cast aluminum, through holes, straight flute, solid
- T351** = Cast iron and cast aluminum, blind holes, straight flute, through coolant
- T353** = Cast iron and cast aluminum, blind holes, straight flute, through coolant
- T410** = Hard steel 55–63 HRC, through and blind holes, straight flute, solid
- T471** = Aluminum, blind holes, straight flute, through coolant
- T491** = Aluminum, blind holes, forming tap, through coolant

HSS-E-PM Tap Identification System



	Metric	Inch						
	T620	MF	120	X	150	R	6HX	-D4
	T630	NC	06250	-	11	R	3BX	-A
	Tap Design	Type of Thread	Nominal Diameter of Thread		Pitch	Cutting Direction	Tolerance Class	Taps Dimension
			mm or inch (depending on type)		mm or TPI (depending on type)			

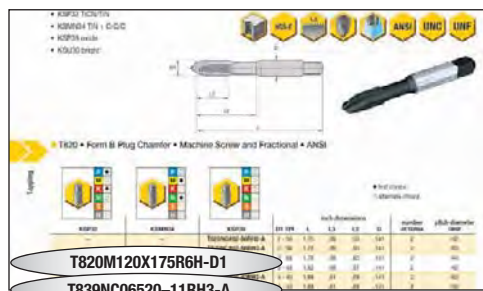
M = Metric coarse-pitch thread (ISO form)
MF = Metric fine-pitch thread (ISO form)
NC = Unified coarse series thread
NF = Unified fine series thread

A = ANSI
DA = DIN length and ANSI shank
D1 = DIN 371
D4 = DIN 374
D6 = DIN 376
D74 = DIN 2174
XL = DIN extra length

Tap design

- T620** = Steel and stainless steel, through holes, LH spiral flute, solid
- T621** = Steel and stainless steel, through holes, LH spiral flute, through coolant
- T624** = Steel and stainless steel, blind and through holes, forming tap, solid
- T625** = Steel and stainless steel, blind holes, forming tap, through coolant
- T626** = Steel and stainless steel, blind holes, forming tap, solid
- T627** = Steel and stainless steel, blind holes, forming tap, through coolant
- T630** = Steel and stainless steel, blind holes, RH spiral flute, solid
- T631** = Steel and stainless steel, blind holes, RH spiral flute, through coolant
- T632** = Steel and stainless steel, blind holes, RH spiral flute, solid
- T633** = Steel and stainless steel, blind holes, RH spiral flute, through coolant
- T640** = Cast iron and cast aluminum, through and blind holes, straight flute, solid
- T641** = Cast iron and cast aluminum, blind holes, straight flute, through coolant
- T642** = Cast iron and cast aluminum, blind holes, straight flute, solid
- T643** = Cast iron and cast aluminum, blind holes, straight flute, through coolant
- T650** = Steel and cast iron, blind holes, RH spiral flute, large sizes, solid
- T651** = Steel and cast iron, blind holes, RH spiral flute, large sizes, through coolant
- T660** = Titanium and titanium alloys, through holes, LH spiral flute, solid
- T662** = Titanium and titanium alloys, blind holes, RH spiral flute, solid
- T672** = Wrought and cast aluminum, through holes, LH spiral flutes, solid
- T682** = Wrought aluminum, blind holes, RH 45° spiral flutes, solid
- T686** = Cast aluminum, blind holes, RH 25° spiral flutes, solid
- T690** = Nickel and cobalt based alloys, through holes, LH spiral flute, solid
- T692** = Nickel and cobalt based alloys, blind holes, RH spiral flute, 3–4 pitches chamfer, solid
- T694** = Nickel and cobalt based alloys, blind holes, RH spiral flute, bottoming, solid

GOtap HSS-E Tap Identification System

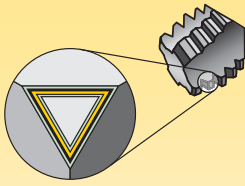


Metric	T820	M	120	X	175	R	6H	-D1
Inch	T839	NC	06520	-	11	R	H3	-A
Tap Design		Type of Thread	Nominal Diameter of Thread		Pitch	Cutting Direction	Tolerance Class	Taps Dimension
			mm or inch (depending on type)		mm or TPI (depending on type)			

<p>M = Metric coarse-pitch thread (ISO form)</p> <p>MF = Metric fine-pitch thread (ISO form)</p> <p>NC = Unified coarse series thread</p> <p>NF = Unified fine series thread</p> <p>NPT = American standard taper pipe thread</p> <p>NPTF = Dryseal American standard taper pipe thread</p> <p>G = DIN EN ISO 228</p>	<p>A = ANSI</p> <p>AS = ANSI Small Shank</p> <p>D1 = DIN 371</p> <p>D4 = DIN 374</p> <p>D6 = DIN 376</p> <p>D56 = DIN 5156</p> <p>J = JIS</p>
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Tap design

- T820** = Steel, stainless steel, ductile iron, and cast aluminum, through holes, spiral point, solid
- T822** = Steel, stainless steel, ductile iron, and cast aluminum, through holes, spiral point, 3 flute small tap, solid
- T830** = Steel, stainless steel, ductile iron, and cast aluminum, blind holes, spiral flute, semi-bottoming, solid
- T832** = Steel, stainless steel, ductile iron, and cast aluminum, blind holes, spiral flute, bottoming, solid
- T838** = Steel, stainless steel, ductile iron, and cast aluminum, blind holes, spiral flute, TC, semi-bottoming, solid
- T839** = Steel, stainless steel, ductile iron, and cast aluminum, blind holes, spiral flute, TC, bottoming, solid
- T846** = Mold steels, NPT, straight flute, solid
- T848** = Steel, stainless steel, ductile iron, and cast aluminum, straight flute, NPT, NPTF, solid
- T854** = Steel, stainless steel, ductile iron, and cast aluminum, spiral flute, NPT, NPTF, solid
- T857** = Steel, stainless steel, ductile iron, and cast aluminum, spiral flute, G, solid
- T877** = Steel, stainless steel, ductile iron, and cast aluminum, spiral point, G, solid



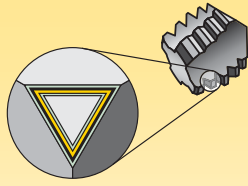
Coatings are designed for optimized tapping performance in specific materials.

P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High-Temp Alloys
H	Hardened Materials

wear resistance ← → toughness

Grade

Coating	Grade Description		05	10	15	20	25	30	35	40	45
KC7542	Coated carbide, PVD — multilayer coating with TiAlN and TiN over a high-strength carbide substrate specifically designed for tap application. Use in steel up to 32 HRC and cast iron at 4x faster speeds than HSS-E-PM taps.	P									
		K									
KCK17	Multilayer PVD AlCrN-coated fine-grain carbide. Newly-developed unique coating. Extraordinary wear resistance when tapping cast iron. High-temperature hardness enables long life at up to 4x faster speed than HSS-E-PM taps.	K									
KCN14	Coated carbide, PVD — two-layer coating over fine-grain carbide. Coating consists of low-friction CrC/C over wear-resistant TiN. CrC/C resists galling of non-ferrous materials to the tap. Provides superior performance for tapping cast aluminum and other non-ferrous materials.	N									
KCU36	Coated carbide, PVD — two-layer coating with heat-resistant TiAlN base layer and low-friction MoS ₂ top layer over carbide substrate. Use in hardened steel 55–63 HRC.	H									
KSP21	Coated HSS-E-PM. PVD — powder metal HSS-E substrate with TiN coating. Use for tapping steel 32–44 HRC and for forming threads in steel 32 HRC.	P									
KSH26	Coated HSS-E-PM. PVD — powder metal HSS-E substrate coated with TiN base layer and low-friction MoS ₂ top layer. Use in deep blind steel holes 32–44 HRC.	P									



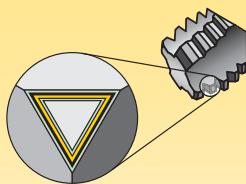
Coatings are designed for optimized tapping performance in specific materials.

P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High-Temp Alloys
H	Hardened Materials

wear resistance ← → toughness

Grade

Coating	Grade Description	Performance Chart										
		05	10	15	20	25	30	35	40	45		
KP6525 	Coated HSS-E-PM. PVD — heat- and wear-resistant high vanadium — cobalt powder metal HSS substrate coated with wear-resistant TiCN base layer and low-friction TiN top layer. Use in steel, cast iron, and cast aluminum with silicon.	P										
		K										
KIM6515 	Coated HSS-E-PM. PVD — heat- and wear-resistant high vanadium — cobalt powder metal HSS substrate. Coating consists of low-friction CrC/C over wear-resistant TiN base layer. Use for tapping stainless steel and non-ferrous materials.	M										
		N										
KSS20 	Surface treated HSS-E-PM: powder metal HSS-E-PM substrate with nitride surface treatment that provides wear resistance in non-ferrous materials including titanium. Use for tapping titanium and titanium alloys.											
		S										
KSSM24 	Coated HSS-E-PM, PVD: heat- and wear-resistant high- vanadium, high-cobalt powder metal HSS-E-PM substrate. Coating consists of low friction CrC/C over wear-resistant TiN base layer. Use for tapping titanium and titanium alloys.	S										
KSP27 	Coated HSS-E-PM, PVD high vanadium cobalt powder metal HSS substrate coated with heat and wear-resistant multilayer AlCrTiN. Use in cobalt- or nickel-based heat-resistant alloys and steel.	P										
		S										
KSS29 	Surface treated HSS-E-PM powder metal HSS-E substrate with oxide/nitride surface treatment that provides wear resistance in nickel alloys.	S										



Coatings are designed for optimized tapping performance in specific materials.

P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High-Temp Alloys
H	Hardened Materials

wear resistance ← → toughness

Grade

Coating	Grade Description	Material Group																
		P	M	K	N	S	H	05	10	15	20	25	30	35	40	45		
KSP32	High-vanadium HSS-E substrate coated with wear-resistant TiCN base layer and low-friction TiN top layer. Use in multiple applications, including steel, stainless steel, ductile cast iron, and cast aluminum. KSP32 is abrasion resistant.	P																
		M																
		K																
		N																
		S																
KSMN34	High-vanadium HSS-E substrate with a coating consists of low-friction Cr/C over wear-resistant TiN base layer. Use for tapping stainless steel and non-ferrous materials.	P																
		M																
		K																
		N																
		S																
KSU31	Coated HSS-E substrate with TiN PVD layer. Use in multiple applications, including steel, stainless steel, ductile cast iron, and cast aluminum.	P																
		M																
		K																
		N																
		S																
KSP39	HSS-E substrate with black oxide surface treatment. Use in a variety of materials, including steel, stainless steel, and ductile iron. Not recommended for non-ferrous materials.	P																
		M																
		K																
		N																
		S																
KSU30	Uncoated HSS-E grade with bright surface. Use in easy to machine, general-purpose applications.	P																
		M																
		K																
		N																
		S																



Tapping Portfolio

Spiral-Point/Left-Hand Spiral-Flute Taps	M2–M41
Beyond High-Performance Solid Carbide Taps.....	M4–M5
High-Performance HSS-E-PM Taps	M6–M22
Multipurpose GOtap	M23–M35
General-Purpose Taps.....	M36–M41
Spiral-Flute Taps	M42–M104
Beyond High-Performance Solid Carbide Taps.....	M44–M45
High-Performance HSS-E-PM Taps	M46–M73
Multipurpose GOtap	M74–M101
General-Purpose Taps.....	M102–M104
Straight-Flute Taps	M106–M134
Beyond High-Performance Solid Carbide Taps.....	M108–M116
High-Performance HSS-E-PM Taps	M117–M123
General-Purpose Taps.....	M124–M134
Forming Taps	M136–M148
Beyond High-Performance Solid Carbide Taps.....	M138
High-Performance HSS-E-PM Taps	M139–M148
Pipe Taps	M150–M158
Multipurpose GOtap	M152–M156
General-Purpose Taps.....	M157–M158
Solid Carbide Thread Mills	M160–M177
Taps and Thread Milling Application and Technical Information	M178–M216

➤ Spiral-Point and Left-Hand Spiral-Flute Taps



High-Performance Taps for Through-Hole Applications

- Steel and steel alloys.
- Stainless steel.
- Cast iron.
- Nickel- and cobalt-based alloys.
- Titanium and titanium alloys.
- Aluminum.
- Hard steel.

High-Performance Beyond™ Solid Carbide Taps

- Left-hand spiral flute for optimal chip evacuation ahead of the tap.
- Runs up to 4x faster and 4x longer than conventional high-speed steel (HSS) taps.
- Ideal for long production runs where fewer tool changes result in greater productivity.
- For use on CNC machines with synchronous or rigid controls and precision toolholders.

High-Performance Beyond™ HSS-E-PM Taps

- Left-hand spiral flute for optimal chip evacuation ahead of the tap.
- Higher strength and wider range of applications versus solid carbide taps.
- Higher tapping speed capability and longer tool life than conventional HSS-E taps.
- Can be used on either conventional or synchronous tapping machines.

Multipurpose HSS-E GOtap™ Taps

- Optimized spiral-point geometry for efficient chip evacuation in through-hole applications.
- Manufactured with high vanadium HSS-E material for exceptional wear characteristics and longer tool life.
- Advanced PVD coatings to reduce tapping torque, resulting in high-quality thread finish and longer tool life.
- For use in both synchronous and non-synchronous machines, including rigid, synchronous, and tension/compression tap holders.

General-Purpose Taps

- High-quality spiral-point HSS taps for reliable, consistent performance.
- Wide range of sizes and pitch limits offered with PVD coatings and surface treatments.

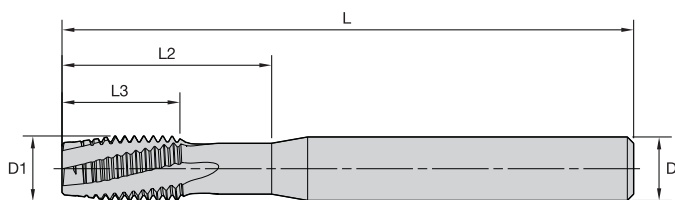


High-Performance Taps

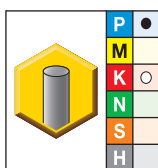
Beyond™ Solid Carbide Left-Hand Spiral-Flute, Right-Hand Cut Taps • Through Holes



- KC7542 TiAlN + TiN for steel.



■ T320 • Form D Plug Chamfer • Inch • Solid Carbide • For Steel



- first choice
- alternate choice

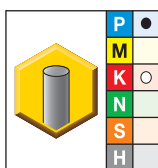
KC7542	inch dimensions					number of flutes	class of fit
	D1 size	L	L3	L2	D		
T320NC03750-16R3BX	3/8 - 16	3.54	.75	1.30	.375	4	3BX
T320NC04375-14R3BX	7/16 - 14	3.94	.87	1.42	.438	4	3BX
T320NC05000-13R3BX	1/2 - 13	3.94	.94	1.58	.500	4	3BX

Shank Tolerance

D	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004



■ T320 • Form D Plug Chamfer • Metric • Solid Carbide • For Steel



- first choice
- alternate choice

KC7542	metric dimensions					number of flutes	class of fit
	D1 size	L	L3	L2	D		
T320M060X100R6HX	M6 X 1	70	12	23	6,0	3	6HX
T320M080X125R6HX	M8 X 1,25	80	15	28	8,0	3	6HX
T320M100X150R6HX	M10 X 1,5	90	18	33	10,0	4	6HX
T320M120X175R6HX	M12 X 1,75	100	21	40	12,0	4	6HX
T320MF140X150R6HX *	M14 X 1,5	110	24	47	12,0	4	6HX
T320M160X200R6HX	M16 X 2	110	24	53	14,0	4	6HX

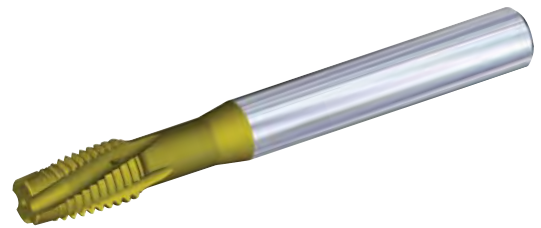
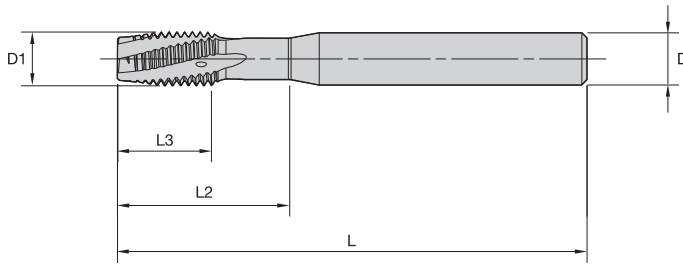
NOTE: Proprietary technology.

*Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

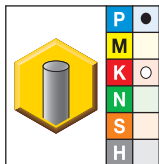
Shank Tolerance

D	tolerance h6
6	+0, -0,008
8-10	+0, -0,009
12-16	+0, -0,011

- KC7542 TiAlN + TiN for steel.



■ T321 • Form D Plug Chamfer • Through Coolant • Metric • Solid Carbide • For Steel



- first choice
- alternate choice

KC7542	D1 size	L	metric dimensions			number of flutes	class of fit
			L3	L2	D		
T321M100X150R6HX	M10 X 1,5	90	18	33	10,0	4	6HX
T321MF120X150R6HX	M12 X 1,5	100	21	40	12,0	4	6HX
T321M120X175R6HX	M12 X 1,75	100	21	40	12,0	4	6HX
T321MF140X150R6HX	M14 X 1,5	110	24	47	12,0	4	6HX
T321M140X200R6HX	M14 X 2	110	24	47	12,0	4	6HX
T321M160X200R6HX *	M16 X 2	110	24	53	14,0	4	6HX

NOTE: Proprietary technology.

*Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Shank Tolerance

D	tolerance h6
6	+0, -0,008
8-10	+0, -0,009
12-16	+0, -0,011

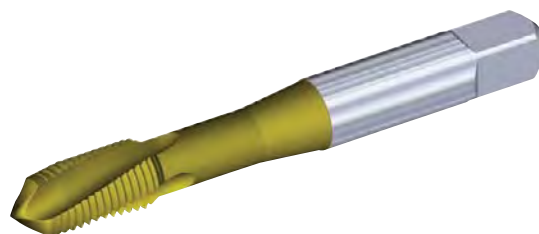
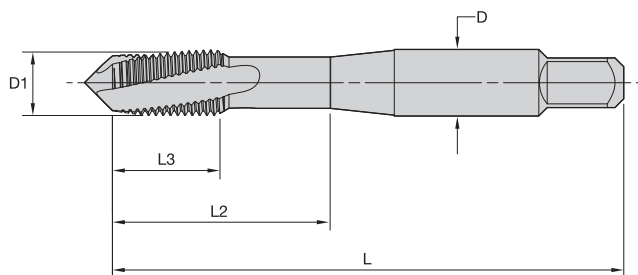


High-Performance Taps

Beyond™ Left-Hand Spiral-Flute, Right-Hand Cut HSS-E-PM Taps • Through Holes

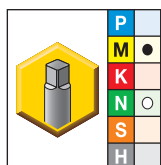
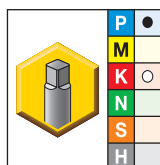


- KM6515 TiN + CrC/C for tapping stainless steel.
- KP6525 TiCN + TiN for tapping steel.



T620 • Machine Screw and Fractional • Form D Plug Chamfer • ANSI • For Steel and Stainless Steel

Tapping

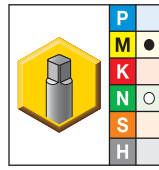
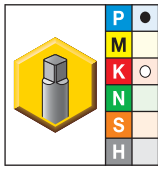


- first choice
- alternate choice

		inch dimensions					number of flutes	class of fit
KP6525	KM6515	D1 size	L	L3	L2	D		
T620NC#02-56R3BX-A *	T620NC#02-56R3BX-A	2 - 56	1.75	.44	.49	.141	2	3BX
T620NC#02-56R2BX-A *	T620NC#02-56R2BX-A *	2 - 56	1.75	.44	.49	.141	2	2BX
T620NC#04-40R3BX-A	T620NC#04-40R3BX-A *	4 - 40	1.88	.56	.68	.141	2	3BX
T620NC#04-40R2BX-A *	T620NC#04-40R2BX-A	4 - 40	1.88	.56	.68	.141	2	2BX
T620NC#05-40R3BX-A *	T620NC#05-40R3BX-A	5 - 40	1.94	.63	.75	.141	2	3BX
T620NC#06-32R3BX-A	T620NC#06-32R3BX-A	6 - 32	2.00	.36	.71	.141	2	3BX
T620NC#06-32R2BX-A	T620NC#06-32R2BX-A	6 - 32	2.00	.36	.71	.141	2	2BX
T620NC#08-32R3BX-A	T620NC#08-32R3BX-A *	8 - 32	2.13	.31	.76	.168	2	3BX
T620NC#08-32R2BX-A	T620NC#08-32R2BX-A	8 - 32	2.13	.31	.76	.168	2	2BX
T620NF#08-36R3BX-A	T620NF#08-36R3BX-A	8 - 36	2.13	.31	.76	.168	2	3BX
T620NC#10-24R3BX-A	T620NC#10-24R3BX-A	10 - 24	2.38	.47	.91	.194	3	3BX
T620NF#10-32R3BX-A	T620NF#10-32R3BX-A	10 - 32	2.36	.47	.91	.194	3	3BX
T620NF#10-32R2BX-A	T620NF#10-32R2BX-A	10 - 32	2.36	.47	.91	.194	3	2BX
T620NC#12-24R3BX-A *	T620NC#12-24R3BX-A *	12 - 24	2.37	.42	.96	.220	3	3BX
T620NC02500-20R3BX-A	T620NC02500-20R3BX-A	1/4 - 20	1.88	.44	1.01	.255	3	3BX
T620NC02500-20R2BX-A	T620NC02500-20R2BX-A	1/4 - 20	1.75	.44	1.01	.255	3	2BX
T620NF02500-28R3BX-A	T620NF02500-28R3BX-A	1/4 - 28	2.50	.44	1.00	.255	3	3BX
T620NF02500-28R2BX-A	T620NF02500-28R2BX-A	1/4 - 28	2.50	.44	1.00	.255	3	2BX
T620NC03125-18R3BX-A	T620NC03125-18R3BX-A	5/16 - 18	2.12	.49	1.13	.318	3	3BX
T620NC03125-18R2BX-A	T620NC03125-18R2BX-A	5/16 - 18	2.12	.49	1.01	.318	3	2BX
T620NF03125-24R3BX-A	T620NF03125-24R3BX-A	5/16 - 24	2.72	.49	1.13	.318	3	3BX
T620NC03750-16R3BX-A	T620NC03750-16R3BX-A	3/8 - 16	2.94	.60	1.27	.381	3	3BX
T620NC03750-16R2BX-A	T620NC03750-16R2BX-A	3/8 - 16	2.94	.60	1.27	.381	3	2BX
T620NF03750-24R3BX-A	T620NF03750-24R3BX-A *	3/8 - 24	2.94	.60	1.27	.381	3	3BX

(continued)

(T620 • Machine Screw and Fractional • Form D Plug Chamfer • ANSI • For Steel and Stainless Steel — continued)



● first choice
○ alternate choice

		inch dimensions					number of flutes	class of fit
KP6525	KM6515	D1 size	L	L3	L2	D		
T620NC04375-14R3BX-A *	T620NC04375-14R3BX-A	7/16 - 14	3.16	.71	1.49	.323	3	3BX
T620NF04375-20R3BX-A	T620NF04375-20R3BX-A	7/16 - 20	3.16	.71	1.49	.323	3	3BX
T620NC05000-13R3BX-A	T620NC05000-13R3BX-A	1/2 - 13	3.38	.77	1.74	.367	3	3BX
T620NF05000-20R3BX-A	T620NF05000-20R3BX-A	1/2 - 20	3.38	.77	1.74	.367	3	3BX
T620NC06250-11R3BX-A	T620NC06250-11R3BX-A	5/8 - 11	3.81	.91	1.89	.480	4	3BX
T620NC07500-10R3BX-A	T620NC07500-10R3BX-A	3/4 - 10	4.25	1.00	2.08	.590	4	3BX

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

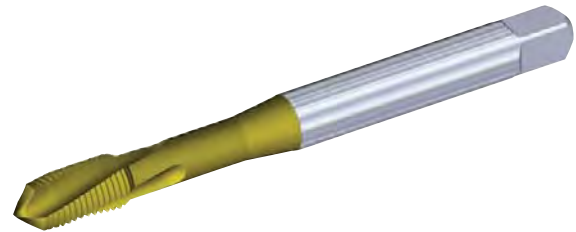
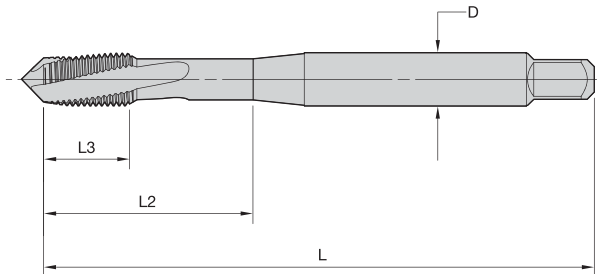
Shank Tolerance

D fractional	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004



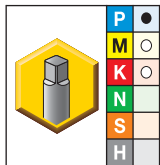
Tapping

- KP6525 TiCN + TiN for steel.



T620 • DIN 371 and 376 • Form D Plug Chamfer • Machine Screw and Fractional • For Steel and Stainless Steel

Tapping



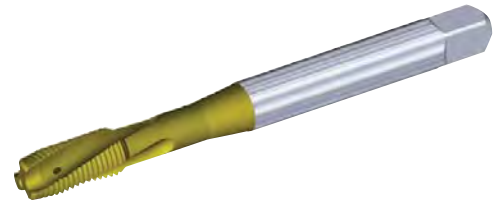
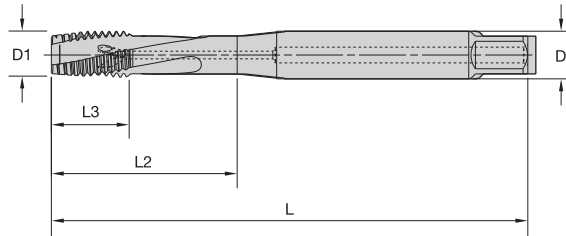
- first choice
- alternate choice

KP6525	D1 size	L	metric dimensions			number of flutes	dimension standard	class of fit
			L3	L2	D			
T620NC#06-32R2BX-D1	6 - 32	56	9	20	4,0	2	DIN 371	2BX
T620NF#06-40R2BX-D1	6 - 40	56	9	20	4,0	2	DIN 371	2BX
T620NC#08-32R2BX-D1	8 - 32	63	10	21	4,5	2	DIN 371	2BX
T620NC#10-24R2BX-D1	10 - 24	70	10	25	6,0	3	DIN 371	2BX
T620NF#10-32R2BX-D1	10 - 32	70	10	25	6,0	3	DIN 371	2BX
T620NC02500-20R3BX-D1	1/4 - 20	80	13	30	7,0	3	DIN 371	3BX
T620NF02500-28R3BX-D1	1/4 - 28	80	13	30	7,0	3	DIN 371	3BX
T620NC03125-18R3BX-D1	5/16 - 18	90	13	35	8,0	3	DIN 371	3BX
T620NF03125-24R3BX-D1	5/16 - 24	90	13	35	8,0	3	DIN 371	3BX
T620NC04375-14R3BX-D6	7/16 - 14	100	15	41	8,0	3	DIN 376	3BX
T620NF04375-20R3BX-D6	7/16 - 20	100	15	41	8,0	3	DIN 376	3BX
T620NC03750-16R3BX-D1	3/8 - 16	100	16	39	10,0	3	DIN 371	3BX
T620NF03750-24R3BX-D1	3/8 - 24	100	16	39	10,0	3	DIN 371	3BX
T620NC05000-13R3BX-D6	1/2 - 13	110	20	47	9,0	3	DIN 376	3BX
T620NF05000-20R3BX-D6	1/2 - 20	110	20	47	9,0	3	DIN 376	3BX

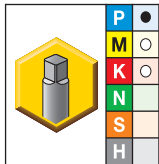
Shank Tolerance

D fractional	tolerance h6
>3-6	+0, -0,008
>6-10	+0, -0,009
<10-18	+0, -0,011

- KP6525 TiCN + TiN for steel.



■ T621 • DIN 371 and 376 • Form D Plug Chamfer • Through Coolant • Fractional • For Steel and Stainless Steel



- first choice
- alternate choice

KP6525	D1 size	metric dimensions				D	number of flutes	dimension standard	class of fit
		L	L3	L2					
T621NC02500-20R3BX-D1	1/4 - 20	80	13	30	7,0	3	DIN 371	3BX	
T621NF02500-28R3BX-D1	1/4 - 28	80	13	30	7,0	3	DIN 371	3BX	
T621NC03125-18R3BX-D1	5/16 - 18	90	13	35	8,0	3	DIN 371	3BX	
T621NF03125-24R3BX-D1	5/16 - 24	90	13	35	8,0	3	DIN 371	3BX	
T621NC03750-16R3BX-D1	3/8 - 16	100	16	39	10,0	3	DIN 371	3BX	
T621NF03750-24R3BX-D1	3/8 - 24	100	16	39	10,0	3	DIN 371	3BX	
T621NC04375-14R3BX-D6	7/16 - 14	100	15	41	8,0	3	DIN 376	3BX	
T621NF04375-20R3BX-D6	7/16 - 20	100	15	41	8,0	3	DIN 376	3BX	
T621NC05000-13R3BX-D6	1/2 - 13	110	20	47	9,0	3	DIN 376	3BX	
T621NF05000-20R3BX-D6	1/2 - 20	110	20	47	9,0	3	DIN 376	3BX	

Shank Tolerance

D fractional	tolerance h6
>3-6	+0, -0,008
>6-10	+0, -0,009
<10-18	+0, -0,011

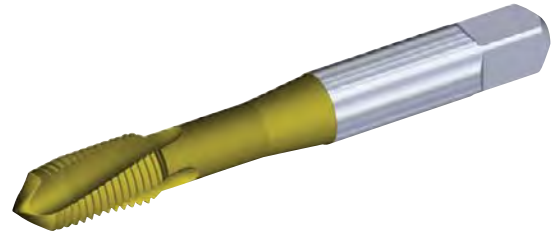
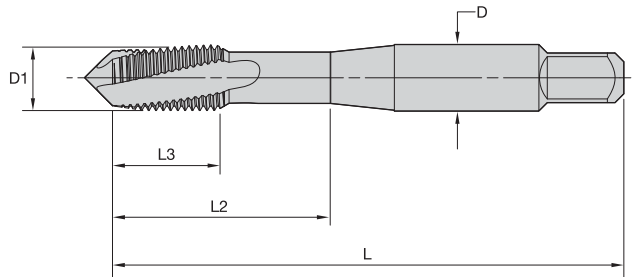


High-Performance Taps

Beyond™ Left-Hand Spiral-Flute, Right-Hand Cut HSS-E-PM Taps • Through Holes

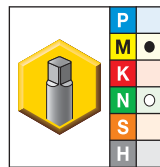
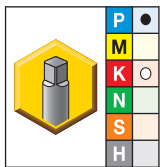


- KM6515 TiN + CrC/C for tapping stainless steel.
- KP6525 TiCN + TiN for tapping steel.



T620 • Form D Plug Chamfer • Metric ANSI • For Steel and Stainless Steel

Tapping



- first choice
- alternate choice

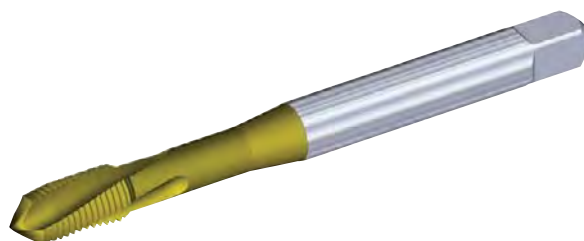
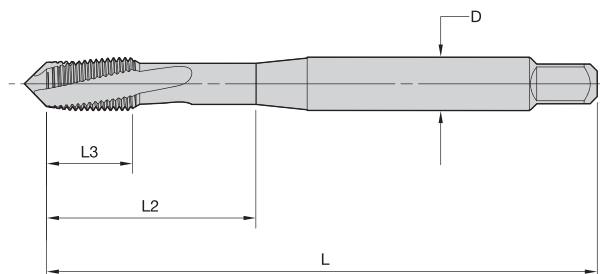
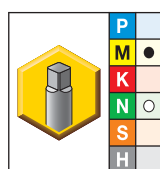
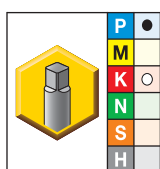
		inch dimensions					number of flutes	class of fit
KP6525	KM6515	D1 size	L	L3	L2	D		
T620M030X050R6HX-A *	T620M030X050R6HX-A	M3 X 0,5	1.94	.63	.75	.141	2	6HX
T620M040X070R6HX-A	T620M040X070R6HX-A	M4 X 0,7	2.12	.32	.76	.168	2	6HX
T620M050X080R6HX-A	T620M050X080R6HX-A	M5 X 0,8	2.37	.47	.91	.194	2	6HX
T620M060X100R6HX-A	T620M060X100R6HX-A	M6 X 1	2.50	.46	1.01	.255	3	6HX
T620M080X100R6HX-A *	T620MF080X100R6HX-A *	M8 X 1	2.72	.48	1.12	.318	3	6HX
T620M080X125R6HX-A	T620M080X125R6HX-A	M8 X 1,25	2.71	.48	1.13	.318	3	6HX
T620M100X150R6HX-A	T620M100X150R6HX-A	M10 X 1,5	2.92	.53	1.26	.381	3	6HX
T620M120X175R6HX-A	T620M120X175R6HX-A	M12 X 1,75	3.38	.77	1.74	.367	3	6HX

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Shank Tolerance

D fractional	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004

- KM6515 TiN + CrC/C for tapping stainless steel.
- KP6525 TiCN + TiN for tapping steel.


T620 • DIN 371, 374, and 376 • Form D Plug Chamfer • Metric • for Steel and Stainless Steel


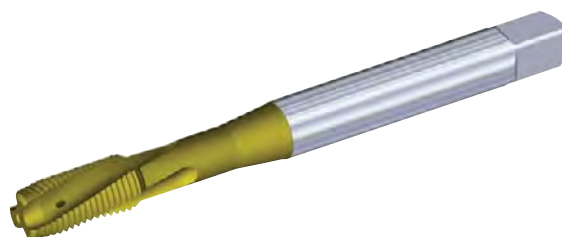
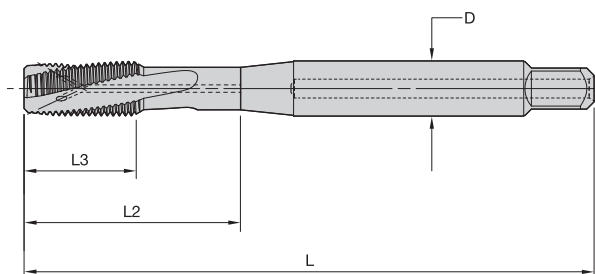
- first choice
- alternate choice

		metric dimensions					number of flutes	dimension standard	class of fit
KP6525	KM6515	D1 size	L	L3	L2	D			
T620M030X050R6HX-D1	T620M030X050R6HX-D1	M3 X 0,5	56	8	18	3,5	2	DIN 371	6HX
T620M040X070R6HX-D1	T620M040X070R6HX-D1	M4 X 0,7	63	10	21	4,5	2	DIN 371	6HX
T620M050X080R6HX-D1	T620M050X080R6HX-D1	M5 X 0,8	70	10	25	6,0	2	DIN 371	6HX
T620M060X100R6HX-D1	T620M060X100R6HX-D1	M6 X 1	80	10	30	6,0	3	DIN 371	6HX
T620MF080X100R6HX-D4	T620MF080X100R6HX-D4	M8 X 1	90	13	35	6,0	3	DIN 374	6HX
T620M080X125R6HX-D1	T620M080X125R6HX-D1	M8 X 1,25	90	13	35	8,0	3	DIN 371	6HX
T620MF100X100R6HX-D4	T620MF100X100R6HX-D4	M10 X 1	90	10	35	7,0	3	DIN 374	6HX
T620MF100X125R6HX-D4	—	M10 X 1,25	100	15	39	7,0	3	DIN 374	6HX
T620M100X150R6HX-D1	T620M100X150R6HX-D1	M10 X 1,5	100	15	39	10,0	3	DIN 371	6HX
T620MF120X150R6HX-D4	T620MF120X150R6HX-D4	M12 X 1,5	100	15	39	9,0	3	DIN 374	6HX
T620M120X175R6HX-D6	T620M120X175R6HX-D6	M12 X 1,75	110	18	44	9,0	3	DIN 376	6HX
T620MF140X150R6HX-D4	T620MF140X150R6HX-D4	M14 X 1,5	100	15	47	11,0	4	DIN 374	6HX
T620M140X200R6HX-D6	T620M140X200R6HX-D6	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
T620MF160X150R6HX-D4	T620MF160X150R6HX-D4	M16 X 1,5	100	15	46	12,0	4	DIN 374	6HX
T620M160X200R6HX-D6	T620M160X200R6HX-D6	M16 X 2	110	20	51	12,0	4	DIN 376	6HX
T620MF180X150R6HX-D4	T620MF180X150R6HX-D4	M18 X 1,5	110	15	50	14,0	4	DIN 374	6HX
T620M200X250R6HX-D6	T620M200X250R6HX-D6	M20 X 2,5	140	25	64	16,0	4	DIN 376	6HX

Shank Tolerance

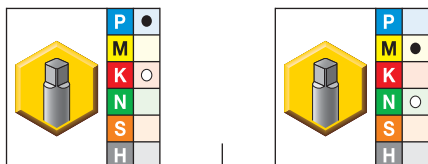
D	tolerance h6
12-18	+0, -0,011
20-30	+0, -0,013
32-36	+0, -0,016

- KM6515 TiN + CrC/C for stainless steel.
- KP6525 TiCN + TiN for steel.



Tapping

T621 • DIN 371, 374, and 376 • Form D Plug Chamfer • Through Coolant • Metric • For Steel and Stainless Steel



- first choice
- alternate choice

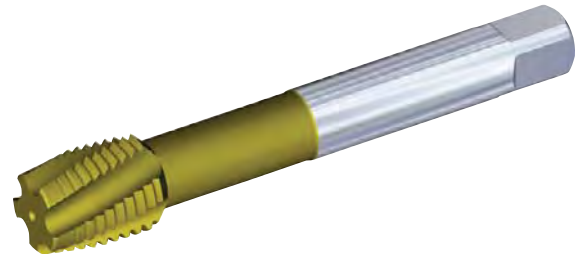
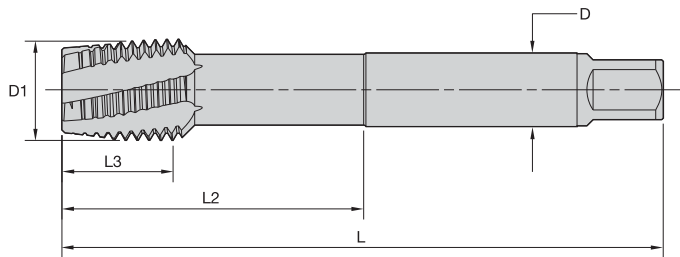
		metric dimensions					number of flutes	dimension standard	class of fit
KP6525	KM6515	D1 size	L	L3	L2	D			
T621M050X080R6HX-D1	T621M050X080R6HX-D1	M5 X 0,8	70	10	25	6,0	2	DIN 371	6HX
T621M060X100R6HX-D1	T621M060X100R6HX-D1	M6 X 1	80	10	30	6,0	3	DIN 371	6HX
T621MF080X100R6HX-D4 *	T621MF080X100R6HX-D4 *	M8 X 1	90	13	35	6,0	3	DIN 374	6HX
T621M080X125R6HX-D1	T621M080X125R6HX-D1	M8 X 1,25	90	13	35	8,0	3	DIN 371	6HX
T621MF100X100R6HX-D4	T621MF100X100R6HX-D4	M10 X 1	90	10	35	7,0	3	DIN 374	6HX
T621MF100X125R6HX-D4	T621MF100X125R6HX-D4	M10 X 1,25	100	15	39	7,0	3	DIN 374	6HX
T621M100X150R6HX-D1	T621M100X150R6HX-D1	M10 X 1,5	100	15	39	10,0	3	DIN 371	6HX
T621MF120X125R6HX-D4	—	M12 X 1,25	100	15	39	9,0	3	DIN 374	6HX
T621MF120X150R6HX-D4	T621MF120X150R6HX-D4	M12 X 1,5	100	15	39	9,0	3	DIN 374	6HX
T621M120X175R6HX-D6	T621M120X175R6HX-D6	M12 X 1,75	110	18	44	9,0	3	DIN 376	6HX
T621MF140X125R6HX-D4	—	M14 X 1,25	100	15	47	11,0	4	DIN 374	6HX
T621MF140X150R6HX-D4	T621MF140X150R6HX-D4	M14 X 1,5	100	15	47	11,0	4	DIN 374	6HX
T621M140X200R6HX-D6	T621M140X200R6HX-D6	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
T621MF160X150R6HX-D4	T621MF160X150R6HX-D4	M16 X 1,5	100	15	46	12,0	4	DIN 374	6HX
T621M160X200R6HX-D6	T621M160X200R6HX-D6	M16 X 2	110	20	51	12,0	4	DIN 376	6HX
T621MF180X150R6HX-D4	T621MF180X150R6HX-D4	M18 X 1,5	110	15	50	14,0	4	DIN 374	6HX
T621M180X250R6HX-D6	T621M180X250R6HX-D6	M18 X 2,5	125	25	58	14,0	4	DIN 376	6HX

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

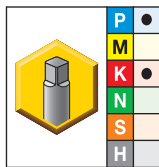
Shank Tolerance

D	tolerance h6
6	+0, -0,008
8-10	+0, -0,009
12-16	+0, -0,011

- KP6525 TiCN + TiN for tapping steel and cast iron.



■ T620 • DIN 376 • Form D Plug Chamfer • Large Sizes • Metric • For Steel and Cast Iron



- first choice
- alternate choice

KP6525	D1 size	L	metric dimensions			number of flutes	dimension standard	class of fit
			L3	L2	D			
T620M240X300R6HX-D6	M24 X 3	160	30	77	18,0	5	DIN 376	6HX
T620M300X350R6HX-D6	M30 X 3,5	180	35	91	22,0	5	DIN 376	6HX
T620M330X350R6HX-D6	M33 X 3,5	180	35	100	25,0	5	DIN 376	6HX
T620M360X400R6HX-D6	M36 X 4	200	40	110	28,0	6	DIN 376	6HX
T620M420X450R6HX-D6	M42 X 4,5	200	45	120	32,0	6	DIN 376	6HX

Shank Tolerance

D	tolerance h6
12-18	+0, -0,011
20-30	+0, -0,013
32-36	+0, -0,016

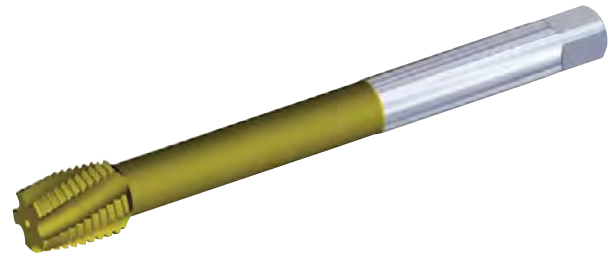
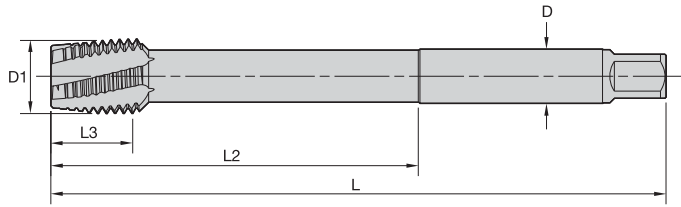


High-Performance Taps

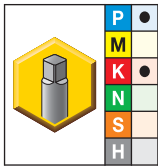
Beyond™ Left-Hand Spiral-Flute, Right-Hand Cut HSS-E-PM Taps • Through Holes



- KP6525 TiCN + TiN for tapping steel and cast iron.



■ T620 • Extra Long • Form D Plug Chamfer • Larger Sizes • Metric • For Steel and Cast Iron



- first choice
- alternate choice

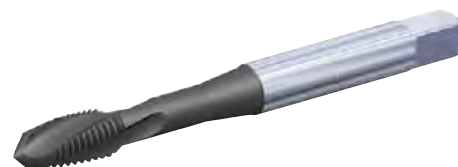
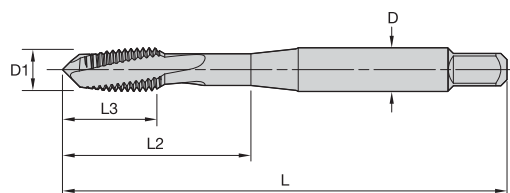
KP6525	D1 size	L	metric dimensions			D	number of flutes	class of fit
			L3	L2	D			
T620M240X300R6H-XL	M24 X 3	200	30	120	18,0	5	6HX	
T620M300X350R6H-XL	M30 X 3,5	250	35	150	22,0	5	6HX	
T620M330X350R6H-XL	M33 X 3,5	250	35	150	25,0	5	6HX	
T620M360X400R6H-XL	M36 X 4	250	40	150	28,0	6	6HX	
T620M420X450R6H-XL	M42 X 4,5	300	45	180	32,0	6	6HX	

Shank Tolerance

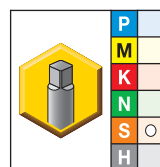
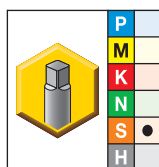
D	tolerance h6
12-18	+0, -0,011
20-30	+0, -0,013
32-36	+0, -0,016

Tapping

- KSS29 oxide/nitride for nickel- and cobalt-based alloys.
- KSP27 AlCrTiN for nickel- and cobalt-based alloys.



■ T690 • Machine Screw and Fractional • Form D Plug Chamfer • For Nickel- and Cobalt-Based Alloys



- first choice
- alternate choice

		inch dimensions					number of flutes	pitch diameter limit
KSP27	KSS29	D1 size	L	L3	L2	D		
T690NC#02-56RH2-A *	T690NC#02-56RH2-A	2 - 56	1.75	.44	.50	.141	2	H2
T690NC#04-40RH2-A	T690NC#04-40RH2-A	4 - 40	1.88	.56	.69	.141	2	H2
T690NC#04-40RH3-A	T690NC#04-40RH3-A	4 - 40	1.88	.56	.69	.141	2	H3
—	T690NC#04-40RH4-A	4 - 40	1.88	.56	.69	.141	2	H4
T690NF#04-48RH2-A	T690NF#04-48RH2-A	4 - 48	1.88	.56	.69	.141	2	H2
T690NC#05-40RH2-A	T690NC#05-40RH2-A	5 - 40	1.94	.63	.75	.141	3	H2
—	T690NF#06-40RH2-A	6 - 40	2.00	.36	.72	.141	3	H2
T690NC#06-32RH3-A	T690NC#06-32RH3-A	6 - 32	2.00	.36	.72	.141	3	H3
T690NC#06-32RH5-A	T690NC#06-32RH5-A *	6 - 32	2.00	.36	.72	.141	3	H5
T690NC#08-32RH3-A	T690NC#08-32RH3-A	8 - 32	2.13	.31	.77	.168	3	H3
T690NC#08-32RH4-A	T690NC#08-32RH4-A	8 - 32	2.13	.31	.77	.168	3	H4
—	T690NC#08-32RH5-A	8 - 32	2.13	.31	.77	.168	3	H5
—	T690NC#08-32RH6-A	8 - 32	2.13	.31	.77	.168	3	H6
T690NC#10-24RH3-A	T690NC#10-24RH3-A	10 - 24	2.38	.47	.92	.194	3	H3
—	T690NC#10-24RH5-A	10 - 24	2.38	.47	.92	.194	3	H5
T690NF#10-32RH2-A *	T690NF#10-32RH2-A	10 - 32	2.38	.47	.92	.194	3	H2
T690NF#10-32RH3-A	T690NF#10-32RH3-A	10 - 32	2.38	.47	.92	.194	3	H3
T690NF#10-32RH4-A *	T690NF#10-32RH4-A	10 - 32	2.38	.47	.92	.194	3	H4
T690NF#10-32RH5-A *	T690NF#10-32RH5-A	10 - 32	2.38	.47	.92	.194	3	H5
T690NF#10-32RH6-A *	T690NF#10-32RH6-A *	10 - 32	2.38	.47	.92	.194	3	H6
T690NC02500-20RH3-A	T690NC02500-20RH3-A	1/4 - 20	2.51	.44	1.02	.255	3	H3
T690NC02500-20RH5-A *	T690NC02500-20RH5-A	1/4 - 20	2.51	.44	1.02	.255	3	H5
T690NF02500-28RH3-A	T690NF02500-28RH3-A	1/4 - 28	2.51	.44	1.02	.255	3	H3
T690NF02500-28RH4-A	T690NF02500-28RH4-A	1/4 - 28	2.51	.44	1.02	.255	3	H4
T690NF02500-28RH5-A	T690NF02500-28RH5-A	1/4 - 28	2.49	.44	1.02	.255	3	H5
T690NF02500-28RH6-A	T690NF02500-28RH6-A	1/4 - 28	2.51	.44	1.02	.255	3	H6
—	T690NF02500-28RH7-A	1/4 - 28	2.51	.44	1.02	.255	3	H7
T690NC03125-18RH3-A	T690NC03125-18RH3-A	5/16 - 18	2.73	.49	1.15	.318	3	H3
T690NC03125-18RH5-A *	T690NC03125-18RH5-A	5/16 - 18	2.73	.49	1.15	.318	3	H5
—	T690NC03125-18RH7-A	5/16 - 18	2.73	.49	1.15	.318	3	H7
T690NF03125-24RH3-A	T690NF03125-24RH3-A	5/16 - 24	2.73	.49	1.15	.318	3	H3
—	T690NF03125-24RH4-A	5/16 - 24	2.73	.49	1.15	.318	3	H4

(continued)

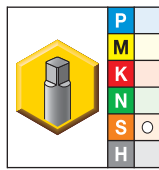
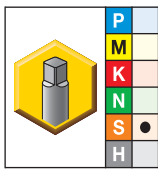


High-Performance Taps

Beyond™ Left-Hand Spiral-Flute, Right-Hand Cut HSS-E-PM Taps • Through Holes



(T690 • Machine Screw and Fractional • Form D Plug Chamfer • For Nickel- and Cobalt-Based Alloys — continued)



● first choice
○ alternate choice

		inch dimensions					number of flutes	pitch diameter limit
		D1 size	L	L3	L2	D		
KSP27	KSS29							
—	T690NF03125-24RH5-A	5/16 - 24	2.73	.49	1.15	.318	3	H5
—	T690NF03125-24RH6-A	5/16 - 24	2.73	.49	1.15	.318	3	H6
—	T690NF03125-24RH7-A *	5/16 - 24	2.73	.49	1.15	.318	3	H7
T690NC03750-16RH3-A	T690NC03750-16RH3-A	3/8 - 16	2.95	.60	1.28	.381	3	H3
T690NC03750-16RH5-A	T690NC03750-16RH5-A	3/8 - 16	2.95	.60	1.28	.381	3	H5
—	T690NC03750-16RH7-A	3/8 - 16	2.95	.60	1.28	.381	3	H7
T690NF03750-24RH3-A	T690NF03750-24RH3-A	3/8 - 24	2.95	.60	1.28	.381	3	H3
—	T690NF03750-24RH4-A	3/8 - 24	2.95	.60	1.28	.381	3	H4
—	T690NF03750-24RH5-A	3/8 - 24	2.95	.60	1.28	.381	3	H5
—	T690NF03750-24RH6-A	3/8 - 24	2.95	.60	1.28	.381	3	H6
—	T690NF03750-24RH7-A *	3/8 - 24	2.95	.60	1.28	.381	3	H7
T690NC04375-14RH3-A	T690NC04375-14RH3-A	7/16 - 14	3.16	.71	1.49	.323	3	H3
T690NF04375-20RH3-A	T690NF04375-20RH3-A	7/16 - 20	3.16	.71	1.49	.323	3	H3
T690NF04375-20RH5-A	T690NF04375-20RH5-A	7/16 - 20	3.16	.71	1.49	.323	3	H5
T690NC05000-13RH3-A	T690NC05000-13RH3-A	1/2 - 13	3.38	.77	1.74	.367	3	H3
—	T690NC05000-13RH5-A	1/2 - 13	3.38	.77	1.74	.367	3	H5
—	T690NC05000-13RH7-A	1/2 - 13	3.38	.77	1.74	.367	3	H7
T690NF05000-20RH3-A	T690NF05000-20RH3-A	1/2 - 20	3.38	.77	1.74	.367	3	H3
—	T690NF05000-20RH5-A	1/2 - 20	3.38	.77	1.74	.367	3	H5
—	T690NF05000-20RH7-A	1/2 - 20	3.38	.77	1.74	.367	3	H7
T690NC06250-11RH3-A	T690NC06250-11RH3-A	5/8 - 11	3.81	.91	1.89	.480	3	H3
T690NF06250-18RH3-A	T690NF06250-18RH3-A *	5/8 - 18	3.81	.91	1.89	.480	3	H3
—	T690NC07500-10RH3-A	3/4 - 10	4.25	1.00	2.08	.590	3	H3
—	T690NF07500-16RH3-A	3/4 - 16	4.25	1.00	2.08	.590	3	H3

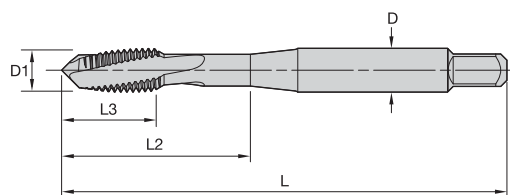
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Shank Tolerance

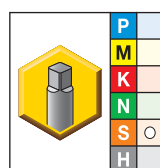
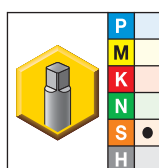
D	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004

Tapping

- KSS29 oxide/nitride for nickel- and cobalt-based alloys.
- KSP27 AlCrTiN for nickel- and cobalt-based alloys.



■ T690 • Form D Plug Chamfer • Metric ANSI • For Nickel- and Cobalt-Based Alloys



- first choice
- alternate choice

		D1 size	L	L3	L2	D	number of flutes	pitch diameter limit
KSP27	KSS29							
T690M025X045RD3-A	T690M025X045RD3-A	M2,5 X 0,45	1.81	.50	.56	.141	2	D3
T690M030X050RD3-A	T690M030X050RD3-A	M3 X 0,5	1.94	.63	.75	.141	2	D3
T690M035X060RD4-A	T690M035X060RD4-A	M3,5 X 0,6	1.99	.36	.72	.141	3	D4
T690M040X070RD4-A	T690M040X070RD4-A	M4 X 0,7	2.12	.32	.77	.168	3	D4
T690M050X080RD4-A	T690M050X080RD4-A	M5 X 0,8	2.38	.47	.92	.194	3	D4
T690M060X100RD5-A	T690M060X100RD5-A	M6 X 1	2.51	.46	1.01	.255	3	D5
T690MF080X100RD5-A *	T690MF080X100RD5-A *	M8 X 1	2.72	.48	1.14	.318	3	D5
T690M080X125RD5-A	T690M080X125RD5-A	M8 X 1,25	2.72	.48	1.14	.318	3	D5
T690M100X150RD6-A *	T690M100X150RD6-A *	M10 X 1,5	2.94	.53	1.27	.381	3	D6
T690M120X175RD6-A	T690M120X175RD6-A	M12 X 1,75	3.38	.77	1.74	.367	3	D6

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Shank Tolerance

D	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004

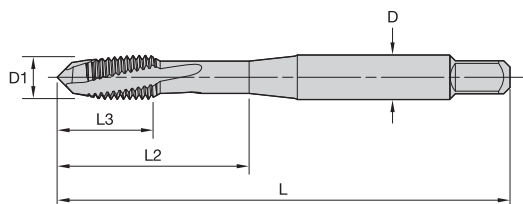


High-Performance Taps

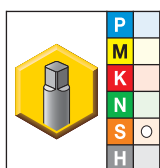
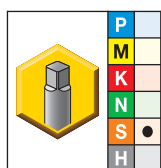
Beyond™ Left-Hand Spiral-Flute, Right-Hand Cut HSS-E-PM Taps • Through Holes



- KSS20 nitride for titanium and titanium alloys.
- KSSM24 TiN + CrC/C for titanium and titanium alloys.



T660 • Machine Screw and Fractional • Form D Plug Chamfer • For Titanium and Titanium Alloys



- first choice
- alternate choice

Tapping

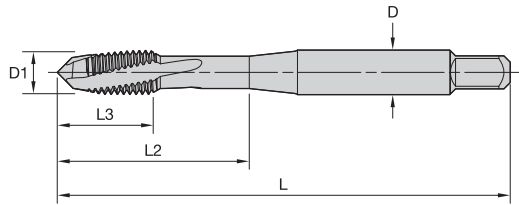
	KSSM24	KSS20	D1 size	L	L3	L2	D	number of flutes	pitch diameter limit
	T660NC#02-56RH2-A	T660NC#02-56RH2-A	2 - 56	1.75	.44	.50	.141	2	H2
	T660NC#04-40RH2-A	T660NC#04-40RH2-A	4 - 40	1.88	.56	.69	.141	2	H2
	T660NC#06-32RH2-A	T660NC#06-32RH2-A	6 - 32	1.99	.36	.71	.141	3	H2
	T660NC#06-32RH3-A	T660NC#06-32RH3-A	6 - 32	1.99	.36	.71	.141	3	H3
	T660NF#06-40RH2-A	T660NF#06-40RH2-A	6 - 40	1.99	.36	.71	.141	3	H2
	T660NC#08-32RH2-A	T660NC#08-32RH2-A	8 - 32	2.12	.31	.76	.168	3	H2
	T660NC#08-32RH3-A	T660NC#08-32RH3-A	8 - 32	2.12	.31	.76	.168	3	H3
	T660NF#08-36RH2-A	T660NF#08-36RH2-A	8 - 36	2.12	.31	.76	.168	3	H2
	T660NC#10-24RH3-A *	T660NC#10-24RH3-A	10 - 24	2.37	.47	.91	.194	3	H3
	T660NF#10-32RH2-A	T660NF#10-32RH2-A	10 - 32	2.37	.47	.91	.194	3	H2
	T660NF#10-32RH3-A *	T660NF#10-32RH3-A	10 - 32	2.37	.47	.91	.194	3	H3
	T660NC02500-20RH3-A	T660NC02500-20RH3-A	1/4 - 20	2.50	.44	1.00	.255	3	H3
	T660NC02500-20RH5-A	T660NC02500-20RH5-A *	1/4 - 20	2.50	.44	1.00	.255	3	H5
	T660NF02500-28RH3-A *	T660NF02500-28RH3-A	1/4 - 28	2.50	.44	1.00	.255	3	H3
	T660NF02500-28RH4-A	T660NF02500-28RH4-A	1/4 - 28	2.50	.44	1.00	.255	3	H4
	T660NC03125-18RH3-A	T660NC03125-18RH3-A	5/16 - 18	2.72	.49	1.13	.318	3	H3
	T660NC03125-18RH5-A	T660NC03125-18RH5-A	5/16 - 18	2.72	.49	1.13	.318	3	H5
	T660NF03125-24RH3-A	T660NF03125-24RH3-A *	5/16 - 24	2.72	.49	1.13	.318	3	H3
	T660NF03125-24RH4-A	T660NF03125-24RH4-A	5/16 - 24	2.72	.49	1.13	.318	3	H4
	T660NC03750-16RH3-A	T660NC03750-16RH3-A	3/8 - 16	2.93	.59	1.26	.381	3	H3
	T660NC03750-16RH5-A *	T660NC03750-16RH5-A	3/8 - 16	2.93	.59	1.26	.381	3	H5
	T660NF03750-24RH3-A	T660NF03750-24RH3-A	3/8 - 24	2.93	.59	1.26	.381	3	H3
	T660NF03750-24RH4-A	T660NF03750-24RH4-A	3/8 - 24	2.93	.59	1.26	.381	3	H4
	T660NC04375-14RH3-A	T660NC04375-14RH3-A *	7/16 - 14	3.16	.71	1.49	.323	3	H3
	T660NF04375-20RH3-A	T660NF04375-20RH3-A	7/16 - 20	3.16	.71	1.49	.323	3	H3
	T660NC05000-13RH3-A	T660NC05000-13RH3-A	1/2 - 13	3.38	.77	1.74	.367	3	H3
	T660NF05000-20RH3-A	T660NF05000-20RH3-A	1/2 - 20	3.38	.77	1.74	.367	3	H3
	T660NF05625-18RH3-A	—	9/16 - 18	3.59	.83	1.74	.429	4	H3
	T660NF05625-18RH5-A	—	9/16 - 18	3.59	.83	1.74	.429	4	H5
	T660NC06250-11RH3-A	—	5/8 - 11	3.81	.91	1.89	.480	4	H3
	T660NF06250-18RH3-A *	—	5/8 - 18	3.81	.91	1.89	.480	4	H3
	T660NF06250-18RH5-A	—	5/8 - 18	3.81	.91	1.89	.480	4	H5
	T660NC07500-10RH5-A	—	3/4 - 10	4.25	1.00	2.08	.590	4	H5
	T660NF07500-16RH3-A	—	3/4 - 16	4.25	1.00	2.08	.590	4	H3
	T660NF07500-16RH5-A	—	3/4 - 16	4.25	1.00	2.08	.590	4	H5
	T660NC10000-08RH5-A *	—	1 - 8	5.13	1.25	2.58	.800	5	H5

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

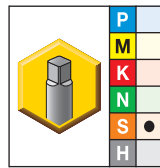
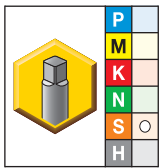
Shank Tolerance

D	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004

- KSS20 nitride for titanium and titanium alloys.
- KSSM24 TiN + CrC/C for titanium and titanium alloys.



■ T660 • Form D Plug Chamfer • Metric ANSI • For Titanium and Titanium Alloys



- first choice
- alternate choice

KSSM24	KSS20	D1 size	L	L3	L2	D	number of flutes	pitch diameter limit
T660M025X045RD3-A *	T660M025X045RD3-A *	M2,5 X 0,45	1.81	.49	.56	.141	3	D3
T660M030X050RD3-A *	T660M030X050RD3-A	M3 X 0,5	1.94	.63	.75	.141	3	D3
T660M040X070RD4-A *	T660M040X070RD4-A *	M4 X 0,7	2.12	.32	.76	.168	3	D4
T660M050X080RD4-A	T660M050X080RD4-A *	M5 X 0,8	2.37	.47	.91	.194	3	D4
T660M060X100RD5-A	T660M060X100RD5-A *	M6 X 1	2.50	.16	1.00	.255	3	D5
T660M070X100RD5-A	T660M070X100RD5-A	M7 X 1	2.73	.52	1.15	.318	3	D5
T660M080X125RD5-A	T660M080X125RD5-A	M8 X 1,25	2.71	.48	1.12	.318	3	D5
T660MF100X125RD5-A *	T660MF100X125RD5-A	M10 X 1,25	2.92	.53	1.26	.381	3	D5
T660M100X150RD6-A	T660M100X150RD6-A *	M10 X 1,5	2.92	.53	1.26	.381	3	D6
T660M120X175RD6-A	T660M120X175RD6-A	M12 X 1,75	3.38	.77	1.74	.367	3	D6

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Shank Tolerance

D	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004

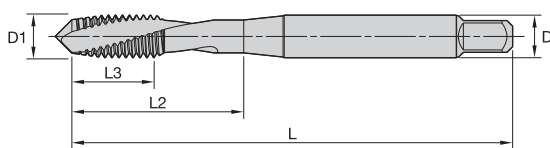


High-Performance Taps

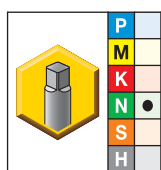
Beyond™ Left-Hand Spiral-Flute, Right-Hand Cut HSS-E Taps • Through Holes



- KSMN34 TiN + CrC/C for aluminum.



■ T672 • Machine Screw and Fractional • Form D Plug Chamfer • DIN Length ANSI Shank • For Aluminum



- first choice
- alternate choice

Tapping

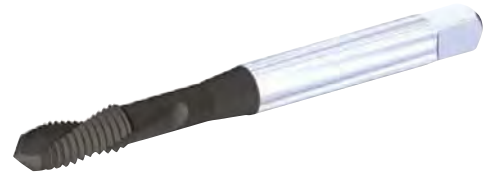
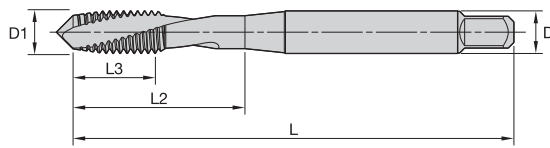
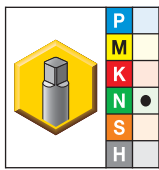
KSMN34	D1 size	L	L3	L2	D	number of flutes	class of fit
T672NC#02-56R2B-DA	2 - 56	1.77	.31	.71	.141	2	2B
T672NC#04-40R3B-DA	4 - 40	2.20	.31	.71	.141	2	3B
T672NC#05-40R3B-DA	5 - 40	2.20	.31	.71	.141	2	3B
T672NC#06-32R2B-DA	6 - 32	2.20	.35	.79	.141	2	2B
T672NC#08-32R2B-DA	8 - 32	2.48	.43	.83	.168	2	2B
T672NC#10-24R2B-DA	10 - 24	2.76	.47	.98	.194	2	2B
T672NF#10-32R2B-DA	10 - 32	2.76	.47	.98	.194	2	2B
T672NC02500-20R2B-DA	1/4 - 20	3.15	.59	1.18	.255	2	2B
T672NC02500-20R3B-DA	1/4 - 20	3.15	.59	1.18	.255	2	3B
T672NF02500-28R2B-DA	1/4 - 28	3.15	.59	1.18	.255	2	2B
T672NF02500-28R3B-DA	1/4 - 28	3.15	.59	1.18	.255	2	3B
T672NC03125-18R2B-DA *	5/16 - 18	3.54	.59	1.38	.318	2	2B
T672NC03125-18R3B-DA	5/16 - 18	3.54	.59	1.38	.318	2	3B
T672NF03125-24R2B-DA *	5/16 - 24	3.54	.59	1.38	.318	2	2B
T672NF03125-24R3B-DA	5/16 - 24	3.54	.59	1.38	.318	2	3B
T672NC03750-16R2B-DA *	3/8 - 16	3.94	.75	1.54	.381	2	2B
T672NC03750-16R3B-DA *	3/8 - 16	3.94	.75	1.54	.381	2	3B
T672NF03750-24R2B-DA	3/8 - 24	3.94	.75	1.54	.381	2	2B
T672NF03750-24R3B-DA	3/8 - 24	3.94	.75	1.54	.381	2	3B
T672NC04375-14R2B-DA	7/16 - 14	3.94	.71	1.61	.323	3	2B
T672NC04375-14R3B-DA	7/16 - 14	3.94	.71	1.61	.323	3	3B
T672NF04375-20R2B-DA	7/16 - 20	3.94	.71	1.61	.323	3	2B
T672NF04375-20R3B-DA	7/16 - 20	3.94	.71	1.61	.323	3	3B
T672NC05000-13R2B-DA	1/2 - 13	4.33	.91	1.85	.367	3	2B
T672NC05000-13R3B-DA	1/2 - 13	4.33	.91	1.85	.367	3	3B
T672NF05000-20R2B-DA	1/2 - 20	4.33	.91	1.85	.367	3	2B
T672NF05000-20R3B-DA	1/2 - 20	4.33	.91	1.85	.367	3	3B

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Shank Tolerance

D inch	tolerance h9
.141-.635	+0, -.0015
<.635-1.51	+0, -.0020
>1.51-2.01	+0, -.0030

- KSMN34 TiN + CrC/C for aluminum.


■ T672 • Form D Plug Chamfer • Metric • DIN Length ANSI Shank • For Aluminum


- first choice
- alternate choice

KSMN34	D1 size	L	L3	L2	D	number of flutes	class of fit
T672M030X050R6H-DA	M3 X 0,5	2.20	.31	.71	.141	2	6H
T672M035X060R6H-DA	M3,5 X 0,6	2.20	.35	.79	.141	2	6H
T672M040X070R6H-DA	M4 X 0,7	2.48	.43	.83	.168	2	6H
T672M050X080R6H-DA	M5 X 0,8	2.76	.47	.98	.194	2	6H
T672M060X100R6H-DA	M6 X 1	3.15	.47	1.18	.255	2	6H
T672M070X100R6H-DA	M7 X 1	3.54	.59	1.38	.318	2	6H
T672MF080X100R6H-DA *	M8 X 1	3.54	.59	1.38	.318	2	6H
T672M080X125R6H-DA	M8 X 1,25	3.54	.59	1.38	.318	2	6H
T672MF100X125R6H-DA	M10 X 1,25	3.94	.71	1.54	.381	2	6H
T672M100X150R6H-DA	M10 X 1,5	3.94	.71	1.54	.381	2	6H
T672MF120X125R6H-DA	M12 X 1,25	4.33	.83	1.73	.367	3	6H
T672MF120X150R6H-DA	M12 X 1,5	4.33	.83	1.73	.367	3	6H
T672M120X175R6H-DA	M12 X 1,75	4.33	.83	1.73	.367	3	6H

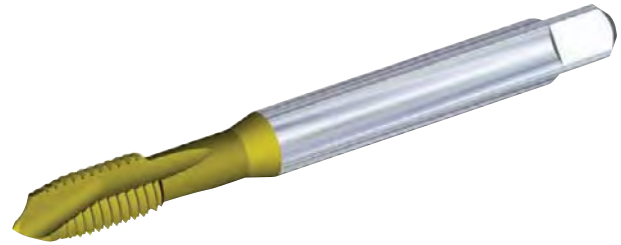
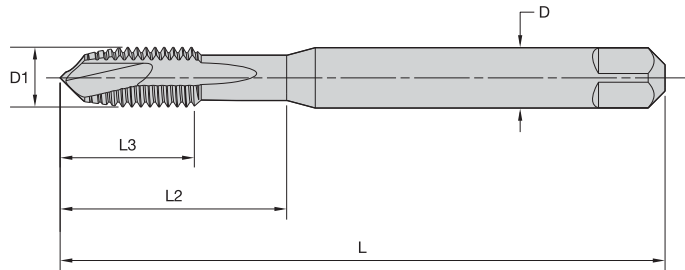
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Shank Tolerance

D inch	tolerance h9
.141-.635	+0, -.0015
<.635-1.51	+0, -.0020
>1.51-2.01	+0, -.0030

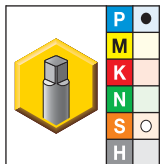


- KSP21 TiN for tapping steel 32–44 HRC.



■ T600 • DIN 371, 374, and 376 • Form B Plug Chamfer • Metric • For Hard Steel

Tapping



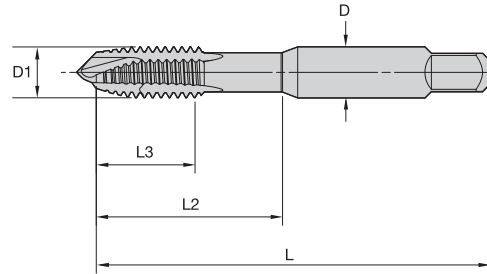
- first choice
- alternate choice

KSP21	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
T600M030X050R6HX-D1	M3 X 0,5	56	11	18	3,5	2	DIN 371	6HX
T600M040X070R6HX-D1	M4 X 0,7	63	13	21	4,5	2	DIN 371	6HX
T600M050X080R6HX-D1	M5 X 0,8	70	15	25	6,0	2	DIN 371	6HX
T600M060X100R6HX-D1	M6 X 1	80	17	30	6,0	3	DIN 371	6HX
T600MF080X100R6HX-D4	M8 X 1	90	17	—	6,0	3	DIN 374	6HX
T600M080X125R6HX-D1	M8 X 1,25	90	20	35	8,0	3	DIN 371	6HX
T600MF100X100R6HX-D4	M10 X 1	90	18	—	7,0	3	DIN 374	6HX
T600MF100X125R6HX-D4	M10 X 1,25	100	22	—	7,0	3	DIN 374	6HX
T600M100X150R6HX-D1	M10 X 1,5	100	22	39	10,0	3	DIN 371	6HX
T600MF120X125R6HX-D4	M12 X 1,25	100	22	—	9,0	3	DIN 374	6HX
T600MF120X150R6HX-D4	M12 X 1,5	100	22	—	9,0	3	DIN 374	6HX
T600M120X175R6HX-D6	M12 X 1,75	110	24	—	9,0	3	DIN 376	6HX
T600MF140X150R6HX-D4	M14 X 1,5	100	22	—	11,0	3	DIN 374	6HX
T600M140X200R6HX-D6	M14 X 2	110	26	—	11,0	3	DIN 376	6HX
T600MF160X150R6HX-D4	M16 X 1,5	100	22	—	12,0	4	DIN 374	6HX
T600M160X200R6HX-D6	M16 X 2	110	27	—	12,0	4	DIN 376	6HX
T600M180X250R6HX-D6	M18 X 2	125	30	—	14,0	4	DIN 376	6HX
T600M200X250R6HX-D6	M20 X 2,5	140	32	—	16,0	4	DIN 376	6HX

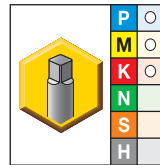
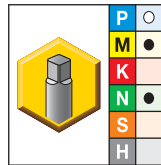
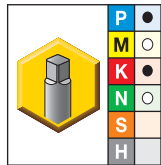
Shank Tolerance

D	tolerance h9
1–3	+0, -0,025
3,5–6	+0, -0,030
7–10	+0, -0,036
11–18	+0, -0,043

- KSP32 TiCN/TiN
- KSMN34 TiN + CrC/C
- KSP39 oxide
- KSU30 bright**



■ T820 • Form B Plug Chamfer • Machine Screw and Fractional • ANSI



- first choice
- alternate choice

	KSP32	KSMN34	KSP39	inch dimensions					number of flutes	pitch diameter limit
				D1	TPI	L	L3	L2		
	—	—	T820NC#02-56RH2-A	2 - 56	1.75	.39	.50	.141	2	H2
	—	—	T820NC#02-56RH3-A	2 - 56	1.75	.39	.50	.141	2	H3
	—	—	T820NC#02-56RH4-A	2 - 56	1.75	.39	.50	.141	2	H4
	—	—	T820NC#03-48RH2-A	3 - 48	1.82	.45	.57	.141	2	H2
T820NC#04-40RH2-A	T820NC#04-40RH2-A	T820NC#04-40RH2-A	T820NC#04-40RH3-A	4 - 40	1.88	.51	.69	.141	2	H2
—	—	—	T820NC#04-40RH3-A	4 - 40	1.88	.51	.69	.141	2	H3
—	—	—	T820NC#04-40RH4-A	4 - 40	1.88	.51	.69	.141	2	H4
T820NC#04-40RH5-A	—	—	T820NC#04-40RH5-A	4 - 40	1.88	.51	.69	.141	2	H5
—	—	—	T820NC#04-40RH6-A	4 - 40	1.88	.51	.69	.141	2	H6
—	—	—	T820NF#04-48RH2-A	4 - 48	1.88	.51	.69	.141	2	H2
—	—	—	T820NF#04-48RH4-A	4 - 48	1.88	.51	.69	.141	2	H4
—	—	—	T820NC#05-40RH2-A	5 - 40	1.94	.58	.75	.141	2	H2
—	—	—	T820NC#06-32RH2-A	6 - 32	1.99	.38	.71	.141	2	H2
T820NC#06-32RH3-A	T820NC#06-32RH3-A	T820NC#06-32RH3-A	T820NC#06-32RH3-A	6 - 32	1.99	.38	.71	.141	2	H3
—	—	—	T820NC#06-32RH4-A	6 - 32	1.99	.38	.71	.141	2	H4
—	—	—	T820NC#06-32RH5-A	6 - 32	1.99	.38	.71	.141	2	H5
—	—	—	T820NC#06-32RH6-A	6 - 32	1.99	.38	.71	.141	2	H6
—	—	—	T820NC#06-32RH7-A *	6 - 32	1.99	.38	.71	.141	2	H7
—	—	—	T820NF#06-40RH2-A	6 - 40	1.99	.38	.71	.141	2	H2
—	—	—	T820NF#06-40RH3-A	6 - 40	1.99	.38	.76	.141	2	H3
—	—	—	T820NF#08-36RH2-A	8 - 36	2.11	.38	.76	.168	2	H2
—	—	—	T820NC#08-32RH2-A	8 - 32	2.12	.38	.76	.168	2	H2
T820NC#08-32RH3-A	T820NC#08-32RH3-A	T820NC#08-32RH3-A	T820NC#08-32RH3-A	8 - 32	2.12	.38	.76	.168	2	H3
T820NC#08-32RH4-A	—	—	—	8 - 32	2.12	.38	.76	.168	2	H4
—	—	—	T820NC#08-32RH5-A	8 - 32	2.12	.38	.76	.168	2	H5
—	—	—	T820NC#08-32RH6-A	8 - 32	2.12	.38	.76	.168	2	H6
—	—	—	T820NC#08-32RH7-A	8 - 32	2.12	.38	.76	.168	2	H7
T820NF#10-32RH3-A	T820NF#10-32RH3-A	T820NF#10-32RH3-A	T820NF#10-32RH3-A	10 - 32	2.36	.50	.91	.194	2	H3
—	—	—	T820NF#10-32RH4-A	10 - 32	2.36	.50	.91	.194	2	H4
—	—	—	T820NF#10-32RH5-A	10 - 32	2.36	.50	.91	.194	2	H5
—	—	—	T820NF#10-32RH6-A	10 - 32	2.36	.50	.91	.194	2	H6
—	—	—	T820NF#10-32RH7-A	10 - 32	2.36	.50	.91	.194	2	H7

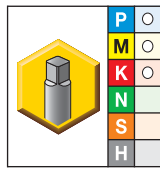
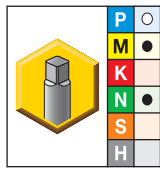
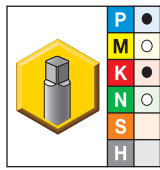
(continued)

Multipurpose Taps

G0tap™ T820 Spiral-Point HSS-E Taps • Through Holes



(T820 • Form B Plug Chamfer • Machine Screw and Fractional • ANSI — continued)



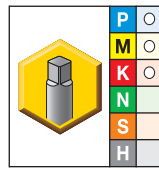
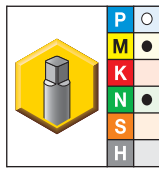
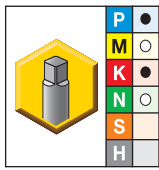
● first choice
○ alternate choice

	KSP32	KSMN34	KSP39	inch dimensions				number of flutes	pitch diameter limit	
				D1 TPI	L	L3	L2			D
	T820NC#10-24RH3-A	T820NC#10-24RH3-A	T820NC#10-24RH3-A	10 - 24	2.37	.50	.91	.194	2	H3
	—	—	T820NC#10-24RH5-A	10 - 24	2.37	.50	.91	.194	2	H5
	—	—	T820NC#10-24RH7-A	10 - 24	2.37	.50	.91	.194	2	H7
	—	—	T820NF#12-28RH3-A	12 - 28	2.37	.50	.96	.220	2	H3
	—	—	T820NC02500-20RH2-A	1/4 - 20	2.50	.63	1.00	.255	3	H2
T820NC02500-20RH3-A	T820NC02500-20RH3-A	T820NC02500-20RH3-A	T820NC02500-20RH3-A	1/4 - 20	2.50	.63	1.00	.255	3	H3
—	—	—	T820NC02500-20RH5-A	1/4 - 20	2.50	.63	1.00	.255	3	H5
—	—	—	T820NC02500-20RH7-A	1/4 - 20	2.50	.63	1.00	.255	3	H7
—	—	—	T820NF02500-28RH2-A	1/4 - 28	2.50	.63	1.00	.255	3	H2
T820NF02500-28RH3-A	T820NF02500-28RH3-A	T820NF02500-28RH3-A	T820NF02500-28RH3-A	1/4 - 28	2.50	.63	1.00	.255	3	H3
—	—	—	T820NF02500-28RH4-A	1/4 - 28	2.50	.63	1.00	.255	3	H4
—	—	—	T820NF02500-28RH5-A	1/4 - 28	2.50	.63	1.01	.255	3	H5
—	—	—	T820NF02500-28RH6-A	1/4 - 28	2.50	.63	1.01	.255	3	H6
—	—	—	T820NF02500-28RH7-A	1/4 - 28	2.50	.63	1.01	.255	3	H7
T820NC03125-18RH3-A	T820NC03125-18RH3-A	T820NC03125-18RH3-A	T820NC03125-18RH3-A	5/16 - 18	2.72	.69	1.14	.318	3	H3
—	—	—	T820NC03125-18RH5-A	5/16 - 18	2.72	.69	1.14	.318	3	H5
—	—	—	T820NC03125-18RH7-A	5/16 - 18	2.72	.69	1.14	.318	3	H7
T820NF03125-24RH3-A	T820NF03125-24RH3-A	T820NF03125-24RH3-A	T820NF03125-24RH3-A	5/16 - 24	2.72	.69	1.14	.318	3	H3
—	—	—	T820NF03125-24RH4-A	5/16 - 24	2.72	.69	1.14	.318	3	H4
—	—	—	T820NF03125-24RH5-A	5/16 - 24	2.72	.69	1.14	.318	3	H5
—	—	—	T820NF03125-24RH6-A	5/16 - 24	2.72	.69	1.14	.318	3	H6
—	—	—	T820NF03125-24RH7-A	5/16 - 24	2.72	.69	1.14	.318	3	H7
T820NC03750-16RH3-A	T820NC03750-16RH3-A	T820NC03750-16RH3-A	T820NC03750-16RH3-A	3/8 - 16	2.94	.75	1.27	.381	3	H3
—	—	—	T820NC03750-16RH5-A	3/8 - 16	2.94	.75	1.27	.381	3	H5
—	—	—	T820NC03750-16RH7-A	3/8 - 16	2.94	.75	1.27	.381	3	H7
T820NF03750-24RH3-A	T820NF03750-24RH3-A	T820NF03750-24RH3-A	T820NF03750-24RH3-A	3/8 - 24	2.94	.75	1.27	.381	3	H3
—	—	—	T820NF03750-24RH4-A	3/8 - 24	2.94	.75	1.27	.381	3	H4
—	—	—	T820NF03750-24RH5-A	3/8 - 24	2.94	.75	1.27	.381	3	H5
—	—	—	T820NF03750-24RH6-A	3/8 - 24	2.94	.75	1.27	.381	3	H6
—	—	—	T820NF03750-24RH7-A	3/8 - 24	2.94	.75	1.27	.381	3	H7
—	T820NC04375-14RH3-A	T820NC04375-14RH3-A	T820NC04375-14RH3-A	7/16 - 14	3.16	.88	1.49	.323	3	H3
—	—	—	T820NC04375-14RH5-A	7/16 - 14	3.16	.88	1.49	.323	3	H5
—	T820NF04375-20RH3-A	T820NF04375-20RH3-A	T820NF04375-20RH3-A	7/16 - 20	3.16	.88	1.49	.323	3	H3
—	—	—	T820NF04375-20RH5-A	7/16 - 20	3.16	.88	1.49	.323	3	H5
—	—	—	T820NF04375-20RH6-A	7/16 - 20	3.16	.88	1.49	.323	3	H6
—	—	—	T820NF04375-20RH7-A	7/16 - 20	3.16	.88	1.49	.323	3	H7
T820NC05000-13RH3-A	T820NC05000-13RH3-A	T820NC05000-13RH3-A	T820NC05000-13RH3-A	1/2 - 13	3.38	.94	1.74	.367	3	H3
—	—	—	T820NC05000-13RH5-A	1/2 - 13	3.38	.94	1.74	.367	3	H5
—	—	—	T820NC05000-13RH7-A	1/2 - 13	3.38	.94	1.74	.367	3	H7
T820NF05000-20RH3-A	T820NF05000-20RH3-A	T820NF05000-20RH3-A	T820NF05000-20RH3-A	1/2 - 20	3.38	.94	1.74	.367	3	H3
—	—	—	T820NF05000-20RH5-A	1/2 - 20	3.38	.94	1.74	.367	3	H5
—	—	—	T820NF05000-20RH6-A	1/2 - 20	3.38	.94	1.74	.367	3	H6
—	—	—	T820NF05000-20RH7-A	1/2 - 20	3.38	.94	1.74	.367	3	H7
T820NC05625-12RH3-A	—	—	T820NC05625-12RH3-A	9/16 - 12	3.59	1.00	1.74	.429	3	H3
—	T820NF05625-18RH3-A	T820NF05625-18RH3-A	T820NF05625-18RH3-A	9/16 - 18	3.59	1.00	1.74	.429	3	H3
T820NC06250-11RH3-A	T820NC06250-11RH3-A	T820NC06250-11RH3-A	T820NC06250-11RH3-A	5/8 - 11	3.81	1.09	1.89	.480	3	H3
—	—	—	T820NC06250-11RH5-A	5/8 - 11	3.81	1.09	1.89	.480	3	H5
—	—	—	T820NC06250-11RH7-A	5/8 - 11	3.81	1.09	1.89	.480	3	H7
T820NF06250-18RH3-A	—	—	T820NF06250-18RH3-A	5/8 - 18	3.81	1.09	1.89	.480	3	H3
T820NF06250-18RH5-A *	—	—	T820NF06250-18RH5-A	5/8 - 18	3.81	1.09	1.89	.480	3	H5
—	—	—	T820NF06250-18RH6-A	5/8 - 18	3.81	1.09	1.89	.480	3	H6
T820NC07500-10RH3-A	T820NC07500-10RH3-A	T820NC07500-10RH3-A	T820NC07500-10RH3-A	3/4 - 10	4.25	1.22	2.08	.590	3	H3

(continued)

Tapping

(T820 • Form B Plug Chamfer • Machine Screw and Fractional • ANSI — continued)


 ● first choice
 ○ alternate choice

			inch dimensions					number of flutes	pitch diameter limit
KSP32	KSMN34	KSP39	D1 TPI	L	L3	L2	D		
T820NF07500-16RH3-A	T820NF07500-16RH3-A	T820NF07500-16RH3-A	3/4 - 16	4.25	1.22	2.08	.590	3	H3
T820NC08750-9RH4-A	T820NC08750-9RH4-A	—	7/8 - 9	4.69	1.34	2.30	.697	3	H4
—	—	T820NF08750-14RH4-A	7/8 - 14	4.69	1.34	2.30	.697	3	H4
T820NC10000-8RH5-A	T820NC10000-8RH5-A	T820NC10000-8RH5-A	1 - 8	5.13	1.50	2.58	.800	3	H5
—	—	T820NF10000-12RH4-A	1 - 12	5.13	1.50	2.58	.800	3	H4
—	—	T820NC11250-7RH6-A	1 1/8 - 7	5.44	1.71	2.56	.895	4	H6
—	—	T820NF11250-12RH5-A	1 1/8 - 12	5.44	1.71	2.56	.895	4	H5
—	—	T820NC12500-7RH6-A	1 1/4 - 7	5.75	1.71	2.56	1.021	4	H6

 NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.
 **Bright taps (KSU30) available.

Shank Tolerance

D inch	tolerance
.141-.635	+0, -.0015
>.635-1.51	+0, -.0020
>1.51-2.01	+0, -.0030

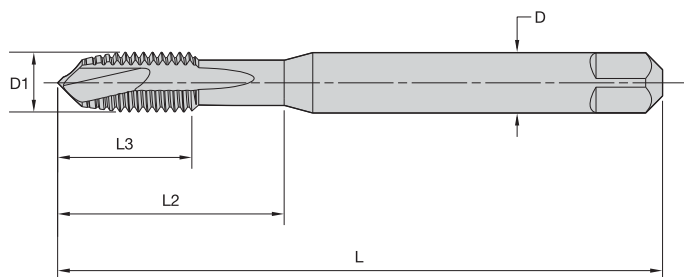


Multipurpose Taps

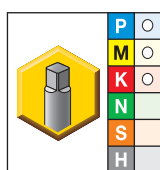
GOtap™ T820 Spiral-Point HSS-E Taps • Through Holes



• KSP39 oxide



■ T820 • DIN 371 and 376 • Form B Plug Chamfer • UNC/UNF



● first choice

○ alternate choice

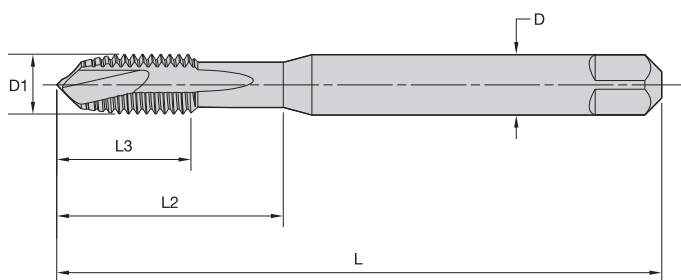
Tapping

KSP39	metric dimensions					number of flutes	dimension standard	class of fit
	D1 size	L	L3	L2	D			
T820NC#04-40R2B-D1	4 - 40	56	8	18	3,5	2	DIN 371	2B
T820NC#05-40R2B-D1	5 - 40	56	9	20	4,0	2	DIN 371	2B
T820NC#06-32R2B-D1	6 - 32	56	9	20	4,0	2	DIN 371	2B
T820NF#06-40R2B-D1	6 - 40	56	9	20	4,0	2	DIN 371	2B
T820NC#08-32R2B-D1	8 - 32	63	11	21	4,5	2	DIN 371	2B
T820NC#10-24R2B-D1	10 - 24	70	12	25	6,0	2	DIN 371	2B
T820NF#10-32R2B-D1	10 - 32	70	12	25	6,0	2	DIN 371	2B
T820NC02500-20R2B-D1	1/4 - 20	80	15	30	7,0	3	DIN 371	2B
T820NF02500-28R2B-D1	1/4 - 28	80	15	30	7,0	3	DIN 371	2B
T820NC03125-18R2B-D1	5/16 - 18	90	15	35	8,0	3	DIN 371	2B
T820NF03125-24R2B-D1	5/16 - 24	90	15	35	8,0	3	DIN 371	2B
T820NC03750-16R2B-D1	3/8 - 16	100	19	39	10,0	3	DIN 371	2B
T820NF03750-24R2B-D1	3/8 - 24	100	19	39	10,0	3	DIN 371	2B
T820NC04375-14R2B-D6	7/16 - 14	100	18	41	8,0	3	DIN 376	2B
T820NF04375-20R2B-D6	7/16 - 20	100	18	41	8,0	3	DIN 376	2B
T820NC05000-13R2B-D6	1/2 - 13	110	23	47	9,0	3	DIN 376	2B
T820NF05000-20R2B-D6	1/2 - 20	110	23	47	9,0	3	DIN 376	2B
T820NC05625-12R2B-D6	9/16 - 12	110	25	53	11,0	3	DIN 376	2B
T820NF05625-18R2B-D6	9/16 - 18	110	25	53	11,0	3	DIN 376	2B
T820NC06250-11R2B-D6	5/8 - 11	110	24	51	12,0	3	DIN 376	2B
T820NF06250-18R2B-D6	5/8 - 18	110	24	51	12,0	3	DIN 376	2B
T820NC07500-10R2B-D6	3/4 - 10	140	30	64	16,0	3	DIN 376	2B
T820NF07500-16R2B-D6	3/4 - 16	140	30	64	16,0	3	DIN 376	2B
T820NC08750-9R2B-D6	7/8 - 9	140	34	71	18,0	3	DIN 376	2B
T820NF08750-14R2B-D6	7/8 - 14	140	34	71	18,0	3	DIN 376	2B
T820NC10000-8R2B-D6	1 - 8	160	38	81	18,0	3	DIN 376	2B
T820NF10000-12R2B-D6	1 - 12	160	38	81	18,0	3	DIN 376	2B

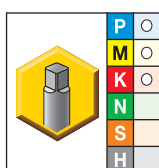
Shank Tolerance

D mm	tolerance h9
1-3	+0, -0,025
>3-6	+0, -0,030
>6-10	+0, -0,036
>10-18	+0, -0,043
>18-30	+0, -0,052

• KSP39 oxide



■ T820 • DIN 371 and 376 • Form B Plug Chamfer • UNJC/UNJF



● first choice
○ alternate choice

KSP39	D1 size	metric dimensions				number of flutes	dimension standard	class of fit
		L	L3	L2	D			
T820NC#04-40R3B-D1	4 - 40	56	8	18	3,5	2	DIN 371	3B
T820NC#06-32R3B-D1	6 - 32	56	9	20	4,0	2	DIN 371	3B
T820NC#08-32R3B-D1	8 - 32	63	11	21	4,5	2	DIN 371	3B
T820NF#10-32R3B-D1	10 - 32	70	12	25	6,0	2	DIN 371	3B
T820NF02500-28R3B-D1	1/4 - 28	80	15	30	7,0	3	DIN 371	3B
T820NF03125-24R3B-D1	5/16 - 24	90	15	35	8,0	3	DIN 371	3B
T820NF03750-24R3B-D1	3/8 - 24	100	19	39	10,0	3	DIN 371	3B
T820NF04375-20R3B-D6	7/16 - 20	100	18	41	8,0	3	DIN 376	3B
T820NF05000-20R3B-D6	1/2 - 20	110	23	47	9,0	3	DIN 376	3B

NOTE: Internal UNJC/UNJF threads may be produced with ground thread UNC/UNF taps.

Shank Tolerance

D mm	tolerance h9
1-3	+0, -0,025
>3-6	+0, -0,030
>6-10	+0, -0,036
>10-18	+0, -0,043
>18-30	+0, -0,052

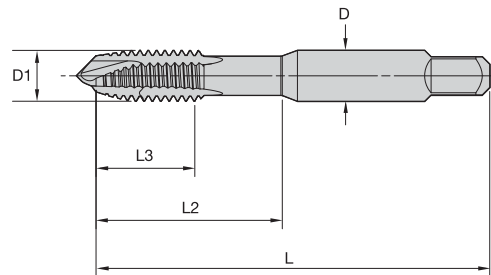


Multipurpose Taps

G0tap™ T822 Spiral-Point HSS-E Taps • Through Holes

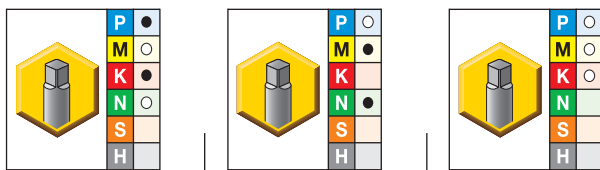


- KSP32 TiCN/TiN
- KSMN34 TiN + Cr/C
- KSP39 oxide
- KSU30 bright**



■ T822 • Form B Plug Chamfer • Machine Screw • 3 Flute • ANSI

Tapping



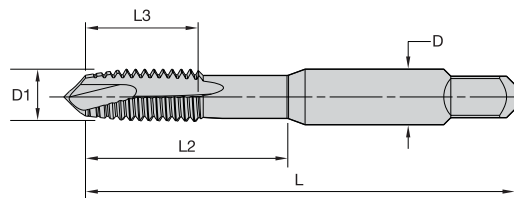
- first choice
- alternate choice

			inch dimensions					number of flutes	pitch diameter limit
KSP32	KSMN34	KSP39	D1 TPI	L	L3	L2	D		
—	—	T822NC#05-40RH2-A	5 - 40	1.94	.58	.75	.141	3	H2
—	—	T822NC#06-32RH2-A	6 - 32	1.99	.38	.71	.141	3	H2
T822NC#06-32RH3-A	T822NC#06-32RH3-A	T822NC#06-32RH3-A	6 - 32	1.99	.38	.71	.141	3	H3
—	—	T822NC#06-32RH4-A	6 - 32	1.99	.38	.71	.141	3	H4
—	—	T822NC#06-32RH5-A	6 - 32	1.99	.38	.71	.141	3	H5
—	—	T822NC#06-32RH6-A	6 - 32	1.99	.38	.71	.141	3	H6
—	—	T822NC#06-32RH7-A	6 - 32	1.99	.38	.71	.141	3	H7
—	—	T822NF#06-40RH2-A	6 - 40	1.99	.38	.71	.141	3	H2
—	—	T822NF#06-40RH3-A	6 - 40	1.99	.38	.71	.141	3	H3
—	—	T822NC#08-32RH2-A	8 - 32	2.12	.38	.76	.168	3	H2
T822NC#08-32RH3-A *	T822NC#08-32RH3-A	T822NC#08-32RH3-A	8 - 32	2.12	.38	.76	.168	3	H3
T822NC#08-32RH4-A	—	—	8 - 32	2.12	.38	.76	.168	3	H4
—	—	T822NC#08-32RH5-A	8 - 32	2.12	.38	.76	.168	3	H5
—	—	T822NC#08-32RH6-A	8 - 32	2.12	.38	.76	.168	3	H6
—	—	T822NC#08-32RH7-A	8 - 32	2.12	.38	.76	.168	3	H7
—	—	T822NF#08-36RH2-A	8 - 36	2.12	.38	.76	.168	3	H2
T822NF#10-32RH3-A	T822NF#10-32RH3-A *	T822NF#10-32RH3-A	10 - 32	2.36	.50	.91	.194	3	H3
—	—	T822NF#10-32RH4-A	10 - 32	2.36	.50	.91	.194	3	H4
—	—	T822NF#10-32RH5-A	10 - 32	2.36	.50	.91	.194	3	H5
—	—	T822NF#10-32RH6-A	10 - 32	2.36	.50	.91	.194	3	H6
—	—	T822NF#10-32RH7-A	10 - 32	2.36	.50	.91	.194	3	H7
T822NC#10-24RH3-A	T822NC#10-24RH3-A	T822NC#10-24RH3-A *	10 - 24	2.37	.50	.91	.194	3	H3
—	—	T822NC#10-24RH5-A	10 - 24	2.37	.50	.91	.194	3	H5
—	—	T822NC#10-24RH7-A	10 - 24	2.37	.50	.91	.194	3	H7
—	—	T822NF#12-28RH3-A *	12 - 28	2.37	.50	.96	.220	3	H3

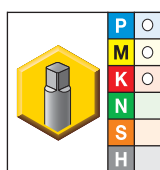
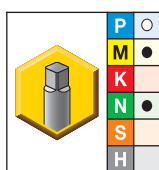
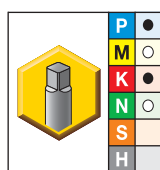
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.
 **Bright taps (KSU30) available.

Shank Tolerance	
D inch	tolerance
.141-.635	+0, -.0015
>.635-1.51	+0, -.0020
>1.51-2.01	+0, -.0030

- KSP32 TiCN/TiN
- KSMN34 TiN + Cr/C
- KSP39 oxide
- KSU30 bright**



T820 • Form B Plug Chamfer • Metric • ANSI



- first choice
- alternate choice

			inch dimensions				number of flutes	pitch diameter limit	
KSP32	KSMN34	KSP39	D1 size	L	L3	L2			D
T820M030X050RD3-A	T820M030X050RD3-A	T820M030X050RD3-A	M3 X 0,5	1.94	.58	.75	.141	2	D3
—	—	T820M035X060RD4-A	M3,5 X 0,6	1.99	.38	.71	.141	2	D4
T820M040X070RD4-A	T820M040X070RD4-A	T820M040X070RD4-A	M4 X 0,7	2.12	.38	.76	.168	2	D4
T820M050X080RD4-A	T820M050X080RD4-A	T820M050X080RD4-A	M5 X 0,8	2.37	.50	.91	.194	2	D4
T820M060X100RD5-A	T820M060X100RD5-A	T820M060X100RD5-A	M6 X 1	2.50	.63	1.00	.255	3	D5
—	—	T820M070X100RD5-A	M7 X 1	2.72	.69	1.15	.318	3	D5
—	—	T820MF080X100RD5-A	M8 X 1,0	2.71	.69	1.12	.318	3	D5
T820M080X125RD5-A	T820M080X125RD5-A	T820M080X125RD5-A	M8 X 1,25	2.71	.69	1.13	.318	3	D5
—	—	T820MF100X125RD5-A	M10 X 1,25	2.92	.74	1.25	.381	3	D5
T820M100X150RD6-A	T820M100X150RD6-A *	T820M100X150RD6-A	M10 X 1,50	2.92	.75	1.26	.381	3	D6
—	—	T820MF120X125RD6-A	M12 X 1,25	3.38	.94	1.74	.367	3	D6
—	—	T820MF120X150RD6-A	M12 X 1,5	3.38	.94	1.74	.367	3	D6
T820M120X175RD6-A	T820M120X175RD6-A	T820M120X175RD6-A	M12 X 1,75	3.38	.94	1.74	.367	3	D6
—	—	T820MF140X150RD6-A	M14 X 1,5	3.59	1.00	1.74	.429	3	D6
—	—	T820M140X200RD7-A	M14 X 2,0	3.59	1.00	1.74	.429	3	D7
—	T820MF160X150RD6-A	T820MF160X150RD6-A	M16 X 1,5	3.81	1.09	1.89	.480	3	D6
T820M160X200RD7-A	T820M160X200RD7-A	T820M160X200RD7-A	M16 X 2,0	3.81	1.09	1.89	.480	3	D7

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.
 **Bright taps (KSU30) available.

Shank Tolerance

D inch	tolerance
0.141-0.635	+0, -.0015
>0.635-1.51	+0, -.0020
>1.51-2.01	+0, -.0030

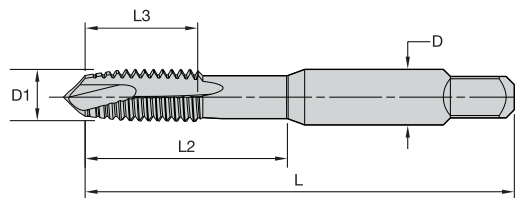


Multipurpose Taps

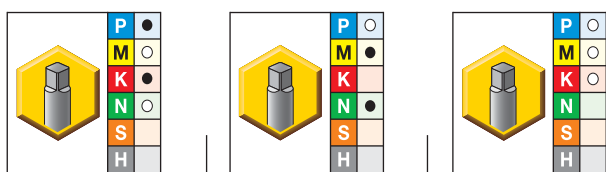
GOtap™ T822 Spiral-Point HSS-E Taps • Through Holes



- KSP32 TiCN/TiN
- KSMN34 TiN + CrC/C
- KSP39 oxide
- KSU30 bright**



T822 • Form B Plug Chamfer • Metric • 3 Flute • ANSI



- first choice
- alternate choice

				inch dimensions				number of flutes	pitch diameter limit	
	KSP32	KSMN34	KSP39	D1 size	L	L3	L2			D
T822M030X050RD3-A	T822M030X050RD3-A	T822M030X050RD3-A	T822M035X060RD4-A *	M3 X 0,5	1.94	.58	.75	.141	3	D3
—	—	—	—	M3,5 X 0,6	1.99	.38	.71	.141	3	D4
T822M040X070RD4-A *	T822M040X070RD4-A *	T822M040X070RD4-A *	T822M040X070RD4-A *	M4 X 0,7	2.12	.38	.76	.168	3	D4
T822M050X080RD4-A	T822M050X080RD4-A	T822M050X080RD4-A	T822M050X080RD4-A	M5 X 0,8	2.37	.50	.91	.194	3	D4

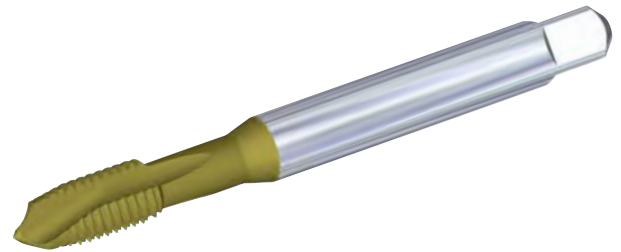
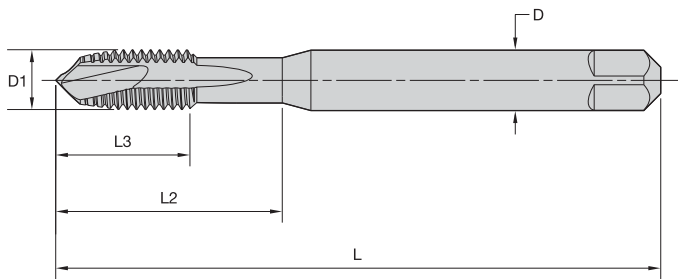
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.
 **Bright taps (KSU30) available.

Shank Tolerance

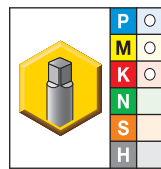
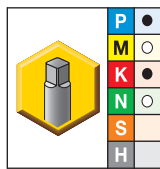
D inch	tolerance
0.141–0.635	+0, -.0015
>0.635–1.51	+0, -.0020
>1.51–2.01	+0, -.0030

Tapping

- KSP32 TiCN/TiN
- KSP39 oxide



■ T820 • DIN 371, 374, and 376 • Form B Plug Chamfer • Metric



- first choice
- alternate choice

		metric dimensions					number of flutes	dimension standard	class of fit
KSP32	KSP39	D1 size	L	L3	L2	D			
T820M020X040R6H-D1	T820M020X040R6H-D1	M2 X 0,4	45	7	13	2,8	2	DIN 371	6H
—	T820M020X040R6G-D1	M2 X 0,4	45	7	13	2,8	2	DIN 371	6G
—	T820M025X045R6H-D1	M2,5 X 0,45	50	7	15	2,8	2	DIN 371	6H
—	T820M025X045R6G-D1	M2,5 X 0,45	50	7	15	2,8	2	DIN 371	6G
T820M030X050R6H-D1	T820M030X050R6H-D1	M3 X 0,5	56	8	18	3,5	2	DIN 371	6H
—	T820M030X050R6G-D1	M3 X 0,5	56	8	18	3,5	2	DIN 371	6G
—	T820M035X060R6H-D1	M3,5 X 0,6	56	9	20	4,0	2	DIN 371	6H
—	T820MF040X050R6H-D4	M4 X 0,5	63	10	21	2,8	2	DIN 374	6H
T820M040X070R6H-D1	T820M040X070R6H-D1	M4 X 0,7	63	11	21	4,5	2	DIN 371	6H
—	T820M040X070R6G-D1	M4 X 0,7	63	11	21	4,5	2	DIN 371	6G
—	T820MF050X050R6H-D4	M5 X 0,5	70	12	25	3,5	2	DIN 374	6H
T820M050X080R6H-D1	T820M050X080R6H-D1	M5 X 0,8	70	12	25	6,0	2	DIN 371	6H
—	T820M050X080R6G-D1	M5 X 0,8	70	12	25	6,0	2	DIN 371	6G
—	T820MF060X050R6H-D4	M6 X 0,5	80	12	30	4,5	3	DIN 374	6H
—	T820MF060X075R6H-D4	M6 X 0,75	80	12	30	4,5	3	DIN 374	6H
—	T820M060X100R6H-D6	M6 X 1	80	12	30	4,5	3	DIN 376	6H
T820M060X100R6H-D1	T820M060X100R6H-D1	M6 X 1	80	12	30	6,0	3	DIN 371	6H
—	T820M060X100R6G-D1	M6 X 1	80	12	30	6,0	3	DIN 371	6G
T820M070X100R6H-D1	T820M070X100R6H-D1	M7 X 1	80	12	30	7,0	3	DIN 371	6H
—	T820M070X100R6G-D1	M7 X 1	80	12	30	7,0	3	DIN 371	6G
—	T820MF080X100R6H-D4	M8 X 1	90	15	35	6,0	3	DIN 374	6H
—	T820M080X125R6H-D6	M8 X 1,25	90	15	35	6,0	3	DIN 376	6H
T820M080X125R6H-D1	T820M080X125R6H-D1	M8 X 1,25	90	15	35	8,0	3	DIN 371	6H
—	T820M080X125R6G-D1	M8 X 1,25	90	15	35	8,0	3	DIN 371	6G
—	T820MF100X100R6H-D4	M10 X 1	90	15	35	7,0	3	DIN 374	6H
—	T820MF100X125R6H-D4	M10 X 1,25	100	18	39	7,0	3	DIN 374	6H
—	T820M100X150R6H-D6	M10 X 1,5	100	18	39	7,0	3	DIN 376	6H
T820M100X150R6H-D1	T820M100X150R6H-D1	M10 X 1,5	100	18	39	10,0	3	DIN 371	6H

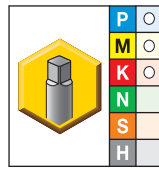
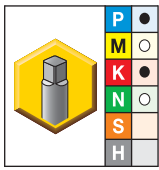
(continued)

Multipurpose Taps

G0tap™ T820 Spiral-Point HSS-E Taps • Through Holes



(T820 • DIN 371, 374, and 376 • Form B Plug Chamfer • Metric — continued)



● first choice
○ alternate choice

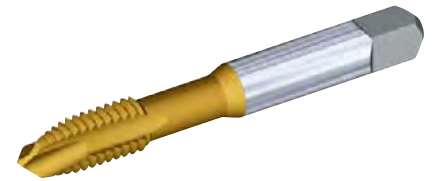
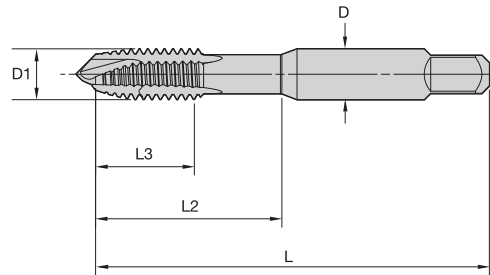
KSP32	KSP39	D1 size	metric dimensions				number of flutes	dimension standard	class of fit
			L	L3	L2	D			
—	T820M100X150R6G-D1	M10 X 1,5	100	18	39	10,0	3	DIN 371	6G
—	T820MF120X100R6H-D4	M12 X 1	100	21	39	9,0	3	DIN 374	6H
—	T820MF120X125R6H-D4	M12 X 1,25	100	21	39	9,0	3	DIN 374	6H
—	T820MF120X150R6H-D4	M12 X 1,5	100	21	39	9,0	3	DIN 374	6H
T820M120X175R6H-D6	T820M120X175R6H-D6	M12 X 1,75	110	21	44	9,0	3	DIN 376	6H
—	T820M120X175R6G-D6	M12 X 1,75	110	21	44	9,0	3	DIN 376	6G
—	T820MF140X100R6H-D4	M14 X 1	100	21	47	11,0	3	DIN 374	6H
—	T820MF140X125R6H-D4	M14 X 1,25	100	21	47	11,0	3	DIN 374	6H
—	T820MF140X150R6H-D4	M14 X 1,5	100	21	47	11,0	3	DIN 374	6H
T820M140X200R6H-D6	T820M140X200R6H-D6	M14 X 2	110	24	52	11,0	3	DIN 376	6H
—	T820M140X200R6G-D6	M14 X 2	110	24	52	11,0	3	DIN 376	6G
—	T820MF160X100R6H-D4	M16 X 1	100	21	46	12,0	3	DIN 374	6H
—	T820MF160X150R6H-D4	M16 X 1,5	100	21	46	12,0	3	DIN 374	6H
T820M160X200R6H-D6	T820M160X200R6H-D6	M16 X 2	110	24	51	12,0	3	DIN 376	6H
—	T820M160X200R6G-D6	M16 X 2	110	24	51	12,0	3	DIN 376	6G
—	T820MF180X150R6H-D4	M18 X 1,5	110	21	50	14,0	3	DIN 374	6H
—	T820MF180X200R6H-D4	M18 X 2	125	30	58	14,0	3	DIN 374	6H
T820M180X250R6H-D6	T820M180X250R6H-D6	M18 X 2,5	125	30	58	14,0	3	DIN 376	6H
—	T820MF200X150R6H-D4	M20 X 1,5	125	24	56	16,0	3	DIN 374	6H
—	T820MF200X200R6H-D4	M20 X 2	140	30	64	16,0	3	DIN 374	6H
T820M200X250R6H-D6	T820M200X250R6H-D6	M20 X 2,5	140	30	64	16,0	3	DIN 376	6H
—	T820MF220X150R6H-D4	M22 X 1,5	125	24	62	18,0	3	DIN 374	6H
—	T820MF220X200R6H-D4	M22 X 2	140	30	70	18,0	3	DIN 374	6H
—	T820M220X250R6H-D6	M22 X 2,5	140	30	70	18,0	3	DIN 376	6H
—	T820MF240X150R6H-D4	M24 X 1,5	140	28	67	18,0	3	DIN 374	6H
—	T820M240X300R6H-D6	M24 X 3	160	36	77	18,0	3	DIN 376	6H
—	T820M270X300R6H-D6	M27 X 3	160	36	82	20,0	4	DIN 376	6H
—	T820M300X350R6H-D6	M30 X 3,5	180	42	91	22,0	4	DIN 376	6H
—	T820M330X350R6H-D6	M33 X 3,5	180	42	100	25,0	4	DIN 376	6H
—	T820M360X400R6H-D6	M36 X 4	200	48	110	28,0	4	DIN 376	6H

Shank Tolerance

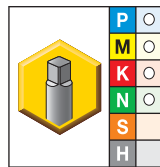
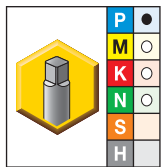
D mm	tolerance h9
1-3	+0, -0,025
>3-6	+0, -0,030
>6-10	+0, -0,036
>10-18	+0, -0,043
>18-30	+0, -0,052

Tapping

- KSU31 TiN
- KSU30 bright



■ T820 • Form B Plug Chamfer • Metric • JIS

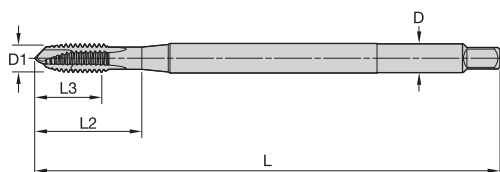


- first choice
- alternate choice

		metric dimensions				number of flutes	dimension standard	tap class
	D1 size	L	L3	L2	D			
KSU31	KSU30							
T820M030X050R6H-J	T820M030X050R6H-J	M3 X 0,5	46	11	19	4,0	2	JIS ISO 2
T820M040X070R6H-J	T820M040X070R6H-J	M4 X 0,7	52	13	21	5,0	2	JIS ISO 2
T820M050X080R6H-J	T820M050X080R6H-J	M5 X 0,8	60	16	24	5,5	2	JIS ISO 2
T820M060X100R6H-J	T820M060X100R6H-J	M6 X 1	62	19	29	6,0	3	JIS ISO 2
T820M080X125R6H-J	T820M080X125R6H-J	M8 X 1,25	70	22	37	6,2	3	JIS ISO 2
T820M100X150R6H-J	T820M100X150R6H-J	M10 X 1,5	75	24	41	7,0	3	JIS ISO 2
—	T820MF120X125R6H-J	M12 X 1,25	82	29	48	8,5	3	JIS ISO 2
—	T820MF120X150R6H-J	M12 X 1,5	82	29	48	8,5	3	JIS ISO 2
—	T820M120X175R6H-J	M12 X 1,75	82	29	48	8,5	3	JIS ISO 2
—	T820MF140X150R6H-J	M14 X 1,5	88	30	48	10,5	3	JIS ISO 2
—	T820M140X200R6H-J	M14 X 2	88	30	48	10,5	3	JIS ISO 2
—	T820MF160X150R6H-J	M16 X 1,5	95	32	52	12,5	3	JIS ISO 2
—	T820M160X200R6H-J	M16 X 2	95	32	52	12,5	3	JIS ISO 2
—	T820M180X250R6H-J	M18 X 2,5	100	37	55	14,0	3	JIS ISO 2
—	T820M200X250R6H-J	M20 X 2,5	105	37	60	15,0	3	JIS ISO 2

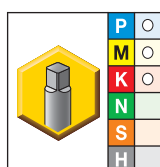
Shank Tolerance

D mm	tolerance h9
1-3	+0, -0,025
>3-6	+0, -0,030
>6-10	+0, -0,036
>10-18	+0, -0,043
>18-30	+0, -0,052



■ T820 • Form B Plug Chamfer • Machine Screw and Fractional • 4" Length • ANSI

Tapping

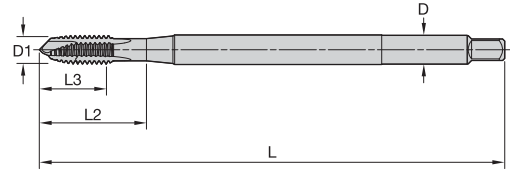


- first choice
- alternate choice

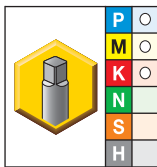
KSP39	D1 TPI	L	inch dimensions			D	number of flutes	pitch diameter limit
			L3	L2				
T820NC#04-40RH2-XL4	4 - 40	4.00	.56	.87	.141	2	H2	
T820NC#06-32RH3-XL4	6 - 32	4.00	.38	.71	.141	2	H3	
T820NC#08-32RH3-XL4	8 - 32	4.00	.38	.76	.168	2	H3	
T820NC#10-24RH4-XL4	10 - 24	4.00	.50	.91	.194	2	H3	
T820NF#10-32RH3-XL4	10 - 32	4.00	.50	.91	.194	2	H3	
T820NC02500-20RH3-XL4	1/4 - 20	4.00	.63	1.01	.255	3	H3	

Shank Tolerance

D inch	tolerance
.141-.635	+0, -.0015
>.635-1.51	+0, -.0020
>1.51-2.01	+0, -.0030



■ T820 • Form B Plug Chamfer • Machine Screw and Fractional • 6" Length • ANSI



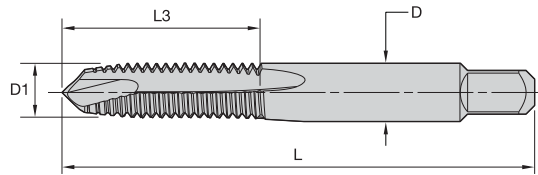
- first choice
- alternate choice

KSP39	D1 TPI	inch dimensions				D	number of flutes	pitch diameter limit
		L	L3	L2				
T820NC#04-40RH2-XL6	4 - 40	6.00	.56	.87	.141	2	H2	
T820NC#06-32RH3-XL6 *	6 - 32	6.00	.38	.71	.168	2	H3	
T820NC#08-32RH3-XL6	8 - 32	6.00	.38	.76	.168	2	H3	
T820NC#10-24RH3-XL6	10 - 24	6.00	.50	.91	.194	2	H3	
T820NF#10-32RH3-XL6	10 - 32	6.00	.50	.91	.194	2	H3	
T820NC02500-20RH3-XL6	1/4 - 20	6.00	.63	1.01	.255	3	H3	
T820NF02500-28RH3-XL6	1/4 - 28	6.00	.63	1.01	.255	3	H3	
T820NC03125-18RH3-XL6	5/16 - 18	6.00	.69	1.13	.318	3	H3	
T820NF03125-24RH3-XL6	5/16 - 24	6.00	.69	1.13	.318	3	H3	
T820NC03750-16RH3-XL6	3/8 - 16	6.00	.75	1.27	.381	3	H3	
T820NF03750-24RH3-XL6 *	3/8 - 24	6.00	.75	1.27	.381	3	H3	
T820NC04375-14RH3-XL6 *	7/16 - 14	6.00	.88	1.49	.323	3	H3	
T820NF04375-20RH3-XL6 *	7/16 - 20	6.00	.88	1.49	.323	3	H3	
T820NC05000-13RH3-XL6	1/2 - 13	6.00	.94	1.74	.367	3	H3	
T820NF05000-20RH3-XL6	1/2 - 20	6.00	.94	1.74	.367	3	H3	
T820NC06250-11RH3-XL6	5/8 - 11	6.00	1.09	1.89	.480	3	H3	

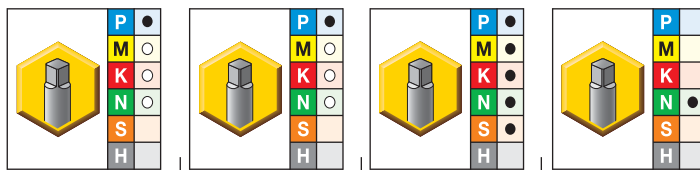
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Shank Tolerance

D inch	tolerance
.141-.635	+0, -.0015
>.635-1.51	+0, -.0020
>1.51-2.01	+0, -.0030



■ KHSST Spiral Point • Machine Screw and Fractional Sizes • Plug Chamfer Tap

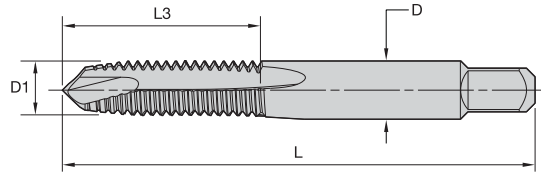


● first choice
○ alternate choice

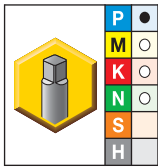
Tapping

	TiCN	TiN	oxide	uncoated	D1 size	L	L3	D	number of flutes	pitch diameter limit
	KHSST28732	KHSST28733	—	KHSST28731	0 - 80	1.63	.31	.141	2	H2
	—	—	—	KHSST28757	1 - 72	1.69	.38	.141	2	H2
	—	KHSST09101	KHSST28252	KHSST08043	2 - 56	1.75	.44	.141	2	H2
	—	—	—	KHSST08061	3 - 48	1.81	.50	.141	2	H2
	KHSST28274	KHSST09103	KHSST28253	KHSST08090	4 - 40	1.88	.56	.141	2	H2
	—	—	—	KHSST08104	4 - 48	1.88	.56	.141	2	H2
	—	KHSST09104	—	KHSST08119	5 - 40	1.94	.63	.141	2	H2
	—	KHSST09105	KHSST28254	KHSST08156	6 - 32	2.00	.69	.141	2	H2
	KHSST28276	KHSST09106	KHSST28255	KHSST08157	6 - 32	2.00	.69	.141	2	H3
	—	—	—	KHSST08175	6 - 40	2.00	.69	.141	2	H2
	—	KHSST09108	KHSST28256	KHSST08203	8 - 32	2.13	.75	.168	2	H2
	KHSST28277	KHSST09109	KHSST28257	KHSST08205	8 - 32	2.13	.75	.168	2	H3
	—	—	—	KHSST28244 *	8 - 36	2.13	.75	.168	2	H2
	—	—	—	KHSST08243	10 - 24	2.38	.88	.194	2	H2
	KHSST09608	KHSST28113	KHSST28262	KHSST08245	10 - 24	2.38	.88	.194	2	H3
	—	KHSST09111	KHSST28263	KHSST08280	10 - 32	2.38	.88	.194	2	H2
	KHSST09609	KHSST09112	KHSST28264	KHSST08282	10 - 32	2.38	.88	.194	2	H3
	—	—	—	KHSST28248	10 - 32	2.38	.88	.194	2	H7
	—	KHSST09113	—	KHSST08296	12 - 24	2.38	.94	.220	2	H3
	—	KHSST09114	—	KHSST08331	1/4 - 20	2.50	1.00	.255	2	H2
	—	KHSST09115	KHSST28260	KHSST08332	1/4 - 20	2.50	1.00	.255	2	H3
	KHSST09611	KHSST09116	—	KHSST08334	1/4 - 20	2.50	1.00	.255	3	H3
	—	KHSST28111	—	KHSST08336	1/4 - 20	2.50	1.00	.255	2	H5
	—	KHSST28112	KHSST28261	KHSST08364	1/4 - 28	2.50	1.00	.255	2	H3
	—	KHSST09119	KHSST28267	KHSST08391	5/16 - 18	2.72	1.13	.318	2	H3
	KHSST28275	—	—	KHSST08393	5/16 - 18	2.72	1.13	.318	3	H3
	—	KHSST09120	KHSST28268	KHSST08419	5/16 - 24	2.72	1.13	.318	2	H3
	KHSST09615	KHSST09121	KHSST28266	KHSST08443	3/8 - 16	2.94	1.25	.381	3	H3
	—	—	—	KHSST08444	3/8 - 16	2.94	1.25	.381	3	H5
	—	KHSST09122	—	KHSST08467	3/8 - 24	2.94	1.25	.381	3	H3
	—	KHSST09123	KHSST28270	KHSST08484	7/16 - 14	3.16	1.44	.323	3	H3
	—	KHSST09124	KHSST28271	KHSST08498	7/16 - 20	3.16	1.44	.323	3	H3
	KHSST28272	KHSST09125	KHSST28258	KHSST08516	1/2 - 13	3.38	1.66	.367	3	H3
	—	—	—	KHSST28245	1/2 - 13	3.38	1.66	.367	3	H5
	—	KHSST09126	KHSST28259	KHSST08537	1/2 - 20	3.38	1.66	.367	3	H3
	KHSST28273	KHSST09127	KHSST28269	KHSST08566	5/8 - 11	3.81	1.81	.480	3	H3
	—	—	—	KHSST08578	5/8 - 18	3.81	1.81	.480	3	H3
	—	KHSST09128	KHSST28265	KHSST08599	3/4 - 10	4.25	2.00	.590	3	H3
	—	—	—	KHSST28249	3/4 - 10	4.25	2.00	.590	3	H5

NOTE: Spiral-Point taps for 3B class of fit are suitable for UNJ aerospace internal threading applications.
Refer to table on pages M202–M203 for the recommended pitch diameter limit for 2B or 3B class of fit.
*Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.



■ KHSST Oversized Spiral Point • Fractional Sizes • Plug Chamfer Taps

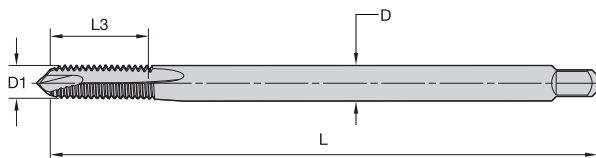


- first choice
- alternate choice

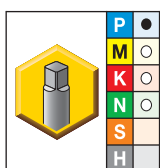
uncoated	D1 size	L	L3	D	number of flutes	pitch diameter limit
KHSST28247	1/4 - 20	2.50	1.00	.255	2	H11
KHSST28251	5/16 - 18	2.72	1.13	.318	2	H11
KHSST28250	3/8 - 16	2.94	1.25	.381	3	H11
KHSST28246	1/2 - 13	3.38	1.66	.367	3	H11

NOTE: Refer to table on pages M202–M203 for the recommended pitch diameter limit for 2B or 3B class of fit.





■ KHSST Spiral Point 6" • Fractional Sizes • Plug Chamfer Taps

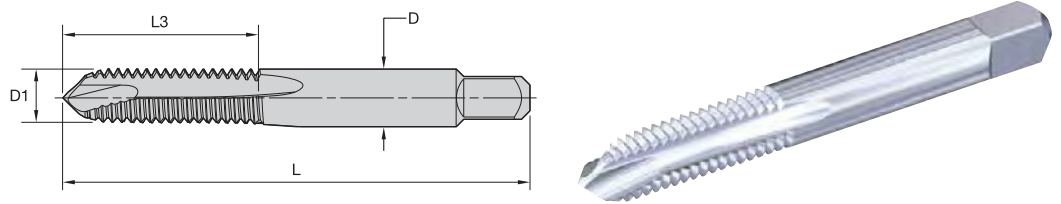


● first choice
○ alternate choice

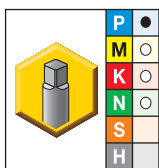
Tapping

uncoated	D1 size	L	L3	D	number of flutes	pitch diameter limit
KHSST28776	6 - 32	6.00	.69	.141	2	H3
KHSST28784	8 - 32	6.00	.75	.168	2	H3
KHSST28737	10 - 24	6.00	.88	.194	2	H3
KHSST28744	10 - 32	6.00	.88	.194	2	H3
KHSST28072	1/4 - 20	6.00	1.00	.255	2	H3
KHSST28080 *	1/4 - 28	6.00	1.00	.255	2	H3
KHSST28209	5/16 - 18	6.00	1.13	.318	2	H3
KHSST28220 *	5/16 - 24	6.00	1.13	.318	2	H3
KHSST28192	3/8 - 16	6.00	1.25	.381	3	H3
KHSST28204	3/8 - 24	6.00	1.25	.381	3	H3

NOTE: Spiral-point taps for 3B class of fit are suitable for UNJ aerospace internal threading applications.
Refer to table on pages M202–M203 for the recommended pitch diameter limit for 2B or 3B class of fit.
*Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.



■ **KHSST Heavy-Duty Spiral Point • Machine Screw and Fractional • Plug Chamfer Taps**

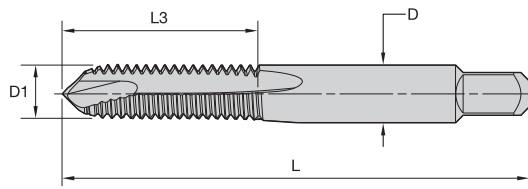


● first choice
○ alternate choice

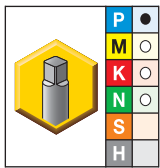
oxide/nitride	D1 size	L	L3	D	number of flutes	pitch diameter limit
KHSST28526	6 - 32	2.00	.69	.141	3	H3
KHSST28527	8 - 32	2.13	.75	.168	3	H3
KHSST28531	10 - 24	2.38	.88	.194	3	H3
KHSST28532	10 - 32	2.38	.88	.194	3	H3
KHSST28529	1/4 - 20	2.50	1.00	.255	3	H3
KHSST28534	5/16 - 18	2.72	1.13	.318	3	H3
KHSST28528	1/2 - 13	3.38	1.66	.367	3	H3
KHSST28228 *	5/8 - 11	3.81	1.81	.480	3	H3
KHSST28162	3/4 - 10	4.25	2.00	.590	3	H3

NOTE: Spiral-point taps for 3B class of fit are suitable for UNJ aerospace internal threading applications. Refer to table on pages M202-M203 for the recommended pitch diameter limit for 2B or 3B class of fit.
*Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.





KHSST Spiral Point • Machine Screw and Fractional • Bottoming-Chamfer Taps

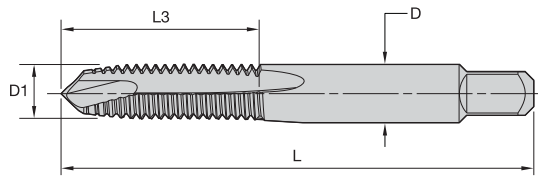


● first choice
○ alternate choice

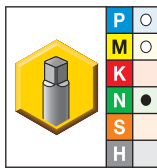
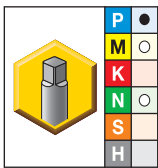
Tapping

uncoated	D1 size	L	L3	D	number of flutes	pitch diameter limit
KHSST28730	0 - 80	1.63	.31	.141	2	H2
KHSST08044	2 - 56	1.75	.44	.141	3	H2
KHSST08091	4 - 40	1.88	.56	.141	2	H2
KHSST08159	6 - 32	2.00	.69	.141	2	H2
KHSST08160	6 - 32	2.00	.69	.141	2	H3
KHSST08246	10 - 24	2.38	.88	.194	2	H3
KHSST28743	10 - 32	2.38	.88	.194	2	H2
KHSST08333	1/4 - 20	2.50	1.00	.255	2	H3
KHSST28219	5/16 - 24	2.72	1.13	.318	2	H3

NOTE: Refer to table on pages M202–M203 for the recommended pitch diameter limit for 2B or 3B class of fit.



■ KHSST Spiral Point • Plug Chamfer Taps • Metric ANSI



- first choice
- alternate choice

TiN	uncoated	D1 size	L	L3	D	number of flutes	pitch diameter limit
—	KHSST28681	M1,6 X 0,35	1.63	.31	.1410	2	D3
—	KHSST27711	M2 X 0,4	1.75	.44	.1410	2	D3
—	KHSST27719	M2,5 X 0,45	1.81	.50	.1410	2	D3
KHSST09129	KHSST27723	M3 X 0,5	1.94	.63	.1410	2	D3
KHSST09130	KHSST27731	M4 X 0,7	2.13	.75	.1680	2	D4
KHSST09131	KHSST27739	M5 X 0,8	2.38	.88	.1940	2	D4
KHSST09132	KHSST27743	M6 X 1	2.50	1.00	.2550	2	D5
KHSST09133	KHSST27751	M8 X 1,25	2.72	1.13	.3180	2	D5
KHSST28152	KHSST27759	M10 X 1,5	2.94	1.25	.3810	3	D6
KHSST09135	KHSST27767	M12 X 1,75	3.38	1.66	.3670	3	D6
—	KHSST28447	M14 X 2	3.59	1.66	.4290	3	D7
—	KHSST27787 *	M16 X 2	3.81	1.81	.4800	3	D6
—	KHSST28448	M16 X 2	3.81	1.81	.4800	3	D7
—	KHSST27798	M20 X 2,5	4.47	2.00	.6520	3	D7

NOTE: Metric taps for 6H class of fit are suitable for MJ aerospace internal threading applications.
Metric taps are manufactured to USCTI specifications and dimensions.
Metric tap blank dimensions are equivalent to inch taps.
Refer to table on page M203 for the recommended pitch diameter limit for 6H class of fit.
*Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.



➤ Spiral-Flute Taps



High-Performance Taps for Blind-Hole Applications

- Steel and steel alloys.
- Stainless steel.
- Cast iron.
- Nickel- and cobalt-based alloys.
- Titanium and titanium alloys.
- Aluminum.
- Hard steel.

High-Performance Beyond™ Solid Carbide Taps

- Right-hand spiral flute with through coolant for efficient chip evacuation at high spindle speeds.
- Runs up to 4x faster and 4x longer than conventional high-speed steel (HSS) taps.
- Ideal for long production runs where fewer tool changes result in greater productivity.
- For use on CNC machines with synchronous or rigid controls and precision toolholders.

High-Performance Beyond™ HSS-E-PM Taps

- Right-hand spiral flutes with the flute form and helix angle optimized for material-specific applications.
- Higher strength and wider range of applications versus solid carbide taps.
- Higher tapping speed capability and longer tool life than conventional HSS-E taps.
- Can be used on either conventional or synchronous tapping machines with rigid or synchronous tap holders.

Multipurpose HSS-E GOtap™ Taps

- Advanced spiral-flute geometry designed for free cutting action and efficient chip evacuation in blind holes.
- Manufactured with high vanadium HSS-E material for exceptional wear characteristics and longer tool life.
- Advanced PVD coatings to reduce tapping torque, resulting in high-quality thread finish and longer tool life.
- For use in both synchronous and non-synchronous machines, including rigid, synchronous, and tension/compression tap holders.

General-Purpose Taps

- HSS spiral-flute taps with a neck design for improved chip flow in blind holes.
- Wide range of sizes and pitch limits offered with PVD coatings and surface treatments.
- Heavy-duty spiral-flute taps ideal for blind-hole tapping in materials up to 30 Rc.

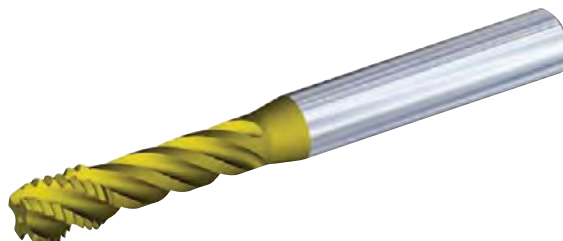
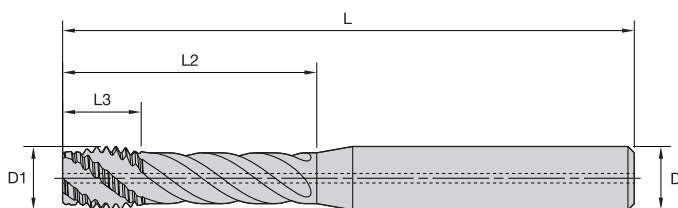


High-Performance Taps

Beyond™ Solid Carbide Spiral-Flute Taps • Blind Holes



- KC7542 TiAlN + TiN for steel.

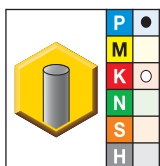


beyond

■ T331 • Form C Semi-Bottoming Chamfer • Through Coolant • Inch • Solid Carbide • For Steel



Tapping



● first choice

○ alternate choice

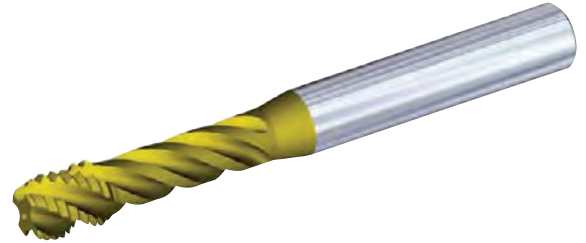
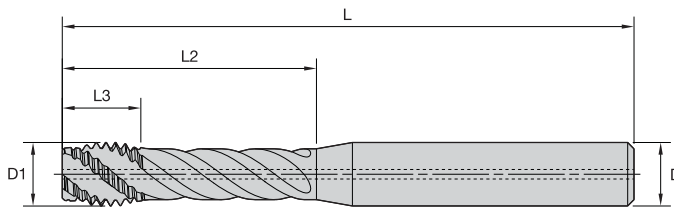
KC7542	D1 size	L	L3	L2	D	number of flutes	class of fit
T331NC2500-20R3BX	1/4 - 20	2.76	.39	.94	.250	3	3BX
T331NF2500-28R3BX	1/4 - 28	2.76	.39	.94	.250	3	3BX
T331NC3125-18R3BX	5/16 - 18	3.15	.47	1.26	.313	3	3BX
T331NC3750-16R3BX	3/8 - 16	3.54	.51	1.57	.375	4	3BX
T331NC4375-14R3BX	7/16 - 14	3.94	.59	1.73	.438	4	3BX
T331NC5000-13R3BX *	1/2 - 13	3.94	.63	1.89	.500	4	3BX

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

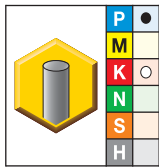
Shank Tolerance

D	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004

- KC7542 TiAlN + TiN for steel.



- T331 • Form C Semi-Bottoming Chamfer • Through Coolant • Metric • Solid Carbide • For Steel



- first choice
- alternate choice

KC7542	D1 size	L	L3	L2	D	number of flutes	class of fit
T331M060X100R6HX	M6 X 1	70	8	24	6,0	3	6HX
T331M080X125R6HX	M8 X 1,25	80	10	32	8,0	3	6HX
T331M100X150R6HX	M10 X 1,5	90	12	40	10,0	4	6HX
T331MF120X150R6HX	M12 X 1,5	100	14	48	12,0	4	6HX
T331M120X175R6HX	M12 X 1,75	100	14	48	12,0	4	6HX
T331MF140X150R6HX	M14 X 1,5	110	16	56	12,0	4	6HX
T331M140X200R6HX	M14 X 2	110	16	56	12,0	4	6HX
T331M160X200R6HX	M16 X 2	110	16	64	14,0	4	6HX

NOTE: Proprietary technology.

Shank Tolerance

D	tolerance h6
6	+0, -0,008
8-10	+0, -0,009
12-16	+0, -0,011

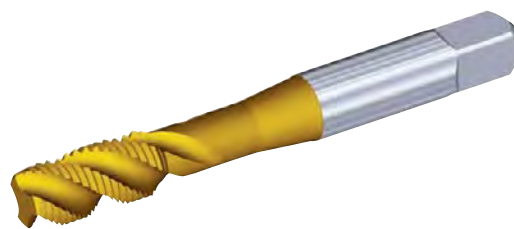
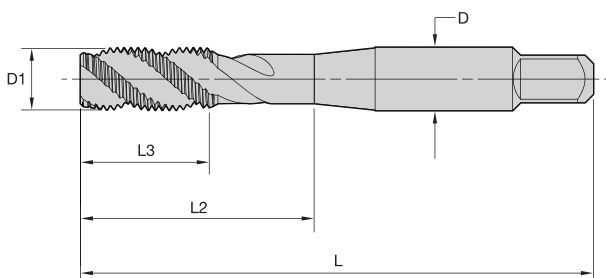


High-Performance Taps

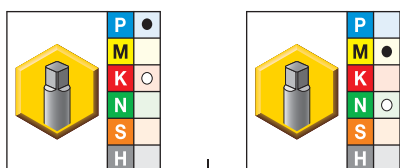
Beyond™ Spiral-Flute HSS-E-PM Taps • Blind Holes



- KM6515 TiN + CrC/C for tapping stainless steel.
- KP6525 TiCN + TiN for tapping steel.



■ T630 • Form C Semi-Bottoming Chamfer • Metric ANSI • For Steel and Stainless Steel • Rigid and Synchronous Holders



- first choice
- alternate choice

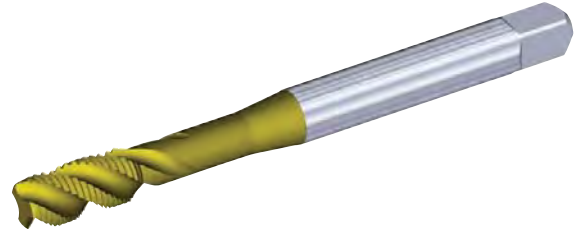
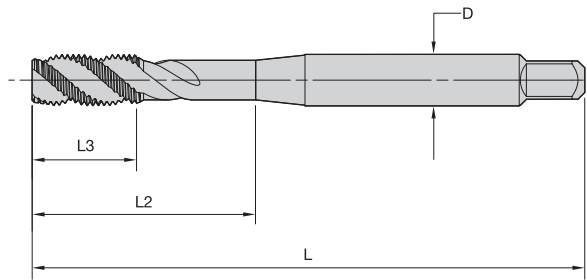
Material	Material	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
KP6525	KM6515								
T630NC#02-56R3BX-A *	T630NC#02-56R3BX-A	2 - 56	1.75	.44	.49	.141	2	ANSI	3BX
T630NC#04-40R3BX-A *	T630NC#04-40R3BX-A *	4 - 40	1.88	.56	.68	.141	2	ANSI	3BX
T630NC#04-40R2BX-A	T630NC#04-40R2BX-A *	4 - 40	1.88	.56	.68	.141	2	ANSI	2BX
T630NC#06-32R3BX-A	T630NC#06-32R3BX-A	6 - 32	1.99	.36	.71	.141	3	ANSI	3BX
T630NC#06-32R2BX-A *	T630NC#06-32R2BX-A	6 - 32	1.99	.36	.71	.141	3	ANSI	2BX
T630NC#08-32R3BX-A	T630NC#08-32R3BX-A	8 - 32	2.12	.31	.76	.168	3	ANSI	3BX
T630NF#10-32R2BX-A	T630NF#10-32R2BX-A	10 - 32	2.37	.47	.91	.194	3	ANSI	2BX
T630NF#10-32R3BX-A	T630NF#10-32R3BX-A	10 - 32	2.37	.47	.91	.194	3	ANSI	3BX
T630NC#10-24R3BX-A	T630NC#10-24R3BX-A	10 - 24	2.37	.47	.91	.194	3	ANSI	3BX
T630NF02500-28R2BX-A	T630NF02500-28R2BX-A *	1/4 - 28	2.50	.44	1.00	.255	3	ANSI	2BX
T630NF02500-28R3BX-A	T630NF02500-28R3BX-A	1/4 - 28	2.50	.44	1.00	.255	3	ANSI	3BX
T630NC02500-20R2BX-A	T630NC02500-20R2BX-A	1/4 - 20	2.50	.44	1.01	.255	3	ANSI	2BX
T630NC02500-20R3BX-A	T630NC02500-20R3BX-A	1/4 - 20	2.50	.44	1.01	.255	3	ANSI	3BX
T630NF03125-24R2BX-A	T630NF03125-24R2BX-A	5/16 - 24	2.72	.49	1.13	.318	3	ANSI	2BX
T630NF03125-24R3BX-A	T630NF03125-24R3BX-A	5/16 - 24	2.72	.49	1.13	.318	3	ANSI	3BX
T630NC03125-18R2BX-A	T630NC03125-18R2BX-A	5/16 - 18	2.72	.49	1.13	.318	3	ANSI	2BX
T630NC03125-18R3BX-A	T630NC03125-18R3BX-A	5/16 - 18	2.72	.49	1.13	.318	3	ANSI	3BX
T630NF03750-24R3BX-A	T630NF03750-24R3BX-A	3/8 - 24	2.93	.59	1.26	.381	3	ANSI	3BX
T630NC03750-16R2BX-A	T630NC03750-16R2BX-A	3/8 - 16	2.94	.60	1.27	.381	3	ANSI	2BX
T630NC03750-16R3BX-A	T630NC03750-16R3BX-A	3/8 - 16	2.94	.60	1.27	.381	3	ANSI	3BX
T630NC04375-14R3BX-A	T630NC04375-14R3BX-A *	7/16 - 14	3.16	.71	1.49	.323	5	ANSI	3BX
T630NF04375-20R3BX-A	T630NF04375-20R3BX-A *	7/16 - 20	3.16	.71	1.49	.323	5	ANSI	3BX
T630NC05000-13R3BX-A	T630NC05000-13R3BX-A	1/2 - 13	3.38	.77	1.74	.367	5	ANSI	3BX
T630NC05000-13R2BX-A	T630NC05000-13R2BX-A	1/2 - 13	3.38	.77	1.74	.367	4	ANSI	2BX
T630NF05000-20R3BX-A	T630NF05000-20R3BX-A	1/2 - 20	3.38	.77	1.74	.367	4	ANSI	3BX
T630NC06250-11R3BX-A	T630NC06250-11R3BX-A	5/8 - 11	3.81	.91	1.89	.480	5	ANSI	3BX
T630NC06250-11R2BX-A	T630NC06250-11R2BX-A	5/8 - 11	3.81	.91	1.89	.480	4	ANSI	2BX
—	T630NC07500-10R3BX-A *	3/4 - 10	4.25	1.00	2.08	.590	4	ANSI	3BX
T630NC07500-10R3BX-A	—	3/4 - 10	4.25	1.00	2.08	.590	5	ANSI	3BX
T630NC07500-10R2BX-A	T630NC07500-10R2BX-A	3/4 - 10	4.25	1.00	2.08	.590	4	ANSI	2BX
T630NC10000-08R3BX-A	T630NC10000-08R3BX-A *	1 - 8	5.13	1.25	2.58	.800	5	ANSI	3BX

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

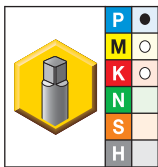
NOTE: Suggested for use in rigid and synchronous holders.

Shank Tolerance	
D fractional	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004

- KP6525 TiCN + TiN for steel.



- T630 • DIN 371 and 376 • Form C Semi-Bottoming Chamfer • Machine Screw and Fractional • For Steel • Rigid and Synchronous Holders



- first choice
- alternate choice

KP6525	D1 size	metric dimensions				number of flutes	dimension standard	class of fit
		L	L3	L2	D			
T630NC#06-32R2BX-D1	6 - 32	56	9	20	4,0	3	DIN 371	2BX
T630NF#06-40R2BX-D1	6 - 40	56	9	20	4,0	3	DIN 371	2BX
T630NC#08-32R2BX-D1	8 - 32	63	10	21	4,5	3	DIN 371	2BX
T630NC#10-24R2BX-D1	10 - 24	70	10	25	6,0	3	DIN 371	2BX
T630NF#10-32R2BX-D1	10 - 32	70	10	25	6,0	3	DIN 371	2BX
T630NC02500-20R3BX-D1	1/4 - 20	80	13	30	7,0	3	DIN 371	3BX
T630NF02500-28R3BX-D1	1/4 - 28	80	13	30	7,0	3	DIN 371	3BX
T630NC03125-18R3BX-D1	5/16 - 18	90	13	35	8,0	3	DIN 371	3BX
T630NF03125-24R3BX-D1	5/16 - 24	90	13	35	8,0	3	DIN 371	3BX
T630NC03750-16R3BX-D1	3/8 - 16	100	16	39	10,0	3	DIN 371	3BX
T630NF03750-24R3BX-D1	3/8 - 24	100	16	39	10,0	3	DIN 371	3BX
T630NC04375-14R3BX-D6	7/16 - 14	100	15	41	8,0	4	DIN 376	3BX
T630NF04375-20R3BX-D6	7/16 - 20	100	15	41	8,0	4	DIN 376	3BX
T630NC05000-13R3BX-D6	1/2 - 13	110	20	47	9,0	4	DIN 376	3BX
T630NF05000-20R3BX-D6	1/2 - 20	110	20	47	9,0	4	DIN 376	3BX

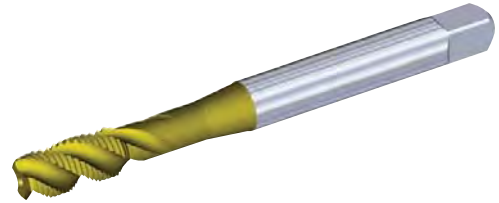
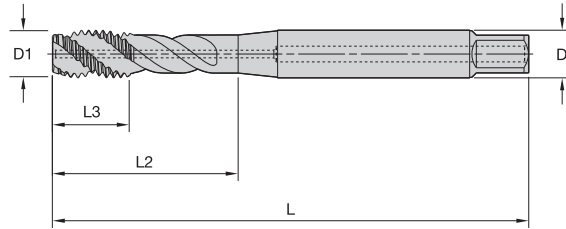
NOTE: Suggested for use in rigid and synchronous holders.

Shank Tolerance

D fractional	tolerance h6
>3-6	+0, -0,008
>6-10	+0, -0,009
<10-18	+0, -0,011

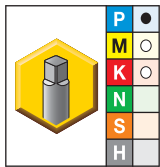


• KP6525 TiCN + TiN for steel.



■ T631 • DIN 371 and 376 • Form C Semi-Bottoming Chamfer • Through Coolant • Fractional • For Steel • Rigid and Synchronous Holders

Tapping



● first choice

○ alternate choice

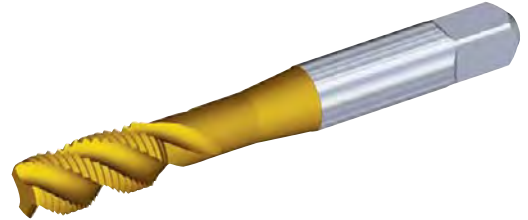
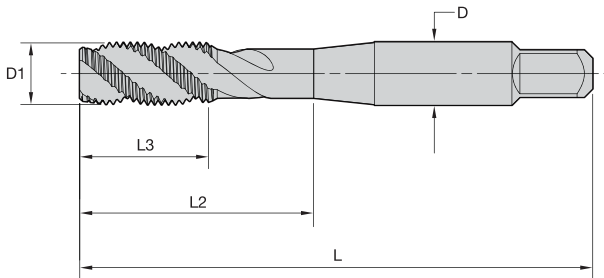
KP6525	D1 size	metric dimensions				D	number of flutes	dimension standard	class of fit
		L	L3	L2					
T631NC02500-20R3BX-D1	1/4 - 20	80	13	30	7,0	3	DIN 371	3BX	
T631NF02500-28R3BX-D1	1/4 - 28	80	13	30	7,0	3	DIN 371	3BX	
T631NC03125-18R3BX-D1	5/16 - 18	90	13	35	8,0	3	DIN 371	3BX	
T631NF03125-24R3BX-D1	5/16 - 24	90	13	35	8,0	3	DIN 371	3BX	
T631NC03750-16R3BX-D1	3/8 - 16	100	16	39	10,0	3	DIN 371	3BX	
T631NF03750-24R3BX-D1	3/8 - 24	100	16	39	10,0	3	DIN 371	3BX	
T631NC04375-14R3BX-D6	7/16 - 14	100	15	41	8,0	4	DIN 376	3BX	
T631NF04375-20R3BX-D6	7/16 - 20	100	15	41	8,0	4	DIN 376	3BX	
T631NC05000-13R3BX-D6	1/2 - 13	110	20	47	9,0	4	DIN 376	3BX	
T631NF05000-20R3BX-D6	1/2 - 20	110	20	47	9,0	4	DIN 376	3BX	

NOTE: Suggested for use in rigid and synchronous holders.

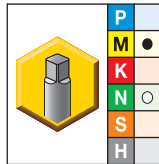
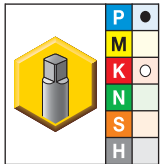
Shank Tolerance

D fractional	tolerance h6
>3-6	+0, -0,008
>6-10	+0, -0,009
<10-18	+0, -0,011

- KM6515 TiN + CrC/C for tapping stainless steel.
- KP6525 TiCN + TiN for tapping steel.



■ T630 • Form C Semi-Bottoming Chamfer • Metric ANSI • For Steel and Stainless Steel • Rigid and Synchronous Holders



- first choice
- alternate choice

KP6525	KM6515	D1 size	L	L3	L2	D	number of flutes	class of fit
T630M030X050R6HX-A	T630M030X050R6HX-A *	M3 X 0,5	1.94	.63	.75	.141	2	6HX
T630M040X070R6HX-A	T630M040X070R6HX-A	M4 X 0,7	2.12	.32	.76	.168	3	6HX
T630M050X080R6HX-A	T630M050X080R6HX-A *	M5 X 0,8	2.37	.47	.91	.194	3	6HX
T630M060X100R6HX-A	T630M060X100R6HX-A	M6 X 1	2.50	.46	1.01	.255	3	6HX
T630M080X125R6HX-A	T630M080X125R6HX-A	M8 X 1,25	2.71	.48	1.12	.318	3	6HX
T630M100X150R6HX-A	T630M100X150R6HX-A	M10 X 1,5	2.92	.53	1.26	.381	3	6HX
T630M120X175R6HX-A	T630M120X175R6HX-A	M12 X 1,75	3.38	.77	1.74	.367	5	6HX
T630M140X200R6HX-A	T630M140X200R6HX-A	M14 X 2	3.59	.83	1.74	.429	5	6HX
T630M160X200R6HX-A	T630M160X200R6HX-A	M16 X 2	3.81	.91	1.89	.480	5	6HX

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

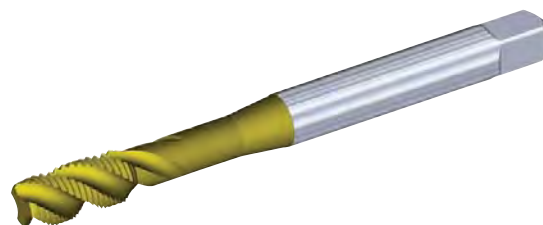
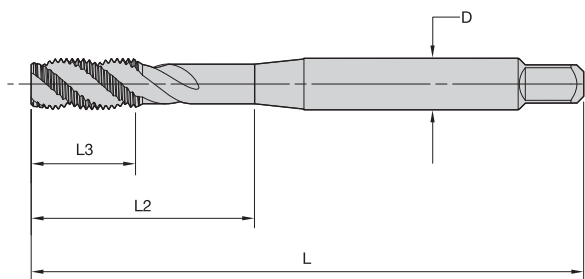
NOTE: Suggested for use in rigid and synchronous holders.

Shank Tolerance

D fractional	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004

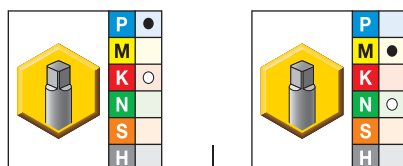
Tapping

- KM6515 TiN + CrC/C for stainless steel.
- KP6525 TiCN + TiN for steel.



T630 • DIN 371, 374, and 376 • Form C Semi-Bottoming Chamfer • Metric • For Steel and Stainless Steel • Rigid and Synchronous Holders

Tapping



- first choice
- alternate choice

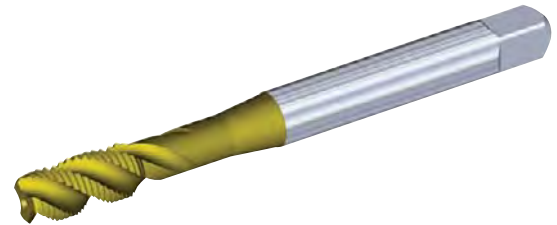
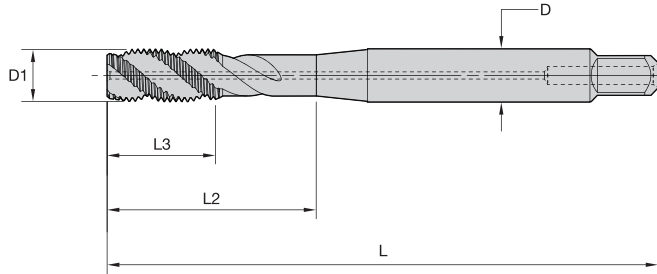
KP6525	KM6515	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
T630M030X050R6HX-D1	T630M030X050R6HX-D1	M3 X 0,5	56	8	18	3,5	3	DIN 371	6HX
T630M040X070R6HX-D1	T630M040X070R6HX-D1	M4 X 0,7	63	10	21	4,5	3	DIN 371	6HX
T630M050X080R6HX-D1	T630M050X080R6HX-D1	M5 X 0,8	70	10	25	6,0	3	DIN 371	6HX
T630M060X100R6HX-D1	T630M060X100R6HX-D1	M6 X 1	80	10	30	6,0	3	DIN 371	6HX
T630MF080X100R6HX-D4	T630MF080X100R6HX-D4	M8 X 1	90	13	35	6,0	3	DIN 374	6HX
T630M080X125R6HX-D1	T630M080X125R6HX-D1	M8 X 1,25	90	13	35	8,0	3	DIN 371	6HX
T630MF100X100R6HX-D4	T630MF100X100R6HX-D4	M10 X 1	90	10	35	7,0	3	DIN 374	6HX
T630MF100X125R6HX-D4	T630MF100X125R6HX-D4	M10 X 1,25	100	15	39	7,0	3	DIN 374	6HX
T630M100X150R6HX-D1	T630M100X150R6HX-D1	M10 X 1,5	100	15	39	10,0	3	DIN 371	6HX
T630MF120X150R6HX-D4	T630MF120X150R6HX-D4	M12 X 1,5	100	15	39	9,0	4	DIN 374	6HX
T630M120X175R6HX-D6	T630M120X175R6HX-D6	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
T630MF140X150R6HX-D4	T630MF140X150R6HX-D4	M14 X 1,5	100	15	47	11,0	4	DIN 374	6HX
T630M140X200R6HX-D6	T630M140X200R6HX-D6	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
T630MF160X150R6HX-D4	T630MF160X150R6HX-D4	M16 X 1,5	100	15	46	12,0	4	DIN 374	6HX
T630M160X200R6HX-D6	T630M160X200R6HX-D6	M16 X 2	110	20	51	12,0	4	DIN 376	6HX
T630MF180X150R6HX-D4	T630MF180X150R6HX-D4	M18 X 1,5	110	15	50	14,0	4	DIN 374	6HX
T630M180X250R6HX-D6	T630M180X250R6HX-D6	M18 X 2,5	125	25	58	14,0	4	DIN 376	6HX

NOTE: Suggested for use in rigid and synchronous holders.

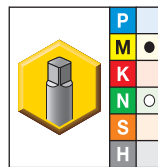
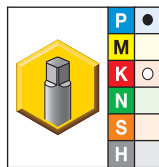
Shank Tolerance

D	tolerance h6
6	+0, -0,008
8-10	+0, -0,009
12-16	+0, -0,011

- KM6515 TiN + CrC/C for stainless steel.
- KP6525 TiCN + TiN for steel.



■ T631 • DIN 371, 374, and 376 • Form C Semi-Bottoming Chamfer • Through Coolant • Metric • For Steel and Stainless Steel • Rigid and Synchronous Holders



- first choice
- alternate choice

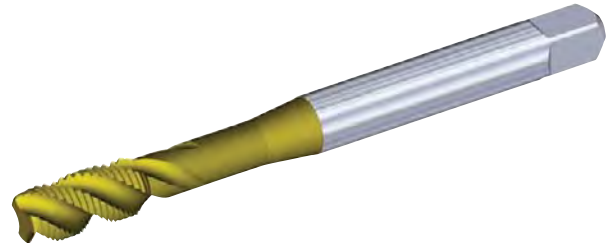
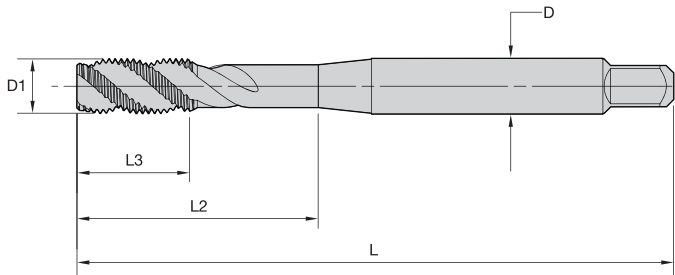
		D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
KP6525	KM6515								
T631M050X080R6HX-D1	T631M050X080R6HX-D1	M5 X 0,8	70	10	25	6,0	3	DIN 371	6HX
T631M060X100R6HX-D1	T631M060X100R6HX-D1	M6 X 1	80	10	30	6,0	3	DIN 371	6HX
T631MF080X100R6HX-D4	T631MF080X100R6HX-D4	M8 X 1	90	13	35	6,0	3	DIN 374	6HX
T631M080X125R6HX-D1	T631M080X125R6HX-D1	M8 X 1,25	90	13	35	8,0	3	DIN 371	6HX
T631MF100X100R6HX-D4	T631MF100X100R6HX-D4	M10 X 1	90	10	35	7,0	3	DIN 374	6HX
T631MF100X125R6HX-D4	T631MF100X125R6HX-D4	M10 X 1,25	100	15	39	7,0	3	DIN 374	6HX
T631M100X150R6HX-D1	T631M100X150R6HX-D1	M10 X 1,5	100	15	39	10,0	3	DIN 371	6HX
T631MF120X125R6HX-D4	T631MF120X125R6HX-D4	M12 X 1,25	100	15	39	9,0	4	DIN 374	6HX
T631MF120X150R6HX-D4	T631MF120X150R6HX-D4	M12 X 1,5	100	15	39	9,0	4	DIN 374	6HX
T631M120X175R6HX-D6	T631M120X175R6HX-D6	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
T631MF140X125R6HX-D4	T631MF140X125R6HX-D4	M14 X 1,25	100	15	47	11,0	4	DIN 374	6HX
T631MF140X150R6HX-D4	T631MF140X150R6HX-D4	M14 X 1,5	100	15	47	11,0	4	DIN 374	6HX
T631M140X200R6HX-D6	T631M140X200R6HX-D6	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
T631MF160X150R6HX-D4	T631MF160X150R6HX-D4	M16 X 1,5	100	15	46	12,0	4	DIN 374	6HX
T631M160X200R6HX-D6	T631M160X200R6HX-D6	M16 X 2	110	20	51	12,0	4	DIN 376	6HX
T631MF180X150R6HX-D4	T631MF180X150R6HX-D4	M18 X 1,5	110	15	50	14,0	4	DIN 374	6HX
T631M180X250R6HX-D6	T631M180X250R6HX-D6	M18 X 2,5	125	25	58	14,0	4	DIN 376	6HX

NOTE: Suggested for use in rigid and synchronous holders.

Shank Tolerance

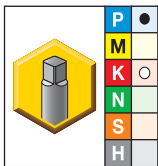
D	tolerance h6
6	+0, -0,008
8-10	+0, -0,009
12-16	+0, -0,011

- KP6525 TiCN + TiN for tapping steel.



Tapping

- T632 • DIN 371, 374, and 376 • Form E Bottoming Chamfer • Metric • For Steel • Rigid and Synchronous Holders



- first choice
- alternate choice

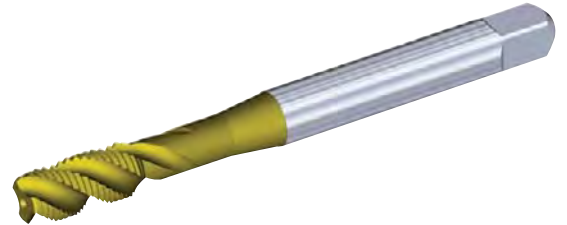
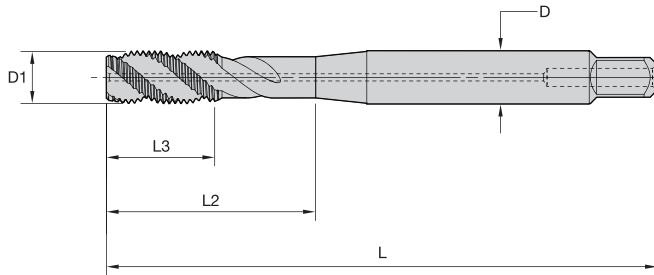
KP6525	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
T632M050X080R6HX-D1	M5 X 0,8	70	10	25	6,0	3	DIN 371	6HX
T632M060X100R6HX-D1	M6 X 1	80	10	30	6,0	3	DIN 371	6HX
T632M080X125R6HX-D1	M8 X 1,25	90	13	35	8,0	3	DIN 371	6HX
T632M100X150R6HX-D1	M10 X 1,5	100	15	39	10,0	3	DIN 371	6HX
T632MF120X150R6HX-D4	M12 X 1,5	100	15	39	9,0	4	DIN 374	6HX
T632M120X175R6HX-D6	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
T632MF140X150R6HX-D4	M14 X 1,5	100	15	47	11,0	4	DIN 374	6HX
T632M140X200R6HX-D6	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
T632MF160X150R6HX-D4	M16 X 1,5	100	15	46	12,0	4	DIN 374	6HX

NOTE: Suggested for use in rigid and synchronous holders.

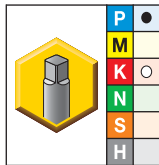
Shank Tolerance

D	tolerance h6
6	+0, -0,008
8-10	+0, -0,009
12-16	+0, -0,011

- KP6525 TiCN + TiN for tapping steel.



- T633 • DIN 371, 374, and 376 • Form E Bottoming Chamfer • Through Coolant • Metric • For Steel • Rigid and Synchronous Holders



- first choice
- alternate choice

KP6525	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
T633M050X080R6HX-D1	M5 X 0,8	70	10	25	6,0	3	DIN 371	6HX
T633M060X100R6HX-D1	M6 X 1	80	10	30	6,0	3	DIN 371	6HX
T633M080X125R6HX-D1	M8 X 1,25	90	13	35	8,0	3	DIN 371	6HX
T633M100X150R6HX-D1	M10 X 1,5	100	15	39	10,0	3	DIN 371	6HX
T633MF120X150R6HX-D4	M12 X 1,5	100	15	39	9,0	4	DIN 374	6HX
T633M120X175R6HX-D6	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
T633MF140X150R6HX-D4	M14 X 1,5	100	15	47	11,0	4	DIN 374	6HX
T633M140X200R6HX-D6	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
T633MF160X150R6HX-D4	M16 X 1,5	100	15	46	12,0	4	DIN 374	6HX

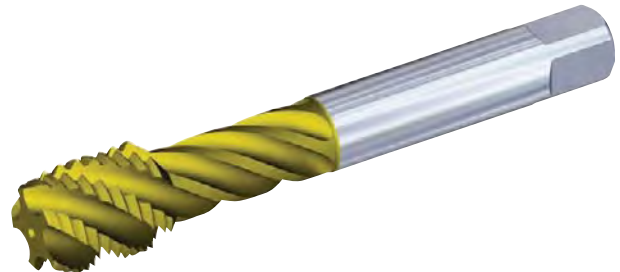
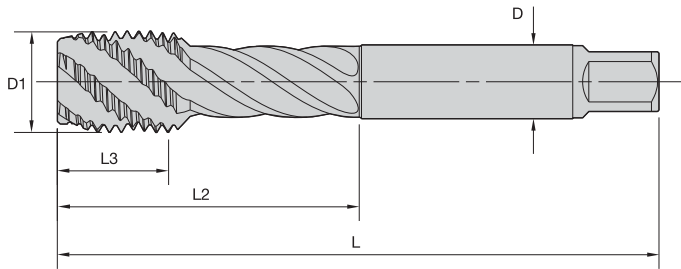
NOTE: Suggested for use in rigid and synchronous holders.

Shank Tolerance

D	tolerance h6
6	+0, -0,008
8-10	+0, -0,009
12-16	+0, -0,011

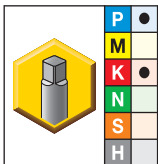
Tapping

- KP6525 TiCN + TiN for tapping steel and cast iron.



- T630 • DIN 376 • Form C Semi-Bottoming Chamfer • Larger Sizes • Metric • For Steel and Cast Iron • Rigid and Synchronous Holders

Tapping



- first choice
- alternate choice

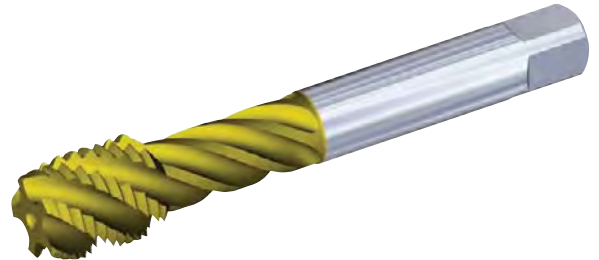
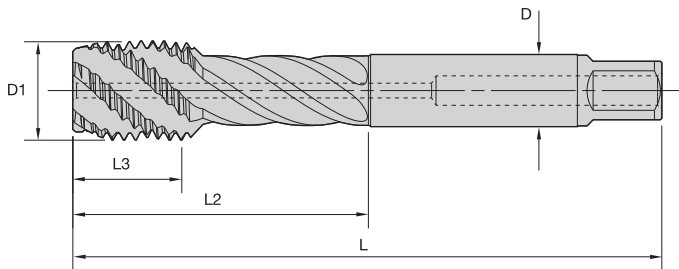
KP6525	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
T630M240X300R6HX-D6	M24 X 3	160	30	77	18,0	5	DIN 376	6HX
T630M300X350R6HX-D6	M30 X 3,5	180	35	91	22,0	5	DIN 376	6HX
T630M330X350R6HX-D6	M33 X 3,5	180	35	100	25,0	5	DIN 376	6HX
T630M360X400R6HX-D6	M36 X 4	200	40	110	28,0	5	DIN 376	6HX
T630M420X450R6HX-D6	M42 X 4,5	200	45	120	32,0	5	DIN 376	6HX

NOTE: Suggested for use in rigid and synchronous holders.

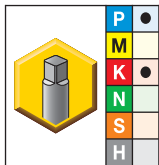
Shank Tolerance

D	tolerance h6
12-18	+0, -0,011
20-30	+0, -0,013
32-36	+0, -0,016

- KP6525 TiCN + TiN for tapping steel and cast iron.



- T631 • DIN 376 • Form C Semi-Bottoming Chamfer • Through Coolant • Larger Sizes • Metric • For Steel and Cast Iron • Rigid and Synchronous Holders



- first choice
- alternate choice

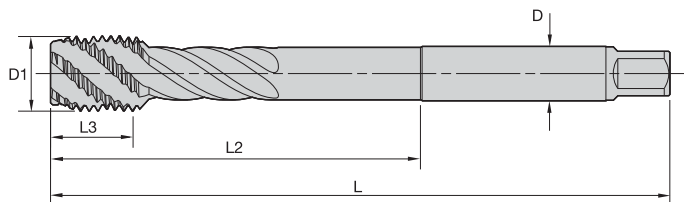
Material	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
KP6525								
T631M240X300R6HX-D6	M24 X 3	160	30	77	18,0	5	DIN 376	6HX
T631M300X350R6HX-D6	M30 X 3,5	180	35	91	22,0	5	DIN 376	6HX
T631M330X350R6HX-D6	M33 X 3,5	180	35	100	25,0	5	DIN 376	6HX
T631M360X400R6HX-D6	M36 X 4	200	40	110	28,0	5	DIN 376	6HX
T631M420X450R6HX-D6	M42 X 4,5	200	45	120	32,0	5	DIN 376	6HX

NOTE: Suggested for use in rigid and synchronous holders.

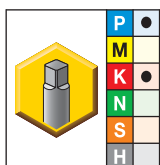
Shank Tolerance	
D	tolerance h6
12-18	+0, -0,011
20-30	+0, -0,013
32-36	+0, -0,016

Tapping

- KP6525 TiCN + TiN for tapping steel and cast iron.



T630 • Extra Long • Form C Semi-Bottoming Chamfer • Larger Sizes • Metric • For Steel and Cast Iron • Rigid and Synchronous Holders



- first choice
- alternate choice

KP6525	D1 size	L	L3	L2	D	number of flutes	class of fit
T630M240X300R6HX-XL	M24 X 3	200	30	120	18,0	5	6HX
T630M300X350R6HX-XL	M30 X 3,5	250	35	150	22,0	5	6HX
T630M330X350R6HX-XL	M33 X 3,5	250	35	150	25,0	5	6HX
T630M360X400R6HX-XL	M36 X 4	250	40	150	28,0	5	6HX
T630M420X450R6HX-XL	M42 X 4,5	300	45	180	32,0	5	6HX

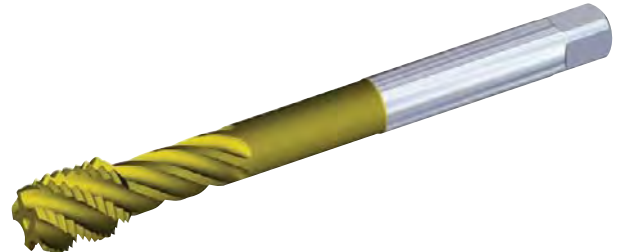
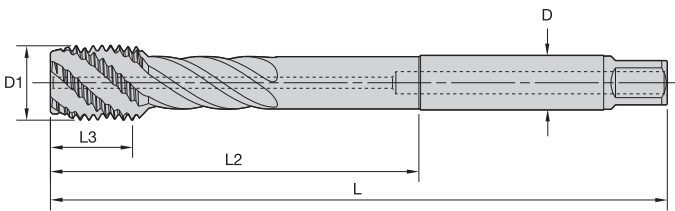
NOTE: Suggested for use in rigid and synchronous holders.

Shank Tolerance

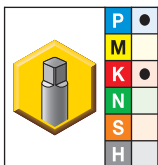
D	tolerance h6
12-18	+0, -0,011
20-30	+0, -0,013
32-36	+0, -0,016

Tapping

- KP6525 TiCN + TiN for tapping steel and cast iron.



- T631 • Extra Long • Form C Semi-Bottoming Chamfer • Through Coolant • Larger Sizes • Metric • For Steel and Cast Iron • Rigid and Synchronous Holders



- first choice
- alternate choice

KP6525	D1 size	L	L3	L2	D	number of flutes	class of fit
T631M240X300R6HX-XL	M24 X 3	200	30	120	18,0	5	6HX
T631M300X350R6HX-XL	M30 X 3,5	250	35	150	22,0	5	6HX
T631M330X350R6HX-XL	M33 X 3,5	250	35	150	25,0	5	6HX
T631M360X400R6HX-XL	M36 X 4	250	40	150	28,0	5	6HX
T631M420X450R6HX-XL	M42 X 4,5	300	45	180	32,0	5	6HX

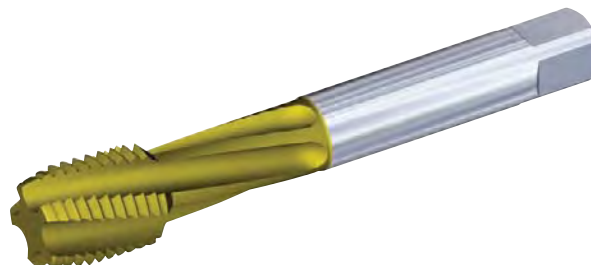
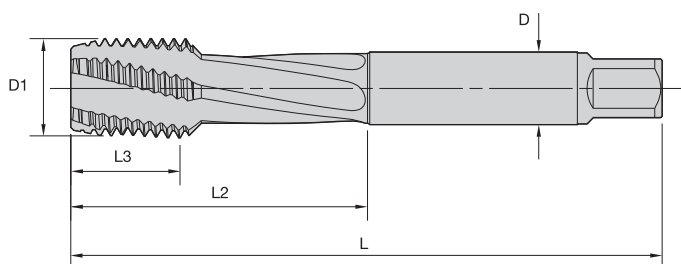
NOTE: Suggested for use in rigid and synchronous holders.

Shank Tolerance

D	tolerance h6
12-18	+0, -0,011
20-30	+0, -0,013
32-36	+0, -0,016

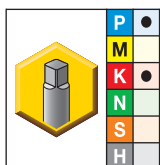


- KP6525 TiCN + TiN for tapping steel and cast iron.



■ T650 • DIN 376 • Form C Semi-Bottoming Chamfer • Larger Sizes • Metric • For Steel and Cast Iron

Tapping



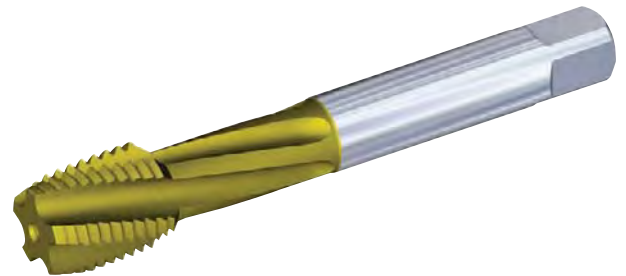
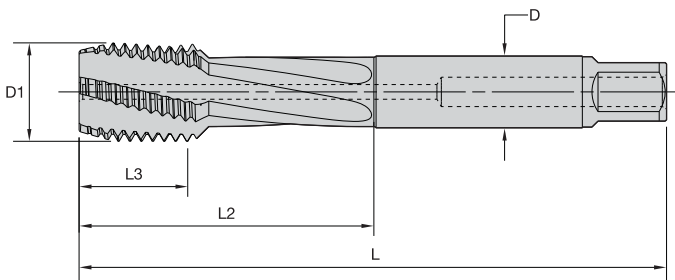
- first choice
- alternate choice

KP6525	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
T650M240X300R6HX-D6	M24 X 3	160	30	77	18,0	4	DIN 376	6HX
T650M300X350R6HX-D6	M30 X 3,5	180	35	91	22,0	5	DIN 376	6HX
T650M330X350R6HX-D6	M33 X 3,5	180	35	100	25,0	5	DIN 376	6HX
T650M360X400R6HX-D6	M36 X 4	200	40	110	28,0	5	DIN 376	6HX
T650M420X450R6HX-D6	M42 X 4,5	200	45	120	32,0	6	DIN 376	6HX

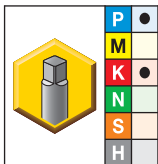
Shank Tolerance

D	tolerance h6
12-18	+0, -0,011
20-30	+0, -0,013
32-36	+0, -0,016

- KP6525 TiCN + TiN for tapping steel and cast iron.



- T651 • DIN 376 • Form C Semi-Bottoming Chamfer • Through Coolant • Larger Sizes • Metric • For Steel and Cast Iron



- first choice
- alternate choice

KP6525	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
T651M240X300R6HX-D6	M24 X 3	160	30	77	18,0	4	DIN 376	6HX
T651M300X350R6HX-D6	M30 X 3,5	180	35	91	22,0	5	DIN 376	6HX
T651M330X350R6HX-D6	M33 X 3,5	180	35	100	25,0	5	DIN 376	6HX
T651M360X400R6HX-D6	M36 X 4	200	40	110	28,0	5	DIN 376	6HX
T651M420X450R6HX-D6	M42 X 4,5	200	45	120	32,0	6	DIN 376	6HX

Shank Tolerance

D	tolerance h6
12-18	+0, -0,011
20-30	+0, -0,013
32-36	+0, -0,016

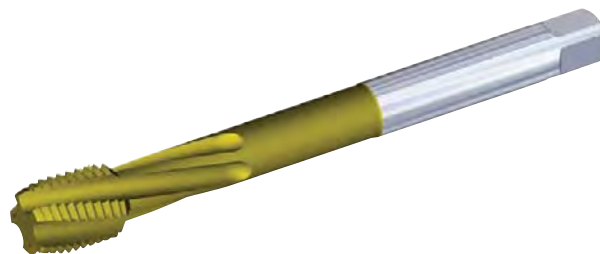
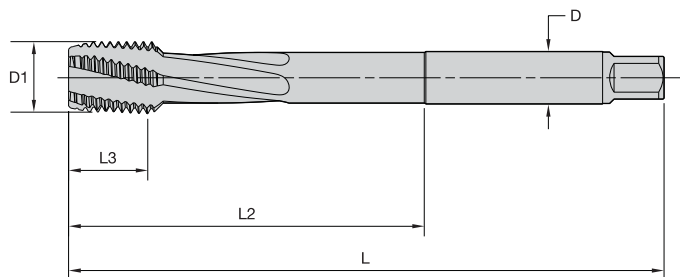


High-Performance Taps

Beyond™ Spiral-Flute HSS-E-PM Taps • Blind Holes

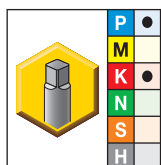


- KP6525 TiCN + TiN for tapping steel and cast iron.



■ T650 • Extra Long • Form C Semi-Bottoming Chamfer • Larger Sizes • Metric • For Steel and Cast Iron

Tapping



● first choice

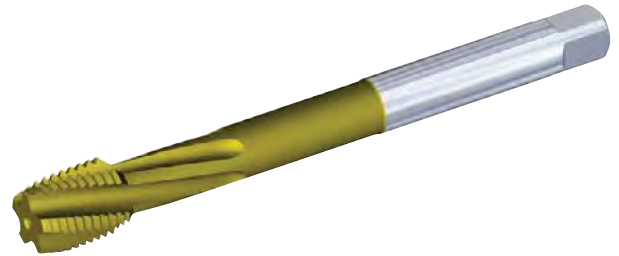
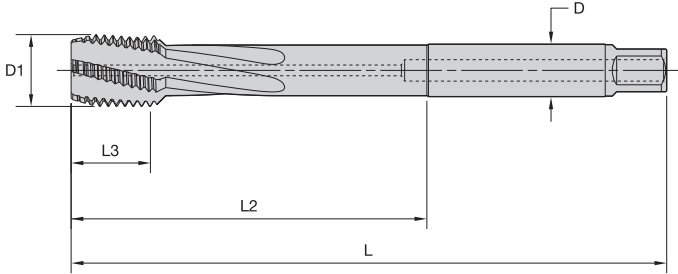
○ alternate choice

KP6525	D1 size	L	L3	L2	D	number of flutes	class of fit
T650M240X300R6HX-XL	M24 X 3	200	30	120	18,0	4	6HX
T650M300X350R6HX-XL	M30 X 3,5	250	35	150	22,0	5	6HX
T650M330X350R6HX-XL	M33 X 3,5	250	35	150	25,0	5	6HX
T650M360X400R6HX-XL	M36 X 4	250	40	150	28,0	5	6HX
T650M420X450R6HX-XL	M42 X 4,5	300	45	180	32,0	6	6HX

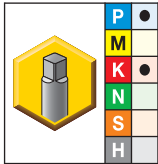
Shank Tolerance

D	tolerance h6
12-18	+0, -0,011
20-30	+0, -0,013
32-36	+0, -0,016

- KP6525 TiCN + TiN for tapping steel and cast iron.



- T651 • Extra Long • Form C Semi-Bottoming Chamfer • Through Coolant • Larger Sizes • Metric • For Steel and Cast Iron



- first choice
- alternate choice

KP6525	D1 size	L	L3	L2	D	number of flutes	class of fit
T651M240X300R6HX-XL	M24 X 3	200	30	120	18,0	4	6HX
T651M300X350R6HX-XL	M30 X 3,5	250	35	150	22,0	5	6HX
T651M330X350R6HX-XL	M33 X 3,5	250	35	150	25,0	5	6HX
T651M360X400R6HX-XL	M36 X 4	250	40	150	28,0	5	6HX
T651M420X450R6HX-XL	M42 X 4,5	300	45	180	32,0	6	6HX

Shank Tolerance

D	tolerance h6
12-18	+0, -0,011
20-30	+0, -0,013
32-36	+0, -0,016

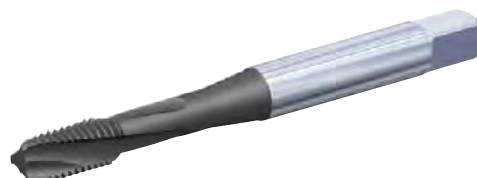
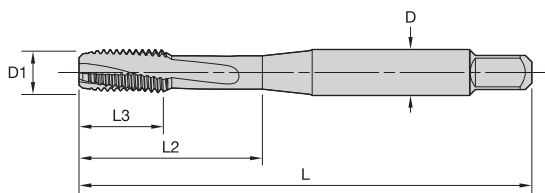
Tapping

High-Performance Taps

Beyond™ Spiral-Flute HSS-E-PM Taps • Blind Holes

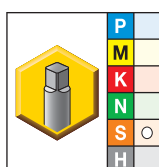
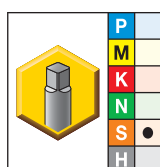


- KSS29 oxide/nitride for nickel- and cobalt-based alloys.
- KSP27 AlCrTiN for nickel- and cobalt-based alloys.



■ T692 • Machine Screw and Fractional • 3–4 Pitches Chamfer • ANSI • For Nickel- and Cobalt-Based Alloys

Tapping

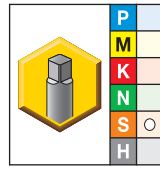
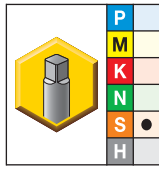


- first choice
- alternate choice

KSP27	KSS29	D1 size	L	L3	L2	D	number of flutes	pitch diameter limit
T692NC#02-56RH2-A *	T692NC#02-56RH2-A	2 - 56	1.75	.44	.50	.141	3	H2
—	T692NC#03-48RH2-A	3 - 48	1.81	.50	.56	.141	3	H2
T692NC#04-40RH2-A	T692NC#04-40RH2-A	4 - 40	1.88	.56	.69	.141	3	H2
T692NC#04-40RH3-A	T692NC#04-40RH3-A	4 - 40	1.88	.56	.69	.141	3	H3
—	T692NF#04-40RH5-A	4 - 40	1.88	.56	.69	.141	3	H5
—	T692NC#05-40RH2-A	5 - 40	1.95	.63	.76	.141	3	H2
—	T692NC#06-32RH2-A	6 - 32	1.99	.36	.71	.141	3	H2
T692NC#06-32RH3-A	T692NC#06-32RH3-A	6 - 32	1.99	.36	.71	.141	3	H3
—	T692NC#06-32RH5-A	6 - 32	2.03	.36	.71	.141	3	H5
T692NC#06-32RH7-A	T692NC#06-32RH7-A	6 - 32	2.03	.36	.71	.141	3	H7
—	T692NF#06-40RH2-A	6 - 40	2.03	.36	.71	.141	3	H2
—	T692NC#08-32RH2-A	8 - 32	2.16	.31	.76	.168	3	H2
T692NC#08-32RH3-A	T692NC#08-32RH3-A	8 - 32	2.12	.31	.76	.168	3	H3
T692NC#08-32RH4-A	T692NC#08-32RH4-A	8 - 32	2.16	.31	.76	.168	3	H4
T692NC#08-32RH5-A *	T692NC#08-32RH5-A	8 - 32	2.16	.31	.76	.168	3	H5
—	T692NC#08-32RH6-A	8 - 32	2.16	.31	.76	.168	3	H6
—	T692NC#10-24RH3-A	10 - 24	2.37	.47	.91	.194	3	H3
T692NC#10-24RH5-A	T692NC#10-24RH5-A	10 - 24	2.42	.47	.91	.194	3	H5
T692NF#10-32RH2-A	T692NF#10-32RH2-A	10 - 32	2.37	.47	.91	.194	3	H2
T692NF#10-32RH3-A	T692NF#10-32RH3-A	10 - 32	2.37	.47	.91	.194	3	H3
—	T692NF#10-32RH5-A	10 - 32	2.42	.47	.91	.194	3	H5
—	T692NF#10-32RH7-A	10 - 32	2.42	.47	.91	.194	3	H7
T692NC02500-20RH3-A	T692NC02500-20RH3-A	1/4 - 20	2.50	.44	1.00	.255	3	H3
—	T692NC02500-20RH5-A	1/4 - 20	2.50	.44	1.00	.255	3	H5
T692NF02500-28RH3-A	T692NF02500-28RH3-A	1/4 - 28	2.50	.44	1.00	.255	3	H3
—	T692NF02500-28RH5-A	1/4 - 28	2.50	.44	1.00	.255	3	H5
—	T692NF02500-28RH6-A	1/4 - 28	2.50	.44	1.00	.255	3	H6
—	T692NF02500-28RH7-A	1/4 - 28	2.50	.44	1.00	.255	3	H7
T692NC03125-18RH3-A	T692NC03125-18RH3-A	5/16 - 18	2.72	.49	1.13	.318	3	H3
T692NC03125-18RH5-A	T692NC03125-18RH5-A	5/16 - 18	2.72	.49	1.13	.318	3	H5
—	T692NC03125-18RH7-A	5/16 - 18	2.72	.49	1.13	.318	3	H7
T692NF03125-24RH3-A	T692NF03125-24RH3-A	5/16 - 24	2.72	.49	1.13	.318	3	H3

(continued)

(T692 • Machine Screw and Fractional • 3-4 Pitches Chamfer • ANSI • For Nickel- and Cobalt-Based Alloys — continued)



● first choice
○ alternate choice

KSP27	KSS29	D1 size	L	L3	L2	D	number of flutes	pitch diameter limit
—	T692NF03125-24RH4-A	5/16 - 24	2.72	.49	1.13	.318	3	H4
—	T692NF03125-24RH5-A	5/16 - 24	2.72	.49	1.13	.318	3	H5
—	T692NF03125-24RH6-A	5/16 - 24	2.72	.49	1.13	.318	3	H6
—	T692NF03125-24RH7-A	5/16 - 24	2.72	.49	1.13	.318	3	H7
T692NC03750-16RH3-A	T692NC03750-16RH3-A	3/8 - 16	2.94	.60	1.27	.381	3	H3
T692NC03750-16RH5-A *	T692NC03750-16RH5-A	3/8 - 16	2.94	.60	1.27	.381	3	H5
T692NF03750-24RH3-A	T692NF03750-24RH3-A	3/8 - 24	2.94	.60	1.27	.381	3	H3
T692NF03750-24RH4-A	T692NF03750-24RH4-A	3/8 - 24	2.94	.60	1.27	.381	3	H4
T692NF03750-24RH5-A	T692NF03750-24RH5-A	3/8 - 24	2.94	.60	1.27	.381	3	H5
—	T692NF03750-24RH6-A	3/8 - 24	2.94	.60	1.27	.381	3	H6
—	T692NC04375-14RH3-A	7/16 - 14	3.16	.71	1.49	.323	3	H3
—	T692NC04375-14RH5-A	7/16 - 14	3.16	.71	1.49	.323	3	H5
T692NF04375-20RH3-A	T692NF04375-20RH3-A	7/16 - 20	3.16	.71	1.49	.323	3	H3
—	T692NF04375-20RH5-A	7/16 - 20	3.16	.71	1.49	.323	3	H5
T692NC05000-13RH3-A	T692NC05000-13RH3-A	1/2 - 13	3.38	.77	1.74	.367	3	H3
T692NC05000-13RH5-A	T692NC05000-13RH5-A	1/2 - 13	3.38	.77	1.74	.367	3	H5
T692NF05000-20RH3-A	T692NF05000-20RH3-A	1/2 - 20	3.38	.77	1.74	.367	3	H3
T692NF05000-20RH5-A	T692NF05000-20RH5-A	1/2 - 20	3.38	.77	1.74	.367	3	H5
—	T692NF05000-20RH7-A	1/2 - 20	3.38	.77	1.74	.367	3	H7
T692NC06250-11RH3-A	T692NC06250-11RH3-A	5/8 - 11	3.81	.91	1.89	.480	3	H3
—	T692NC06250-11RH5-A	5/8 - 11	3.81	1.31	1.89	.480	3	H5
—	T692NC06250-11RH7-A	5/8 - 11	3.81	.91	1.89	.480	3	H7
—	T692NF06250-18RH3-A	5/8 - 18	3.81	1.31	1.89	.480	3	H3
—	T692NC07500-10RH3-A	3/4 - 10	4.25	1.59	2.08	.590	3	H3
—	T692NC07500-10RH5-A	3/4 - 10	4.25	1.00	2.08	.590	3	H5
—	T692NF07500-16RH3-A	3/4 - 16	4.25	1.00	2.08	.590	3	H3
—	T692NF07500-16RH5-A	3/4 - 16	4.25	1.00	2.08	.590	3	H5

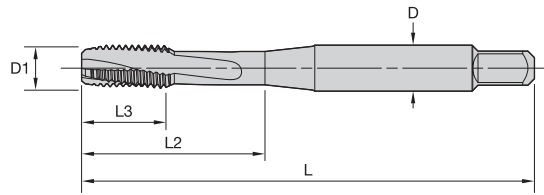


NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

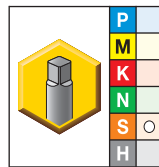
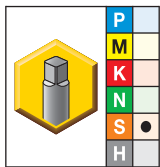
Shank Tolerance

D	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004

- KSS29 oxide/nitride for nickel- and cobalt-based alloys.
- KSP27 AlCrTiN for nickel- and cobalt-based alloys.



■ T692 • 3–4 Pitches Chamfer • Metric ANSI • For Nickel- and Cobalt-Based Alloys



- first choice
- alternate choice

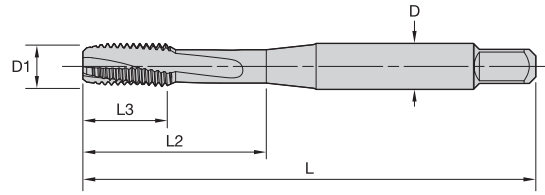
		D1 size	L	L3	L2	D	number of flutes	pitch diameter limit
KSP27	KSS29							
T692M025X045RD3-A	T692M025X045RD3-A	M2,5 X 0,45	1.81	.50	.56	.141	3	D3
T692M030X050RD3-A	T692M030X050RD3-A *	M3 X 0,5	1.94	.63	.75	.141	3	D3
T692M040X070RD4-A *	T692M040X070RD4-A	M4 X 0,7	2.12	.32	.76	.168	3	D4
T692M050X080RD4-A	T692M050X080RD4-A	M5 X 0,8	2.37	.47	.91	.194	3	D4
T692M060X100RD5-A	T692M060X100RD5-A	M6 X 1	2.50	.46	1.00	.255	3	D5
T692MF080X100RD5-A	T692MF080X100RD5-A	M8 X 1	2.70	.48	1.12	.318	3	D5
T692M080X125RD5-A	T692M080X125RD5-A	M8 X 1,25	2.70	.48	1.12	.318	3	D5
T692MF100X125RD5-A	T692MF100X125RD5-A	M10 X 1,25	2.92	.53	1.26	.381	3	D5
T692M100X150RD6-A	T692M100X150RD6-A	M10 X 1,5	2.92	.53	1.26	.381	3	D6
T692M120X175RD6-A *	T692M120X175RD6-A	M12 X 1,75	3.38	.77	1.74	.367	3	D6

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

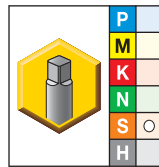
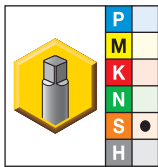
Shank Tolerance

D	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004

- KSS29 oxide/nitride for nickel- and cobalt-based alloys.
- KSP27 AlCrTiN for nickel- and cobalt-based alloys.



■ T694 • Machine Screw and Fractional • Form E Bottoming Chamfer • ANSI • For Nickel- and Cobalt-Based Alloys



- first choice
- alternate choice

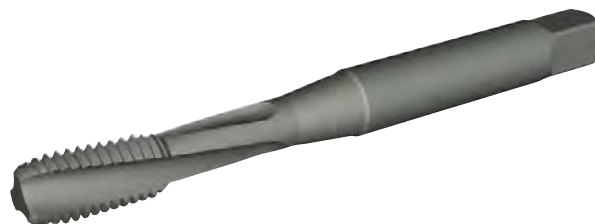
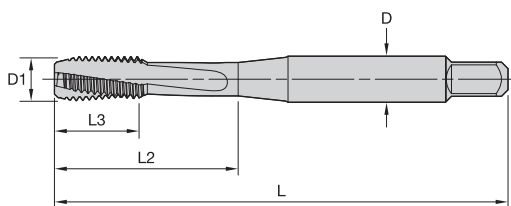
KSP27	KSS29	D1 size	L	L3	L2	D	number of flutes	pitch diameter limit
T694NC#04-40RH2-A	T694NC#04-40RH2-A	4 - 40	1.88	.56	.70	.141	3	H2
—	T694NC#04-40RH3-A	4 - 40	1.88	.56	.69	.141	3	H3
—	T694NC#05-40RH2-A	5 - 40	1.95	.63	.76	.141	3	H2
T694NC#06-32RH3-A	T694NC#06-32RH3-A	6 - 32	1.99	.36	.71	.141	3	H3
—	T694NC#06-32RH5-A	6 - 32	2.03	.36	.71	.141	3	H5
—	T694NF#06-40RH2-A	6 - 40	2.03	.36	.71	.141	3	H2
T694NC#08-32RH3-A	T694NC#08-32RH3-A	8 - 32	2.12	.31	.76	.168	3	H3
T694NC#10-24RH3-A	T694NC#10-24RH3-A	10 - 24	2.42	.47	.91	.194	3	H3
T694NF#10-32RH3-A	T694NF#10-32RH3-A	10 - 32	2.37	.47	.91	.194	3	H3
T694NC02500-20RH3-A *	T694NC02500-20RH3-A	1/4 - 20	2.50	.44	1.00	.255	3	H3
—	T694NC02500-20RH5-A *	1/4 - 20	2.50	.44	1.00	.255	3	H5
T694NF02500-28RH3-A	T694NF02500-28RH3-A	1/4 - 28	2.50	.44	1.00	.255	3	H3
—	T694NF02500-28RH4-A	1/4 - 28	2.50	.44	1.00	.255	3	H4
T694NC03125-18RH3-A *	T694NC03125-18RH3-A	5/16 - 18	2.72	.49	1.13	.318	3	H3
T694NF03125-24RH3-A *	T694NF03125-24RH3-A	5/16 - 24	2.72	.49	1.13	.318	3	H3
—	T694NF03125-24RH4-A	5/16 - 24	2.72	.49	1.13	.318	3	H4
T694NC03750-16RH3-A	T694NC03750-16RH3-A	3/8 - 16	2.94	.60	1.27	.381	3	H3
—	T694NC03750-16RH5-A	3/8 - 16	2.94	.60	1.27	.381	3	H5
T694NF03750-24RH3-A	T694NF03750-24RH3-A	3/8 - 24	2.94	.60	1.27	.381	3	H3
—	T694NF03750-24RH4-A	3/8 - 24	2.94	.60	1.27	.381	3	H4
—	T694NC04375-14RH5-A	7/16 - 14	3.16	.71	1.49	.323	3	H5
T694NF04375-20RH3-A	T694NF04375-20RH3-A	7/16 - 20	3.16	.71	1.49	.323	3	H3
—	T694NF04375-20RH5-A	7/16 - 20	3.16	.71	1.49	.323	3	H5
—	T694NC05000-13RH5-A	1/2 - 13	3.38	.77	1.74	.367	3	H5
—	T694NF05000-20RH5-A	1/2 - 20	3.38	.77	1.74	.367	3	H5
T694NC06250-11RH3-A	T694NC06250-11RH3-A	5/8 - 11	3.81	.91	1.89	.480	3	H3
T694NF06250-18RH3-A	T694NF06250-18RH3-A	5/8 - 18	3.81	.91	1.89	.480	3	H3

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Shank Tolerance

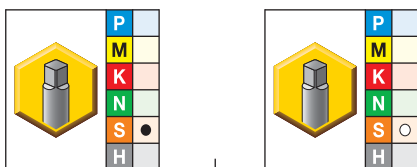
D	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004

- KSS20 nitride for titanium and titanium alloys.
- KSSM24 TiN + CrC/C for titanium and titanium alloys.



T662 • Machine Screw and Fractional • Form C Semi-Bottoming Chamfer • ANSI • For Titanium and Titanium Alloys

Tapping

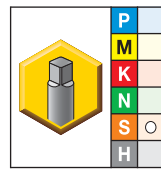
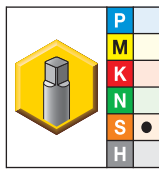


- first choice
- alternate choice

		D1 size	L	L3	L2	D	number of flutes	pitch diameter limit
KSSM24	KSS20							
T662NC#02-56RH2-A	T662NC#02-56RH2-A *	2 - 56	1.75	.44	.50	.141	3	H2
T662NC#04-40RH2-A	T662NC#04-40RH2-A	4 - 40	1.88	.56	.69	.142	3	H2
T662NC#06-32RH2-A *	T662NC#06-32RH2-A *	6 - 32	1.99	.36	.71	.141	3	H2
T662NC#06-32RH3-A *	T662NC#06-32RH3-A	6 - 32	1.99	.36	.71	.141	3	H3
T662NF#06-40RH2-A	T662NF#06-40RH2-A	6 - 40	1.99	.36	.71	.141	3	H2
T662NC#08-32RH2-A	T662NC#08-32RH2-A	8 - 32	2.12	.31	.77	.168	3	H2
T662NC#08-32RH3-A	T662NC#08-32RH3-A	8 - 32	2.12	.31	.77	.168	3	H3
T662NF#08-36RH2-A *	T662NF#08-36RH2-A	8 - 36	2.12	.31	.77	.168	3	H2
T662NC#10-24RH3-A	T662NC#10-24RH3-A	10 - 24	2.37	.47	.92	.194	3	H3
T662NF#10-32RH2-A *	T662NF#10-32RH2-A	10 - 32	2.37	.47	.91	.194	3	H2
T662NF#10-32RH3-A *	T662NF#10-32RH3-A	10 - 32	2.37	.47	.91	.194	3	H3
T662NC02500-20RH3-A	T662NC02500-20RH3-A	1/4 - 20	2.50	.44	1.01	.255	3	H3
T662NC02500-20RH5-A	T662NC02500-20RH5-A	1/4 - 20	2.50	.44	1.00	.255	3	H5
T662NF02500-28RH3-A	T662NF02500-28RH3-A	1/4 - 28	2.50	.44	1.01	.255	3	H3
T662NF02500-28RH4-A *	T662NF02500-28RH4-A	1/4 - 28	2.50	.44	1.01	.255	3	H4
T662NF02500-28RH5-A	T662NF02500-28RH5-A	1/4 - 28	2.50	.44	1.01	.255	3	H5
T662NC03125-18RH3-A	T662NC03125-18RH3-A	5/16 - 18	2.72	.49	1.13	.318	3	H3
T662NC03125-18RH5-A	T662NC03125-18RH5-A *	5/16 - 18	2.72	.49	1.13	.318	3	H5
T662NF03125-24RH3-A	T662NF03125-24RH3-A *	5/16 - 24	2.72	.49	1.13	.318	3	H3
T662NF03125-24RH4-A	T662NF03125-24RH4-A	5/16 - 24	2.72	.49	1.13	.318	3	H4
T662NC03750-16RH3-A	T662NC03750-16RH3-A	3/8 - 16	2.93	.59	1.26	.381	3	H3
T662NC03750-16RH5-A *	T662NC03750-16RH5-A	3/8 - 16	2.93	.59	1.26	.381	3	H5
T662NF03750-24RH3-A *	T662NF03750-24RH3-A *	3/8 - 24	2.93	.59	1.26	.381	3	H3
T662NF03750-24RH4-A	T662NF03750-24RH4-A	3/8 - 24	2.93	.59	1.26	.381	3	H4
T662NC04375-14RH3-A	T662NC04375-14RH3-A	7/16 - 14	3.16	.71	1.49	.323	3	H3
T662NC04375-14RH5-A	T662NC04375-14RH5-A	7/16 - 14	3.16	.71	1.49	.323	3	H5
T662NF04375-20RH3-A	T662NF04375-20RH3-A *	7/16 - 20	3.16	.71	1.49	.323	3	H3
T662NF04375-20RH5-A	T662NF04375-20RH5-A	7/16 - 20	3.16	.71	1.49	.323	3	H5

(continued)

(T662 • Machine Screw and Fractional • Form C Semi-Bottoming Chamfer • ANSI • For Titanium and Titanium Alloys – continued)



- first choice
- alternate choice

		D1 size	L	L3	L2	D	number of flutes	pitch diameter limit
KSSM24	KSS20							
T662NC05000-13RH3-A	T662NC05000-13RH3-A *	1/2 - 13	3.38	.77	1.74	.367	3	H3
T662NC05000-13RH5-A	T662NC05000-13RH5-A	1/2 - 13	3.38	.77	1.74	.367	3	H5
T662NF05000-20RH3-A	T662NF05000-20RH3-A	1/2 - 20	3.38	.77	1.74	.367	3	H3
T662NF05000-20RH5-A	T662NF05000-20RH5-A	1/2 - 20	3.38	.77	1.74	.367	3	H5
T662NF05625-18RH3-A	—	9/16 - 18	3.59	.83	1.74	.429	4	H3
T662NF05625-18RH5-A	—	9/16 - 18	3.59	.83	1.74	.429	4	H5
T662NC06250-11RH3-A	—	5/8 - 11	3.81	.91	1.89	.480	4	H3
T662NF06250-18RH3-A	—	5/8 - 18	3.81	.91	1.89	.480	4	H3
T662NF06250-18RH5-A	—	5/8 - 18	3.81	.91	1.89	.480	4	H5
T662NC07500-10RH5-A	—	3/4 - 10	4.25	1.00	2.08	.590	4	H5
T662NF07500-16RH3-A	—	3/4 - 16	4.25	1.00	2.08	.590	4	H3
T662NF07500-16RH5-A	—	3/4 - 16	4.25	1.00	2.08	.590	4	H5
T662NC10000-08RH5-A	—	1 - 8	5.12	1.25	2.58	.800	4	H5

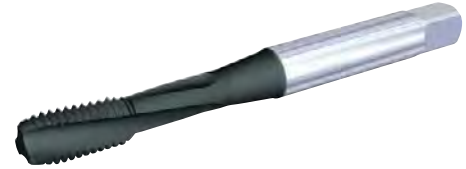
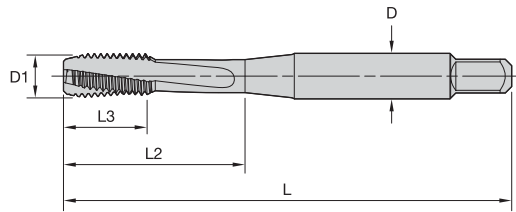
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Shank Tolerance

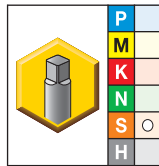
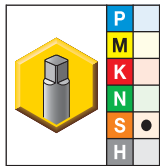
D	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004



- KSS20 nitride for titanium and titanium alloys.
- KSSM24 TiN + CrC/C for titanium and titanium alloys.



■ T662 • Form C Semi-Bottoming Chamfer • Metric ANSI • For Titanium and Titanium Alloys



- first choice
- alternate choice

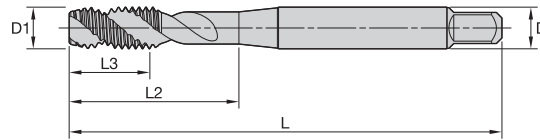
		D1 size	L	L3	L2	D	number of flutes	pitch diameter limit
KSSM24	KSS20							
T662M025X045RD3-A	T662M025X045RD3-A *	M2,5 X 0,45	1.81	.50	.56	.141	3	D3
T662M030X050RD3-A	T662M030X050RD3-A	M3 X 0,5	1.94	.63	.75	.141	3	D3
T662M040X070RD4-A	T662M040X070RD4-A	M4 X 0,7	2.12	.32	.76	.168	3	D4
T662M050X080RD4-A	T662M050X080RD4-A	M5 X 0,8	2.37	.46	.91	.194	3	D4
T662M060X100RD5-A	T662M060X100RD5-A	M6 X 1	2.50	.46	1.00	.255	3	D5
T662M070X100RD5-A	T662M070X100RD5-A	M7 X 1	2.72	.52	1.15	.318	3	D5
T662M080X125RD5-A	T662M080X125RD5-A *	M8 X 1,25	2.70	.48	1.12	.318	3	D5
T662MF100X125RD5-A *	T662MF100X125RD5-A *	M10 X 1,25	2.93	.53	1.26	.381	3	D5
T662M100X150RD6-A *	T662M100X150RD6-A	M10 X 1,5	2.93	.53	1.26	.381	3	D6
T662M120X175RD6-A	T662M120X175RD6-A	M12 X 1,75	3.38	.77	1.74	.367	3	D6

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

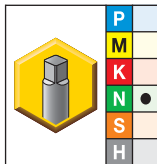
Shank Tolerance

D	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004

• KSMN34 TiN + CrC/C for aluminum.



T682 • Machine Screw and Fractional • Form C Semi-Bottoming Chamfer • DIN Length ANSI Shank • For Wrought Aluminum



● first choice
○ alternate choice

KSMN34	D1 size	L	L3	L2	D	number of flutes	class of fit
T682NC#02-56R2B-DA	2 - 56	1.77	.31	.71	.141	2	2B
T682NC#04-40R3B-DA	4 - 40	2.20	.31	.71	.141	2	3B
T682NC#05-40R3B-DA	5 - 40	2.20	.31	.71	.141	2	3B
T682NC#06-32R2B-DA	6 - 32	2.20	.35	.79	.141	2	2B
T682NC#08-32R2B-DA	8 - 32	2.48	.43	.83	.168	2	2B
T682NC#10-24R2B-DA	10 - 24	2.76	.47	.98	.194	2	2B
T682NF#10-32R2B-DA	10 - 32	2.76	.47	.98	.194	2	2B
T682NC02500-20R2B-DA	1/4 - 20	3.15	.59	1.18	.255	2	2B
T682NC02500-20R3B-DA	1/4 - 20	3.15	.59	1.18	.255	2	3B
T682NF02500-28R2B-DA	1/4 - 28	3.15	.59	1.18	.255	2	2B
T682NF02500-28R3B-DA	1/4 - 28	3.15	.59	1.18	.255	2	3B
T682NC03125-18R2B-DA	5/16 - 18	3.54	.59	1.38	.318	2	2B
T682NC03125-18R3B-DA	5/16 - 18	3.54	.59	1.38	.318	2	3B
T682NF03125-24R2B-DA	5/16 - 24	3.54	.59	1.38	.318	2	2B
T682NF03125-24R3B-DA	5/16 - 24	3.54	.59	1.38	.318	2	3B
T682NC03750-16R2B-DA	3/8 - 16	3.94	.75	1.54	.381	2	2B
T682NC03750-16R3B-DA	3/8 - 16	3.94	.75	1.54	.381	2	3B
T682NF03750-24R2B-DA *	3/8 - 24	3.94	.75	1.54	.381	2	2B
T682NF03750-24R3B-DA	3/8 - 24	3.94	.75	1.54	.381	2	3B
T682NC04375-14R2B-DA	7/16 - 14	3.94	.71	1.61	.323	3	2B
T682NC04375-14R3B-DA	7/16 - 14	3.94	.71	1.61	.323	3	3B
T682NF04375-20R2B-DA	7/16 - 20	3.94	.71	1.61	.323	3	2B
T682NF04375-20R3B-DA	7/16 - 20	3.94	.71	1.61	.323	3	3B
T682NC05000-13R2B-DA	1/2 - 13	4.33	.91	1.85	.367	3	2B
T682NC05000-13R3B-DA	1/2 - 13	4.33	.91	1.85	.367	3	3B
T682NF05000-20R2B-DA	1/2 - 20	4.33	.91	1.85	.367	3	2B
T682NF05000-20R3B-DA	1/2 - 20	4.33	.91	1.85	.367	3	3B

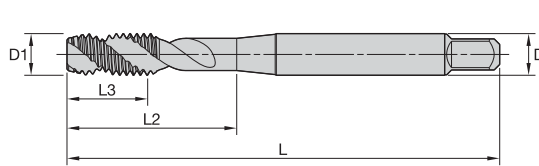
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Shank Tolerance

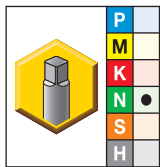
D inch	tolerance h9
.141-.635	+0, -.0015
<.635-1.51	+0, -.0020
>1.51-2.01	+0, -.0030



• KSMN34 TiN + CrC/C for aluminum.



■ T682 • Form C Semi-Bottoming • Metric • DIN Length ANSI Shank • For Wrought Aluminum



● first choice

○ alternate choice

KSMN34	D1 size	L	L3	L2	D	number of flutes	class of fit
T682M030X050R6H-DA	M3 X 0,5	2.20	.31	.71	.141	2	6H
T682M035X060R6H-DA	M3,5 X 0,6	2.20	.35	.79	.141	2	6H
T682M040X070R6H-DA	M4 X 0,7	2.48	.43	.83	.168	2	6H
T682M050X080R6H-DA	M5 X 0,8	2.76	.47	.98	.194	2	6H
T682M060X100R6H-DA	M6 X 1	3.15	.47	1.18	.255	2	6H
T682M070X100R6H-DA *	M7 X 1	3.54	.59	1.38	.318	2	6H
T682MF080X100R6H-DA	M8 X 1	3.54	.59	1.38	.318	2	6H
T682M080X125R6H-DA	M8 X 1,25	3.54	.59	1.38	.318	2	6H
T682MF100X125R6H-DA	M10 X 1,25	3.94	.71	1.54	.381	2	6H
T682M100X150R6H-DA	M10 X 1,5	3.94	.71	1.54	.381	2	6H
T682MF120X125R6H-DA	M12 X 1,25	4.33	.83	1.73	.367	3	6H
T682MF120X150R6H-DA	M12 X 1,5	4.33	.83	1.73	.367	3	6H
T682M120X175R6H-DA	M12 X 1,75	4.33	.83	1.73	.367	3	6H

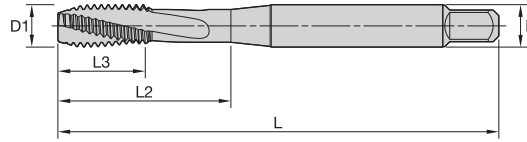
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Shank Tolerance

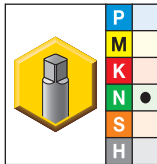
D inch	tolerance h9
.141-.635	+0, -.0015
<.635-1.51	+0, -.0020
>1.51-2.01	+0, -.0030

Tapping

• KSMN34 TiN + CrC/C for aluminum.



**T686 • Machine Screw and Fractional • Form C Semi-Bottoming Chamfer •
DIN Length ANSI Shank • For Cast Aluminum**



● first choice
○ alternate choice

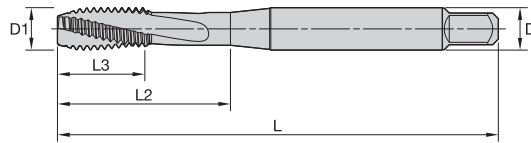
KSMN34	D1 size	L	L3	L2	D	number of flutes	class of fit
T686NC#02-56R2B-DA	2 - 56	1.77	.31	.71	.141	3	2B
T686NC#04-40R3B-DA	4 - 40	2.20	.31	.71	.141	3	3B
T686NC#06-32R2B-DA	6 - 32	2.20	.35	.79	.141	3	2B
T686NC#08-32R2B-DA	8 - 32	2.48	.43	.83	.168	3	2B
T686NC#10-24R2B-DA	10 - 24	2.76	.47	.98	.194	3	2B
T686NF#10-32R2B-DA	10 - 32	2.76	.47	.98	.194	3	2B
T686NC02500-20R3B-DA	1/4 - 20	3.15	.59	1.18	.255	3	3B
T686NF02500-28R3B-DA	1/4 - 28	3.15	.59	1.18	.255	3	3B
T686NC03125-18R3B-DA	5/16 - 18	3.54	.59	1.38	.318	3	3B
T686NF03125-24R3B-DA	5/16 - 24	3.54	.59	1.38	.318	3	3B
T686NC03750-16R3B-DA	3/8 - 16	3.94	.75	1.54	.381	3	3B
T686NF03750-24R3B-DA	3/8 - 24	3.94	.75	1.54	.381	3	3B
T686NC04375-14R3B-DA	7/16 - 14	3.94	.71	1.61	.323	3	3B
T686NF04375-20R3B-DA	7/16 - 20	3.94	.71	1.61	.323	3	3B
T686NC05000-13R3B-DA	1/2 - 13	4.33	.91	1.85	.367	3	3B
T686NF05000-20R3B-DA	1/2 - 20	4.33	.91	1.85	.367	3	3B

Shank Tolerance

D inch	tolerance h9
.141-.635	+0, -.0015
<.635-1.51	+0, -.0020
>1.51-2.01	+0, -.0030



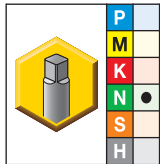
- KSMN34 TiN + CrC/C for aluminum.



■ T686 • Form C Semi-Bottoming Chamfer • Metric • DIN Length ANSI Shank • For Cast Aluminum



Tapping



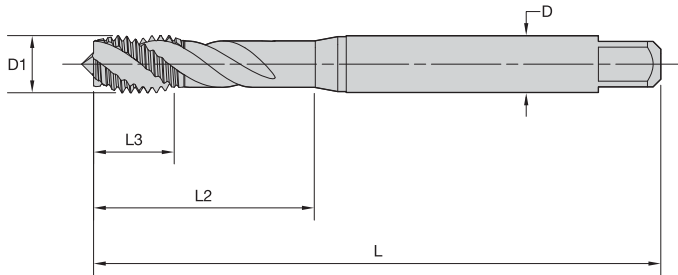
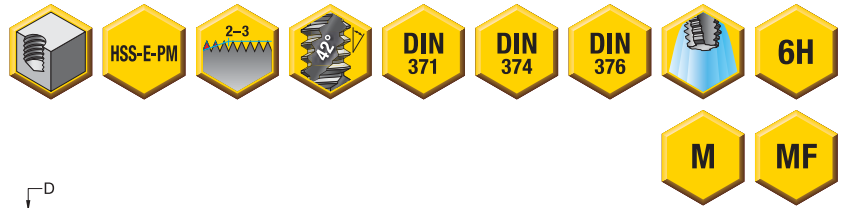
- first choice
- alternate choice

KSMN34	D1 size	L	L3	L2	D	number of flutes	class of fit
T686M030X050R6H-DA	M3 X 0,5	2.20	.31	.71	.141	3	6H
T686M040X070R6H-DA	M4 X 0,7	2.48	.43	.83	.168	3	6H
T686M050X080R6H-DA	M5 X 0,8	2.76	.47	.98	.194	3	6H
T686M060X100R6H-DA	M6 X 1	3.15	.47	1.18	.255	3	6H
T686M080X125R6H-DA	M8 X 1,25	3.54	.59	1.38	.318	3	6H
T686M100X150R6H-DA	M10 X 1,5	3.94	.71	1.54	.381	3	6H
T686MF120X150R6H-DA	M12 X 1,5	4.33	.83	1.73	.367	3	6H

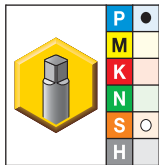
Shank Tolerance

D inch	tolerance h9
.141-.635	+0, -.0015
<.635-1.51	+0, -.0020
>1.51-2.01	+0, -.0030

- KSH26 TiAlN/MoS₂ for tapping steel
32–44 HRC (3 x D).



■ T604 • DIN 371, 374, and 376 • Form C Semi-Bottoming Chamfer • Metric • For Hard Steel



- first choice
- alternate choice

KSH26	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
T604M030X050R6H-D1	M3 X 0,5	56	6	18	3,5	3	DIN 371	6H
T604M040X070R6H-D1	M4 X 0,7	63	7	21	4,5	3	DIN 371	6H
T604M050X080R6H-D1	M5 X 0,8	70	8	25	6,0	3	DIN 371	6H
T604M060X100R6H-D1	M6 X 1	80	10	30	6,0	3	DIN 371	6H
T604MF080X100R6H-D4	M8 X 1	90	10	—	6,0	3	DIN 374	6H
T604M080X125R6H-D1	M8 X 1,25	90	14	35	8,0	3	DIN 371	6H
T604MF100X100R6H-D4	M10 X 1	90	10	—	7,0	3	DIN 374	6H
T604MF100X125R6H-D4	M10 X 1,25	100	16	—	7,0	3	DIN 374	6H
T604M100X150R6H-D1	M10 X 1,5	100	16	39	10,0	3	DIN 371	6H
T604MF120X125R6H-D4	M12 X 1,25	100	15	—	9,0	4	DIN 374	6H
T604MF120X150R6H-D4	M12 X 1,5	100	15	—	9,0	4	DIN 374	6H
T604M120X175R6H-D6	M12 X 1,75	110	18	—	9,0	4	DIN 376	6H
T604MF140X150R6H-D4	M14 X 1,5	100	15	—	11,0	4	DIN 374	6H
T604M140X200R6H-D6	M14 X 2	110	20	—	11,0	4	DIN 376	6H
T604MF160X150R6H-D4 *	M16 X 1,5	100	15	—	12,0	4	DIN 374	6H
T604M160X200R6H-D6	M16 X 2	110	22	—	12,0	4	DIN 376	6H
T604M180X250R6H-D6	M18 X 2,5	125	25	—	14,0	4	DIN 376	6H
T604M200X250R6H-D6	M20 X 2,5	140	25	—	16,0	4	DIN 376	6H

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Shank Tolerance

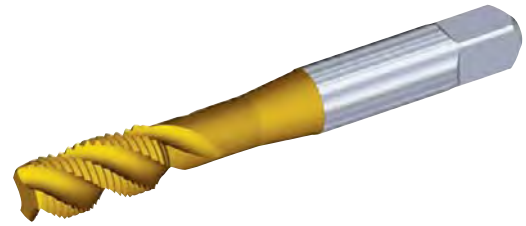
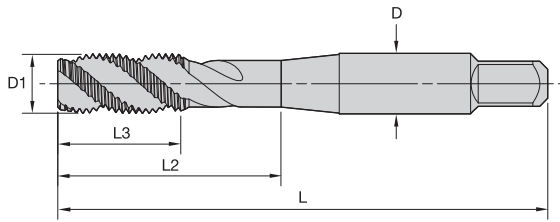
D	tolerance h9
1–3	+0, -0,025
3,5–6	+0, -0,030
7–10	+0, -0,036
11–18	+0, -0,043

Multipurpose Taps

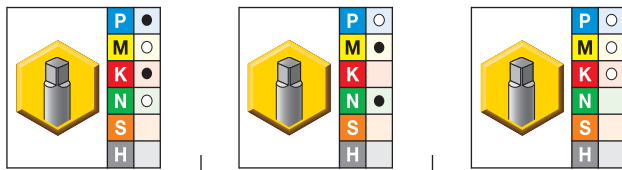
G0tap™ T830 Spiral-Flute HSS-E Taps • Blind Holes



- KSP32 TiCN/TiN
- KSMN34 TiN + CrC/C
- KSP39 oxide



■ T830 • Form C Semi-Bottoming Chamfer • Machine Screw and Fractional • ANSI • Rigid and Synchronous Holders



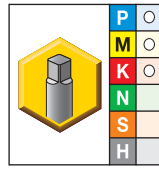
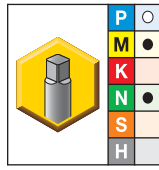
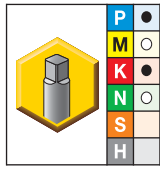
- first choice
- alternate choice

Tapping

	KSP32	KSMN34	KSP39	inch dimensions					number of flutes	pitch diameter limit
				D1 size	L	L3	L2	D		
	—	—	T830NC#02-56RH2-A	2 - 56	1.76	.40	.50	.141	2	H2
	—	—	T830NC#03-48RH2-A	3 - 48	1.82	.46	.57	.141	2	H2
T830NC#04-40RH2-A	T830NC#04-40RH2-A	T830NC#04-40RH2-A	T830NC#04-40RH2-A	4 - 40	1.88	.52	.70	.141	2	H2
—	—	—	T830NC#04-40RH3-A	4 - 40	1.88	.52	.70	.141	2	H3
—	—	—	T830NC#04-40RH4-A	4 - 40	1.88	.52	.70	.141	2	H4
—	—	—	T830NC#04-40RH5-A	4 - 40	1.88	.52	.70	.141	2	H5
—	—	—	T830NF#04-48RH2-A	4 - 48	1.88	.53	.70	.141	2	H2
—	—	—	T830NC#05-40RH2-A	5 - 40	1.95	.59	.76	.141	2	H2
—	—	—	T834NC#05-40RH2-A *	5 - 40	1.95	.58	.76	.141	3	H2
—	—	—	T830NC#06-32RH2-A	6 - 32	2.00	.39	.72	.141	2	H2
T830NC#06-32RH3-A	T830NC#06-32RH3-A	T830NC#06-32RH3-A	T830NC#06-32RH3-A	6 - 32	2.00	.39	.72	.141	2	H3
—	—	—	T830NC#06-32RH4-A *	6 - 32	2.00	.39	.72	.141	2	H4
—	—	—	T830NC#06-32RH5-A	6 - 32	2.00	.39	.72	.141	2	H5
—	—	—	T830NC#06-32RH7-A	6 - 32	2.00	.39	.72	.141	2	H7
T834NC#06-32RH3-A	T834NC#06-32RH3-A	T834NC#06-32RH2-A	T834NC#06-32RH2-A	6 - 32	2.00	.38	.72	.141	3	H2
—	—	—	T834NC#06-32RH3-A	6 - 32	2.00	.38	.72	.141	3	H3
—	—	—	T834NC#06-32RH4-A	6 - 32	2.00	.38	.72	.141	3	H4
—	—	—	T834NC#06-32RH5-A	6 - 32	2.00	.38	.72	.141	3	H5
—	—	—	T834NC#06-32RH7-A	6 - 32	2.00	.38	.72	.141	3	H7
—	—	—	T830NF#06-40RH2-A	6 - 40	2.00	.39	.72	.140	2	H2
—	—	—	T830NF#06-40RH3-A	6 - 40	2.00	.39	.72	.141	2	H3
—	—	—	T834NF#06-40RH2-A	6 - 40	2.00	.38	.72	.141	3	H2
—	—	—	T834NF#06-40RH3-A	6 - 40	2.00	.38	.72	.141	3	H3
—	—	—	T830NC#08-32RH2-A	8 - 32	2.13	.38	.77	.168	3	H2
T830NC#08-32RH3-A	T830NC#08-32RH3-A	T830NC#08-32RH3-A	T830NC#08-32RH3-A	8 - 32	2.13	.38	.77	.168	3	H3
—	—	—	T830NC#08-32RH4-A	8 - 32	2.13	.38	.77	.168	3	H4
—	—	—	T830NC#08-32RH5-A	8 - 32	2.13	.38	.77	.168	3	H5
—	—	—	T830NC#08-32RH6-A	8 - 32	2.13	.38	.77	.168	3	H6
—	—	—	T830NC#08-32RH7-A	8 - 32	2.13	.38	.77	.168	3	H7
—	—	—	T830NC#10-24RH2-A	10 - 24	2.38	.50	.92	.194	3	H2
T830NC#10-24RH3-A	T830NC#10-24RH3-A	T830NC#10-24RH3-A	T830NC#10-24RH3-A	10 - 24	2.38	.50	.92	.194	3	H3
—	—	—	T830NC#10-24RH4-A *	10 - 24	2.38	.50	.92	.194	3	H4

(continued)

(T830 • Form C Semi-Bottoming Chamfer • Machine Screw and Fractional • ANSI • Rigid and Synchronous Holders — continued)



● first choice
○ alternate choice

KSP32	KSMN34	KSP39	inch dimensions					number of flutes	pitch diameter limit
			D1 size	L	L3	L2	D		
—	—	T830NC#10-24RH5-A	10 - 24	2.38	.50	.92	.194	3	H5
—	—	T830NC#10-24RH7-A	10 - 24	2.38	.50	.92	.194	3	H7
—	—	T830NF#10-32RH2-A	10 - 32	2.38	.50	.92	.194	3	H2
T830NF#10-32RH3-A	T830NF#10-32RH3-A	T830NF#10-32RH3-A	10 - 32	2.38	.50	.92	.194	3	H3
—	—	T830NF#10-32RH4-A	10 - 32	2.38	.50	.92	.194	3	H4
—	—	T830NF#10-32RH5-A	10 - 32	2.37	.50	.91	.194	3	H5
—	—	T830NF#10-32RH6-A	10 - 32	2.38	.50	.92	.194	3	H6
—	—	T830NF#10-32RH7-A	10 - 32	2.38	.50	.92	.193	3	H7
—	—	T830NC#12-24RH3-A	12 - 24	2.43	.50	.96	.219	3	H3
—	—	T830NF#12-28RH3-A	12 - 28	2.43	.50	.96	.219	3	H3
—	—	T830NC02500-20RH2-A	1/4 - 20	2.50	.63	1.00	.255	3	H2
T830NC02500-20RH3-A	T830NC02500-20RH3-A	T830NC02500-20RH3-A	1/4 - 20	2.50	.63	1.00	.255	3	H3
—	—	T830NC02500-20RH5-A	1/4 - 20	2.50	.63	1.00	.255	3	H5
—	—	T830NC02500-20RH7-A	1/4 - 20	2.50	.63	1.00	.255	3	H7
—	—	T830NF02500-28RH2-A	1/4 - 28	2.50	.63	1.00	.255	3	H2
T830NF02500-28RH3-A	T830NF02500-28RH3-A	T830NF02500-28RH3-A	1/4 - 28	2.49	.62	1.00	.255	3	H3
—	—	T830NF02500-28RH4-A	1/4 - 28	2.49	.62	1.00	.255	3	H4
—	—	T830NF02500-28RH5-A	1/4 - 28	2.49	.62	1.00	.255	3	H5
—	—	T830NF02500-28RH6-A *	1/4 - 28	2.49	.62	1.00	.255	3	H6
—	—	T830NF02500-28RH7-A	1/4 - 28	2.49	.62	1.00	.255	3	H7
T830NC03125-18RH3-A	T830NC03125-18RH3-A	T830NC03125-18RH3-A	5/16 - 18	2.72	.69	1.13	.318	3	H3
—	—	T830NC03125-18RH5-A	5/16 - 18	2.72	.69	1.13	.318	3	H5
—	—	T830NC03125-18RH7-A	5/16 - 18	2.72	.69	1.13	.318	3	H7
T830NF03125-24RH3-A	T830NF03125-24RH3-A	T830NF03125-24RH3-A	5/16 - 24	2.71	.68	1.13	.318	3	H3
—	—	T830NF03125-24RH5-A	5/16 - 24	2.71	.68	1.12	.318	3	H5
—	—	T830NF03125-24RH7-A	5/16 - 24	2.71	.68	1.12	.318	3	H7
T830NC03750-16RH3-A	T830NC03750-16RH3-A	T830NC03750-16RH3-A	3/8 - 16	2.94	.75	1.27	.381	3	H3
—	—	T830NC03750-16RH5-A	3/8 - 16	2.94	.75	1.27	.381	3	H5
—	—	T830NC03750-16RH7-A	3/8 - 16	2.94	.75	1.27	.381	3	H7
T830NF03750-24RH3-A	T830NF03750-24RH3-A	T830NF03750-24RH3-A	3/8 - 24	2.92	.74	1.25	.381	3	H3
—	—	T830NF03750-24RH4-A	3/8 - 24	2.92	.74	1.25	.381	3	H4
—	—	T830NF03750-24RH5-A	3/8 - 24	2.92	.74	1.25	.381	3	H5
—	—	T830NF03750-24RH6-A	3/8 - 24	2.92	.74	1.25	.381	3	H6
T830NC04375-14RH3-A	T830NC04375-14RH3-A	T830NC04375-14RH3-A	7/16 - 14	3.16	.88	1.49	.323	3	H3
—	—	T830NC04375-14RH5-A	7/16 - 14	3.16	.88	1.49	.323	3	H5
—	—	T830NC04375-14RH7-A	7/16 - 14	3.16	.88	1.49	.323	3	H7
T830NF04375-20RH3-A	T830NF04375-20RH3-A	T830NF04375-20RH3-A	7/16 - 20	3.16	.88	1.49	.323	3	H3
—	—	T830NF04375-20RH5-A *	7/16 - 20	3.16	.88	1.49	.323	3	H5
—	—	T830NF04375-20RH6-A *	7/16 - 20	3.16	.88	1.49	.323	3	H6
—	—	T830NF04375-20RH7-A	7/16 - 20	3.16	.88	1.49	.323	3	H7
T830NC05000-13RH3-A	T830NC05000-13RH3-A	T830NC05000-13RH3-A	1/2 - 13	3.38	.94	1.74	.367	3	H3
—	—	T830NC05000-13RH5-A	1/2 - 13	3.38	.94	1.74	.367	3	H5
—	—	T830NC05000-13RH7-A	1/2 - 13	3.38	.94	1.74	.367	3	H7
T830NF05000-20RH3-A	T830NF05000-20RH3-A	T830NF05000-20RH3-A	1/2 - 20	3.38	.94	1.74	.367	3	H3
—	—	T830NF05000-20RH5-A	1/2 - 20	3.38	.94	1.74	.367	3	H5
—	—	T830NF05000-20RH6-A	1/2 - 20	3.38	.94	1.74	.367	3	H6
—	—	T830NF05000-20RH7-A	1/2 - 20	3.38	.94	1.74	.367	3	H7
T830NC05625-12RH3-A	T830NC05625-12RH3-A	T830NC05625-12RH3-A	9/16 - 12	3.59	1.00	1.74	.429	3	H3

(continued)

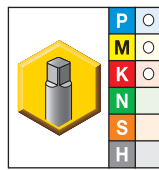
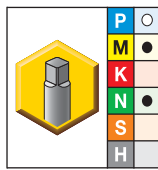
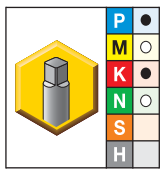


Multipurpose Taps

G0tap™ T830 Spiral-Flute HSS-E Taps • Blind Holes



(T830 • Form C Semi-Bottoming Chamfer • Machine Screw and Fractional • ANSI • Rigid and Synchronous Holders — continued)



● first choice
○ alternate choice

	KSP32	KSMN34	KSP39	inch dimensions				number of flutes	pitch diameter limit	
				D1 size	L	L3	L2			D
	—	—	T830NC05625-12RH5-A *	9/16 - 12	3.59	1.00	1.74	.429	3	H5
	—	T830NF05625-18RH3-A	T830NF05625-18RH3-A	9/16 - 18	3.59	1.00	1.74	.429	3	H3
	—	—	T830NF05625-18RH5-A	9/16 - 18	3.59	1.00	1.74	.429	3	H5
	T830NC06250-11RH3-A	T830NC06250-11RH3-A	T830NC06250-11RH3-A	5/8 - 11	3.81	1.09	1.89	.480	3	H3
	—	—	T830NC06250-11RH5-A	5/8 - 11	3.81	1.09	1.89	.480	3	H5
	—	—	T830NC06250-11RH7-A	5/8 - 11	3.81	1.09	1.89	.480	3	H7
	T830NF06250-18RH3-A	T830NF06250-18RH3-A	T830NF06250-18RH3-A	5/8 - 18	3.81	1.09	1.89	.480	3	H3
	—	—	T830NF06250-18RH5-A *	5/8 - 18	3.81	1.09	1.89	.480	3	H5
	—	—	T830NF06250-18RH6-A	5/8 - 18	3.81	1.09	1.89	.480	3	H6
	—	—	T830NF06250-18RH7-A	5/8 - 18	3.81	1.09	1.89	.480	3	H7
	T830NC07500-10RH3-A	T830NC07500-10RH3-A	T830NC07500-10RH3-A	3/4 - 10	4.25	1.22	2.08	.590	4	H3
	—	—	T830NC07500-10RH5-A	3/4 - 10	4.25	1.22	2.08	.590	4	H5
	T830NF07500-16RH3-A	T830NF07500-16RH3-A	T830NF07500-16RH3-A	3/4 - 16	4.25	1.22	2.08	.590	4	H3
	—	—	T830NF07500-16RH5-A	3/4 - 16	4.25	1.22	2.08	.590	4	H5
	—	T830NC08750-9RH4-A	T830NC08750-9RH4-A	7/8 - 9	4.69	1.34	2.30	.697	4	H4
	—	T830NF08750-14RH4-A	T830NF08750-14RH4-A	7/8 - 14	4.69	1.34	2.30	.697	4	H4
	—	T830NC10000-8RH4-A	—	1 - 8	5.13	1.50	2.58	.800	4	H4
	T830NC10000-8RH5-A	—	T830NC10000-8RH5-A	1 - 8	5.13	1.50	2.58	.800	4	H5
	—	—	T830NF1000-12RH4-A	1 - 12	5.13	1.50	2.58	.800	4	H4
	—	—	T830NC11250-7RH6-A	1 1/8 - 7	5.44	1.71	2.56	.896	4	H6

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

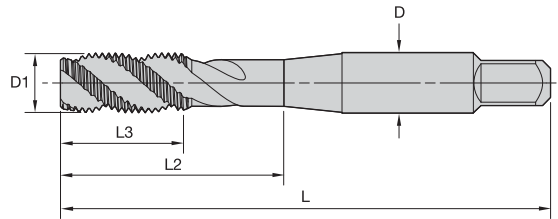
NOTE: Suggested for use in rigid and synchronous holders.

Shank Tolerance

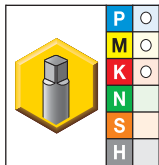
D inch	tolerance
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Tapping

• KSP39 oxide



■ T832 • Form E Bottoming Chamfer • Machine Screw and Fractional • ANSI • Rigid and Synchronous Holders



● first choice
○ alternate choice

KSP39	D1 size	inch dimensions				D	number of flutes	pitch diameter limit
		L	L3	L2				
T832NC#04-40RH2-A	4 - 40	1.88	.51	.69	.141	2	H2	
T832NC#04-40RH3-A	4 - 40	1.88	.51	.69	.141	2	H3	
T832NC#04-40RH5-A	4 - 40	1.88	.51	.69	.141	2	H5	
T832NC#05-40RH2-A	5 - 40	1.94	.58	.75	.141	2	H2	
T832NC#06-32RH2-A	6 - 32	1.99	.38	.71	.141	2	H2	
T832NC#06-32RH3-A	6 - 32	1.99	.38	.71	.141	2	H3	
T832NC#06-32RH5-A	6 - 32	1.99	.38	.71	.141	2	H5	
T832NF#06-40RH2-A	6 - 40	1.99	.37	.71	.141	2	H2	
T832NF#06-40RH3-A	6 - 40	1.99	.37	.71	.141	2	H3	
T832NC#08-32RH2-A	8 - 32	2.12	.38	.76	.168	3	H2	
T832NC#08-32RH3-A	8 - 32	2.12	.38	.76	.168	3	H3	
T832NC#08-32RH5-A	8 - 32	2.12	.38	.76	.168	3	H5	
T832NC#10-24RH3-A	10 - 24	2.37	.50	.91	.194	3	H3	
T832NC#10-24RH5-A	10 - 24	2.37	.50	.91	.194	3	H5	
T832NF#10-32RH3-A	10 - 32	2.36	.49	.91	.194	3	H3	
T832NF#10-32RH5-A	10 - 32	2.36	.49	.91	.194	3	H5	
T832NC02500-20RH3-A	1/4 - 20	2.50	.63	1.00	.255	3	H3	
T832NC02500-20RH5-A	1/4 - 20	2.50	.63	1.00	.255	3	H5	
T832NF02500-28RH3-A	1/4 - 28	2.49	.62	1.00	.255	3	H3	
T832NF02500-28RH5-A	1/4 - 28	2.49	.62	1.00	.255	3	H5	
T832NC03125-18RH3-A	5/16 - 18	2.72	.69	1.13	.318	3	H3	
T832NC03125-18RH5-A	5/16 - 18	2.72	.69	1.13	.318	3	H5	
T832NF03125-24RH3-A	5/16 - 24	2.71	.68	1.13	.318	3	H3	
T832NF03125-24RH5-A	5/16 - 24	2.71	.68	1.13	.318	3	H5	
T832NC03750-16RH3-A	3/8 - 16	2.94	.75	1.27	.381	3	H3	
T832NC03750-16RH5-A	3/8 - 16	2.94	.75	1.27	.381	3	H5	
T832NF03750-24RH3-A	3/8 - 24	2.92	.74	1.25	.381	3	H3	
T832NF03750-24RH4-A	3/8 - 24	2.92	.74	1.25	.381	3	H4	

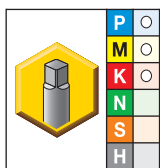
(continued)

Multipurpose Taps

GOtap™ T832 Spiral-Flute HSS-E Taps • Blind Holes



(T832 • Form E Bottoming Chamfer • Machine Screw and Fractional • ANSI • Rigid and Synchronous Holders — continued)



● first choice
○ alternate choice

KSP39	D1 size	L	inch dimensions			number of flutes	pitch diameter limit
			L3	L2	D		
T832NF03750-24RH5-A	3/8 - 24	2.92	.74	1.25	.381	3	H5
T832NC04375-14RH3-A	7/16 - 14	3.16	.88	1.49	.323	3	H3
T832NC04375-14RH5-A	7/16 - 14	3.16	.88	1.49	.323	3	H5
T832NF04375-20RH3-A	7/16 - 20	3.16	.88	1.49	.323	3	H3
T832NF04375-20RH5-A	7/16 - 20	3.16	.88	1.49	.323	3	H5
T832NC05000-13RH3-A	1/2 - 13	3.38	.94	1.74	.367	3	H3
T832NC05000-13RH5-A	1/2 - 13	3.38	.94	1.74	.367	3	H5
T832NF05000-20RH3-A	1/2 - 20	3.38	.94	1.74	.367	3	H3
T832NC05625-12RH3-A	9/16 - 12	3.59	1.00	1.74	.429	3	H3
T832NC05625-12RH5-A	9/16 - 12	3.59	1.00	1.74	.429	3	H5
T832NF05625-18RH3-A	9/16 - 18	3.59	1.00	1.74	.429	3	H3
T832NC06250-11RH3-A	5/8 - 11	3.81	1.09	1.89	.480	3	H3
T832NC06250-11RH5-A	5/8 - 11	3.81	1.09	1.89	.480	3	H5
T832NF06250-18RH3-A	5/8 - 18	3.81	1.09	1.89	.480	3	H3
T832NF06250-18RH5-A	5/8 - 18	3.81	1.09	1.89	.480	3	H5
T832NC07500-10RH3-A	3/4 - 10	4.25	1.22	2.08	.590	4	H3
T832NF07500-16RH3-A	3/4 - 16	4.25	1.22	2.08	.590	4	H3

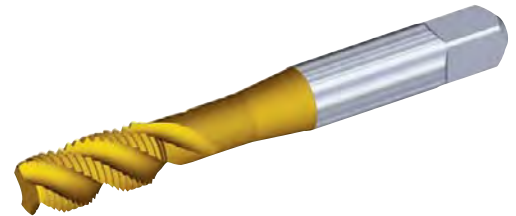
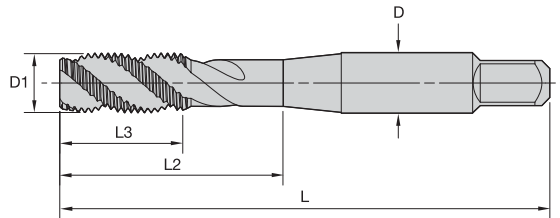
NOTE: Suggested for use in rigid and synchronous holders.

Shank Tolerance

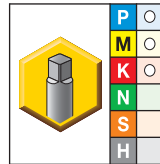
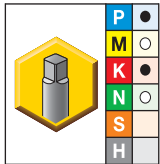
D inch	tolerance
.141-.635	+0, -.0015
>.635-1.51	+0, -.0020
>1.51-2.01	+0, -.0030

Tapping

- KSP32 TiCN/TiN
- KSP39 oxide



■ T838 • Form C Semi-Bottoming Chamfer • Machine Screw and Fractional • ANSI • Tension/Compression Holders



- first choice
- alternate choice

KSP32	KSP39	D1 size	inch dimensions				number of flutes	pitch diameter limit
			L	L3	L2	D		
—	T838NC#02-56RH2-A	2 - 56	1.76	.39	.50	.141	2	H2
—	T838NC#03-48RH2-A	3 - 48	1.82	.46	.57	.141	2	H2
T838NC#04-40RH2-A	T838NC#04-40RH2-A	4 - 40	1.88	.52	.70	.141	2	H2
—	T838NC#04-40RH3-A	4 - 40	1.88	.52	.70	.141	2	H3
—	T838NC#04-40RH4-A	4 - 40	1.88	.52	.70	.141	2	H4
—	T838NC#04-40RH5-A	4 - 40	1.88	.52	.70	.141	2	H5
—	T838NF#04-48RH2-A	4 - 48	1.88	.53	.70	.141	2	H2
—	T838NC#05-40RH2-A	5 - 40	1.95	.59	.76	.141	2	H2
—	T838NC#06-32RH2-A	6 - 32	2.00	.39	.72	.141	2	H2
T838NC#06-32RH3-A	T838NC#06-32RH3-A	6 - 32	2.00	.39	.72	.141	2	H3
—	T838NC#06-32RH4-A	6 - 32	2.00	.39	.72	.141	2	H4
—	T838NC#06-32RH5-A	6 - 32	2.00	.39	.72	.141	2	H5
—	T838NC#06-32RH7-A	6 - 32	2.00	.39	.72	.141	2	H7
—	T838NF#06-40RH2-A	6 - 40	2.00	.39	.72	.141	2	H2
—	T838NF#06-40RH3-A	6 - 40	2.00	.39	.72	.141	2	H3
—	T838NC#08-32RH2-A	8 - 32	2.13	.38	.77	.168	3	H2
T838NC#08-32RH3-A	T838NC#08-32RH3-A	8 - 32	2.13	.38	.77	.168	3	H3
—	T838NC#08-32RH4-A	8 - 32	2.13	.38	.77	.168	3	H4
—	T838NC#08-32RH5-A	8 - 32	2.13	.38	.77	.168	3	H5
—	T838NC#08-32RH6-A	8 - 32	2.13	.38	.77	.168	3	H6
—	T838NC#08-32RH7-A	8 - 32	2.13	.38	.77	.168	3	H7
—	T838NC#10-24RH2-A	10 - 24	2.38	.50	.92	.194	3	H2
T838NC#10-24RH3-A	T838NC#10-24RH3-A	10 - 24	2.38	.50	.92	.194	3	H3
—	T838NC#10-24RH4-A	10 - 24	2.38	.50	.92	.194	3	H4
—	T838NC#10-24RH5-A	10 - 24	2.38	.50	.92	.194	3	H5
—	T838NC#10-24RH7-A	10 - 24	2.38	.50	.92	.194	3	H7
—	T838NF#10-32RH2-A	10 - 32	2.38	.50	.92	.194	3	H2
T838NF#10-32RH3-A	T838NF#10-32RH3-A	10 - 32	2.38	.50	.92	.194	3	H3

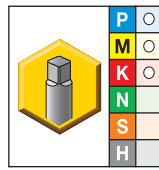
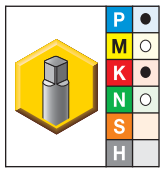
(continued)

Multipurpose Taps

G0tap™ T838 Spiral-Flute HSS-E Taps • Blind Holes



(T838 • Form C Semi-Bottoming Chamfer • Machine Screw and Fractional • ANSI • Tension/Compression Holders — continued)

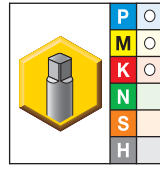
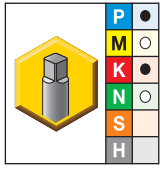


● first choice
○ alternate choice

KSP32	KSP39	inch dimensions					number of flutes	pitch diameter limit
		D1 size	L	L3	L2	D		
—	T838NF#10-32RH4-A	10 - 32	2.38	.50	.92	.194	3	H4
—	T838NF#10-32RH5-A	10 - 32	2.38	.50	.91	.194	3	H5
—	T838NF#10-32RH6-A	10 - 32	2.38	.50	.92	.194	3	H6
—	T838NF#10-32RH7-A	10 - 32	2.38	.50	.92	.194	3	H7
—	T838NC#12-24RH3-A	12 - 24	2.43	.50	.96	.220	3	H3
—	T838NF#12-28RH3-A	12 - 28	2.43	.50	.96	.220	3	H3
—	T838NC02500-20RH2-A	1/4 - 20	2.50	.63	1.00	.255	3	H2
T838NC02500-20RH3-A	T838NC02500-20RH3-A	1/4 - 20	2.50	.63	1.00	.255	3	H3
—	T838NC02500-20RH5-A	1/4 - 20	2.50	.63	1.00	.255	3	H5
—	T838NC02500-20RH7-A	1/4 - 20	2.50	.63	1.00	.255	3	H7
—	T838NF02500-28RH2-A	1/4 - 28	2.50	.63	1.00	.255	3	H2
T838NF02500-28RH3-A	T838NF02500-28RH3-A	1/4 - 28	2.50	.63	1.00	.255	3	H3
—	T838NF02500-28RH4-A	1/4 - 28	2.50	.63	1.00	.255	3	H4
—	T838NF02500-28RH5-A	1/4 - 28	2.50	.63	1.00	.255	3	H5
—	T838NF02500-28RH6-A	1/4 - 28	2.50	.63	1.00	.255	3	H6
—	T838NF02500-28RH7-A	1/4 - 28	2.50	.63	1.00	.255	3	H7
T838NC03125-18RH3-A	T838NC03125-18RH3-A	5/16 - 18	2.72	.69	1.13	.318	3	H3
—	T838NC03125-18RH5-A	5/16 - 18	2.72	.69	1.13	.318	3	H5
—	T838NC03125-18RH7-A	5/16 - 18	2.72	.69	1.13	.318	3	H7
T838NF03125-24RH3-A	T838NF03125-24RH3-A	5/16 - 24	2.72	.69	1.13	.318	3	H3
—	T838NF03125-24RH5-A	5/16 - 24	2.72	.69	1.12	.318	3	H5
—	T838NF03125-24RH7-A	5/16 - 24	2.72	.69	1.12	.318	3	H7
T838NC03750-16RH3-A	T838NC03750-16RH3-A	3/8 - 16	2.94	.75	1.27	.381	3	H3
—	T838NC03750-16RH5-A	3/8 - 16	2.94	.75	1.27	.381	3	H5
—	T838NC03750-16RH7-A	3/8 - 16	2.94	.75	1.27	.381	3	H7
T838NF03750-24RH3-A	T838NF03750-24RH3-A	3/8 - 24	2.94	.75	1.27	.381	3	H3
—	T838NF03750-24RH4-A	3/8 - 24	2.94	.75	1.27	.381	3	H4
—	T838NF03750-24RH5-A	3/8 - 24	2.94	.75	1.27	.381	3	H5
—	T838NF03750-24RH6-A	3/8 - 24	2.94	.75	1.27	.381	3	H6
T838NC04375-14RH3-A	T838NC04375-14RH3-A	7/16 - 14	3.16	.88	1.49	.323	3	H3
—	T838NC04375-14RH5-A	7/16 - 14	3.16	.88	1.49	.323	3	H5
—	T838NC04375-14RH7-A	7/16 - 14	3.16	.88	1.49	.323	3	H7
T838NF04375-20RH3-A	T838NF04375-20RH3-A	7/16 - 20	3.16	.88	1.49	.323	3	H3
—	T838NF04375-20RH5-A	7/16 - 20	3.16	.88	1.49	.323	3	H5
—	T838NF04375-20RH6-A	7/16 - 20	3.16	.88	1.49	.323	3	H6
—	T838NF04375-20RH7-A	7/16 - 20	3.16	.88	1.49	.323	3	H7
T838NC05000-13RH3-A	T838NC05000-13RH3-A	1/2 - 13	3.38	.94	1.74	.367	3	H3
—	T838NC05000-13RH5-A	1/2 - 13	3.38	.94	1.74	.367	3	H5
—	T838NC05000-13RH7-A	1/2 - 13	3.38	.94	1.74	.367	3	H7
T838NF05000-20RH3-A	T838NF05000-20RH3-A	1/2 - 20	3.38	.94	1.74	.367	3	H3
—	T838NF05000-20RH5-A	1/2 - 20	3.38	.94	1.74	.367	3	H5
—	T838NF05000-20RH6-A	1/2 - 20	3.38	.94	1.74	.367	3	H6
—	T838NF05000-20RH7-A	1/2 - 20	3.38	.94	1.74	.367	3	H7
T838NC05625-12RH3-A	T838NC05625-12RH3-A	9/16 - 12	3.59	1.00	1.74	.429	3	H3
—	T838NC05625-12RH5-A	9/16 - 12	3.59	1.00	1.74	.429	3	H5
—	T838NF05625-18RH3-A	9/16 - 18	3.59	1.00	1.74	.429	3	H3
—	T838NF05625-18RH5-A	9/16 - 18	3.59	1.00	1.74	.429	3	H5
T838NC06250-11RH3-A	T838NC06250-11RH3-A	5/8 - 11	3.81	1.09	1.89	.480	3	H3
—	T838NC06250-11RH5-A	5/8 - 11	3.81	1.09	1.89	.480	3	H5
—	T838NC06250-11RH7-A	5/8 - 11	3.81	1.09	1.89	.480	3	H7
T838NF06250-18RH3-A	T838NF06250-18RH3-A	5/8 - 18	3.81	1.09	1.89	.480	3	H3
—	T838NF06250-18RH5-A	5/8 - 18	3.81	1.09	1.89	.480	3	H5

(continued)

(T838 • Form C Semi-Bottoming Chamfer • Machine Screw and Fractional • ANSI • Tension/Compression Holders — continued)



● first choice
○ alternate choice

KSP32	KSP39	D1 size	inch dimensions				number of flutes	pitch diameter limit
			L	L3	L2	D		
—	T838NF06250-18RH6-A	5/8 - 18	3.81	1.09	1.89	.480	3	H6
—	T838NF06250-18RH7-A	5/8 - 18	3.81	1.09	1.89	.480	3	H7
T838NC07500-10RH3-A	T838NC07500-10RH3-A	3/4 - 10	4.25	1.22	2.08	.590	4	H3
—	T838NC07500-10RH5-A	3/4 - 10	4.25	1.22	2.08	.590	4	H5
T838NF07500-16RH3-A	T838NF07500-16RH3-A	3/4 - 16	4.25	1.22	2.08	.590	4	H3
—	T838NF07500-16RH5-A	3/4 - 16	4.25	1.22	2.08	.590	4	H5
—	T838NC08750-9RH4-A	7/8 - 9	4.69	1.34	2.30	.697	4	H4
—	T838NF08750-14RH4-A	7/8 - 14	4.69	1.34	2.30	.697	4	H4
T838NC10000-8RH5-A	T838NC10000-8RH5-A	1 - 8	5.13	1.50	2.58	.800	4	H5
—	T838NF1000-12RH4-A	1 - 12	5.12	1.50	2.58	.800	4	H4
—	T838NC11250-7RH6-A	1 1/8 - 7	5.44	1.71	2.56	.896	4	H6

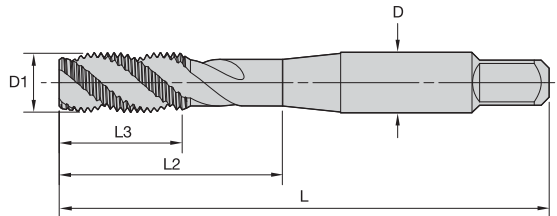
NOTE: Suitable for tension/compression holders.

Shank Tolerance

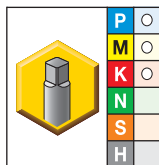
D inch	tolerance
.141-.635	+0, -.0015
>.635-1.51	+0, -.0020
>1.51-2.01	+0, -.0030



• KSP39 oxide



T839 • Form E Bottoming Chamfer • Machine Screw and Fractional • ANSI • Tension/Compression Holders



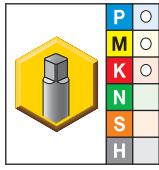
● first choice
○ alternate choice

KSP39	D1 size	inch dimensions				D	number of flutes	pitch diameter limit
		L	L3	L2				
T839NC#04-40RH2-A	4 - 40	1.88	.51	.69	.141	2	H2	
T839NC#04-40RH3-A	4 - 40	1.88	.51	.69	.141	2	H3	
T839NC#04-40RH5-A	4 - 40	1.88	.51	.69	.141	2	H5	
T839NC#05-40RH2-A	5 - 40	1.94	.58	.75	.141	2	H2	
T839NC#06-32RH2-A	6 - 32	1.99	.38	.71	.141	2	H2	
T839NC#06-32RH3-A	6 - 32	1.99	.38	.71	.141	2	H3	
T839NC#06-32RH5-A	6 - 32	1.99	.38	.71	.141	2	H5	
T839NF#06-40RH2-A	6 - 40	1.99	.37	.71	.141	2	H2	
T839NF#06-40RH3-A	6 - 40	1.99	.37	.71	.141	2	H3	
T839NC#08-32RH2-A	8 - 32	2.12	.38	.76	.168	3	H2	
T839NC#08-32RH3-A	8 - 32	2.12	.38	.76	.168	3	H3	
T839NC#08-32RH5-A	8 - 32	2.12	.38	.76	.168	3	H5	
T839NC#10-24RH3-A	10 - 24	2.37	.50	.91	.194	3	H3	
T839NC#10-24RH5-A	10 - 24	2.37	.50	.91	.194	3	H5	
T839NF#10-32RH3-A	10 - 32	2.36	.49	.91	.194	3	H3	
T839NF#10-32RH5-A	10 - 32	2.36	.49	.91	.194	3	H5	
T839NC02500-20RH3-A	1/4 - 20	2.50	.63	1.00	.255	3	H3	
T839NC02500-20RH5-A	1/4 - 20	2.50	.63	1.00	.255	3	H5	
T839NF02500-28RH3-A	1/4 - 28	2.49	.62	1.00	.255	3	H3	
T839NF02500-28RH5-A	1/4 - 28	2.49	.62	1.00	.255	3	H5	
T839NC03125-18RH3-A	5/16 - 18	2.72	.69	1.13	.318	3	H3	
T839NC03125-18RH5-A	5/16 - 18	2.72	.69	1.13	.318	3	H5	
T839NF03125-24RH3-A	5/16 - 24	2.71	.68	1.13	.318	3	H3	
T839NF03125-24RH5-A	5/16 - 24	2.71	.68	1.12	.318	3	H5	
T839NC03750-16RH3-A	3/8 - 16	2.94	.75	1.27	.381	3	H3	
T839NC03750-16RH5-A	3/8 - 16	2.94	.75	1.27	.381	3	H5	
T839NF03750-24RH3-A	3/8 - 24	2.94	.75	1.27	.381	3	H3	
T839NF03750-24RH4-A	3/8 - 24	2.94	.75	1.27	.381	3	H4	

(continued)

Tapping

(T839 • Form E Bottoming Chamfer • Machine Screw and Fractional • ANSI • Tension/Compression Holders — continued)



- first choice
- alternate choice

KSP39	D1 size	L	inch dimensions			number of flutes	pitch diameter limit
			L3	L2	D		
T839NF03750-24RH5-A	3/8 - 24	2.94	.75	1.27	.381	3	H5
T839NC04375-14RH3-A	7/16 - 14	3.16	.88	1.49	.323	3	H3
T839NC04375-14RH5-A	7/16 - 14	3.16	.88	1.49	.323	3	H5
T839NF04375-20RH3-A	7/16 - 20	3.16	.88	1.49	.323	3	H3
T839NF04375-20RH5-A	7/16 - 20	3.16	.88	1.49	.323	3	H5
T839NC05000-13RH3-A	1/2 - 13	3.38	.94	1.74	.367	3	H3
T839NC05000-13RH5-A	1/2 - 13	3.38	.94	1.74	.367	3	H5
T839NF05000-20RH3-A	1/2 - 20	3.38	.94	1.74	.367	3	H3
T839NC05625-12RH3-A	9/16 - 12	3.59	1.00	1.74	.429	3	H3
T839NC05625-12RH5-A	9/16 - 12	3.59	1.00	1.74	.429	3	H5
T839NF05625-18RH3-A	9/16 - 18	3.59	1.00	1.74	.429	3	H3
T839NC06250-11RH3-A	5/8 - 11	3.81	1.09	1.89	.480	3	H3
T839NC06250-11RH5-A	5/8 - 11	3.81	1.09	1.89	.480	3	H5
T839NF06250-18RH3-A	5/8 - 18	3.81	1.09	1.89	.480	3	H3
T839NF06250-18RH5-A	5/8 - 18	3.81	1.09	1.89	.480	3	H5
T839NC07500-10RH3-A	3/4 - 10	4.25	1.22	2.08	.590	4	H3
T839NF07500-16RH3-A	3/4 - 16	4.25	1.22	2.08	.590	4	H3

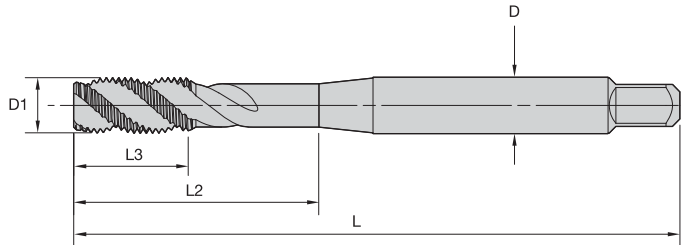


NOTE: Suitable for tension/compression holders.

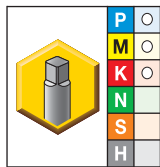
Shank Tolerance

D inch	tolerance
.141-.635	+0, -.0015
>.635-1.51	+0, -.0020
>1.51-2.01	+0, -.0030

• KSP39 oxide



■ T830 • DIN 371 and 376 • Form C Semi-Bottoming Chamfer • UNC/UNF • Rigid and Synchronous Holders



● first choice
○ alternate choice

Tapping

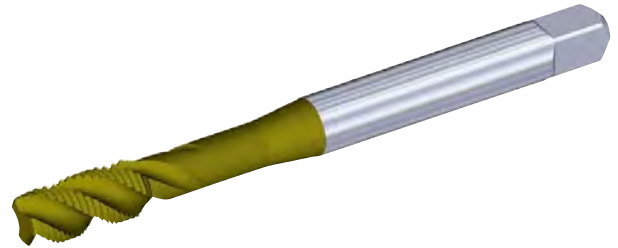
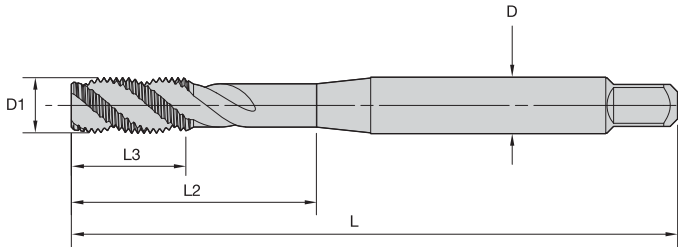
KSP39	metric dimensions					number of flutes	dimension standard	class of fit
	D1 size	L	L3	L2	D			
T830NC#04-40R2B-D1	4 - 40	56	8	18	3,5	2	DIN 371	2B
T830NC#05-40R2B-D1	5 - 40	56	9	20	4,0	2	DIN 371	2B
T830NC#06-32R2B-D1	6 - 32	56	9	20	4,0	2	DIN 371	2B
T830NF#06-40R2B-D1	6 - 40	56	9	20	4,0	2	DIN 371	2B
T830NC#08-32R2B-D1	8 - 32	63	11	21	4,5	3	DIN 371	2B
T830NC#10-24R2B-D1	10 - 24	70	12	25	6,0	3	DIN 371	2B
T830NF#10-32R2B-D1	10 - 32	70	12	25	6,0	3	DIN 371	2B
T830NC02500-20R2B-D1	1/4 - 20	80	15	30	7,0	3	DIN 371	2B
T830NF02500-28R2B-D1	1/4 - 28	80	15	30	7,0	3	DIN 371	2B
T830NC03125-18R2B-D1	5/16 - 18	90	15	35	8,0	3	DIN 371	2B
T830NF03125-24R2B-D1	5/16 - 24	90	15	35	8,0	3	DIN 371	2B
T830NC03750-16R2B-D1	3/8 - 16	100	19	39	10,0	3	DIN 371	2B
T830NF03750-24R2B-D1	3/8 - 24	100	19	39	10,0	3	DIN 371	2B
T830NC04375-14R2B-D6	7/16 - 14	100	18	41	8,0	3	DIN 376	2B
T830NF04375-20R2B-D6	7/16 - 20	100	18	41	8,0	3	DIN 376	2B
T830NC05000-13R2B-D6	1/2 - 13	110	23	47	9,0	3	DIN 376	2B
T830NF05000-20R2B-D6	1/2 - 20	110	23	47	9,0	3	DIN 376	2B
T830NC05625-12R2B-D6	9/16 - 12	110	25	53	11,0	3	DIN 376	2B
T830NF05625-18R2B-D6	9/16 - 18	110	25	53	11,0	3	DIN 376	2B
T830NC06250-11R2B-D6	5/8 - 11	110	24	51	12,0	3	DIN 376	2B
T830NF06250-18R2B-D6	5/8 - 18	110	24	51	12,0	3	DIN 376	2B
T830NC07500-10R2B-D6	3/4 - 10	140	30	64	16,0	4	DIN 376	2B
T830NF07500-16R2B-D6	3/4 - 16	140	30	64	16,0	4	DIN 376	2B
T830NF08750-9R2B-D6	7/8 - 9	140	34	71	18,0	4	DIN 376	2B
T830NF08750-14R2B-D6	7/8 - 14	140	34	71	18,0	4	DIN 376	2B
T830NC10000-8R2B-D6	1 - 8	160	38	81	18,0	4	DIN 376	2B
T830NF10000-12R2B-D6	1 - 12	160	38	81	18,0	4	DIN 376	2B

NOTE: Suggested for use in rigid and synchronous holders.

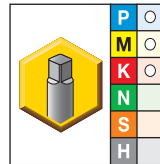
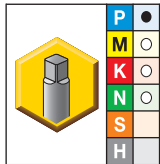
Shank Tolerance

D mm	tolerance h9
1-3	+0, -0,025
>3-6	+0, -0,030
>6-10	+0, -0,036
>10-18	+0, -0,043
>18-30	+0, -0,052

- KSU31 TiN
- KSP39 oxide



■ T838 • DIN 371, 374, and 376 • Form C Semi-Bottoming Chamfer • UNC/UNF • Tension/Compression Holders



- first choice
- alternate choice

		metric dimensions				number of flutes	dimension standard	class of fit
KSU31	KSP39	D1 size	L	L3	L2			
T838NC#06-32R2B-D1	T838NC#06-32R2B-D1	6 - 32	56	7	21	4,0	DIN 371	2B
T838NF#06-40R2B-D1	T838NF#06-40R2B-D1	6 - 40	56	7	21	4,0	DIN 371	2B
T838NC#08-32R2B-D1	T838NC#08-32R2B-D1	8 - 32	63	7	21	4,5	DIN 371	2B
T838NF#08-36R2B-D1	T838NF#08-36R2B-D1	8 - 36	63	7	21	4,5	DIN 371	2B
T838NC#10-24R2B-D1	T838NC#10-24R2B-D1	10 - 24	70	8	25	6,0	DIN 371	2B
T838NF#10-32R2B-D1	T838NF#10-32R2B-D1	10 - 32	70	8	25	6,0	DIN 371	2B
T838NC#12-24R2B-D1	T838NC#12-24R2B-D1	12 - 24	80	10	30	6,0	DIN 371	2B
T838NF#12-28R2B-D1	T838NF#12-28R2B-D1	12 - 28	80	10	30	6,0	DIN 371	2B
T838NC02500-20R2B-D1	T838NC02500-20R2B-D1	1/4 - 20	80	10	29	7,0	DIN 371	2B
T838NC02500-20R2B-D6	T838NC02500-20R2B-D6	1/4 - 20	80	10	36	4,5	DIN 376	2B
T838NF02500-28R2B-D1	T838NF02500-28R2B-D1	1/4 - 28	80	10	29	7,0	DIN 371	2B
T838NF02500-28R2B-D4	T838NF02500-28R2B-D4	1/4 - 28	80	10	36	4,5	DIN 374	2B
T838NC03125-18R2B-D1	T838NC03125-18R2B-D1	5/16 - 18	90	13	37	8,0	DIN 371	2B
T838NC03125-18R2B-D6	T838NC03125-18R2B-D6	5/16 - 18	90	13	37	6,0	DIN 376	2B
T838NF03125-24R2B-D4	T838NF03125-24R2B-D4	5/16 - 24	90	13	37	6,0	DIN 374	2B
T838NC03750-16R2B-D1	T838NC03750-16R2B-D1	3/8 - 16	100	15	42	10,0	DIN 371	2B
T838NC03750-16R2B-D6	T838NC03750-16R2B-D6	3/8 - 16	100	15	45	7,0	DIN 376	2B
T838NF03750-24R2B-D4	T838NF03750-24R2B-D4	3/8 - 24	90	15	40	7,0	DIN 374	2B
T838NC04375-14R2B-D6	T838NC04375-14R2B-D6	7/16 - 14	100	15	47	8,0	DIN 376	2B
T838NF04375-20R2B-D4	T838NF04375-20R2B-D4	7/16 - 20	100	15	47	8,0	DIN 374	2B
T838NC05000-13R2B-D6	T838NC05000-13R2B-D6	1/2 - 13	110	18	50	9,0	DIN 376	2B
T838NF05000-20R2B-D4	T838NF05000-20R2B-D4	1/2 - 20	100	13	44	9,0	DIN 374	2B
T838NC05625-12R2B-D6	T838NC05625-12R2B-D6	9/16 - 12	110	20	55	11,0	DIN 376	2B
T838NF05625-18R2B-D4	T838NF05625-18R2B-D4	9/16 - 18	100	15	44	11,0	DIN 374	2B
T838NC06250-11R2B-D6	T838NC06250-11R2B-D6	5/8 - 11	110	20	55	12,0	DIN 376	2B
T838NF06250-18R2B-D4	T838NF06250-18R2B-D4	5/8 - 18	100	15	45	12,0	DIN 374	2B
T838NC07500-10R2B-D6	T838NC07500-10R2B-D6	3/4 - 10	125	25	65	14,0	DIN 376	2B
T838NF07500-16R2B-D4	T838NF07500-16R2B-D4	3/4 - 16	110	17	55	14,0	DIN 374	2B

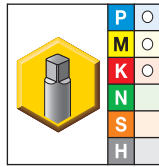
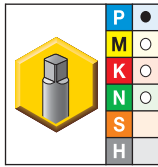
(continued)

Multipurpose Taps

G0tap™ T838 Spiral-Flute HSS-E Taps • Blind Holes



(T838 • DIN 371, 374, and 376 • Form C Semi-Bottoming Chamfer • UNC/UNF • Tension/Compression Holders — continued)



● first choice
○ alternate choice

		metric dimensions					number of flutes	dimension standard	class of fit
		D1 size	L	L3	L2	D			
KSU31	KSP39								
T838NC08750-9R2B-D6	T838NC08750-9R2B-D6	7/8 - 9	140	25	68	18,0	4	DIN 376	2B
T838NF08750-14R2B-D4	T838NF08750-14R2B-D4	7/8 - 14	125	18	57	18,0	4	DIN 374	2B
T838NC10000-8R2B-D6	T838NC10000-8R2B-D6	1 - 8	160	30	89	18,0	4	DIN 376	2B
T838NF10000-12R2B-D4	T838NF10000-12R2B-D4	1 - 12	140	22	63	18,0	4	DIN 374	2B
T838NC11250-7R2B-D6	T838NC11250-7R2B-D6	1 1/8 - 7	180	35	90	22,0	4	DIN 376	2B
T838NF11250-12R2B-D4	T838NF11250-12R2B-D4	1 1/8 - 12	150	22	70	22,0	4	DIN 374	2B
T838NC12500-7R2B-D6	T838NC12500-7R2B-D6	1 1/4 - 7	180	35	95	22,0	4	DIN 376	2B
T838NF12500-12R2B-D4	T838NF12500-12R2B-D4	1 1/4 - 12	150	22	67	22,0	5	DIN 374	2B
T838NC13750-6R2B-D6	T838NC13750-6R2B-D6	1 3/8 - 6	200	40	100	28,0	4	DIN 376	2B
T838NF13750-12R2B-D4	T838NF13750-12R2B-D4	1 3/8 - 12	170	24	80	28,0	5	DIN 374	2B
T838NC15000-6R2B-D6	T838NC15000-6R2B-D6	1 1/2 - 6	200	40	100	28,0	4	DIN 376	2B
T838NF15000-12R2B-D4	T838NF15000-12R2B-D4	1 1/2 - 12	170	24	72	28,0	6	DIN 374	2B
T838NC17500-5R2B-D6	T838NC17500-5R2B-D6	1 3/4 - 5	220	50	108	36,0	5	DIN 376	2B
T838NC20000-4,5R2B-D6	T838NC20000-4,5R2B-D6	2 - 4 1/2	250	55	140	40,0	5	DIN 376	2B

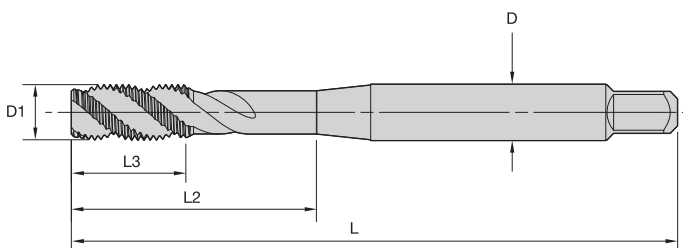
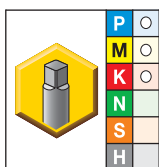
NOTE: Suitable for tension/compression holders.

Shank Tolerance

D mm	tolerance h9
1-3	+0, -0,025
>3-6	+0, -0,030
>6-10	+0, -0,036
>10-18	+0, -0,043
>18-30	+0, -0,052

Tapping

• KSP39 oxide


T830 • DIN 371 and 376 • Form C Semi-Bottoming Chamfer • UNJC/UNJF • Rigid and Synchronous Holders

 ● first choice
 ○ alternate choice

KSP39	metric dimensions					number of flutes	dimension standard	class of fit
	D1 size	L	L3	L2	D			
T830NC#04-40R3B-D1	4 - 40	56	8	18	3,5	2	DIN 371	3B
T830NC#06-32R3B-D1	6 - 32	56	9	20	4,0	2	DIN 371	3B
T830NC#08-32R3B-D1	8 - 32	63	11	21	4,5	3	DIN 371	3B
T830NF#10-32R3B-D1	10 - 32	70	12	25	6,0	3	DIN 371	3B
T830NF02500-28R3B-D1	1/4 - 28	80	15	30	7,0	3	DIN 371	3B
T830NF03125-24R3B-D1	5/16 - 24	90	15	35	8,0	3	DIN 371	3B
T830NF03750-24R3B-D1	3/8 - 24	100	19	39	10,0	3	DIN 371	3B
T830NF04375-20R3B-D6	7/16 - 20	100	18	41	8,0	3	DIN 376	3B
T830NF05000-20R3B-D6	1/2 - 20	110	23	47	9,0	3	DIN 376	3B

NOTE: Internal UNJC/UNJF threads may be produced with ground thread UNC/UNF taps.

NOTE: Suggested for use in rigid and synchronous holders.
Shank Tolerance

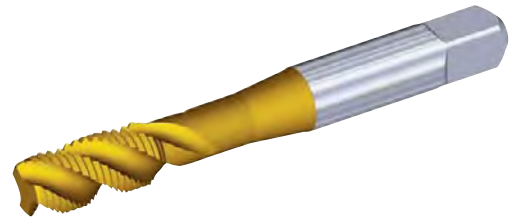
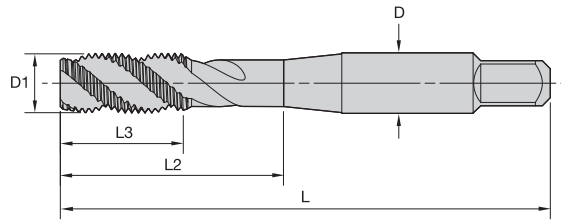
D mm	tolerance h9
1-3	+0, -0,025
>3-6	+0, -0,030
>6-10	+0, -0,036
>10-18	+0, -0,043
>18-30	+0, -0,052

Multipurpose Taps

G0tap™ T830 Spiral-Flute HSS-E Taps • Blind Holes

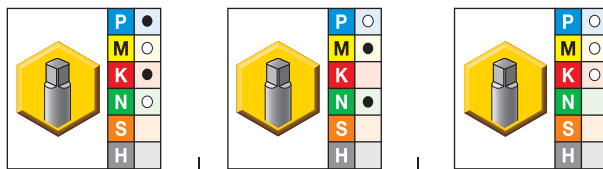


- KSP32 TiCN/TiN
- KSMN34 TiN + Cr/C
- KSP39 oxide



T830 • Form C Semi-Bottoming Chamfer • Metric • ANSI • Rigid and Synchronous Holders

Tapping



- first choice
- alternate choice

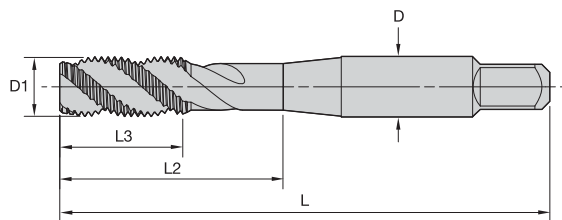
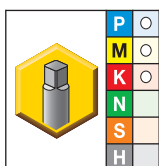
	KSP32	KSMN34	KSP39	inch dimensions				number of flutes	pitch diameter limit	
				D1 size	L	L3	L2			D
T830M030X050RD3-A	—	—	T830M030X050RD3-A	M3 X 0,5	1.94	.58	.75	.141	2	D3
T834M030X050RD3-A	—	—	T834M030X050RD3-A	M3 X 0.5	1.94	.58	.76	.141	3	D3
—	—	—	T830M035X060RD4-A	M3,5 X 0,6	1.99	.38	.71	.141	2	D4
—	—	—	T834M035X060RD4-A	M3.5 X 0.6	2.00	.38	.72	.141	3	D4
T830M040X070RD4-A	—	—	T830M040X070RD4-A	M4 X 0,7	2.12	.38	.76	.168	3	D4
T830M050X080RD4-A	T830M050X080RD4-A	T830M050X080RD4-A	T830M050X080RD4-A	M5 X 0,8	2.37	.50	.91	.194	3	D4
T830M060X100RD5-A	T830M060X100RD5-A	T830M060X100RD5-A	T830M060X100RD5-A	M6 X 1	2.50	.63	1.00	.255	3	D5
—	—	—	T830M070X100RD5-A	M7 X 1	2.72	.69	1.15	.318	3	D5
—	—	—	T830MF080X100RD5-A	M8 X 1	2.70	.69	1.12	.318	3	D5
T830M080X125RD5-A	T830M080X125RD5-A	T830M080X125RD5-A	T830M080X125RD5-A	M8 X 1,25	2.70	.69	1.12	.318	3	D5
—	—	—	T830MF100X125RD5-A	M10 X 1,25	2.92	.74	1.25	.381	3	D5
T830M100X150RD6-A	T830M100X150RD6-A	T830M100X150RD6-A	T830M100X150RD6-A	M10 X 1,5	2.93	.75	1.26	.381	3	D6
—	—	—	T830MF120X125RD5-A	M12 X 1,25	3.38	.94	1.74	.367	3	D5
—	—	—	T830MF120X150RD5-A	M12 X 1,5	3.38	.94	1.74	.367	3	D5
T830M120X175RD6-A	T830M120X175RD6-A	T830M120X175RD6-A	T830M120X175RD6-A	M12 X 1,75	3.38	.94	1.74	.367	3	D6
—	—	—	T830MF140X150RD6-A	M14 X 1,5	3.59	1.00	1.74	.429	3	D6
—	—	—	T830M140X200RD7-A	M14 X 2	3.59	1.00	1.74	.429	3	D7
—	—	—	T830MF160X150RD6-A	M16 X 1,5	3.81	1.09	1.89	.480	3	D6
—	—	—	T830M160X200RD7-A	M16 X 2	3.81	1.09	1.89	.480	3	D7
—	—	—	T830MF180X150RD6-A	M18 X 1,5	4.03	1.09	1.89	.542	4	D6
—	—	—	T830M180X250RD7-A	M18 X 2,5	4.03	1.09	1.89	.542	4	D7

NOTE: Suggested for use in rigid and synchronous holders.

Shank Tolerance

D inch	tolerance
.141-.635	+0, -.0015
>.635-1.51	+0, -.0020
>1.51-2.01	+0, -.0030

• KSP39 oxide


T832 • Form E Bottoming Chamfer • Metric • ANSI • Rigid and Synchronous Holders

 ● first choice
 ○ alternate choice

KSP39	D1 size	L	inch dimensions			number of flutes	pitch diameter limit
			L3	L2	D		
T832M030X050RD3-A	M3 X 0,5	1.94	.58	.75	.141	2	D3
T832M035X060RD4-A	M3,5 X 0,6	2.00	.38	.71	.141	2	D4
T832M040X070RD4-A	M4 X 0,7	2.13	.38	.76	.168	3	D4
T832M050X080RD4-A	M5 X 0,8	2.38	.50	.91	.194	3	D4
T832M060X100RD5-A	M6 X 1	2.50	.63	1.00	.255	3	D5
T832M070X100RD5-A	M7 X 1	2.72	.69	1.15	.318	3	D5
T832MF080X100RD5-A	M8 X 1	2.72	.69	1.12	.318	3	D5
T832M080X125RD5-A	M8 X 1,25	2.72	.69	1.12	.318	3	D5
T832MF100X125RD5-A	M10 X 1,25	2.94	.75	1.26	.381	3	D5
T832M100X150RD6-A	M10 X 1,5	2.94	.75	1.26	.381	3	D6
T832MF120X125RD5-A	M12 X 1,25	3.38	.94	1.74	.367	3	D5
T832MF120X150RD5-A *	M12 X 1,5	3.38	.94	1.74	.367	3	D5
T832M120X175RD6-A	M12 X 1,75	3.38	.94	1.74	.367	3	D6
T832MF140X150RD6-A	M14 X 1,5	3.59	1.00	1.74	.429	3	D6
T832M140X200RD7-A	M14 X 2	3.59	1.00	1.74	.429	3	D7
T832MF160X150RD6-A	M16 X 1,5	3.81	1.09	1.89	.480	3	D6
T832M160X200RD7-A	M16 X 2	3.81	1.09	1.89	.480	3	D7
T832MF180X150RD6-A	M18 X 1,5	4.03	1.09	1.89	.542	4	D6

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

NOTE: Suggested for use in rigid and synchronous holders.
Shank Tolerance

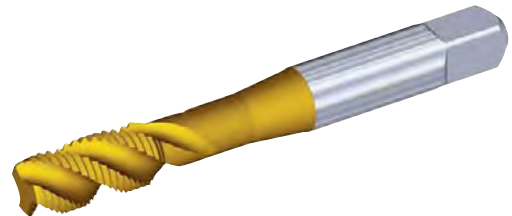
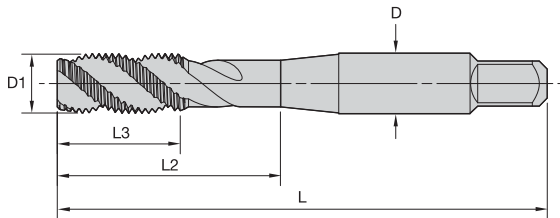
D inch	tolerance
.141-.635	+0, -.0015
>.635-1.51	+0, -.0020
>1.51-2.01	+0, -.0030

Multipurpose Taps

G0tap™ T838 Spiral-Flute HSS-E Taps • Blind Holes

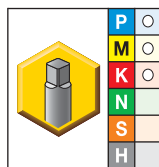
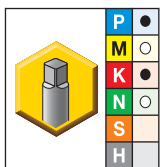


- KSP32 TiCN/TiN
- KSP39 oxide



T838 • Form C Semi-Bottoming Chamfer • Metric • ANSI • Tension/Compression Holders

Tapping



- first choice
- alternate choice

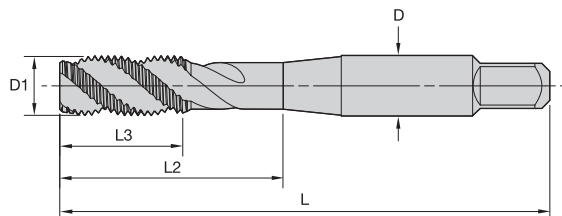
		inch dimensions				number of flutes	pitch diameter limit	
KSP32	KSP39	D1 size	L	L3	L2			D
T838M030X050RD3-A	T838M030X050RD3-A	M3 X 0,5	1.94	.58	.75	.141	2	D3
—	T838M035X060RD4-A	M3,5 X 0,6	1.99	.38	.71	.141	2	D4
T838M040X070RD4-A	T838M040X070RD4-A	M4 X 0,7	2.12	.38	.76	.168	3	D4
T838M050X080RD4-A	T838M050X080RD4-A	M5 X 0,8	2.37	.50	.91	.194	3	D4
T838M060X100RD5-A	T838M060X100RD5-A	M6 X 1	2.50	.63	1.01	.255	3	D5
—	T838M070X100RD5-A	M7 X 1	2.73	.69	1.15	.318	3	D5
—	T838MF080X100RD5-A	M8 X 1	2.71	.69	1.12	.318	3	D5
T838M080X125RD5-A	T838M080X125RD5-A	M8 X 1,25	2.71	.69	1.12	.318	3	D5
—	T838MF100X125RD5-A	M10 X 1,25	2.92	.74	1.25	.381	3	D5
T838M100X150RD6-A	T838M100X150RD6-A	M10 X 1,5	2.92	.75	1.26	.381	3	D6
—	T838MF120X125RD5-A	M12 X 1,25	3.38	.94	1.74	.367	3	D5
—	T838MF120X150RD5-A	M12 X 1,5	3.38	.94	1.74	.367	3	D5
T838M120X175RD6-A	T838M120X175RD6-A	M12 X 1,75	3.38	.94	1.74	.367	3	D6
—	T838MF140X150RD6-A	M14 X 1,5	3.59	1.00	1.74	.429	3	D6
—	T838M140X200RD7-A	M14 X 2	3.59	1.00	1.74	.429	3	D7
—	T838MF160X150RD6-A	M16 X 1,5	3.81	1.09	1.89	.480	3	D6
—	T838M160X200RD7-A	M16 X 2	3.81	1.09	1.89	.480	3	D7
—	T838MF180X150RD6-A	M18 X 1,5	4.03	1.09	1.89	.542	4	D6
—	T838M180X250RD7-A	M18 X 2,5	4.03	1.09	1.89	.542	4	D7

NOTE: Suitable for tension/compression holders.

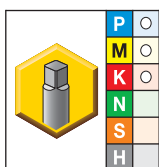
Shank Tolerance

D inch	tolerance
.141–.635	+0, -.0015
>.635–1.51	+0, -.0020
>1.51–2.01	+0, -.0030

• KSP39 oxide



■ T839 • Form E Bottoming Chamfer • Metric • ANSI • Tension/Compression Holders



● first choice
 ○ alternate choice

KSP39	D1 size	inch dimensions				D	number of flutes	pitch diameter limit
		L	L3	L2				
T839M030X050RD3-A	M3 X 0,5	1.94	.58	.75	.141	2	D3	
T839M035X060RD4-A	M3,5 X 0,6	2.00	.38	.71	.141	2	D4	
T839M040X070RD4-A	M4 X 0,7	2.13	.38	.76	.168	3	D4	
T839M050X080RD4-A	M5 X 0,8	2.38	.50	.91	.194	3	D4	
T839M060X100RD5-A	M6 X 1	2.50	.63	1.00	.255	3	D5	
T839M070X100RD5-A	M7 X 1	2.72	.69	1.15	.318	3	D5	
T839MF080X100RD5-A	M8 X 1	2.72	.69	1.12	.318	3	D5	
T839M080X125RD5-A	M8 X 1,25	2.72	.69	1.12	.318	3	D5	
T839MF100X125RD5-A	M10 X 1,25	2.94	.75	1.26	.381	3	D5	
T839M100X150RD6-A	M10 X 1,5	2.94	.75	1.26	.381	3	D6	
T839MF120X125RD5-A	M12 X 1,25	3.38	.94	1.74	.367	3	D5	
T839MF120X150RD5-A	M12 X 1,5	3.38	.94	1.74	.367	3	D5	
T839M120X175RD6-A	M12 X 1,75	3.38	.94	1.74	.367	3	D6	
T839MF140X150RD6-A	M14 X 1,5	3.59	1.00	1.74	.429	3	D6	
T839M140X200RD7-A	M14 X 2	3.59	1.00	1.74	.429	3	D7	
T839MF160X150RD6-A	M16 X 1,5	3.81	1.09	1.89	.480	3	D6	
T839M160X200RD7-A	M16 X 2	3.81	1.09	1.89	.480	3	D7	
T839MF180X150RD6-A	M18 X 1,5	4.03	1.09	1.89	.542	4	D6	

NOTE: Suitable for tension/compression holders.

Shank Tolerance

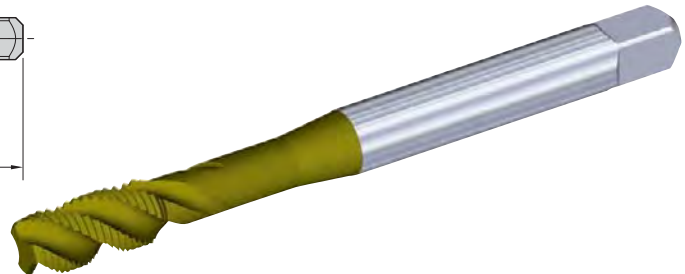
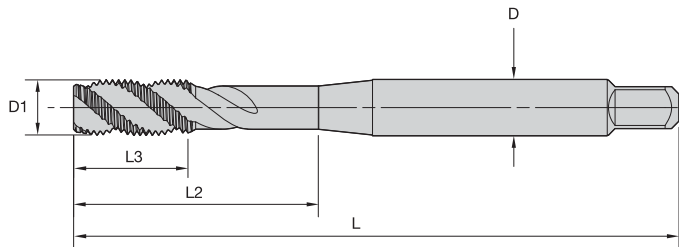
D inch	tolerance
.141–.635	+0, -.0015
>.635–1.51	+0, -.0020
>1.51–2.01	+0, -.0030

Multipurpose Taps

G0tap™ T830 Spiral-Flute HSS-E Taps • Blind Holes

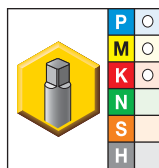
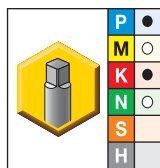


- KSP32 TiCN/TiN
- KSP39 oxide



Tapping

■ T830 • DIN 371, 374, and 376 • Form C Semi-Bottoming Chamfer • Metric • Rigid and Synchronous Holders

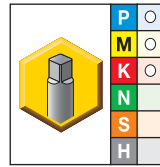
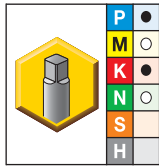


- first choice
- alternate choice

KSP32	KSP39	metric dimensions					number of flutes	dimension standard	class of fit
		D1 size	L	L3	L2	D			
—	T830M020X040R6H-D1	M2 X 0,4	45	7	13	2,8	2	DIN 371	6H
—	T830M020X040R6G-D1	M2 X 0,4	45	7	13	2,8	2	DIN 371	6G
—	T830M025X045R6H-D1	M2,5 X 0,45	50	7	15	2,8	2	DIN 371	6H
—	T830M025X045R6G-D1	M2,5 X 0,45	50	7	15	2,8	2	DIN 371	6G
T830M030X050R6H-D1	T830M030X050R6H-D1	M3 X 0,5	56	8	18	3,5	2	DIN 371	6H
—	T830M030X050R6G-D1	M3 X 0,5	56	8	18	3,5	2	DIN 371	6G
—	T830M035X060R6H-D1	M3,5 X 0,6	56	9	20	4,0	2	DIN 371	6H
T830M040X070R6H-D1	T830M040X070R6H-D1	M4 X 0,7	63	11	21	4,5	3	DIN 371	6H
—	T830M040X070R6G-D1	M4 X 0,7	63	11	21	4,5	3	DIN 371	6G
T830M050X080R6H-D1	T830M050X080R6H-D1	M5 X 0,8	70	12	25	6,0	3	DIN 371	6H
—	T830M050X080R6G-D1	M5 X 0,8	70	12	25	6,0	3	DIN 371	6G
—	T830M060X100R6H-D6	M6 X 1	80	12	30	4,5	3	DIN 376	6H
T830M060X100R6H-D1	T830M060X100R6H-D1	M6 X 1	80	12	30	6,0	3	DIN 371	6H
—	T830M060X100R6G-D1	M6 X 1	80	12	30	6,0	3	DIN 371	6G
—	T830M070X100R6H-D1	M7 X 1	80	12	30	7,0	3	DIN 371	6H
T830MF080X100R6H-D4	T830MF080X100R6H-D4	M8 X 1	90	15	35	6,0	3	DIN 374	6H
—	T830M080X125R6H-D6	M8 X 1,25	90	15	35	6,0	3	DIN 376	6H
T830M080X125R6H-D1	T830M080X125R6H-D1	M8 X 1,25	90	15	35	8,0	3	DIN 371	6H
—	T830M080X125R6G-D1	M8 X 1,25	90	15	35	8,0	3	DIN 371	6G
T830MF100X125R6H-D4	T830MF100X125R6H-D4	M10 X 1,25	100	18	39	7,0	3	DIN 374	6H
—	T830M100X150R6H-D6	M10 X 1,5	100	18	39	7,0	3	DIN 376	6H
T830M100X150R6H-D1	—	M10 X 1,5	100	18	39	10,0	3	DIN 371	6G
—	T830M100X150R6H-D1	M10 X 1,5	100	18	39	10,0	3	DIN 371	6H
—	T830M100X150R6G-D1	M10 X 1,5	100	18	39	10,0	3	DIN 371	6G

(continued)

(T830 • DIN 371, 374, and 376 • Form C Semi-Bottoming Chamfer • Metric • Rigid and Synchronous Holders — continued)



● first choice
○ alternate choice

KSP32	KSP39	metric dimensions					number of flutes	dimension standard	class of fit
		D1 size	L	L3	L2	D			
—	T830MF120X125R6H-D4	M12 X 1,25	100	21	39	9,0	3	DIN 374	6H
T830MF120X150R6H-D4	T830MF120X150R6H-D4	M12 X 1,5	100	21	39	9,0	3	DIN 374	6H
T830M120X175R6H-D6	T830M120X175R6H-D6	M12 X 1,75	110	21	44	9,0	3	DIN 376	6H
—	T830M120X175R6G-D6	M12 X 1,75	110	21	44	9,0	3	DIN 376	6G
T830MF140X150R6H-D4	T830MF140X150R6H-D4	M14 X 1,5	100	21	47	11,0	3	DIN 374	6H
T830M140X200R6H-D6	T830M140X200R6H-D6	M14 X 2	110	24	52	11,0	3	DIN 376	6H
—	T830M140X200R6G-D6	M14 X 2	110	24	52	11,0	3	DIN 376	6G
—	T830MF160X150R6H-D4	M16 X 1,5	100	21	46	12,0	3	DIN 374	6H
—	T830M160X200R6H-D6	M16 X 2	110	24	51	12,0	3	DIN 376	6H
—	T830M160X200R6G-D6	M16 X 2	110	24	51	12,0	3	DIN 376	6G
—	T830MF180X150R6H-D4	M18 X 1,5	110	21	50	14,0	4	DIN 374	6H
—	T830M180X250R6H-D6	M18 X 2,5	125	30	58	14,0	4	DIN 376	6H
—	T830M200X250R6H-D6	M20 X 2,5	140	30	64	16,0	4	DIN 376	6H
—	T830M220X250R6H-D6	M22 X 2,5	140	30	70	18,0	4	DIN 376	6H
—	T830M240X300R6H-D6	M24 X 3	160	36	77	18,0	4	DIN 376	6H
—	T830M270X300R6H-D6	M27 X 3	160	36	82	20,0	4	DIN 376	6H
—	T830M300X350R6H-D6	M30 X 3,5	180	42	91	22,0	4	DIN 376	6H
—	T830M330X350R6H-D6	M33 X 3,5	180	42	100	25,0	4	DIN 376	6H
—	T830M360X400R6H-D6	M36 X 4	200	48	110	28,0	5	DIN 376	6H



NOTE: Suggested for use in rigid and synchronous holders.

Shank Tolerance

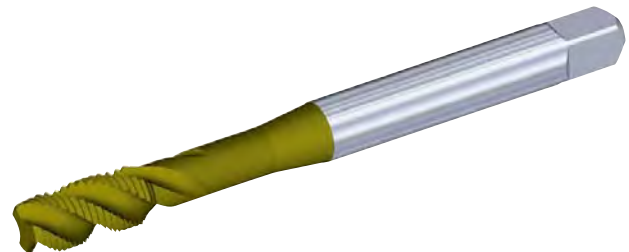
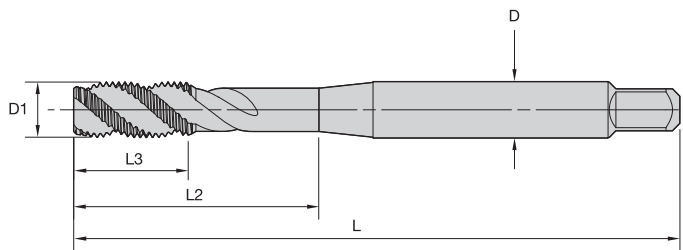
D mm	tolerance h9
1-3	+0, -0,025
>3-6	+0, -0,030
>6-10	+0, -0,036
>10-18	+0, -0,043
>18-30	+0, -0,052

Multipurpose Taps

G0tap™ T832 Spiral-Flute HSS-E Taps • Blind Holes

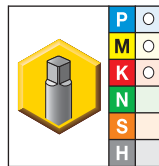
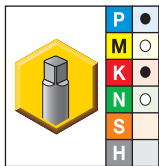


- KSP32 TiCN/TiN
- KSP39 oxide



■ T832 • DIN 371, 374, and 376 • Form E Bottoming Chamfer • Metric • Rigid and Synchronous Holders

Tapping



- first choice
- alternate choice

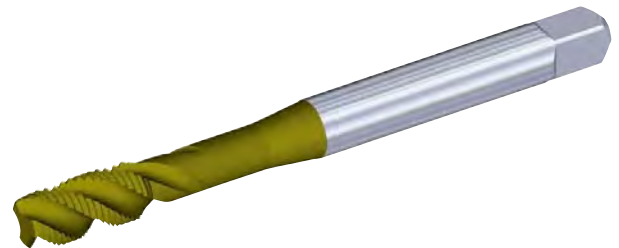
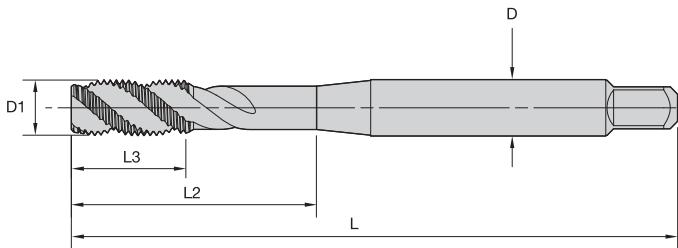
KSP32	KSP39	D1 size	metric dimensions				number of flutes	dimension standard	class of fit
			L	L3	L2	D			
T832M030X050R6H-D1	T832M030X050R6H-D1	M3 X 0,5	56	8	18	3,5	2	DIN 371	6H
T832M040X070R6H-D1	T832M040X070R6H-D1	M4 X 0,7	63	11	21	4,5	3	DIN 371	6H
T832M050X080R6H-D1	T832M050X080R6H-D1	M5 X 0,8	70	12	25	6,0	3	DIN 371	6H
T832M060X100R6H-D1	T832M060X100R6H-D1	M6 X 1	80	12	30	6,0	3	DIN 371	6H
T832MF080X100R6H-D4	T832MF080X100R6H-D4	M8 X 1	90	15	35	6,0	3	DIN 374	6H
T832M080X125R6H-D1	T832M080X125R6H-D1	M8 X 1,25	90	15	35	8,0	3	DIN 371	6H
T832MF100X125R6H-D4	T832MF100X125R6H-D4	M10 X 1,25	100	18	39	7,0	3	DIN 374	6H
T832M100X150R6H-D1	T832M100X150R6H-D1	M10 X 1,5	100	18	39	10,0	3	DIN 371	6H
T832MF120X150R6H-D4	T832MF120X150R6H-D4	M12 X 1,5	100	21	39	9,0	3	DIN 374	6H
T832M120X175R6H-D6	T832M120X175R6H-D6	M12 X 1,75	110	21	44	9,0	3	DIN 376	6H
T832MF140X150R6H-D4	T832MF140X150R6H-D4	M14 X 1,5	100	21	47	11,0	3	DIN 374	6H
T832M140X200R6H-D6	T832M140X200R6H-D6	M14 X 2	110	24	52	11,0	3	DIN 376	6H
—	T832M160X200R6H-D6	M16 X 2	110	24	51	12,0	3	DIN 376	6H
T832M180X250R6H-D6	T832M180X250R6H-D6	M18 X 2,5	125	30	58	14,0	4	DIN 376	6H
T832M200X250R6H-D6	T832M200X250R6H-D6	M20 X 2,5	140	30	64	16,0	4	DIN 376	6H

NOTE: Suggested for use in rigid and synchronous holders.

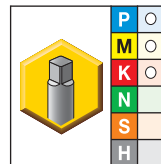
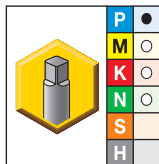
Shank Tolerance

D mm	tolerance h9
1-3	+0, -0,025
>3-6	+0, -0,030
>6-10	+0, -0,036
>10-18	+0, -0,043
>18-30	+0, -0,052

- KSU31 TiN
- KSP39 oxide



■ T838 • DIN 371, 374, and 376 • Form C Semi-Bottoming Chamfer • Metric • Tension/Compression Holders



- first choice
- alternate choice

KSU31	KSP39	D1 size	metric dimensions				number of flutes	dimension standard	class of fit
			L	L3	L2	D			
T838M020X040R6H-D1	T838M020X040R6H-D1	M2 X 0,4	45	7	13	2,8	3	DIN 371	6H
T838M030X050R6H-D1	T838M030X050R6H-D1	M3 X 0,5	56	5	19	3,5	3	DIN 371	6H
T838M040X070R6H-D1	T838M040X070R6H-D1	M4 X 0,7	63	7	21	4,5	3	DIN 371	6H
T838M050X080R6H-D1	T838M050X080R6H-D1	M5 X 0,8	70	8	26	6,0	3	DIN 371	6H
T838M050X080R6H-D6	T838M050X080R6H-D6	M5 X 0,8	70	8	27	3,5	3	DIN 376	6H
T838MF060X075R6H-D4	T838MF060X075R6H-D4	M6 X 0,75	80	10	34	4,5	3	DIN 374	6H
T838M060X100R6H-D1	T838M060X100R6H-D1	M6 X 1	80	10	30	6,0	3	DIN 371	6H
T838M060X100R6H-D6	T838M060X100R6H-D6	M6 X 1	80	10	34	4,5	3	DIN 376	6H
T838MF080X075R6H-D4	T838MF080X075R6H-D4	M8 X 0,75	90	13	37	6,0	3	DIN 374	6H
T838MF080X100R6H-D4	T838MF080X100R6H-D4	M8 X 1	90	13	37	6,0	3	DIN 374	6H
T838M080X125R6H-D1	T838M080X125R6H-D1	M8 X 1,25	90	13	37	8,0	3	DIN 371	6H
T838M080X125R6H-D6	T838M080X125R6H-D6	M8 X 1,25	90	13	37	6,0	3	DIN 376	6H
T838MF100X075R6H-D4	T838MF100X075R6H-D4	M10 X 0,75	90	15	40	7,0	3	DIN 374	6H
T838MF100X100R6H-D4	T838MF100X100R6H-D4	M10 X 1	90	15	40	7,0	3	DIN 374	6H
T838MF100X125R6H-D4	T838MF100X125R6H-D4	M10 X 1,25	100	15	44	7,0	3	DIN 374	6H
T838M100X150R6H-D1	T838M100X150R6H-D1	M10 X 1,5	100	15	41	10,0	3	DIN 371	6H
T838M100X150R6H-D6	T838M100X150R6H-D6	M10 X 1,5	100	15	44	7,0	3	DIN 376	6H
T838MF120X100R6H-D4	T838MF120X100R6H-D4	M12 X 1	100	13	50	9,0	3	DIN 374	6H
T838MF120X125R6H-D4	T838MF120X125R6H-D4	M12 X 1,25	100	13	50	9,0	3	DIN 374	6H
T838MF120X150R6H-D4	T838MF120X150R6H-D4	M12 X 1,5	100	13	50	9,0	3	DIN 374	6H
T838M120X175R6H-D6	T838M120X175R6H-D6	M12 X 1,75	110	18	55	9,0	3	DIN 376	6H
T838MF140X100R6H-D4	T838MF140X100R6H-D4	M14 X 1	100	15	41	11,0	4	DIN 374	6H
T838MF140X125R6H-D4	T838MF140X125R6H-D4	M14 X 1,25	100	15	41	11,0	4	DIN 374	6H
T838MF140X150R6H-D4	T838MF140X150R6H-D4	M14 X 1,5	100	15	41	11,0	4	DIN 374	6H
T838M140X200R6H-D6	T838M140X200R6H-D6	M14 X 2	110	20	50	11,0	3	DIN 376	6H
T838MF160X150R6H-D4	T838MF160X150R6H-D4	M16 X 1,5	100	15	45	12,0	4	DIN 374	6H
T838M160X200R6H-D6	T838M160X200R6H-D6	M16 X 2	110	20	55	12,0	4	DIN 376	6H
T838MF180X150R6H-D4	T838MF180X150R6H-D4	M18 X 1,5	110	17	55	14,0	4	DIN 374	6H

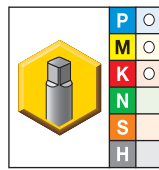
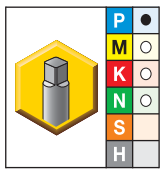
(continued)

Multipurpose Taps

G0tap™ T838 Spiral-Flute HSS-E Taps • Blind Holes



(T838 • DIN 371, 374, and 376 • Form C Semi-Bottoming Chamfer • Metric • Tension/Compression Holders — continued)



● first choice
○ alternate choice

KSU31	KSP39	metric dimensions				number of flutes	dimension standard	class of fit	
		D1 size	L	L3	L2				D
T838MF180X200R6H-D4	T838MF180X200R6H-D4	M18 X 2	125	25	61	14,0	4	DIN 374	6H
T838M180X250R6H-D6	T838M180X250R6H-D6	M18 X 2,5	125	25	61	14,0	4	DIN 376	6H
T838MF200X150R6H-D4	T838MF200X150R6H-D4	M20 X 1,5	125	17	56	16,0	4	DIN 374	6H
T838MF200X200R6H-D4	T838MF200X200R6H-D4	M20 X 2	140	25	65	16,0	4	DIN 374	6H
T838M200X250R6H-D6	T838M200X250R6H-D6	M20 X 2,5	140	25	65	16,0	4	DIN 376	6H
T838MF220X150R6H-D4	T838MF220X150R6H-D4	M22 X 1,5	125	18	61	18,0	4	DIN 374	6H
T838MF220X200R6H-D4	T838MF220X200R6H-D4	M22 X 2	140	25	66	18,0	4	DIN 374	6H
T838M220X250R6H-D6	T838M220X250R6H-D6	M22 X 2,5	140	25	66	18,0	4	DIN 376	6H
T838MF240X150R6H-D4	T838MF240X150R6H-D4	M24 X 1,5	140	20	67	18,0	4	DIN 374	6H
T838MF240X200R6H-D4	T838MF240X200R6H-D4	M24 X 2	140	20	67	18,0	4	DIN 374	6H
T838M240X300R6H-D6	T838M240X300R6H-D6	M24 X 3	160	30	77	18,0	4	DIN 376	6H
T838MF270X150R6H-D4	T838MF270X150R6H-D4	M27 X 1,5	140	20	65	20,0	4	DIN 374	6H
T838M270X300R6H-D6	T838M270X300R6H-D6	M27 X 3	160	33	85	20,0	4	DIN 376	6H
T838MF300X150R6H-D4	T838MF300X150R6H-D4	M30 X 1,5	150	22	68	20,0	4	DIN 374	6H
T838MF300X200R6H-D4	T838MF300X200R6H-D4	M30 X 2	150	22	68	22,0	4	DIN 374	6H
T838M300X350R6H-D6	T838M300X350R6H-D6	M30 X 3,5	180	35	87	22,0	4	DIN 376	6H
T838M330X350R6H-D6	T838M330X350R6H-D6	M33 X 3,5	180	35	92	25,0	4	DIN 376	6H
T838M360X400R6H-D6	T838M360X400R6H-D6	M36 X 4	200	40	110	28,0	4	DIN 376	6H
T838M390X400R6H-D6	T838M390X400R6H-D6	M39 X 4	200	40	105	32,0	4	DIN 376	6H
T838M420X450R6H-D6	T838M420X450R6H-D6	M42 X 4,5	200	40	105	32,0	5	DIN 376	6H
T838M450X450R6H-D6	T838M450X450R6H-D6	M45 X 5	220	50	110	36,0	5	DIN 376	6H
T838M480X500R6H-D6	T838M480X500R6H-D6	M48 X 5	250	50	145	36,0	5	DIN 376	6H
T838M520X500R6H-D6	T838M520X500R6H-D6	M52 X 5	250	50	135	40,0	5	DIN 376	6H

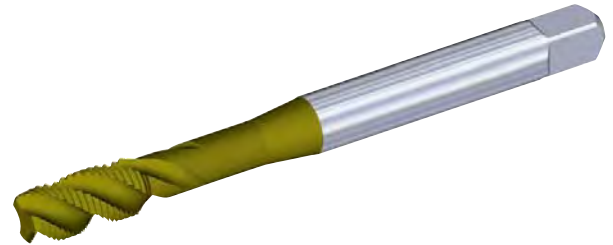
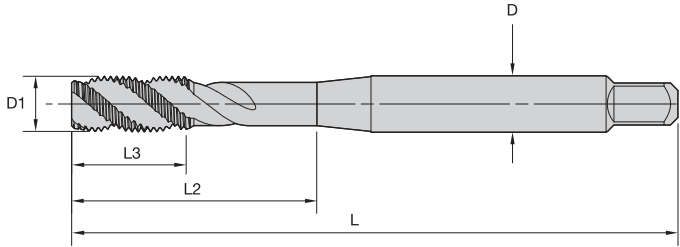
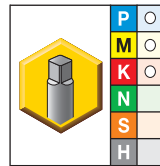
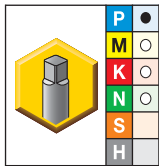
NOTE: Suitable for tension/compression holders.

Shank Tolerance

D mm	tolerance h9
1-3	+0, -0,025
>3-6	+0, -0,030
>6-10	+0, -0,036
>10-18	+0, -0,043
>18-30	+0, -0,052

Tapping

- KSU31 TiN
- KSP39 oxide


■ T839 • DIN 371 and 376 • Form E Bottoming Chamfer • Metric • Tension/Compression Holders


- first choice
- alternate choice

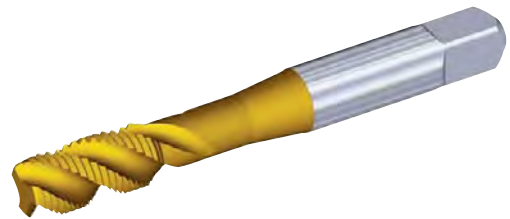
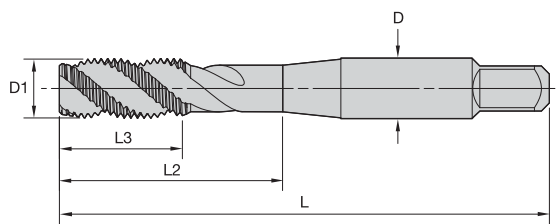
		metric dimensions					number of flutes	dimension standard	class of fit
		D1 size	L	L3	L2	D			
KSU31	KSP39								
T839M030X050R6H-D1	T839M030X050R6H-D1	M3 X 0,5	56	5	19	3,5	3	DIN 371	6H
T839M040X070R6H-D1	T839M040X070R6H-D1	M4 X 0,7	63	7	21	4,5	3	DIN 371	6H
T839M050X080R6H-D1	T839M050X080R6H-D1	M5 X 0,8	70	8	26	6,0	3	DIN 371	6H
T839M060X100R6H-D1	T839M060X100R6H-D1	M6 X 1	80	10	30	6,0	3	DIN 371	6H
T839M080X125R6H-D1	T839M080X125R6H-D1	M8 X 1,25	90	13	37	8,0	3	DIN 371	6H
T839M100X150R6H-D1	T839M100X150R6H-D1	M10 X 1,5	100	15	42	10,0	3	DIN 371	6H
T839M120X175R6H-D6	T839M120X175R6H-D6	M12 X 1,75	110	18	55	9,0	3	DIN 376	6H
T839M140X200R6H-D6	T839M140X200R6H-D6	M14 X 2	110	20	50	11,0	3	DIN 376	6H
T839M160X200R6H-D6	T839M160X200R6H-D6	M16 X 2	110	20	55	12,0	4	DIN 376	6H
T839M180X250R6H-D6	T839M180X250R6H-D6	M18 X 2,5	125	25	61	14,0	4	DIN 376	6H
T839M200X250R6H-D6	T839M200X250R6H-D6	M20 X 2,5	140	25	65	16,0	4	DIN 376	6H

NOTE: Suitable for tension/compression holders.

Shank Tolerance

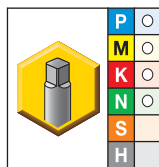
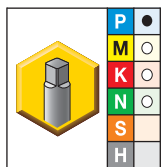
D mm	tolerance h9
1-3	+0, -0,025
>3-6	+0, -0,030
>6-10	+0, -0,036
>10-18	+0, -0,043
>18-30	+0, -0,052

- KSU31 TiN
- KSU30 bright



■ T830 • Form C Semi-Bottoming Chamfer • Metric • JIS • Rigid and Synchronous Holders

Tapping



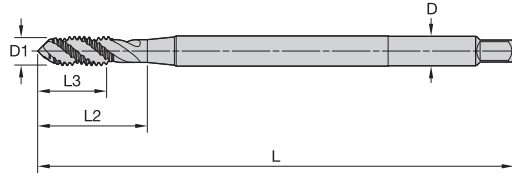
- first choice
- alternate choice

		D1 size	metric dimensions				number of flutes	dimension standard	tap class
			L	L3	L2	D			
KSU31	KSU30								
T830M030X050R6H-J	T830M030X050R6H-J	M3 X 0,5	46	11	19	4,0	2	JIS	ISO 2
T830M040X070R6H-J	T830M040X070R6H-J	M4 X 0,7	52	13	21	5,0	3	JIS	ISO 2
T830M050X080R6H-J	T830M050X080R6H-J	M5 X 0,8	60	16	24	5,5	3	JIS	ISO 2
T830M060X100R6H-J	T830M060X100R6H-J	M6 X 1	62	19	29	6,0	3	JIS	ISO 2
T830M080X125R6H-J	T830M080X125R6H-J	M8 X 1,25	70	22	37	6,2	3	JIS	ISO 2
T830M100X150R6H-J	T830M100X150R6H-J	M10 X 1,5	75	24	41	7,0	3	JIS	ISO 2
—	T830MF120X125R6H-J	M12 X 1,25	82	29	48	8,5	3	JIS	ISO 2
—	T830MF120X150R6H-J	M12 X 1,5	82	29	48	8,5	3	JIS	ISO 2
—	T830M120X175R6H-J	M12 X 1,75	82	29	48	8,5	3	JIS	ISO 2
—	T830MF140X150R6H-J	M14 X 1,5	88	30	48	10,5	3	JIS	ISO 2
—	T830M140X200R6H-J	M14 X 2	88	30	48	10,5	3	JIS	ISO 2
—	T830MF160X150R6H-J	M16 X 1,5	95	32	52	12,5	3	JIS	ISO 2
—	T830M160X200R6H-J	M16 X 2	95	32	52	12,5	3	JIS	ISO 2
—	T830M180X250R6H-J	M18 X 2,5	100	37	55	14,0	4	JIS	ISO 2
—	T830M200X250R6H-J	M20 X 2,5	105	37	60	15,0	4	JIS	ISO 2

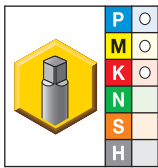
NOTE: Suggested for use in rigid and synchronous holders.

Shank Tolerance

D mm	tolerance h9
1-3	+0, -0,025
>3-6	+0, -0,030
>6-10	+0, -0,036
>10-18	+0, -0,043
>18-30	+0, -0,052



■ T830 • Form C Semi-Bottoming Chamfer • Machine Screw and Fractional • 4" Length • ANSI • Tension/Compression Holders



● first choice
 ○ alternate choice

KSP39	D1 TPI	L	inch dimensions			number of flutes	pitch diameter limit
			L3	L2	D		
T830NC#04-40RH2-XL4	4 - 40	4.00	.56	.87	.141	2	H2
T830NC#06-32RH3-XL4 *	6 - 32	4.00	.38	.71	.141	2	H3
T830NC#08-32RH3-XL4	8 - 32	4.00	.38	.76	.168	3	H3
T830NF#10-32RH3-XL4	10 - 32	4.00	.50	.91	.194	3	H3
T830NC02500-20RH3-XL4	1/4 20	4.00	.63	1.00	.255	3	H3

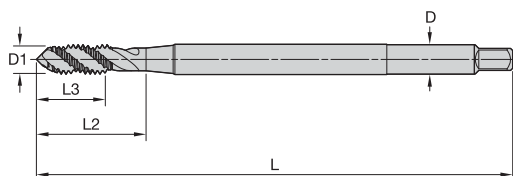
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

NOTE: Suitable for tension/compression holders.

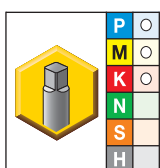
Shank Tolerance

D inch	tolerance
.141-.635	+0, -.0015
>.635-1.51	+0, -.0020
>1.51-2.01	+0, -.0030





■ T830 • Form C Semi-Bottoming Chamfer • Machine Screw and Fractional • 6" Length • ANSI • Tension/Compression Holders



- first choice
- alternate choice

Tapping

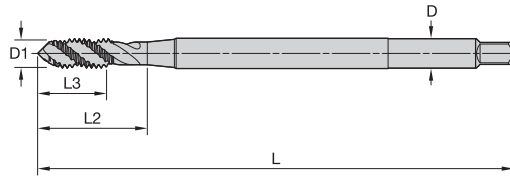
KSP39	inch dimensions					number of flutes	pitch diameter limit
	D1 TPI	L	L3	L2	D		
T830NC#04-40RH2-XL6 *	4 - 40	6.00	.56	.87	.141	2	H2
T830NC#06-32RH3-XL6	6 - 32	6.00	.38	.71	.141	2	H3
T830NC#08-32RH3-XL6	8 - 32	6.00	.38	.76	.168	3	H3
T830NC#10-24RH3-XL6 *	10 - 24	6.00	.50	.91	.194	3	H3
T830NF#10-32RH3-XL6	10 - 32	6.00	.50	.91	.194	3	H3
T830NC02500-20RH3-XL6	1/4 20	6.00	.63	1.00	.255	3	H3
T860NF02500-28RH3-XL6	1/4 - 28	6.00	.63	1.01	.255	3	H3
T830NC03125-18RH3-XL6	5/16 - 18	6.00	.69	1.13	.318	3	H3
T830NF03125-24RH3-XL6	5/16 - 24	6.00	.69	1.13	.318	3	H3
T830NC03750-16RH3-XL6	3/8 - 16	6.00	.75	1.27	.381	3	H3
T830NF03750-24RH3-XL6 *	3/8 - 24	6.00	.75	1.26	.381	3	H3
T830NC04375-14RH3-XL6 *	7/16 - 14	6.00	.88	1.49	.323	3	H3
T830NF04375-20RH3-XL6	7/16 - 20	6.00	.88	1.49	.323	3	H3
T830NC05000-13RH3-XL6	1/2 - 13	6.00	.94	1.74	.367	3	H3
T830NF05000-20RH3-XL6	1/2 - 20	6.00	.94	1.74	.367	3	H3
T830NC06250-11RH3-XL6	5/8 - 11	6.00	1.09	1.89	.480	3	H3

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

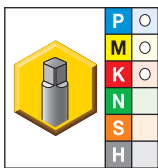
NOTE: Suitable for tension/compression holders.

Shank Tolerance

D inch	tolerance
.141-.635	+0, -.0015
>.635-1.51	+0, -.0020
>1.51-2.01	+0, -.0030



■ T832 • Form E Bottoming Chamfer • Machine Screw and Fractional • 6" Length • ANSI • Tension/Compression Holders



● first choice
 ○ alternate choice

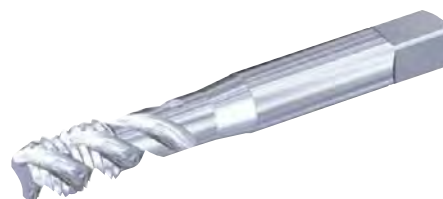
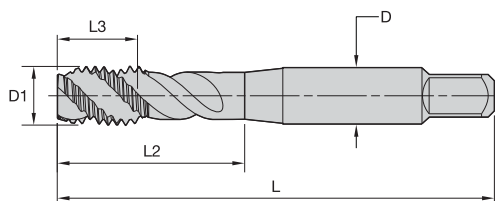
KSP39	D1 TPI	L	inch dimensions			number of flutes	pitch diameter limit
			L3	L2	D		
T832NC#04-40RH2-XL6	4 - 40	6.00	.56	.87	.141	2	H2
T832NC#06-32RH3-XL6	6 - 32	6.00	.38	.71	.141	2	H3
T832NC#08-32RH3-XL6	8 - 32	6.00	.38	.76	.168	3	H3
T832NF#10-32RH3-XL6 *	10 - 32	6.00	.50	.91	.194	3	H3
T832NC02500-20RH3-XL6	1/4 20	6.00	.63	1.00	.255	3	H3
T832NF02500-28RH3-XL6	1/4 - 28	6.00	.63	1.01	.255	3	H3
T832NC03125-18RH3-XL6	5/16 - 18	6.00	.69	1.13	.318	3	H3
T832NC03750-16RH3-XL6	3/8 - 16	6.00	.75	1.27	.381	3	H3
T832NF03750-24RH3-XL6	3/8 - 24	6.00	.75	1.26	.381	3	H3
T832NC04375-14RH3-XL6	7/16 - 14	6.00	.88	1.49	.323	3	H3

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

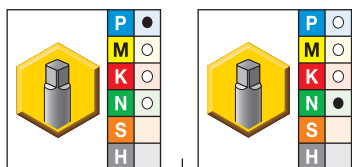
NOTE: Suitable for tension/compression holders.

Shank Tolerance	
D inch	tolerance
.141-.635	+0, -.0015
>.635-1.51	+0, -.0020
>1.51-2.01	+0, -.0030





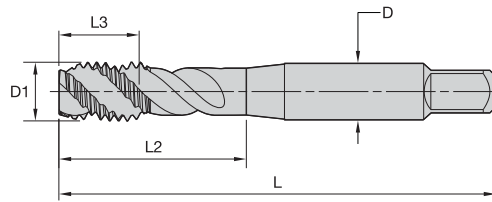
KHSST Spiral Flute • Machine Screw and Fractional • Bottoming Chamfer Tap



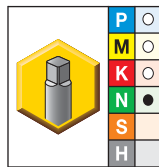
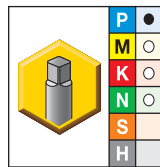
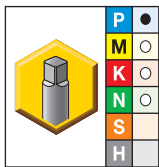
- first choice
- alternate choice

TiN	uncoated	D1 size	L	L3	L2	D	number of flutes	pitch diameter limit
KHSST28761	KHSST28762	4 - 40	1.88	.56	—	.141	2	H2
KHSST28779	KHSST28774	6 - 32	2.00	.38	.69	.141	2	H3
KHSST28785	KHSST28787	8 - 32	2.13	.38	.75	.168	3	H3
KHSST28738	KHSST28740	10 - 24	2.38	.50	.88	.194	3	H3
KHSST28745	KHSST28747	10 - 32	2.38	.50	.88	.194	3	H3
KHSST28137	KHSST28074	1/4 - 20	2.50	.63	1.00	.255	3	H3
KHSST28081	KHSST28083	1/4 - 28	2.50	.63	1.00	.255	3	H3
KHSST28211	KHSST28213	5/16 - 18	2.72	.69	1.12	.318	3	H3
KHSST28221	KHSST28223	5/16 - 24	2.72	.69	1.12	.318	3	H3
KHSST28187	KHSST28189	3/8 - 16	2.94	.75	1.25	.381	3	H3
KHSST28201	—	3/8 - 24	2.94	.75	1.25	.381	3	H3
KHSST28670	KHSST28672	7/16 - 14	3.16	.88	—	.323	3	H3
—	KHSST28674	7/16 - 20	3.16	.88	—	.323	3	H3
KHSST28047	KHSST28049	1/2 - 13	3.38	.94	—	.367	3	H3
—	KHSST28062	1/2 - 20	3.38	.94	—	.367	3	H3
—	KHSST28231	5/8 - 11	3.81	1.09	—	.480	4	H3
—	KHSST28165	3/4 - 10	4.25	1.22	—	.590	4	H3

NOTE: Refer to table on pages M202–M203 for the recommended pitch diameter limit for 2B or 3B class of fit.



■ KHSST Spiral Flute • Bottoming Chamfer Tap • Metric ANSI



● first choice
○ alternate choice

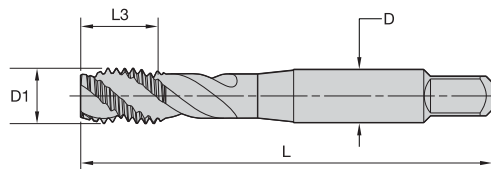
TiCN	TiN	uncoated	D1 size	L	L3	L2	D	number of flutes	pitch diameter limit
KHSST28478	KHSST28700	KHSST28692	M3 X 0,5	1.94	.31	—	.141	2	D3
KHSST28709	—	KHSST28707	M4 X 0,7	2.13	.38	.75	.168	3	D4
—	—	KHSST28716	M5 X 0,8	2.38	.50	.88	.194	3	D4
KHSST28723	—	KHSST28721	M6 X 1	2.50	.38	.75	.255	3	D5
—	—	KHSST28726	M8 X 1,25	2.72	.69	1.12	.318	3	D5
KHSST28476	—	KHSST28683	M10 X 1,5	2.94	.75	1.25	.381	3	D6

NOTE: Metric D limits are suitable for ISO 6H tolerance class.
Metric taps are manufactured to USCTI specifications and dimensions.
Metric tap blank dimensions are equivalent to inch taps.
Refer to table on page M203 for the recommended pitch diameter limit for 6H class of fit.



General-Purpose Taps

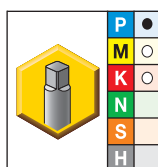
Heavy-Duty, Spiral-Flute Taps • Blind Holes



■ KHSST Heavy-Duty Spiral Flute • Machine Screw and Fractional • Bottoming Chamfer Taps



Tapping



● first choice

○ alternate choice

oxide	D1 size	L	L3	D	number of flutes	pitch diameter limit
KHSST28780	6 - 32	2.00	.38	.141	3	H3
KHSST28786	8 - 32	2.13	.38	.168	3	H3
KHSST28739	10 - 24	2.38	.50	.194	3	H3
KHSST28746	10 - 32	2.38	.50	.194	3	H3
KHSST28073	1/4 - 20	2.50	.63	.255	3	H3
KHSST28082	1/4 - 28	2.50	.63	.255	3	H3
KHSST28212	5/16 - 18	2.72	.69	.318	3	H3
KHSST28188	3/8 - 16	2.94	.75	.381	3	H3
KHSST28671 *	7/16 - 14	3.16	.88	.323	3	H3
KHSST28048	1/2 - 13	3.38	.94	.367	3	H3
KHSST28163	3/4 - 10	4.25	1.22	.590	4	H3

NOTE: KHSST taps for 3B class of fit are suitable for UNJ aerospace internal threading applications.

Refer to table on pages M202–M203 for the recommended pitch diameter limit for 2B or 3B class of fit.

*Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

NOVO KNOWS SEARCH

Searching for a tool has been enhanced by Advise and Select functions from NOVO™ applications — saving you time and money.

ADVISE

Uses a rules-based approach to provide cutting tool recommendations:

- Define Machining Feature (face milling, slotting, blind hole, etc.)
- Apply Constraint Requirements (geometric, material, tolerance, etc.)
- Set Machining Sequence (single or multi-step operations, rough then finish, etc.)
- Receive Ranked Results

SELECT

A method of selecting cutting tools from a tree structure via a hierarchy or parametric search:

- If you know which product you are looking for, a quick search can be performed by just the catalog number or product description.
- Smart filters significantly reduce the amount of potential tooling solutions.
- After the tool is selected, NOVO also provides cutting and adaptive item options that fit with your solution.

NOVO applications can ensure you have the right tools on your machines, in the right sequence. Resulting in flawless execution that accelerates every job, and maximizes every shift. kennametal.com/novo

➤ Straight-Flute Taps



High-Performance Taps for Through-Hole and Blind-Hole Applications

- Steel and steel alloys.
- Stainless steel.
- Cast iron.
- Cast aluminum.

High-Performance Beyond™ Solid Carbide Taps

- Straight-flute design for through- and blind-hole tapping in cast iron, cast aluminum, and hard steels.
- Runs up to 4x faster and 4x longer than conventional high-speed steel (HSS) taps.
- Ideal for long production runs where fewer tool changes result in greater productivity.
- For use on CNC machines with synchronous or rigid controls and precision toolholders.

High-Performance Beyond HSS-E-PM Taps

- Straight-flute design for through- and blind-hole tapping in cast iron and cast aluminum.
- Higher strength and wider range of applications versus solid carbide taps.
- Higher tapping speed capability and longer tool life than conventional HSS-E taps.
- Can be used on either conventional or synchronous tapping machines with rigid or synchronous tap holders.

General-Purpose Taps

- HSS straight-flute hand taps for use by hand or tapping under power.
- Plug and bottoming chamfers for through- and blind-hole tapping.
- Wide range of sizes and pitch limits offered with PVD coatings and surface treatments.

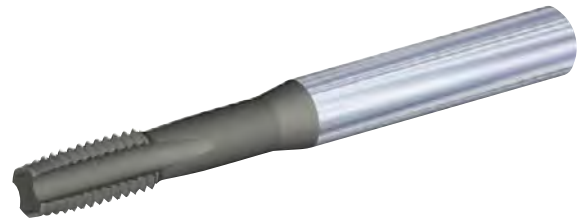
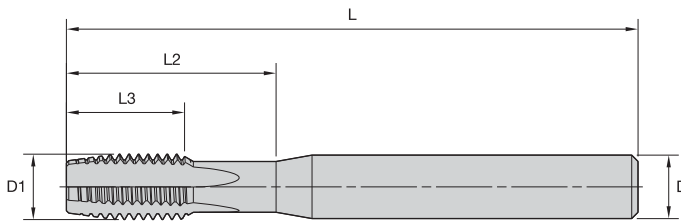


High-Performance Taps

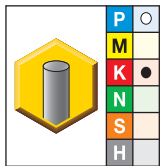
Beyond™ Solid Carbide Straight-Flute Taps • Through Holes



- KCK17 AICrTiN for cast iron.



T340 • Form D Plug • Inch • Solid Carbide • For Cast Iron



- first choice
- alternate choice

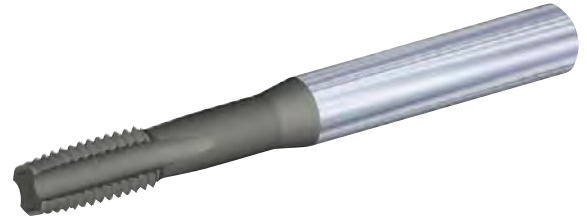
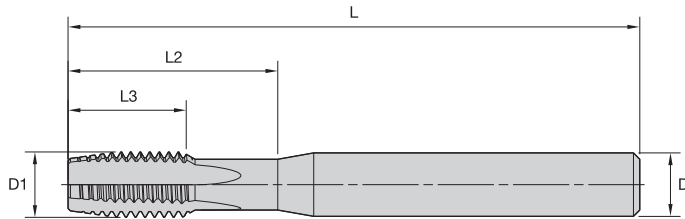
KCK17	D1 size	L	L3	L2	D	number of flutes	class of fit
T340NC#6-32R3BX	6 - 32	2.36	.28	.55	.2500	3	3BX
T340NC#8-32R3BX *	8 - 32	2.36	.28	.63	.2500	3	3BX
T340NC#10-24R3BX	10 - 24	2.36	.35	.79	.2500	3	3BX
T340NF#10-32R3BX	10 - 32	2.36	.35	.79	.2500	3	3BX
T340NC02500-20R3BX	1/4 - 20	2.76	.59	.94	.2500	4	3BX
T340NC03125-18R3BX	5/16 - 18	3.15	.67	1.26	.3125	4	3BX
T340NC03750-16R3BX	3/8 - 16	3.54	.75	1.57	.3750	4	3BX
T340NF03750-24R3BX	3/8 - 24	3.54	.75	1.57	.3750	4	3BX
T340NC05000-13R3BX	1/2 - 13	3.94	.94	1.89	.5000	4	3BX
T340NF05000-20R3BX	1/2 - 20	3.94	.94	1.89	.5000	4	3BX
T340NF05625-18R3BX	9/16 - 18	4.33	1.02	2.21	.5000	4	3BX

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

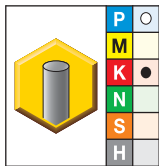
Shank Tolerance

D	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004

- KCK17 AlCrTiN for cast iron.



T340 • Form D Plug • Metric • Solid Carbide • For Cast Iron



- first choice
- alternate choice

KCK17	D1 size	L	L3	L2	D	number of flutes	class of fit
T340M040X070R6HX	M4 X 0,7	60	6	16	6,0	3	6HX
T340M050X080R6HX	M5 X 0,8	60	7	20	6,0	3	6HX
T340M060X100R6HX	M6 X 1	70	12	24	6,0	4	6HX
T340M080X125R6HX	M8 X 1,25	80	15	32	8,0	4	6HX
T340MF100X100R6HX	M10 X 1	90	18	40	10,0	4	6HX
T340M100X150R6HX	M10 X 1,5	90	18	40	10,0	4	6HX
T340MF120X150R6HX	M12 X 1,5	100	21	48	12,0	4	6HX
T340M120X175R6HX	M12 X 1,75	100	21	48	12,0	4	6HX
T340MF140X150R6HX	M14 X 1,5	110	24	56	12,0	4	6HX
T340M140X200R6HX	M14 X 2	110	24	56	12,0	4	6HX
T340M160X200R6HX	M16 X 2	110	24	64	14,0	4	6HX
T340M200X250R6HX	M20 X 2,5	140	30	80	18,0	5	6HX

Shank Tolerance

D	tolerance h6
6	+0, -0,008
8-10	+0, -0,009
12-16	+0, -0,011

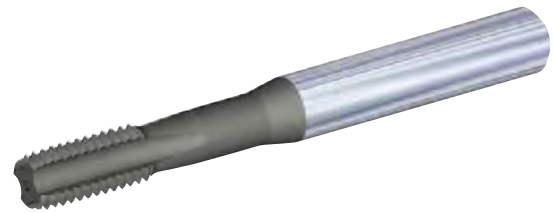
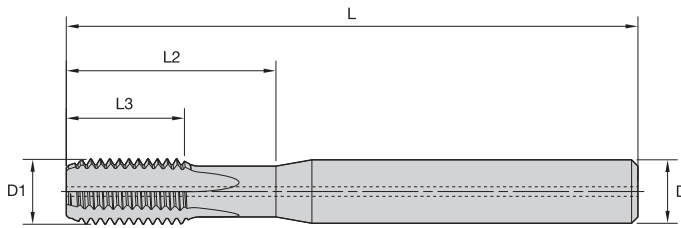


High-Performance Taps

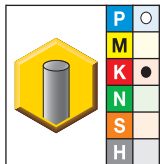
Beyond™ Solid Carbide Straight-Flute Taps • Blind Holes



- KCK17 AlCrTiN for cast iron.



T351 • Form E Bottoming Chamfer • Through Coolant 1/4" and Larger • Inch • Solid Carbide • For Cast Iron



● first choice

○ alternate choice

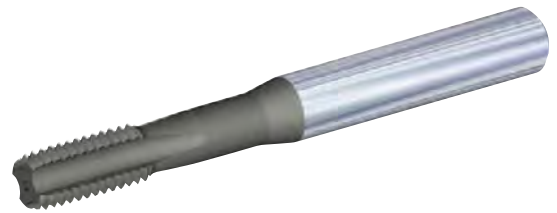
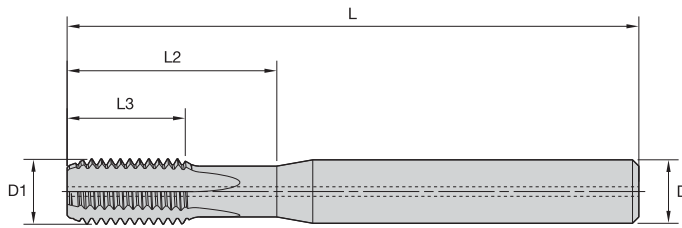
KCK17	D1 size	L	L3	L2	D	number of flutes	class of fit
T351NC#6-32R3BX *	6 - 32	2.36	.28	.55	.2500	3	3BX
T351NC#8-32R3BX	8 - 32	2.36	.28	.63	.2500	3	3BX
T351NF#10-32R3BX *	10 - 32	2.36	.35	.79	.2500	3	3BX
T351NC02500-20R3BX	1/4 - 20	2.76	.59	.95	.2500	4	3BX
T351NC03125-18R3BX	5/16 - 18	3.15	.67	1.26	.3125	4	3BX
T351NC03750-16R3BX	3/8 - 16	3.54	.75	1.57	.3750	4	3BX
T351NC04375-14R3BX	7/16 - 14	3.94	.87	1.73	.4375	4	3BX
T351NC05000-13R3BX	1/2 - 13	3.94	.94	1.89	.5000	4	3BX
T351NC06250-11R3BX	5/8 - 11	4.33	1.10	2.52	.5625	5	3BX
T351NC07500-10R3BX	3/4 - 10	4.92	1.22	3.01	.6250	5	3BX

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

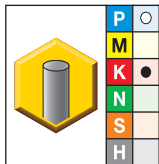
Shank Tolerance

D	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004

- KCK17 AICrTiN for cast iron.



■ T351 • Form E Bottoming Chamfer • Through Coolant M6 and Larger • Metric • Solid Carbide • For Cast Iron



- first choice
- alternate choice

KCK17	D1 size	L	L3	L2	D	number of flutes	class of fit
T351M040X070R6HX *	M4 X 0,7	60	6	16	6,0	3	6HX
T351M050X080R6HX	M5 X 0,8	60	7	20	6,0	3	6HX
T351M060X100R6HX	M6 X 1	70	12	24	6,0	4	6HX
T351M080X125R6HX	M8 X 1,25	80	15	32	8,0	4	6HX
T351MF100X100R6HX	M10 X 1	90	18	40	10,0	4	6HX
T351M100X150R6HX	M10 X 1,5	90	18	40	10,0	4	6HX
T351MF120X150R6HX	M12 X 1,5	100	21	48	12,0	4	6HX
T351M120X175R6HX	M12 X 1,75	100	21	48	12,0	4	6HX
T351MF140X150R6HX	M14 X 1,5	110	24	56	12,0	4	6HX
T351M140X200R6HX	M14 X 2	110	24	56	12,0	4	6HX
T351M160X200R6HX	M16 X 2	110	24	64	14,0	4	6HX

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Shank Tolerance

D	tolerance h6
6	+0, -0,008
8-10	+0, -0,009
12-16	+0, -0,011

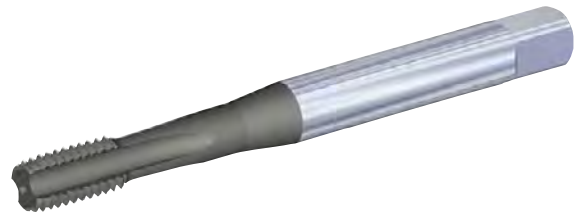
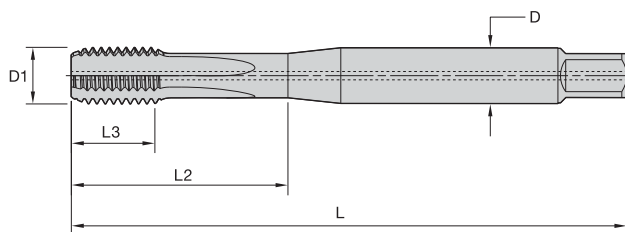
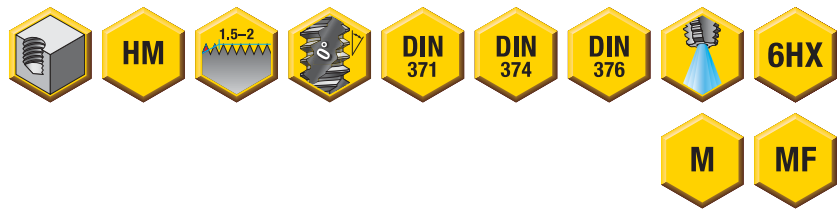
Tapping

High-Performance Taps

Beyond™ Solid Carbide Straight-Flute Taps • Blind Holes



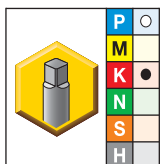
• KCK17 AICrTiN for cast iron.



beyond

■ T351 • DIN 371, 374, and 376 • Form E Bottoming Chamfer • Through Coolant • Metric • Solid Carbide • For Cast Iron

Tapping



● first choice

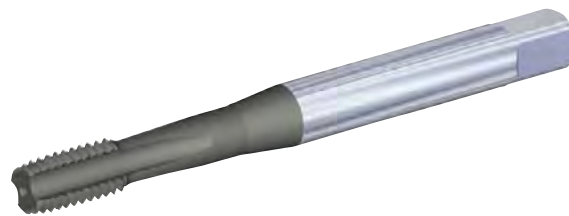
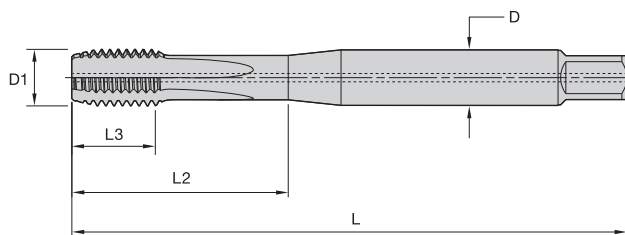
○ alternate choice

KCK17	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
T351M060X100R6HX-D1	M6 X 1	80	10	30	6,0	4	DIN 371	6HX
T351M070X100R6HX-D1	M7 X 1	80	10	30	7,0	4	DIN 371	6HX
T351M080X125R6HX-D1	M8 X 1,25	90	13	35	8,0	4	DIN 371	6HX
T351M090X125R6HX-D1	M9 X 1,25	90	13	35	9,0	4	DIN 371	6HX
T351MF100X100R6HX-D4	M10 X 1	90	10	35	7,0	4	DIN 374	6HX
T351MF100X125R6HX-D4	M10 X 1,25	100	15	39	7,0	4	DIN 374	6HX
T351M100X150R6HX-D1	M10 X 1,5	100	15	39	10,0	4	DIN 371	6HX
T351MF120X125R6HX-D4	M12 X 1,25	100	15	39	9,0	4	DIN 374	6HX
T351MF120X150R6HX-D4	M12 X 1,50	100	15	39	9,0	4	DIN 374	6HX
T351M120X175R6HX-D6	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
T351MF140X125R6HX-D4	M14 X 1,25	100	15	47	11,0	4	DIN 374	6HX
T351MF140X150R6HX-D4	M14 X 1,5	100	15	47	11,0	4	DIN 374	6HX
T351M140X200RHX-D6	M14 X 2	110	20	52	11,0	4	DIN 376	6HX

Shank Tolerance

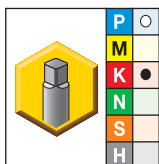
D	tolerance h6
3-6	+0, -0,008
>6-10	+0, -0,009
>10-18	+0, -0,011
>18-30	+0, -0,013
>30-50	+0, -0,016

• KCK17 AlCrTiN for cast iron.



beyond

■ T353 • DIN 371 and 376 • Form C Semi-Bottoming Chamfer • Through Coolant M6 and Larger • Metric • Solid Carbide • For Cast Iron



● first choice
○ alternate choice

KCK17	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
T353M040X070R6HX-D1	M4 X 0,7	63	10	21	4,5	3	DIN 371	6HX
T353M050X080R6HX-D1	M5 X 0,8	70	10	25	6,0	3	DIN 371	6HX
T353M060X100R6HX-D1	M6 X 1	80	10	30	6,0	4	DIN 371	6HX
T353M080X125R6HX-D1	M8 X 1,25	90	13	35	8,0	4	DIN 371	6HX
T353M100X150R6HX-D1	M10 X 1,5	100	15	39	10,0	4	DIN 371	6HX
T353M120X175R6HX-D6	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
T353M140X200R6HX-D6	M14 X 2	110	20	52	11,0	4	DIN 376	6HX

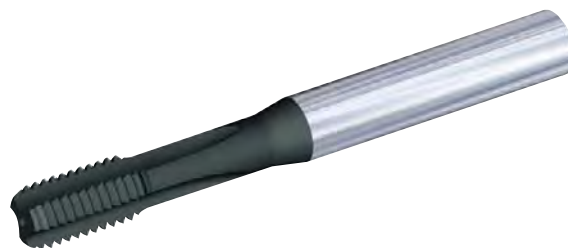
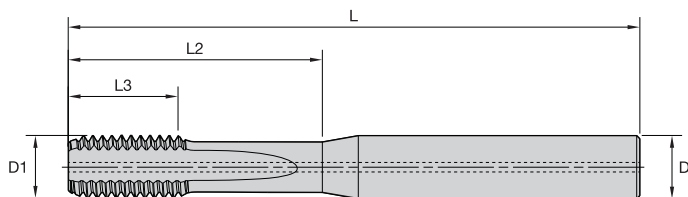
Shank Tolerance

D	tolerance h6
3-6	+0, -0,008
>6-10	+0, -0,009
>10-18	+0, -0,011
>18-30	+0, -0,013
>30-50	+0, -0,016

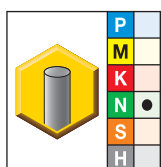


Tapping

• KCN14 TiN + CrC/C for aluminum.



■ T471 • Form E Bottoming Chamfer • Through Coolant • Metric • Solid Carbide • For Aluminum



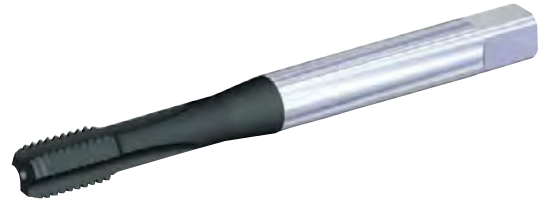
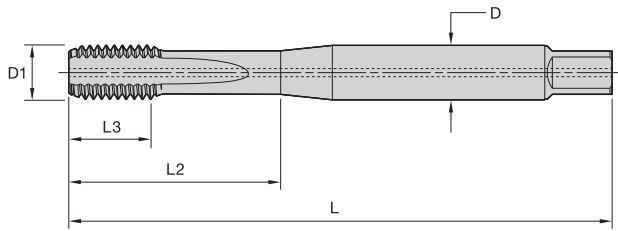
● first choice
○ alternate choice

KCN14	D1 size	L	L3	L2	D	number of flutes	class of fit
T471M060X100R6HX	M6 X 1	70	12	24	6,0	3	6HX
T471M080X125R6HX	M8 X 1,25	80	15	32	8,0	3	6HX
T471M100X150R6HX	M10 X 1,5	90	18	40	10,0	3	6HX
T471M120X175R6HX	M12 X 1,75	100	21	48	12,0	3	6HX
T471M140X200R6HX	M14 X 2	110	24	56	12,0	4	6HX

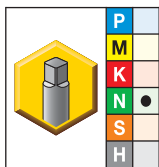
Shank Tolerance

D	tolerance h6
6	+0, -0,008
8-10	+0, -0,009
12-16	+0, -0,011

• KCN14 TiN + CrC/C for aluminum.



■ T471 • DIN 371 • Form E Bottoming Chamfer • Through Coolant • Metric • Solid Carbide • For Aluminum



● first choice
○ alternate choice

KCN14	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
T471M060X100R6HX-D1	M6 X 1	80	10	30	6,0	3	DIN 371	6HX
T471M080X125R6HX-D1	M8 X 1,25	90	10	35	8,0	3	DIN 371	6HX
T471M100X150R6HX-D1	M10 X 1,5	100	15	39	10,0	3	DIN 371	6HX

Shank Tolerance

D	tolerance h6
3-6	+0, -0,008
>6-10	+0, -0,009
>10-18	+0, -0,011
>18-30	+0, -0,013
>30-50	+0, -0,016

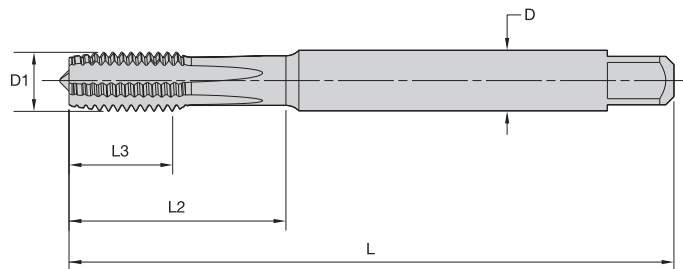
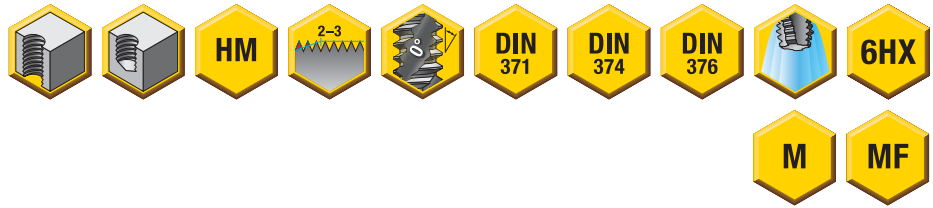


High-Performance Taps

Beyond™ Solid Carbide Straight-Flute Taps • Blind and Through Holes

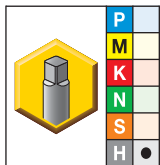


- KCU36 TiAlN/MoS₂ for tapping steel 55–63 HRC.



T410 • DIN 371, 374, and 376 • Form C Semi-Bottoming Chamfer • Metric • Solid Carbide • For Hard Steel

Tapping



- first choice
- alternate choice

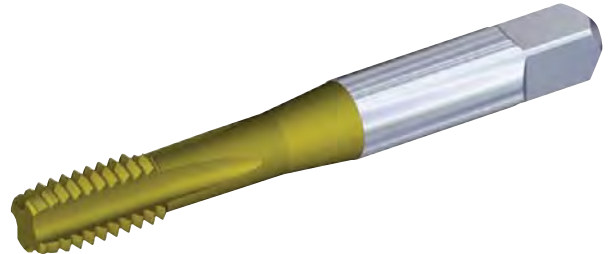
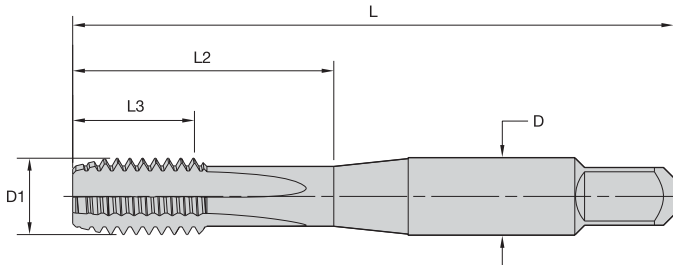
KCU36	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
T410M030X050R6HX-D1	M3 X 0,5	63	6	18	4,5	4	DIN 371	6HX
T410M040X070R6HX-D1	M4 X 0,7	63	8	20	4,5	4	DIN 371	6HX
T410M050X080R6HX-D1	M5 X 0,8	70	10	26	6,0	4	DIN 371	6HX
T410M060X100R6HX-D1	M6 X 1	80	12	28	6,0	4	DIN 371	6HX
T410MF080X100R6HX-D4 *	M8 X 1	90	15	35	8,0	5	DIN 374	6HX
T410M080X125R6HX-D1	M8 X 1,25	90	15	35	8,0	5	DIN 371	6HX
T410MF100X100R6HX-D4 *	M10 X 1	100	18	38	10,0	5	DIN 374	6HX
T410M100X150R6HX-D1	M10 X 1,5	100	18	38	10,0	5	DIN 371	6HX
T410MF120X150R6HX-D4	M12 X 1,5	110	21	41	12,0	5	DIN 374	6HX
T410M120X175R6HX-D6	M12 X 1,75	110	21	41	12,0	5	DIN 376	6HX
T410MF140X150R6HX-D4	M14 X 1,5	110	24	44	14,0	5	DIN 374	6HX
T410M140X200R6HX-D6	M14 X 2	110	24	44	14,0	6	DIN 376	6HX
T410MF160X150R6HX-D4	M16 X 1,5	110	24	44	16,0	5	DIN 374	6HX

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

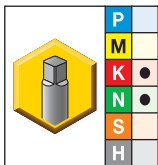
Shank Tolerance

D	tolerance h9
1–3	+0, -0,025
3,5–6	+0, -0,030
7–10	+0, -0,036
11–18	+0, -0,043

- KP6525 TiCN + TiN for cast iron and cast aluminum.



■ **T640 • Machine Screw and Fractional • Form C Semi-Bottoming Chamfer • ANSI • For Cast Iron and Cast Aluminum**



- first choice
- alternate choice

Part Number	D1 size	L	L3	L2	D	number of flutes	class of fit
KP6525							
T640NC#10-24R3BX-A *	10 - 24	2.37	.47	.91	.194	3	3BX
T640NF#10-32R3BX-A	10 - 32	2.36	.47	.91	.194	3	3BX
T640NC02500-20R2BX-A	1/4 - 20	2.50	.44	1.01	.255	4	2BX
T640NC02500-20R3BX-A *	1/4 - 20	2.50	.44	1.01	.255	4	3BX
T640NF02500-28R2BX-A	1/4 - 28	2.49	.43	1.00	.255	4	2BX
T640NF02500-28R3BX-A	1/4 - 28	2.49	.43	1.00	.255	4	3BX
T640NC03125-18R2BX-A	5/16 - 18	2.72	.49	1.13	.318	4	2BX
T640NC03125-18R3BX-A *	5/16 - 18	2.72	.49	1.13	.318	4	3BX
T640NF03125-24R3BX-A *	5/16 - 24	2.71	.48	1.13	.318	4	3BX
T640NC03750-16R2BX-A	3/8 - 16	2.94	.60	1.27	.381	4	2BX
T640NC03750-16R3BX-A	3/8 - 16	2.94	.60	1.27	.381	4	3BX
T640NF03750-24R3BX-A	3/8 - 24	2.92	.58	1.25	.381	4	3BX
T640NC04375-14R3BX-A	7/16 - 14	3.16	.71	1.49	.323	4	3BX
T640NF04375-20R3BX-A	7/16 - 20	3.16	.71	1.49	.323	4	3BX
T640NC05000-13R3BX-A	1/2 - 13	3.38	.77	1.74	.367	4	3BX
T640NF05000-20R3BX-A	1/2 - 20	3.38	.77	1.74	.367	4	3BX
T640NC06250-11R3BX-A	5/8 - 11	3.81	.91	1.89	.480	4	3BX
T640NC07500-10R3BX-A	3/4 - 10	4.25	1.00	2.08	.590	4	3BX

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

D fractional	D inch
.250-.375	+0, -.0004
.438-.625	+0, -.0004

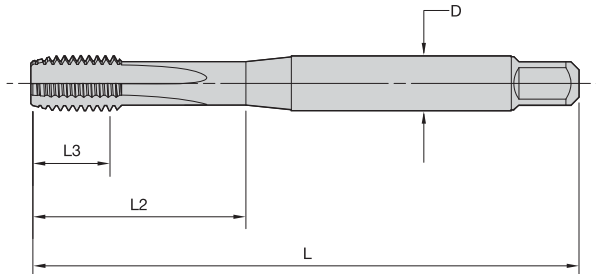
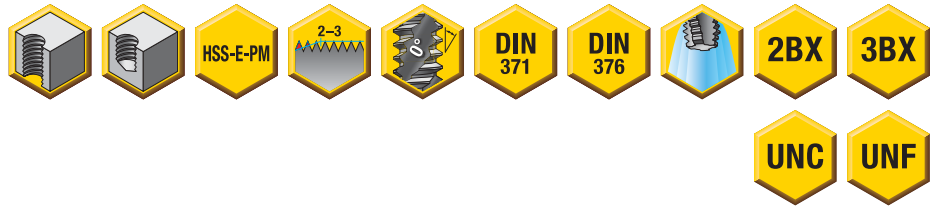


High-Performance Taps

Beyond™ Straight-Flute HSS-E-PM Taps • Through and Blind Holes

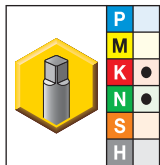


- KP6525 TiCN + TiN for cast iron and cast aluminum.



T640 • DIN 371 and 376 • Form C Semi-Bottoming Chamfer • Machine Screw and Fractional • For Cast Iron and Cast Aluminum

Tapping



- first choice
- alternate choice

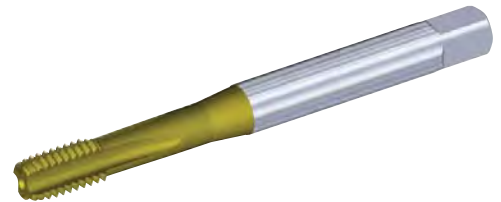
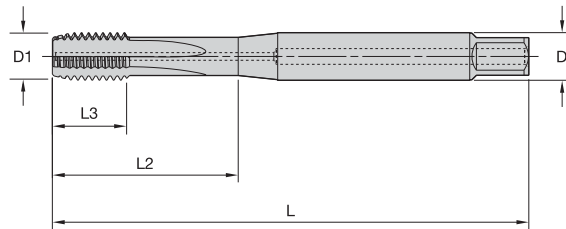
KP6525	metric dimensions					number of flutes	dimension standard	class of fit
	D1 size	L	L3	L2	D			
T640NC#06-32R2BX-D1	6 - 32	56	9	20	4,0	3	DIN 371	2BX
T640NF#06-40R2BX-D1 *	6 - 40	56	9	20	4,0	3	DIN 371	2BX
T640NC#08-32R2BX-D1	8 - 32	63	10	21	4,5	3	DIN 371	2BX
T640NC#10-24R2BX-D1	10 - 24	70	10	25	6,0	3	DIN 371	2BX
T640NF#10-32R2BX-D1	10 - 32	70	10	25	6,0	3	DIN 371	2BX
T640NC02500-20R3BX-D1	1/4 - 20	80	13	30	7,0	4	DIN 371	3BX
T640NF02500-28R3BX-D1	1/4 - 28	80	13	30	7,0	4	DIN 371	3BX
T640NC03125-18R3BX-D1	5/16 - 18	90	13	35	8,0	4	DIN 371	3BX
T640NF03125-24R3BX-D1	5/16 - 24	90	13	35	8,0	4	DIN 371	3BX
T640NC03750-16R3BX-D1	3/8 - 16	100	16	39	10,0	4	DIN 371	3BX
T640NF03750-24R3BX-D1	3/8 - 24	100	16	39	10,0	4	DIN 371	3BX
T640NC04375-14R3BX-D6	7/16 - 14	100	15	41	8,0	4	DIN 376	3BX
T640NF04375-20R3BX-D6	7/16 - 20	100	15	41	8,0	4	DIN 376	3BX
T640NC05000-13R3BX-D6	1/2 - 13	110	20	47	9,0	4	DIN 376	3BX
T640NF05000-20R3BX-D6	1/2 - 20	110	20	47	9,0	4	DIN 376	3BX

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

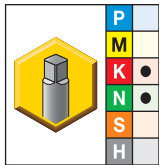
Shank Tolerance

D fractional	tolerance h6
>3-6	+0, -0,008
>6-10	+0, -0,009
<10-18	+0, -0,011

- KP6525 TiCN + TiN for cast iron and cast aluminum.



■ T641 • DIN 371 and 376 • Form C Semi-Bottoming Chamfer • Through Coolant • Fractional • For Cast Iron and Cast Aluminum



- first choice
- alternate choice

KP6525	D1 size	metric dimensions				D	number of flutes	dimension standard	class of fit
		L	L3	L2	D				
T641NC02500-20R3BX-D1	1/4 - 20	80	13	30	7,0	4	DIN 371	3BX	
T641NF02500-28R3BX-D1	1/4 - 28	80	13	30	7,0	4	DIN 371	3BX	
T641NC03125-18R3BX-D1	5/16 - 18	90	13	35	8,0	4	DIN 371	3BX	
T641NF03125-24R3BX-D1	5/16 - 24	90	13	35	8,0	4	DIN 371	3BX	
T641NC03750-16R3BX-D1	3/8 - 16	100	16	39	10,0	4	DIN 371	3BX	
T641NF03750-24R3BX-D1	3/8 - 24	100	16	39	10,0	4	DIN 371	3BX	
T641NC04375-14R3BX-D6	7/16 - 14	100	15	41	8,0	4	DIN 376	3BX	
T641NF04375-20R3BX-D6	7/16 - 20	100	15	41	8,0	4	DIN 376	3BX	
T641NC05000-13R3BX-D6	1/2 - 13	110	20	47	9,0	4	DIN 376	3BX	
T641NF05000-20R3BX-D6	1/2 - 20	110	20	47	9,0	4	DIN 376	3BX	

Shank Tolerance

D fractional	tolerance h6
>3-6	+0, -0,008
>6-10	+0, -0,009
<10-18	+0, -0,011

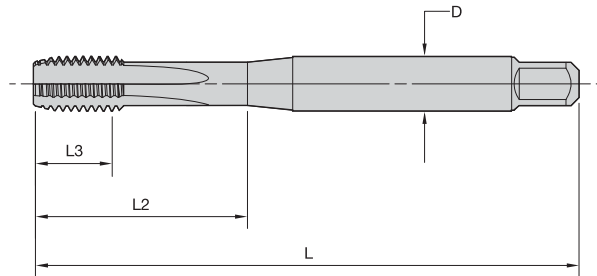


High-Performance Taps

Beyond™ Straight-Flute HSS-E-PM Taps • Through and Blind Holes

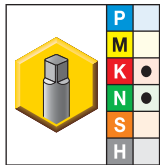


- KP6525 TiCN + TiN for cast iron and cast aluminum.



T640 • DIN 371 and 376 • Form C Semi-Bottoming Chamfer • Metric • For Cast Iron and Cast Aluminum

Tapping



● first choice

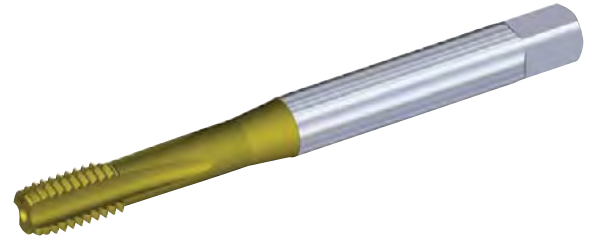
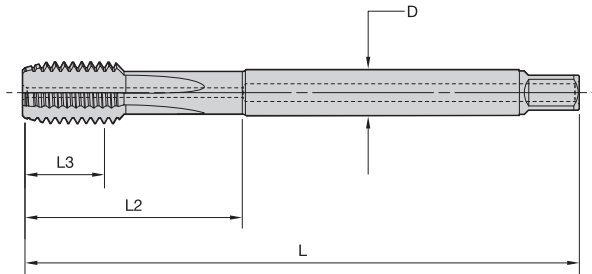
○ alternate choice

KP6525	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
T640M040X070R6HX-D1	M4 X 0,7	63	10	21	4,5	3	DIN 371	6HX
T640M050X080R6HX-D1	M5 X 0,8	70	10	25	6,0	3	DIN 371	6HX
T640M060X100R6HX-D1	M6 X 1	80	10	30	6,0	4	DIN 371	6HX
T640M080X125R6HX-D1	M8 X 1,25	90	13	35	8,0	4	DIN 371	6HX
T640M100X150R6HX-D1	M10 X 1,5	100	15	39	10,0	4	DIN 371	6HX
T640M120X175R6HX-D6	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
T640M140X200R6HX-D6	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
T640M160X200R6HX-D6	M16 X 2	110	20	51	12,0	4	DIN 376	6HX
T640M180X250R6HX-D6	M18 X 2,5	125	25	58	14,0	4	DIN 376	6HX
T640M200X250R6HX-D6	M20 X 2,5	140	25	64	16,0	4	DIN 376	6HX
T640M220X250R6HX-D6	M22 X 2,5	140	25	70	18,0	4	DIN 376	6HX

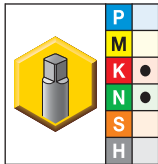
Shank Tolerance

D	tolerance h6
6	+0, -0,008
8-10	+0, -0,009
12-16	+0, -0,011

- KP6525 TiCN + TiN for cast iron and cast aluminum.



■ T641 • DIN 371 and 376 • Form C Semi-Bottoming Chamfer • Through Coolant • Metric • For Cast Iron and Cast Aluminum



- first choice
- alternate choice

KP6525	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
T641M050X080R6HX-D1	M5 X 0,8	70	10	25	6,0	3	DIN 371	6HX
T641M060X100R6HX-D1	M6 X 1	80	10	30	6,0	4	DIN 371	6HX
T641M080X125R6HX-D1	M8 X 1,25	90	13	35	8,0	4	DIN 371	6HX
T641M100X150R6HX-D1	M10 X 1,5	100	15	39	10,0	4	DIN 371	6HX
T641M120X175R6HX-D6	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
T641M140X200R6HX-D6	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
T641M160X200R6HX-D6	M16 X 2	110	20	51	12,0	4	DIN 376	6HX
T641M180X250R6HX-D6	M18 X 2,5	125	25	58	14,0	4	DIN 376	6HX
T641M200X250R6HX-D6	M20 X 2,5	140	25	64	16,0	4	DIN 376	6HX

Shank Tolerance

D	tolerance h6
6	+0, -0,008
8-10	+0, -0,009
12-16	+0, -0,011

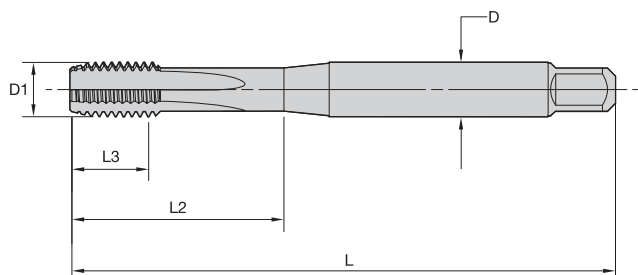
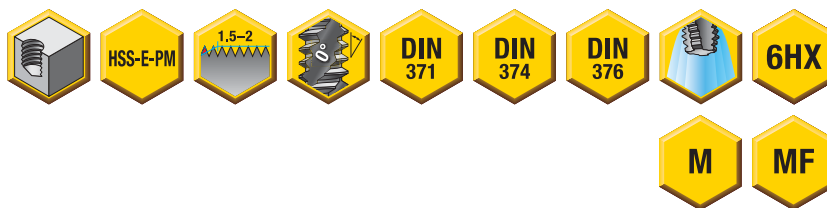


High-Performance Taps

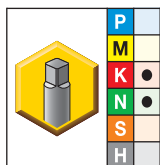
Beyond™ Straight-Flute HSS-E-PM Taps • Threading Close to the Bottom in Blind Holes



- KP6525 TiCN + TiN for cast iron and cast silicon aluminum.



T642 • DIN 371, 374, and 376 • Form E Bottoming Chamfer • Metric • For Cast Iron and Cast Silicon Aluminum



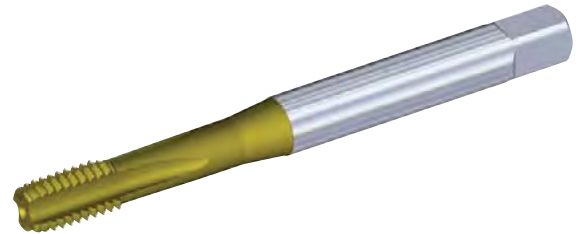
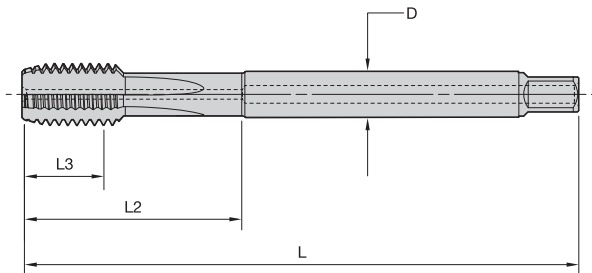
- first choice
- alternate choice

KP6525	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
T642M050X080R6HX-D1	M5 X 0,8	70	10	25	6,0	3	DIN 371	6HX
T642M060X100R6HX-D1	M6 X 1	80	10	30	6,0	4	DIN 371	6HX
T642M080X125R6HX-D1	M8 X 1,25	90	13	35	8,0	4	DIN 371	6HX
T642M100X150R6HX-D1	M10 X 1,5	100	15	39	10,0	4	DIN 371	6HX
T642MF120X150R6HX-D4	M12 X 1,5	100	15	39	9,0	4	DIN 374	6HX
T642M120X175R6HX-D6	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
T642MF140X150R6HX-D4	M14 X 1,5	100	15	47	11,0	4	DIN 374	6HX
T642M140X200R6HX-D6	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
T642MF160X150R6HX-D4	M16 X 1,5	100	15	46	12,0	4	DIN 374	6HX

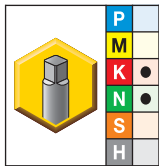
Shank Tolerance

D	tolerance h6
6	+0, -0,008
8-10	+0, -0,009
12-16	+0, -0,011

- KP6525 TiCN + TiN for tapping cast iron and cast silicon aluminum.



■ **T643 • DIN 371, 374, and 376 • Form E Bottoming Chamfer • Through Coolant • Metric • For Cast Iron and Cast Silicon Aluminum**



- first choice
- alternate choice

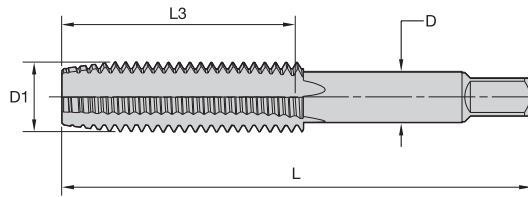
KP6525	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
T643M050X080R6HX-D1	M5 X 0,8	70	10	25	6,0	3	DIN 371	6HX
T643M060X100R6HX-D1	M6 X 1	80	10	30	6,0	4	DIN 371	6HX
T643M080X125R6HX-D1	M8 X 1,25	90	13	35	8,0	4	DIN 371	6HX
T643M100X150R6HX-D1	M10 X 1,5	100	15	39	10,0	4	DIN 371	6HX
T643MF120X150R6HX-D4	M12 X 1,5	100	15	39	9,0	4	DIN 374	6HX
T643M120X175R6HX-D6	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
T643MF140X150R6HX-D4	M14 X 1,5	100	15	47	11,0	4	DIN 374	6HX
T643M140X200R6HX-D6	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
T643MF160X150R6HX-D4	M16 X 1,5	100	15	46	12,0	4	DIN 374	6HX

Shank Tolerance

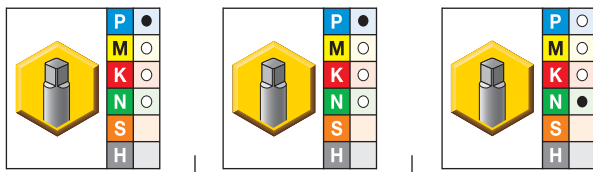
D	tolerance h6
6	+0, -0,008
8-10	+0, -0,009
12-16	+0, -0,011



Tapping



■ KHSST Hand • Machine Screw Sizes • Plug Chamfer Tap

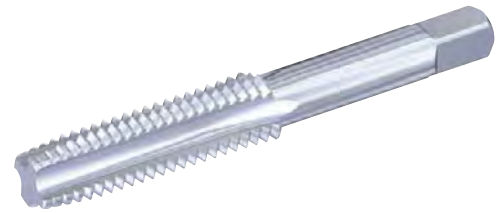
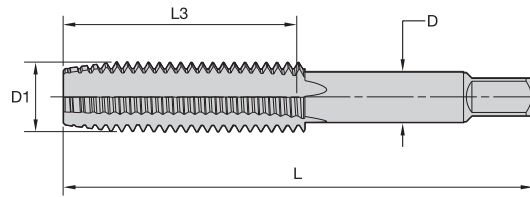


● first choice
○ alternate choice

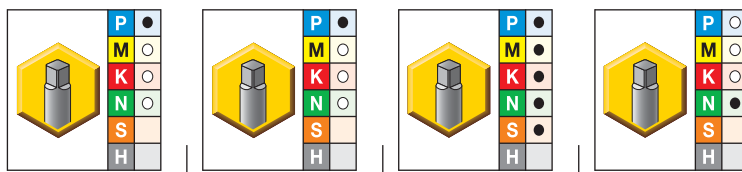
Tapping

	TiCN	TiN	uncoated	D1 size	L	L3	D	number of flutes	pitch diameter limit
	—	—	KHSST28372	0 - 80	1.63	.31	.141	2	H1
	—	KHSST09000	KHSST08003	0 - 80	1.63	.31	.141	2	H2
	—	—	KHSST08015	1 - 64	1.69	.38	.141	2	H2
	—	KHSST28129	KHSST28376	2 - 56	1.75	.44	.141	2	H2
	—	KHSST28426	KHSST08039	2 - 56	1.75	.44	.141	3	H2
	—	KHSST28134	—	3 - 48	1.81	.50	.141	2	H2
	—	—	KHSST28380	3 - 48	1.81	.50	.141	3	H2
	—	—	KHSST08067	3 - 56	1.81	.50	.141	3	H2
	—	KHSST28427	KHSST08082	4 - 40	1.88	.56	.141	2	H2
KHSST28433	—	KHSST09004	KHSST08087	4 - 40	1.88	.56	.141	3	H2
	—	—	KHSST08101	4 - 48	1.88	.56	.141	3	H2
	—	—	KHSST08112	5 - 40	1.94	.63	.141	2	H2
	—	—	KHSST08116	5 - 40	1.94	.63	.141	3	H2
	—	—	KHSST08140	6 - 32	2.00	.69	.141	2	H2
	—	KHSST28428	KHSST28389	6 - 32	2.00	.69	.141	2	H3
	—	KHSST09008	KHSST08148	6 - 32	2.00	.69	.141	3	H2
KHSST28440	—	—	KHSST08151	6 - 32	2.00	.69	.141	3	H3
	—	—	KHSST08172	6 - 40	2.00	.69	.141	3	H2
	—	—	KHSST28396	8 - 32	2.13	.75	.168	2	H2
	—	—	KHSST28400	8 - 32	2.13	.75	.168	2	H3
	—	KHSST28136	KHSST28401	8 - 32	2.13	.75	.168	3	H3
	—	KHSST09010	KHSST28397	8 - 32	2.13	.75	.168	4	H2
	—	—	KHSST08192	8 - 32	2.13	.75	.168	4	H3
	—	—	KHSST08218	8 - 36	2.13	.75	.168	4	H2
	—	—	KHSST08238	10 - 24	2.38	.88	.194	2	H3
	—	—	KHSST28410	10 - 32	2.38	.88	.194	2	H2
	—	KHSST28425	KHSST08272	10 - 32	2.38	.88	.194	2	H3
	—	—	KHSST28407	10 - 24	2.38	.88	.194	3	H3
	—	—	KHSST28413	10 - 32	2.38	.88	.194	3	H3
	—	KHSST09012	KHSST08234	10 - 24	2.38	.88	.194	4	H3
	—	—	KHSST08261	10 - 32	2.38	.88	.194	4	H2
	—	KHSST09014	KHSST08268	10 - 32	2.38	.88	.194	4	H3
	—	KHSST28132	KHSST08294	12 - 24	2.38	.94	.220	4	H3
	—	—	KHSST28417	12 - 28	2.38	.94	.220	4	H3

NOTE: Hand taps for 3B class of fit are suitable for UNJ aerospace internal threading applications. Refer to table on pages M202–M203 for the recommended pitch diameter limit for 2B or 3B class of fit.



■ KHSST Hand • Fractional Sizes • Plug Chamfer Tap



● first choice
○ alternate choice

TiCN	TiN	oxide	uncoated	D1 size	L	L3	D	number of flutes	pitch diameter limit
—	—	—	KHSST08316	1/4 - 20	2.50	1.00	.255	4	H2
—	KHSST28358	—	KHSST08324	1/4 - 20	2.50	1.00	.255	2	H3
—	—	—	KHSST28296	1/4 - 20	2.50	1.00	.255	3	H3
KHSST28364	KHSST09018	KHSST28343	KHSST08320	1/4 - 20	2.50	1.00	.255	4	H3
—	—	—	KHSST28298	1/4 - 20	2.50	1.00	.255	4	H5
—	—	—	KHSST08355	1/4 - 28	2.50	1.00	.255	3	H3
—	—	—	KHSST08353	1/4 - 28	2.50	1.00	.255	4	H3
—	—	—	KHSST28293	1/4 - 20	3.38	1.66	.367	4	H5
—	KHSST28356	—	KHSST28318	5/16 - 18	2.72	1.13	.318	2	H3
—	KHSST28127	—	KHSST28314	5/16 - 18	2.72	1.13	.318	3	H3
—	KHSST09022	—	KHSST08380	5/16 - 18	2.72	1.13	.318	4	H3
—	—	—	KHSST08411 *	5/16 - 24	2.72	1.13	.318	3	H3
—	—	KHSST28349	KHSST08409	5/16 - 24	2.72	1.13	.318	4	H3
—	KHSST28359	—	KHSST28309	3/8 - 16	2.94	1.25	.381	3	H3
—	KHSST09026	KHSST28348	KHSST08434	3/8 - 16	2.94	1.25	.381	4	H3
—	—	—	KHSST08461	3/8 - 24	2.94	1.25	.381	3	H3
—	KHSST09028	—	KHSST08459	3/8 - 24	2.94	1.25	.381	4	H3
—	KHSST09030	—	KHSST08477	7/16 - 14	3.16	1.44	.323	4	H3
—	KHSST28123	—	KHSST08493	7/16 - 20	3.16	1.44	.323	4	H3
—	—	—	KHSST08510	1/2 - 13	3.38	1.66	.367	3	H3
KHSST28361	KHSST28116	KHSST28341	KHSST08508	1/2 - 13	3.38	1.66	.367	4	H3
—	—	—	KHSST28291	1/2 - 20	3.38	1.66	.367	3	H3
—	—	—	KHSST08530	1/2 - 20	3.38	1.66	.367	4	H3
—	—	—	KHSST08545	9/16 - 12	3.59	1.66	.429	4	H3
—	—	—	KHSST08553	9/16 - 18	3.59	1.66	.429	4	H3
KHSST28366	KHSST28120	KHSST28351	KHSST08561	5/8 - 11	3.81	1.81	.480	4	H3
—	—	—	KHSST28323	5/8 - 11	3.81	1.81	.480	4	H5
—	KHSST28121	—	KHSST08574	5/8 - 18	3.81	1.81	.480	4	H3

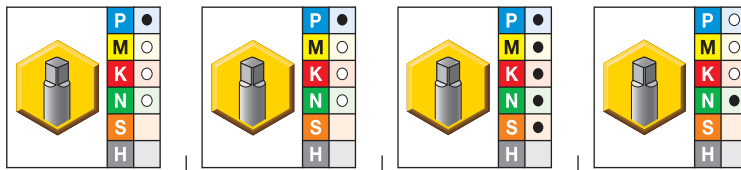
(continued)

General-Purpose Taps

Hand Taps • Through Holes in General Machining Applications



(KHSST Hand • Fractional Sizes • Plug Chamfer Tap — continued)

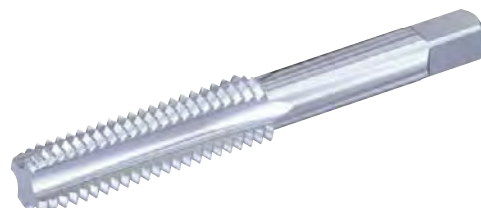
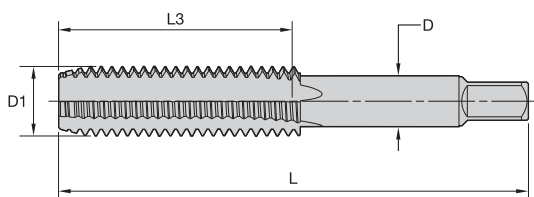


● first choice
○ alternate choice

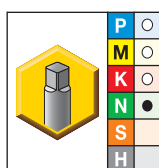
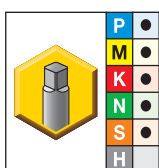
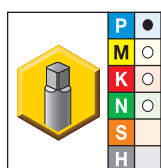
TiCN	TiN	oxide	uncoated	D1 size	L	L3	D	number of flutes	pitch diameter limit
—	—	—	KHSST28242	5/8 - 18	3.81	1.81	.480	4	H5
KHSST28365	KHSST09042	KHSST28345	KHSST08595	3/4 - 10	4.25	2.00	.590	4	H3
—	—	—	KHSST28302	3/4 - 10	4.25	2.00	.590	4	H5
—	KHSST28118	KHSST28346	KHSST08608	3/4 - 16	4.25	2.00	.590	4	H3
—	—	—	KHSST28305	3/4 - 16	4.25	2.00	.590	4	H5
—	KHSST28125	KHSST28352	KHSST08616	7/8 - 9	4.69	2.22	.697	4	H4
—	KHSST09048	—	KHSST28330	7/8 - 14	4.69	2.22	.697	4	H4
—	KHSST28115	KHSST28339	KHSST08630	1 - 8	5.13	2.50	.800	4	H4
—	—	—	KHSST28286	1 - 8	5.13	2.50	.800	4	H6
—	—	—	KHSST28279	1 - 12	5.13	2.50	.800	4	H4
—	—	—	KHSST28281	1 - 14	5.13	2.50	.800	4	H2
—	—	—	KHSST28283	1 - 14	5.13	2.50	.800	4	H4
—	—	—	KHSST28033	1 1/8 - 7	5.44	2.56	.896	4	H4
—	—	—	KHSST28029	1 1/8 - 12	5.44	2.56	.896	4	H4
—	—	—	KHSST28021	1 1/4 - 7	5.75	2.56	1.021	4	H4
—	—	—	KHSST28016	1 1/4 - 12	5.75	2.56	1.021	6	H4
—	—	—	KHSST28043	1 3/8 - 6	6.06	3.00	1.108	4	H4
—	—	—	KHSST28040	1 3/8 - 12	6.06	3.00	1.108	6	H4
—	—	—	KHSST28009	1 1/2 - 6	6.38	3.00	1.233	4	H4
—	—	—	KHSST28004	1 1/2 - 12	6.38	3.00	1.233	6	H4

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.
Hand taps for 3B class of fit are suitable for UNJ aerospace internal threading applications.
Refer to table on pages M202–M203 for the recommended pitch diameter limit for 2B or 3B class of fit.

Tapping



■ KHSST Hand • Machine Screw Sizes • Bottoming Chamfer Tap

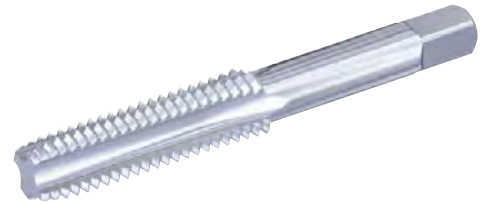
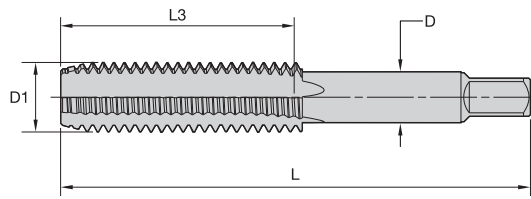


● first choice
○ alternate choice

			D1 size	L	L3	D	number of flutes	pitch diameter limit
—	—	KHSST28368	0 - 80	1.63	.31	.141	2	H1
KHSST28128	—	KHSST28371	0 - 80	1.63	.31	.141	2	H2
—	—	KHSST28373	1 - 72	1.69	.38	.141	2	H1
—	—	KHSST28374	2 - 56	1.75	.44	.141	2	H2
KHSST09003	—	KHSST28375	2 - 56	1.75	.44	.141	3	H2
—	—	KHSST28379	3 - 48	1.81	.50	.141	3	H2
—	—	KHSST08083	4 - 40	1.88	.56	.141	2	H2
KHSST28130	KHSST28420	KHSST08088	4 - 40	1.88	.56	.141	3	H2
—	—	KHSST28384	4 - 48	1.88	.56	.141	3	H2
—	—	KHSST08117	5 - 40	1.94	.63	.141	3	H2
KHSST09009	—	KHSST08149	6 - 32	2.00	.69	.141	3	H2
KHSST28135	—	KHSST28388	6 - 32	2.00	.69	.141	2	H3
—	—	KHSST08152	6 - 32	2.00	.69	.141	3	H3
—	—	KHSST08173	6 - 40	2.00	.69	.141	3	H2
—	—	KHSST28394	8 - 32	2.13	.75	.168	2	H2
KHSST09011	—	KHSST28395	8 - 32	2.13	.75	.168	4	H2
—	—	KHSST08197	8 - 32	2.13	.75	.168	2	H3
KHSST28429	—	KHSST28399	8 - 32	2.13	.75	.168	3	H3
—	KHSST28423	KHSST08193	8 - 32	2.13	.75	.168	4	H3
—	—	KHSST28403	8 - 36	2.13	.75	.168	4	H2
—	—	KHSST08239	10 - 24	2.38	.88	.194	2	H3
—	—	KHSST28406	10 - 24	2.38	.88	.194	3	H3
KHSST09013	—	KHSST08235	10 - 24	2.38	.88	.194	4	H3
KHSST28133	—	—	10 - 32	2.38	.88	.194	3	H2
—	—	KHSST08262	10 - 32	2.38	.88	.194	4	H2
—	—	KHSST08273	10 - 32	2.38	.88	.194	2	H3
—	—	KHSST28412	10 - 32	2.38	.88	.194	3	H3
KHSST09015	KHSST28419	KHSST08269	10 - 32	2.38	.88	.194	4	H3
KHSST28131	—	KHSST08295	12 - 24	2.38	.94	.220	4	H3
—	—	KHSST28416	12 - 28	2.38	.94	.220	4	H3

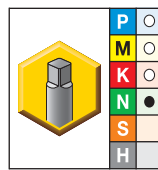
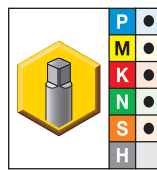
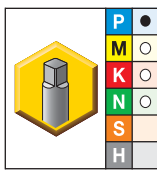
NOTE: Hand taps for 3B class of fit are suitable for UNJ aerospace internal threading applications.
Refer to table on pages M202–M203 for the recommended pitch diameter limit for 2B or 3B class of fit.





■ KHSST Hand • Fractional Sizes • Bottoming Chamfer Tap

Tapping

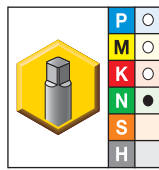
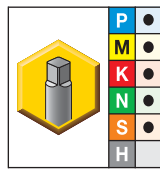
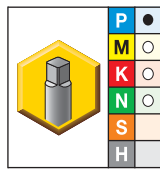


● first choice
○ alternate choice

	TiN	oxide	uncoated	D1 size	L	L3	D	number of flutes	pitch diameter limit
—	—	—	KHSST08317	1/4 - 20	2.50	1.00	.255	4	H2
KHSST28353	—	—	KHSST28294	1/4 - 20	2.50	1.00	.255	2	H3
—	—	—	KHSST28295	1/4 - 20	2.50	1.00	.255	3	H3
KHSST09019	—	KHSST28342	KHSST08321	1/4 - 20	2.50	1.00	.255	4	H3
—	—	—	KHSST08327	1/4 - 20	2.50	1.00	.255	4	H5
—	—	—	KHSST08356	1/4 - 28	2.50	1.00	.255	3	H3
KHSST09021	—	—	KHSST08354	1/4 - 28	2.50	1.00	.255	4	H3
—	—	—	KHSST08392	5/16 - 18	2.72	1.13	.318	2	H3
—	—	—	KHSST28313	5/16 - 18	2.72	1.13	.318	3	H3
KHSST28119	—	—	KHSST08381	5/16 - 18	2.72	1.13	.318	4	H3
—	—	—	KHSST28317	5/16 - 18	2.72	1.13	.318	4	H5
KHSST09025	—	—	KHSST28319	5/16 - 24	2.72	1.13	.318	4	H3
—	—	—	KHSST28308	3/8 - 16	2.94	1.25	.381	3	H3
KHSST09027	—	KHSST28347	KHSST08435	3/8 - 16	2.94	1.25	.381	4	H3
—	—	—	KHSST28311	3/8 - 16	2.94	1.25	.381	4	H5
KHSST09029	—	—	KHSST08460	3/8 - 24	2.94	1.25	.381	4	H3
—	—	—	KHSST08478	7/16 - 14	3.16	1.44	.323	4	H3
KHSST28122	—	—	KHSST08494	7/16 - 20	3.16	1.44	.323	4	H3
—	—	—	KHSST28290	1/2 - 13	3.38	1.66	.367	3	H3
KHSST09035	—	KHSST28340	KHSST28287	1/2 - 13	3.38	1.66	.367	4	H3
—	—	—	KHSST28289	1/2 - 13	3.38	1.66	.367	4	H5
—	—	—	KHSST08531	1/2 - 20	3.38	1.66	.367	4	H3
—	—	—	KHSST08546	9/16 - 12	3.59	1.66	.429	4	H3
—	—	—	KHSST08554	9/16 - 18	3.59	1.66	.429	4	H3
KHSST09039	—	KHSST28350	KHSST08562	5/8 - 11	3.81	1.81	.480	4	H3
—	—	—	KHSST28235	5/8 - 11	3.81	1.81	.480	4	H5
KHSST09041	—	—	KHSST08575	5/8 - 18	3.81	1.81	.480	4	H3
—	—	—	KHSST28102	11/16 - 16	4.03	1.06	.542	4	H3
KHSST09043	—	KHSST28344	KHSST08596	3/4 - 10	4.25	2.00	.590	4	H3
—	—	—	KHSST28301	3/4 - 10	4.25	2.00	.590	4	H5
KHSST28117	—	—	KHSST08609	3/4 - 16	4.25	2.00	.590	4	H3
—	—	—	KHSST28304	3/4 - 16	4.25	2.00	.590	4	H5

(continued)

(KHSST Hand • Fractional Sizes • Bottoming Chamfer Tap — continued)

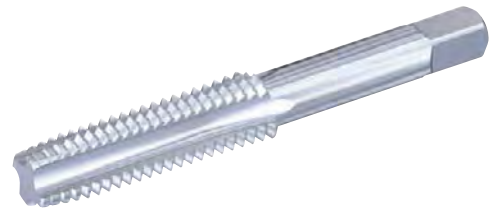
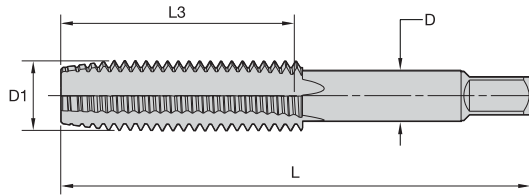


● first choice
○ alternate choice

	TiN	oxide	uncoated	D1 size	L	L3	D	number of flutes	pitch diameter limit
	KHSST09047	—	KHSST08617	7/8 - 9	4.69	2.22	.697	4	H4
	KHSST28124	—	KHSST28329	7/8 - 14	4.69	2.22	.697	4	H4
	KHSST28114	KHSST28338	KHSST08631	1 - 8	5.13	2.50	.800	4	H4
	—	—	KHSST28278	1 - 12	5.13	2.50	.800	4	H4
	—	—	KHSST28282	1 - 14	5.13	2.50	.800	4	H4
	—	—	KHSST28032	1 1/8 - 7	5.44	2.56	.896	4	H4
	—	—	KHSST28028	1 1/8 - 12	5.44	2.56	.896	4	H4
	—	—	KHSST28020	1 1/4 - 7	5.75	2.56	1.021	4	H4
	—	—	KHSST28015	1 1/4 - 12	5.75	2.56	1.021	6	H4
	—	—	KHSST28008	1 1/2 - 6	6.38	3.00	1.233	4	H4
	—	—	KHSST28003	1 1/2 - 12	6.38	3.00	1.233	6	H4

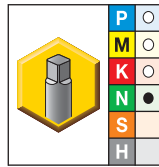
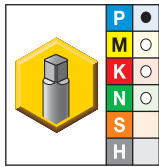
NOTE: Hand taps for 3B class of fit are suitable for UNJ aerospace internal threading applications.
Refer to table on pages M202–M203 for the recommended pitch diameter limit for 2B or 3B class of fit.





■ KHSST Hand • Plug Chamfer Tap • Metric ANSI

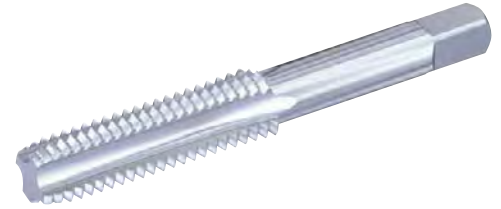
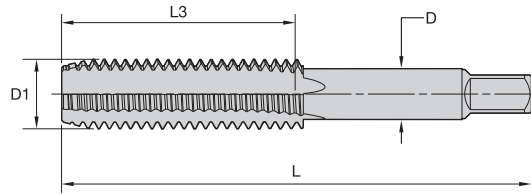
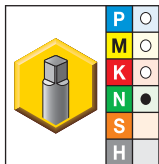
Tapping



● first choice
○ alternate choice

		D1 size	L	L3	D	number of flutes	pitch diameter limit
TiN	uncoated						
—	KHSST28682 *	M1,6 X 0,35	1.63	.31	.141	2	D3
—	KHSST27709	M2 X 0,4	1.75	.44	.141	3	D3
—	KHSST27721	M3 X 0,5	1.94	.63	.141	3	D3
—	KHSST27729	M4 X 0,7	2.13	.75	.168	4	D4
—	KHSST27737	M5 X 0,8	2.38	.88	.194	4	D4
KHSST09054	KHSST27741	M6 X 1	2.50	1.00	.255	4	D5
—	KHSST27749	M8 X 1,25	2.72	1.13	.318	4	D5
—	KHSST27757	M10 X 1,5	2.94	1.25	.381	4	D6
—	KHSST27765	M12 X 1,75	3.38	1.66	.367	4	D6
—	KHSST27773	M14 X 2	3.59	1.66	.429	4	D7
—	KHSST27781	M16 X 2	3.81	1.81	.480	4	D7
—	KHSST27793	M18 X 2,5	4.03	1.06	.542	4	D7
—	KHSST27800	M20 X 1,5	4.47	2.00	.652	4	D6
—	KHSST27796	M20 X 2,5	4.47	2.00	.652	4	D7
—	KHSST27809	M24 X 3	4.91	2.22	.760	4	D8
—	KHSST28695	M30 X 3,5	5.44	2.56	1.021	4	D9
—	KHSST28698	M36 X 4	6.06	3.00	1.233	4	D9

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.
Metric taps for 6H class of fit are suitable for MJ aerospace internal threading applications.
Metric taps are manufactured to USCTI specifications and dimensions.
Metric tap blank dimensions are equivalent to inch taps.
Refer to table on page M203 for the recommended pitch diameter limit for 6H class of fit.

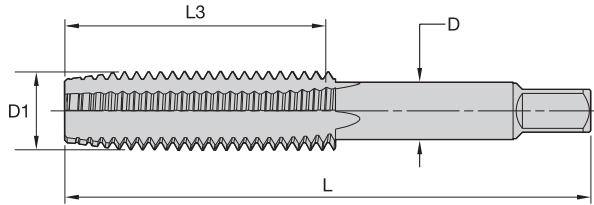

KHSST Hand • Bottoming Chamfer Tap • Metric ANSI


- first choice
- alternate choice

uncoated	D1 size	L	L3	D	number of flutes	pitch diameter limit
KHSST27710	M2 X 0,4	1.75	.44	.141	3	D3
KHSST27722	M3 X 0,5	1.94	.63	.141	3	D3
KHSST27730	M4 X 0,7	2.13	.75	.168	4	D4
KHSST27738	M5 X 0,8	2.38	.88	.194	4	D4
KHSST27742	M6 X 1	2.50	1.00	.255	4	D5
KHSST27750	M8 X 1,25	2.72	1.13	.318	4	D5
KHSST27758	M10 X 1,5	2.94	1.25	.381	4	D6
KHSST27766	M12 X 1,75	3.38	1.66	.367	4	D6
KHSST28455	M14 X 2	3.59	1.66	.429	4	D7
KHSST28458	M16 X 2	3.81	1.81	.480	4	D7
KHSST28462	M20 X 2,5	4.47	2.00	.652	4	D7
KHSST28465	M24 X 3	4.91	2.22	.760	4	D8

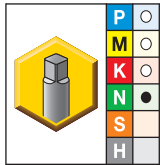
NOTE: Metric taps for 6H class of fit are suitable for MJ aerospace internal threading applications.
 Metric taps are manufactured to USCTI specifications and dimensions.
 Metric tap blank dimensions are equivalent to inch taps.
 Refer to table on page M203 for the recommended pitch diameter limit for 6H class of fit.





KHSST Left Hand • Fractional Sizes • Plug Chamfer Taps

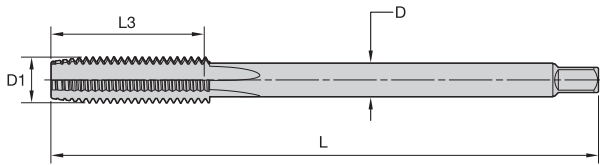
Tapping



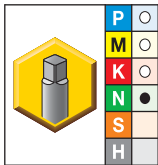
- first choice
- alternate choice

uncoated	D1 size	L	L3	D	number of flutes	pitch diameter limit
KHSST28086	1/4 - 28	2.50	1.00	.255	4	H3
KHSST28207	3/8 - 24	2.94	1.25	.381	4	H3
KHSST28675	7/16 - 20	3.16	1.44	.323	4	H3
KHSST28053	1/2 - 13	3.38	1.66	.367	4	H3
KHSST28064	1/2 - 20	3.38	1.66	.367	4	H3
KHSST28233	5/8 - 11	3.81	1.81	.480	4	H3
KHSST28239	5/8 - 18	3.81	1.81	.480	4	H3
KHSST28167	3/4 - 10	4.25	2.00	.590	4	H3
KHSST28184	3/4 - 16	4.25	2.00	.590	4	H3

NOTE: Refer to table on pages M202–M203 for the recommended pitch diameter limit for 2B or 3B class of fit.



■ KHSST Extended-Length Hand Taps • Machine Screw and Fractional • Plug Chamfer Tap

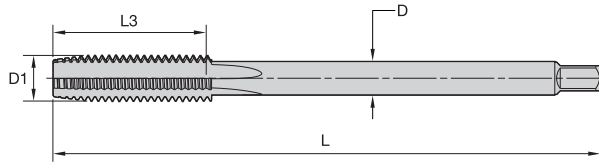


● first choice
○ alternate choice

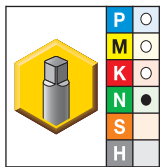
uncoated	D1 size	L	L3	D	number of flutes	pitch diameter limit
KHSST28781	6 - 32	6.00	.69	.141	3	H3
KHSST28791	8 - 32	6.00	.75	.168	4	H3
KHSST28742	10 - 24	6.00	.88	.194	4	H3
KHSST28752	10 - 32	6.00	.88	.194	4	H3
KHSST28078	1/4 - 20	6.00	1.00	.255	4	H3
KHSST28085	1/4 - 28	6.00	1.00	.255	4	H3
KHSST28218	5/16 - 18	6.00	.67	.318	4	H3
KHSST28195	3/8 - 16	6.00	1.25	.381	4	H3

NOTE: Refer to table on pages M202–M203 for the recommended pitch diameter limit for 2B or 3B class of fit.





■ KHSST Extended-Length Hand Taps • Machine Screw and Fractional • Bottoming Chamfer Tap



- first choice
- alternate choice

uncoated	D1 size	L	L3	D	number of flutes	pitch diameter limit
KHSST28751 *	10 - 32	6.00	.88	.194	4	H3
KHSST28077	1/4 - 20	6.00	1.00	.255	4	H3
KHSST28217	5/16 - 18	6.00	.67	.318	4	H3
KHSST28226	5/16 - 24	6.00	.59	.318	4	H3
KHSST28194	3/8 - 16	6.00	1.25	.381	4	H3

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies. Refer to table on pages M202–M203 for the recommended pitch diameter limit for 2B or 3B class of fit.

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➤ Forming Taps

High-Performance Forming Taps for Through-Hole and Blind-Hole Applications

- Steel and steel alloys.
- Stainless steel.
- Aluminum.



High-Performance Beyond™ Solid Carbide Taps

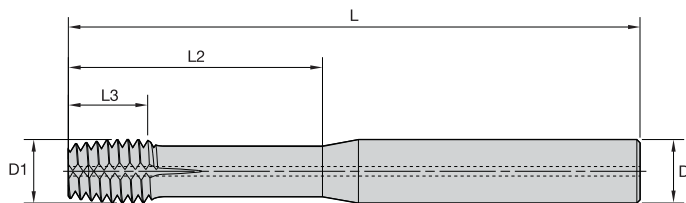
- Grade and geometry optimized for form tapping blind holes in aluminum.
- Runs up to 4x faster and 4x longer than conventional HSS taps.
- Ideal for long production runs where fewer tool changes result in greater productivity.
- For use on CNC machines with synchronous or rigid controls and precision toolholders.

High-Performance Beyond HSS-E-PM Taps

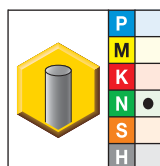
- High-performance forming taps for through- and blind-hole applications in steel, stainless steel, and aluminum.
- Higher strength and wider range of applications versus solid carbide taps.
- Higher tapping speed capability and longer tool life than conventional HSS-E taps.
- Can be used on either conventional or synchronous tapping machines.



• KCN14 TiN + CrC/C for aluminum.



■ T491 • Form E Bottoming Entry Taper • Through Coolant M6 and Larger • Metric • Solid Carbide • For Aluminum



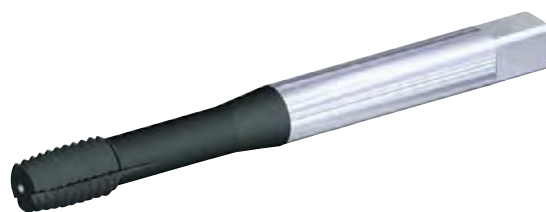
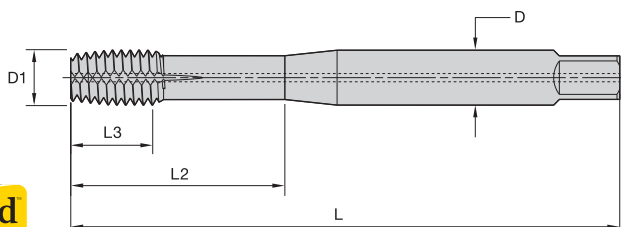
- first choice
- alternate choice

KCN14	D1 size	L	L3	L2	D	number of lube grooves	class of fit
T491M050X080R6HX	M5 X 0,8	60	7	20	6,0	2	6HX
T491M060X100R6HX	M6 X 1	70	8	24	6,0	2	6HX
T491M080X125R6HX	M8 X 1,25	80	10	32	8,0	2	6HX
T491M100X150R6HX	M10 X 1,5	90	12	40	10,0	3	6HX
T491M120X175R6HX	M12 X 1,75	100	14	48	12,0	3	6HX

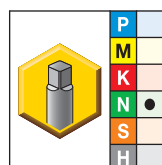
Shank Tolerance

D	tolerance h6
6	+0, -0,008
8-10	+0, -0,009
12-16	+0, -0,011

• KCN14 TiN + CrC/C for aluminum.



■ T491 • DIN 2174 • Form E Bottoming Chamfer • Through Coolant • Metric • Solid Carbide • For Aluminum



- first choice
- alternate choice

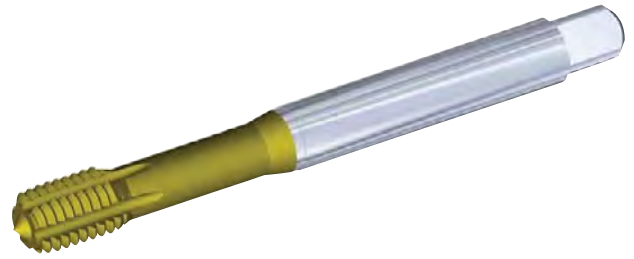
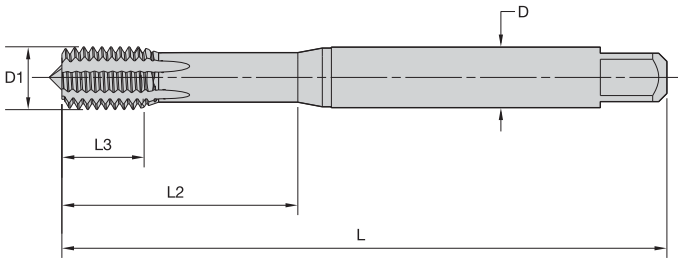
KCN14	D1 size	L	L3	L2	D	number of lube grooves	dimension standard	class of fit
T491M060X100R6HX-D74	M6 X 1	80	10	30	6,0	2	DIN 2174	6HX
T491M080X125R6HX-D74	M8 X 1,25	90	13	35	8,0	2	DIN 2174	6HX
T491M100X150R6HX-D74	M10 X 1,5	100	15	39	10,0	3	DIN 2174	6HX

Shank Tolerance

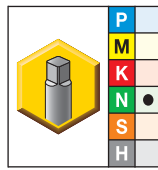
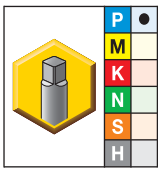
D	tolerance h6
3-6	+0, -0,008
>6-10	+0, -0,009
>10-18	+0, -0,011
>18-30	+0, -0,013
>30-50	+0, -0,016

Tapping

- KSP21 TiN for tapping steel.
- KSN28 DLC for tapping aluminum.



■ T622 • DIN 2174 • Form C Semi-Bottoming Entry Taper • Metric • For Steel and Aluminum



- first choice
- alternate choice

KSP21	KSN28	D1 size	L	L3	L2	D	number of lube grooves	dimension standard	class of fit
T622M030X050R6HX-D74	T622M030X050R6HX-D74	M3 X 0,5	56	6	18	3,5	4	DIN 2174	6HX
T622M040X070R6HX-D74	T622M040X070R6HX-D74	M4 X 0,7	63	7	21	4,5	4	DIN 2174	6HX
T622M050X080R6HX-D74	T622M050X080R6HX-D74	M5 X 0,8	70	8	25	6,0	4	DIN 2174	6HX
T622M060X100R6HX-D74	T622M060X100R6HX-D74	M6 X 1	80	10	30	6,0	5	DIN 2174	6HX
T622MF080X100R6HX-D74	T622MF080X100R6HX-D74	M8 X 1	90	10	35	8,0	5	DIN 2174	6HX
T622M080X125R6HX-D74	T622M080X125R6HX-D74	M8 X 1,25	90	14	35	8,0	5	DIN 2174	6HX
T622MF100X100R6HX-D74	T622MF100X100R6HX-D74 *	M10 X 1	90	10	35	10,0	5	DIN 2174	6HX
T622MF100X125R6HX-D74	T622MF100X125R6HX-D74	M10 X 1,25	100	16	39	10,0	5	DIN 2174	6HX
T622M100X150R6HX-D74	T622M100X150R6HX-D74	M10 X 1,5	100	16	39	10,0	5	DIN 2174	6HX
T622MF120X125R6HX-D74	T622MF120X125R6HX-D74	M12 X 1,25	100	15	39	9,0	6	DIN 2174	6HX
T622MF120X150R6HX-D74	T622MF120X150R6HX-D74	M12 X 1,5	100	15	39	9,0	6	DIN 2174	6HX
T622M120X175R6HX-D74	T622M120X175R6HX-D74	M12 X 1,75	110	18	44	9,0	6	DIN 2174	6HX
T622MF140X150R6HX-D74	T622MF140X150R6HX-D74	M14 X 1,5	100	15	47	11,0	6	DIN 2174	6HX
T622MF160X150R6HX-D74	T622MF160X150R6HX-D74	M16 X 1,5	100	15	46	12,0	6	DIN 2174	6HX
T622M160X200R6HX-D74	T622M160X200R6HX-D74	M16 X 2	110	22	51	12,0	6	DIN 2174	6HX

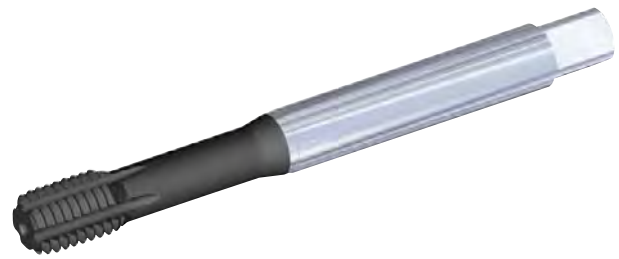
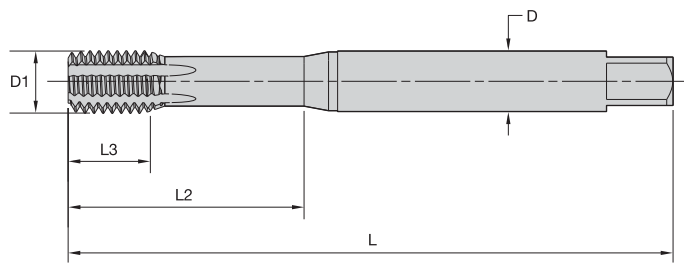
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Shank Tolerance

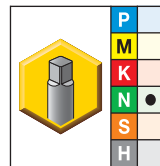
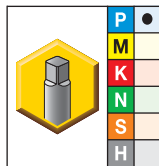
D	tolerance h9
1-3	+0, -0,025
3,5-6	+0, -0,030
7-10	+0, -0,036
11-18	+0, -0,043



- KSP21 TiN for tapping steel.
- KSN28 DLC for tapping aluminum.



T623 • DIN 2174 • Form C Semi-Bottoming Entry Taper • Through Coolant • Metric • For Steel and Aluminum



- first choice
- alternate choice

		D1 size	L	L3	L2	D	number of lube grooves	dimension standard	class of fit
KSP21	KSN28								
T623M050X080R6HX-D74	T623M050X080R6HX-D74	M5 X 0,8	70	8	25	6,0	4	DIN 2174	6HX
T623M060X100R6HX-D74	T623M060X100R6HX-D74	M6 X 1	80	10	30	6,0	5	DIN 2174	6HX
T623MF080X100R6HX-D74	T623MF080X100R6HX-D74 *	M8 X 1	90	10	35	8,0	5	DIN 2174	6HX
T623M080X125R6HX-D74	T623M080X125R6HX-D74	M8 X 1,25	90	14	35	8,0	5	DIN 2174	6HX
T623MF100X100R6HX-D74	T623MF100X100R6HX-D74	M10 X 1	90	10	35	10,0	5	DIN 2174	6HX
T623M100X150R6HX-D74	T623M100X150R6HX-D74	M10 X 1,5	100	16	39	10,0	5	DIN 2174	6HX
T623MF120X150R6HX-D74	T623MF120X150R6HX-D74	M12 X 1,5	100	15	27	9,0	6	DIN 2174	6HX
T623M120X175R6HX-D74	T623M120X175R6HX-D74	M12 X 1,75	110	18	30	9,0	6	DIN 2174	6HX
T623MF140X150R6HX-D74	T623MF140X150R6HX-D74	M14 X 1,5	100	15	29	11,0	6	DIN 2174	6HX
T623MF160X150R6HX-D74	T623MF160X150R6HX-D74	M16 X 1,5	100	15	31	12,0	6	DIN 2174	6HX
T623M160X200R6HX-D74	T623M160X200R6HX-D74	M16 X 2	110	22	38	12,0	6	DIN 2174	6HX

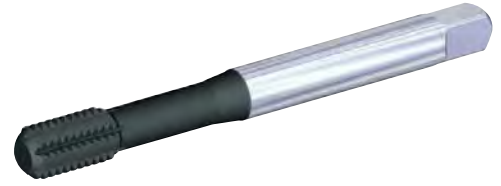
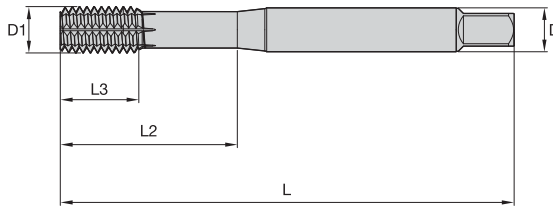
NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

Shank Tolerance

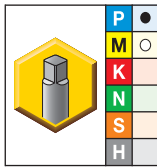
D	tolerance h9
1-3	+0, -0,025
3,5-6	+0, -0,030
7-10	+0, -0,036
11-18	+0, -0,043

Tapping

- KSP27 AICrTiN for steel and stainless steel.



■ T624 • DIN Length ANSI Shank • Form C Semi-Bottoming Entry Taper • Machine Screw and Fractional • For Steel and Stainless Steel



- first choice
- alternate choice

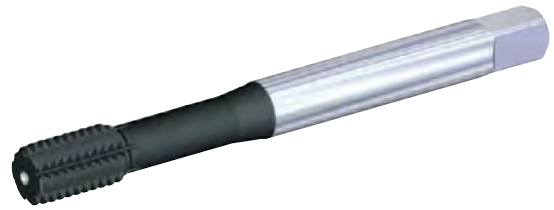
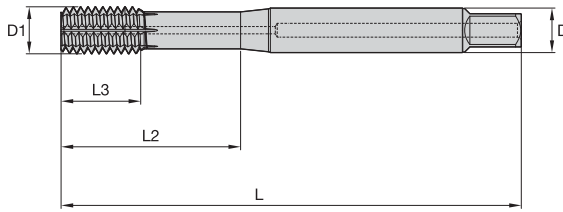
KSP27	D1 size	L	L3	L2	D	number of lube grooves	pitch diameter limit
T624NC#06-32RH3-DA	6 - 32	2.22	.41	.81	.141	2	H3
T624NC#06-32RH5-DA	6 - 32	2.22	.41	.81	.141	2	H5
T624NC#08-32RH3-DA	8 - 32	2.48	.39	.83	.168	4	H3
T624NC#08-32RH5-DA	8 - 32	2.48	.39	.83	.168	4	H5
T624NC#10-24RH4-DA	10 - 24	2.78	.39	1.01	.194	4	H4
T624NC#10-24RH6-DA	10 - 24	2.78	.39	1.01	.194	4	H6
T624NF#10-32RH4-DA	10 - 32	2.77	.39	1.00	.194	4	H4
T624NF#10-32RH6-DA	10 - 32	2.77	.39	1.00	.194	4	H6
T624NC02500-20RH4-DA	1/4 - 20	3.18	.51	1.22	.255	4	H4
T624NC02500-20RH6-DA	1/4 - 20	3.18	.51	1.21	.255	4	H6
T624NF02500-28RH4-DA	1/4 - 28	3.16	.51	1.20	.255	4	H4
T624NF02500-28RH6-DA	1/4 - 28	3.16	.51	1.20	.255	4	H6
T624NC03125-18RH5-DA	5/16 - 18	3.58	.55	1.42	.318	6	H5
T624NC03125-18RH7-DA	5/16 - 18	3.58	.55	1.42	.318	6	H7
T624NF03125-24RH5-DA	5/16 - 24	3.56	.55	1.40	.318	6	H5
T624NF03125-24RH7-DA	5/16 - 24	3.56	.55	1.38	.318	6	H7
T624NC03750-16RH5-DA	3/8 - 16	3.98	.63	1.54	.381	6	H5
T624NC03750-16RH7-DA	3/8 - 16	3.98	.63	1.54	.381	6	H7
T624NF03750-24RH5-DA	3/8 - 24	3.95	.63	1.54	.381	6	H5
T624NF03750-24RH7-DA	3/8 - 24	3.94	.63	1.54	.381	6	H7
T624NC05000-13RH5-DA	1/2 - 13	4.33	.79	1.85	.367	6	H5
T624NC05000-13RH7-DA	1/2 - 13	4.33	.79	1.85	.367	6	H7
T624NF05000-20RH5-DA	1/2 - 20	4.33	.79	1.85	.367	6	H5
T624NF05000-20RH7-DA	1/2 - 20	4.33	.79	1.85	.367	6	H7
T624NC06250-11RH10-DA	5/8 - 11	4.33	.91	2.01	.480	6	H10
T624NC06250-11RH7-DA	5/8 - 11	4.33	.91	2.01	.480	6	H7
T624NF06250-18RH10-DA	5/8 - 18	4.33	.91	2.01	.480	6	H10
T624NF06250-18RH7-DA	5/8 - 18	4.33	.91	2.01	.480	6	H7
T624NC07500-10RH10-DA	3/4 - 10	4.92	.98	2.52	.590	6	H10
T624NC07500-10RH7-DA	3/4 - 10	4.92	.98	2.52	.590	6	H7
T624NF07500-16RH10-DA	3/4 - 16	4.92	.98	2.52	.590	6	H10
T624NF07500-16RH7-DA	3/4 - 16	4.92	.98	2.52	.590	6	H7

Shank Tolerance

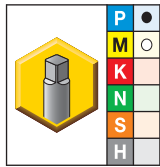
D fractional	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004



- KSP27 AICrTiN for steel and stainless steel.



- T625 • DIN Length ANSI Shank • Form C Semi-Bottoming Entry Taper • Through Coolant • Fractional • For Steel and Stainless Steel



- first choice
- alternate choice

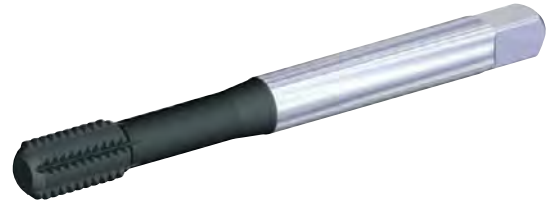
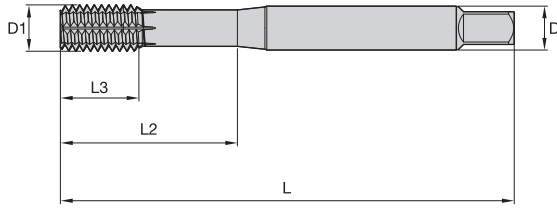
Tapping

KSP27	D1 size	L	L3	L2	D	number of lube grooves	pitch diameter limit
T625NC02500-20RH4-DA	1/4 - 20	3.15	.51	1.18	.255	4	H4
T625NC02500-20RH6-DA	1/4 - 20	3.15	.51	1.18	.255	4	H6
T625NF02500-28RH4-DA	1/4 - 28	3.15	.51	1.18	.255	4	H4
T625NF02500-28RH6-DA	1/4 - 28	3.15	.51	1.18	.255	4	H6
T625NC03125-18RH5-DA	5/16 - 18	3.54	.55	1.38	.318	6	H5
T625NC03125-18RH7-DA	5/16 - 18	3.54	.55	1.38	.318	6	H7
T625NF03125-24RH5-DA	5/16 - 24	3.54	.55	1.38	.318	6	H5
T625NF03125-24RH7-DA	5/16 - 24	3.54	.55	1.38	.318	6	H7
T625NC03750-16RH5-DA	3/8 - 16	3.94	.63	1.54	.381	6	H5
T625NC03750-16RH7-DA	3/8 - 16	3.94	.63	1.54	.381	6	H7
T625NF03750-24RH5-DA	3/8 - 24	3.94	.63	1.54	.381	6	H5
T625NF03750-24RH7-DA	3/8 - 24	3.94	.63	1.54	.381	6	H7
T625NC05000-13RH5-DA	1/2 - 13	4.33	.79	1.85	.367	6	H5
T625NC05000-13RH7-DA	1/2 - 13	4.33	.79	1.85	.367	6	H7
T625NF05000-20RH5-DA	1/2 - 20	4.33	.79	1.85	.367	6	H5
T625NF05000-20RH7-DA	1/2 - 20	4.33	.79	1.85	.367	6	H7
T625NC06250-11RH10-DA	5/8 - 11	4.33	.79	2.01	.480	6	H10
T625NC06250-11RH7-DA	5/8 - 11	4.33	.79	2.01	.480	6	H7
T625NF06250-18RH10-DA	5/8 - 18	4.33	.79	2.01	.480	6	H10
T625NF06250-18RH7-DA	5/8 - 18	4.33	.79	2.01	.480	6	H7
T625NC07500-10RH10-DA	3/4 - 10	4.92	.98	2.52	.590	6	H10
T625NC07500-10RH7-DA	3/4 - 10	4.92	.98	2.52	.590	6	H7
T625NF07500-16RH10-DA	3/4 - 16	4.92	.98	2.52	.590	6	H10
T625NF07500-16RH7-DA	3/4 - 16	4.92	.98	2.52	.590	6	H7

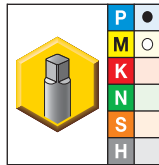
Shank Tolerance

D fractional	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004

- KSP27 AICrTiN for steel and stainless steel.



■ T626 • DIN Length ANSI Shank • Form E Bottoming Entry Taper • Machine Screw and Fractional • For Steel and Stainless Steel



- first choice
- alternate choice

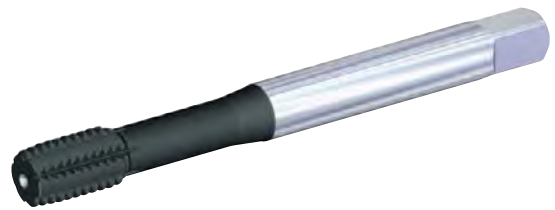
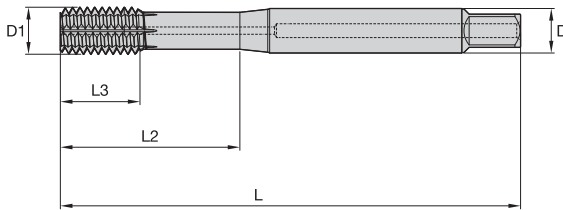
KSP27	D1 size	L	L3	L2	D	number of lube grooves	pitch diameter limit
T626NC#02-56RH3-DA	2 - 56	1.75	.44	.50	.141	0	H3
T626NC#03-48RH3-DA	3 - 48	1.97	.39	.71	.141	0	H3
T626NC#04-40RH3-DA	4 - 40	2.20	.39	.71	.141	0	H3
T626NC#04-40RH5-DA	4 - 40	2.20	.39	.71	.141	0	H5
T626NC#06-32RH3-DA	6 - 32	2.21	.39	.79	.141	2	H3
T626NC#06-32RH5-DA	6 - 32	2.21	.39	.79	.141	2	H5
T626NC#08-32RH3-DA	8 - 32	2.48	.39	.83	.168	4	H3
T626NC#08-32RH5-DA	8 - 32	2.48	.39	.83	.168	4	H5
T626NC#10-24RH4-DA	10 - 24	2.76	.39	.98	.194	4	H4
T626NC#10-24RH6-DA	10 - 24	2.76	.39	.98	.194	4	H6
T626NF#10-32RH4-DA	10 - 32	2.76	.39	.98	.194	4	H4
T626NF#10-32RH6-DA	10 - 32	2.76	.39	.98	.194	4	H6
T626NC02500-20RH4-DA	1/4 - 20	3.15	.51	1.18	.255	4	H4
T626NC02500-20RH6-DA	1/4 - 20	3.15	.51	1.18	.255	4	H6
T626NF02500-28RH4-DA	1/4 - 28	3.15	.51	1.18	.255	4	H4
T626NF02500-28RH6-DA *	1/4 - 28	3.15	.51	1.18	.255	4	H6
T626NC03125-18RH5-DA	5/16 - 18	3.54	.55	1.38	.318	6	H5
T626NC03125-18RH7-DA	5/16 - 18	3.54	.55	1.38	.318	6	H7
T626NF03125-24RH5-DA	5/16 - 24	3.54	.55	1.38	.318	6	H5
T626NF03125-24RH7-DA	5/16 - 24	3.54	.55	1.38	.318	6	H7
T626NC03750-16RH5-DA	3/8 - 16	3.94	.63	1.54	.381	6	H5
T626NC03750-16RH7-DA	3/8 - 16	3.94	.63	1.54	.381	6	H7
T626NF03750-24RH5-DA	3/8 - 24	3.94	.63	1.54	.381	6	H5
T626NF03750-24RH7-DA	3/8 - 24	3.94	.63	1.54	.381	6	H7
T626NC05000-13RH5-DA	1/2 - 13	4.33	.79	1.85	.367	6	H5
T626NC05000-13RH7-DA	1/2 - 13	4.33	.79	1.85	.367	6	H7
T626NF05000-20RH5-DA	1/2 - 20	4.33	.79	1.85	.367	6	H5
T626NF05000-20RH7-DA	1/2 - 20	4.33	.79	1.85	.367	6	H7
T626NC06250-11RH10-DA	5/8 - 11	4.33	.79	2.01	.480	6	H10
T626NC06250-11RH7-DA	5/8 - 11	4.33	.79	2.01	.480	6	H7
T626NF06250-18RH10-DA	5/8 - 18	4.33	.79	2.01	.480	6	H10
T626NF06250-18RH7-DA	5/8 - 18	4.33	.79	2.01	.480	6	H7
T626NC07500-10RH10-DA	3/4 - 10	4.92	.98	2.52	.590	6	H10
T626NC07500-10RH7-DA	3/4 - 10	4.92	.98	2.52	.590	6	H7
T626NF07500-16RH10-DA	3/4 - 16	4.92	.98	2.52	.590	6	H10
T626NF07500-16RH7-DA	3/4 - 16	4.92	.98	2.52	.590	6	H7

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

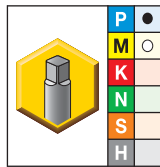
Shank Tolerance	
D fractional	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004



- KSP27 AlCrTiN for steel and stainless steel.



- T627 • DIN Length ANSI Shank • Form E Bottoming Entry Taper • Through Coolant • Fractional • For Steel and Stainless Steel



- first choice
- alternate choice

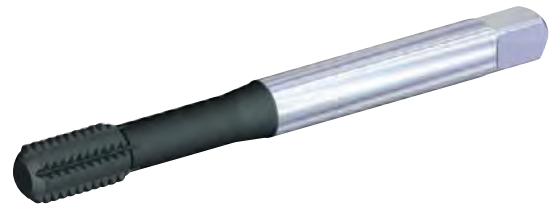
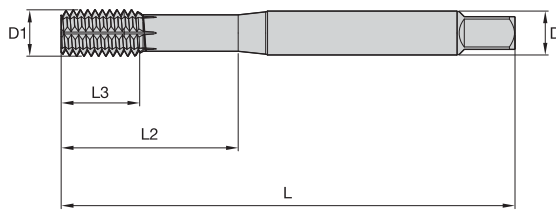
Tapping

KSP27	D1 size	L	L3	L2	D	number of lube grooves	pitch diameter limit
T627NC02500-20RH4-DA	1/4 - 20	3.15	.51	1.18	.255	4	H4
T627NC02500-20RH6-DA	1/4 - 20	3.15	.51	1.18	.255	4	H6
T627NF02500-28RH4-DA	1/4 - 28	3.15	.51	1.18	.255	4	H4
T627NF02500-28RH6-DA	1/4 - 28	3.15	.51	1.18	.255	4	H6
T627NC03125-18RH5-DA	5/16 - 18	3.54	.55	1.38	.318	6	H5
T627NC03125-18RH7-DA	5/16 - 18	3.54	.55	1.38	.318	6	H7
T627NF03125-24RH5-DA	5/16 - 24	3.54	.55	1.38	.318	6	H5
T627NF03125-24RH7-DA	5/16 - 24	3.54	.55	1.38	.318	6	H7
T627NC03750-16RH5-DA	3/8 - 16	3.94	.63	1.54	.381	6	H5
T627NC03750-16RH7-DA	3/8 - 16	3.94	.63	1.54	.381	6	H7
T627NF03750-24RH5-DA	3/8 - 24	3.94	.63	1.54	.381	6	H5
T627NF03750-24RH7-DA	3/8 - 24	3.94	.63	1.54	.381	6	H7
T627NC05000-13RH5-DA	1/2 - 13	4.33	.79	1.85	.367	6	H5
T627NC05000-13RH7-DA	1/2 - 13	4.33	.79	1.85	.367	6	H7
T627NF05000-20RH5-DA	1/2 - 20	4.33	.79	1.85	.367	6	H5
T627NF05000-20RH7-DA	1/2 - 20	4.33	.79	1.85	.367	6	H7
T627NC06250-11RH10-DA	5/8 - 11	4.33	.79	2.01	.480	6	H10
T627NC06250-11RH7-DA	5/8 - 11	4.33	.79	2.01	.480	6	H7
T627NF06250-18RH10-DA	5/8 - 18	4.33	.79	2.01	.480	6	H10
T627NF06250-18RH7-DA	5/8 - 18	4.33	.79	2.01	.480	6	H7
T627NC07500-10RH10-DA	3/4 - 10	4.92	.98	2.52	.590	6	H10
T627NC07500-10RH7-DA	3/4 - 10	4.92	.98	2.52	.590	6	H7
T627NF07500-16RH10-DA	3/4 - 16	4.92	.98	2.52	.590	6	H10
T627NF07500-16RH7-DA	3/4 - 16	4.92	.98	2.52	.590	6	H7

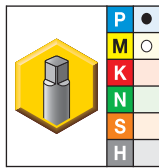
Shank Tolerance

D fractional	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004

- KSP27 AICrTiN for steel and stainless steel.



- T624 • DIN Length ANSI Shank • Form C Semi-Bottoming Entry Taper • Metric • For Steel and Stainless Steel



- first choice
- alternate choice

KSP27	D1 size	L	L3	L2	D	number of lube grooves	pitch diameter limit
T624M030X050RD5-DA	M3 X 0,5	2.20	.39	.79	.141	2	D5
T624M040X070RD6-DA	M4 X 0,7	2.48	.39	.83	.168	4	D6
T624M060X100RD8-DA	M6 X 1	3.15	.51	1.18	.255	4	D8
T624M080X125RD9-DA	M8 X 1,25	3.54	.55	1.38	.318	6	D9
T624MF100X125RD9-DA	M10 X 1,25	3.94	.63	1.53	.381	6	D9
T624M100X150RD10-DA	M10 X 1,5	3.94	.63	1.54	.381	6	D10
T624MF120X125RD9-DA	M12 X 1,25	4.33	.71	1.73	.367	6	D9
T624MF120X150RD9-DA	M12 X 1,5	4.33	.71	1.73	.367	6	D9
T624M120X175RD11-DA	M12 X 1,75	4.33	.71	1.73	.367	6	D11
T624MF140X150RD11-DA	M14 X 1,5	4.33	.79	2.05	.429	6	D11
T624M140X200RD12-DA	M14 X 2	4.33	.79	2.05	.429	6	D12
T624MF160X150RD11-DA	M16 X 1,5	4.33	.79	2.01	.480	6	D11
T624M160X200RD12-DA	M16 X 2	4.33	.79	2.01	.480	6	D12

Shank Tolerance

D fractional	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004

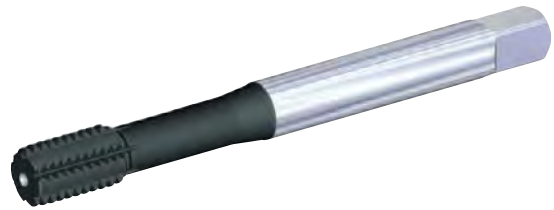
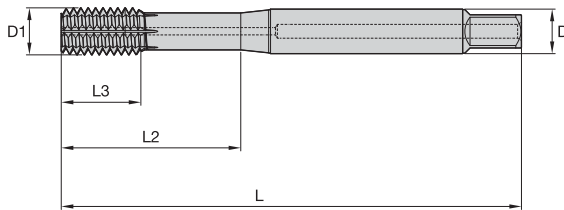


High-Performance Taps

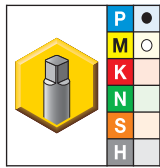
Beyond™ Forming Taps HSS-E-PM • Blind Holes



- KSP27 AICrTiN for steel and stainless steel.



- T625 • DIN Length ANSI Shank • Form C Semi-Bottoming Entry Taper • Through Coolant • Metric • For Steel and Stainless Steel



- first choice
- alternate choice

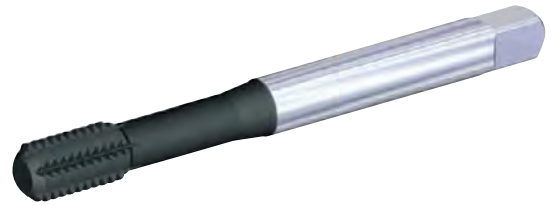
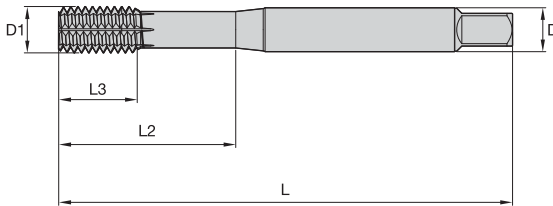
Tapping

KSP27	D1 size	L	L3	L2	D	number of lube grooves	pitch diameter limit
T625M060X100RD8-DA	M6 X 1	3.15	.51	1.18	.255	4	D8
T625M080X125RD9-DA	M8 X 1,25	3.54	.55	1.38	.318	6	D9
T625MF100X125RD9-DA	M10 X 1,25	3.94	.63	1.54	.381	6	D9
T625M100X150RD10-DA	M10 X 1,5	3.94	.63	1.54	.381	6	D10
T625MF120X125RD9-DA	M12 X 1,25	4.33	.71	1.73	.367	6	D9
T625MF120X150RD9-DA	M12 X 1,5	4.33	.71	1.73	.367	6	D9
T625M120X175RD11-DA	M12 X 1,75	4.33	.71	1.73	.367	6	D11
T625MF140X150RD11-DA	M14 X 1,5	4.33	.79	2.05	.429	6	D11
T625M140X200RD12-DA	M14 X 2	4.33	.79	2.05	.429	6	D12
T625MF160X150RD11-DA	M16 X 1,5	4.33	.79	2.01	.480	6	D11
T625M160X200RD12-DA	M16 X 2	4.33	.79	2.01	.480	6	D12

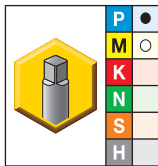
Shank Tolerance

D fractional	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004

- KSP27 AICrTiN for steel and stainless steel.



■ T626 • DIN Length ANSI Shank • Form E Bottoming Entry Taper • Metric • For Steel and Stainless Steel



- first choice
- alternate choice

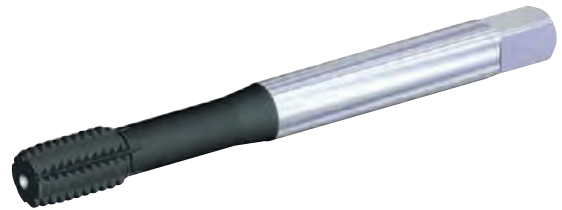
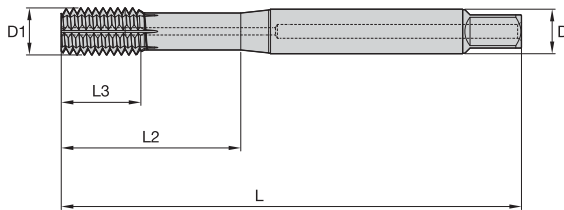
KSP27	D1 size	L	L3	L2	D	number of lube grooves	pitch diameter limit
T626M030X050RD5-DA	M3 X 0,5	2.20	.39	.79	.141	2	D5
T626M035X060RD6-DA	M3,5 X 0,6	2.20	.39	.79	.141	2	D6
T626M040X070RD6-DA	M4 X 0,7	2.48	.39	.83	.168	4	D6
T626M050X080RD7-DA	M5 X 0,8	2.76	.39	.98	.194	4	D7
T626M060X100RD8-DA	M6 X 1	3.15	.51	1.18	.255	4	D8
T626M080X125RD9-DA	M8 X 1,25	3.54	.55	1.38	.318	6	D9
T626MF100X125RD9-DA	M10 X 1,25	3.94	.63	1.53	.381	6	D9
T626M100X150RD10-DA	M10 X 1,5	3.94	.63	1.54	.381	6	D10
T626MF120X125RD9-DA	M12 X 1,25	4.33	.71	1.73	.367	6	D9
T626MF120X150RD9-DA	M12 X 1,5	4.33	.71	1.73	.367	6	D9
T626M120X175RD11-DA	M12 X 1,75	4.33	.71	1.73	.367	6	D11
T626MF140X150RD11-DA	M14 X 1,5	4.33	.79	2.05	.429	6	D11
T626M140X200RD12-DA	M14 X 2	4.33	.79	2.05	.429	6	D12
T626MF160X150RD11-DA	M16 X 1,5	4.33	.79	2.01	.480	6	D11
T626M160X200RD12-DA	M16 X 2	4.33	.79	2.01	.480	6	D12

Shank Tolerance

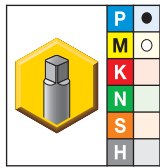
D fractional	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004



- KSP27 AlCrTiN for steel and stainless steel.



T627 • DIN Length ANSI Shank • Form E Bottoming Entry Taper • Through Coolant • Metric • For Steel and Stainless Steel



- first choice
- alternate choice

Tapping

KSP27	D1 size	L	L3	L2	D	number of lube grooves	pitch diameter limit
T627M060X100RD8-DA	M6 X 1	3.15	.51	1.18	.255	4	D8
T627M080X125RD9-DA	M8 X 1,25	3.54	.55	1.38	.318	6	D9
T627MF100X125RD9-DA	M10 X 1,25	3.94	.63	1.54	.381	6	D9
T627M100X150RD10-DA	M10 X 1,5	3.94	.63	1.54	.381	6	D10
T627MF120X125RD9-DA	M12 X 1,25	4.33	.71	1.73	.367	6	D9
T627MF120X150RD9-DA	M12 X 1,5	4.33	.71	1.73	.367	6	D9
T627M120X175RD11-DA	M12 X 1,75	4.33	.71	1.73	.367	6	D11
T627MF140X150RD11-DA	M14 X 1,5	4.33	.79	2.05	.429	6	D11
T627M140X200RD12-DA	M14 X 2	4.33	.79	2.05	.429	6	D12
T627MF160X150RD11-DA	M16 X 1,5	4.33	.79	2.01	.480	6	D11
T627M160X200RD12-DA	M16 X 2	4.33	.79	2.01	.480	6	D12

Shank Tolerance

D fractional	tolerance h6
.250-.375	+0, -.0004
.438-.625	+0, -.0004

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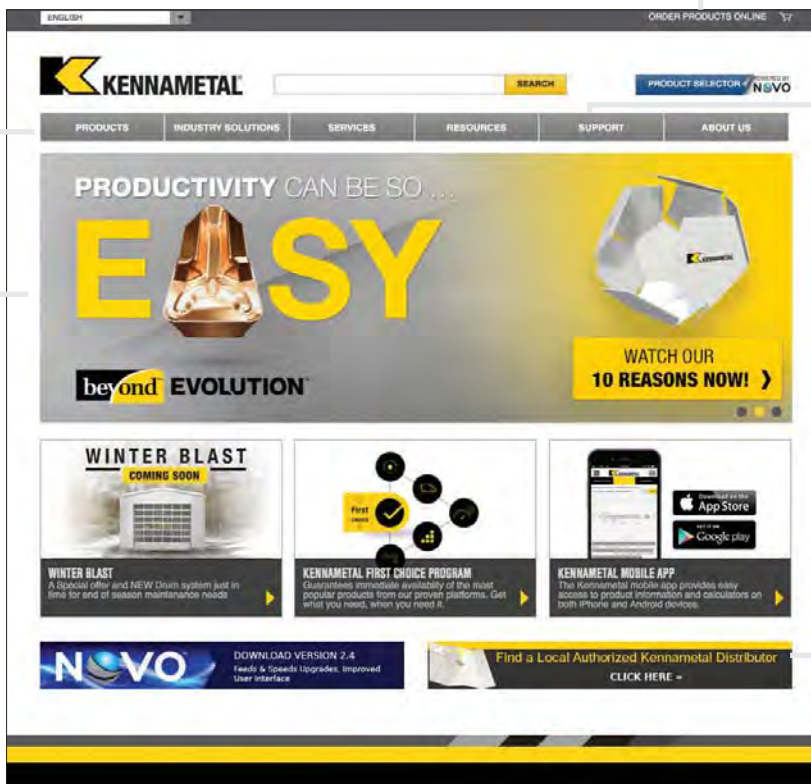
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➤ Pipe Taps



High-Performance Pipe Taps for Through-Hole and Blind-Hole Applications

- Steel and steel alloys.
- Stainless steel.
- Aluminum.

Multipurpose HSS-E G0tap™ Taps

- NPT and NPTF taper pipe taps with standard projections and standard chamfers for ductile materials and mold steels.
- DIN EN ISO 228 G straight pipe taps with Whitworth thread form for ductile materials.
- Manufactured with high-vanadium HSS-E material for exceptional wear characteristics and longer tool life.
- Advanced PVD coatings to reduce tapping torque, resulting in high-quality thread finish and longer tool life.
- For use in both synchronous and non-synchronous machines, including rigid, synchronous, and tension/compression tap holders.

General-Purpose Taps

- Manufactured with select high-speed steel (HSS).
- Ground thread pipe taps are standard in American Standard Taper pipe threads (NPT), Dryseal American Standard Taper pipe threads (NPTF), American Standard Straight pipe threads (NPS), and American Standard Dryseal Fuel Straight pipe threads (NPSF).

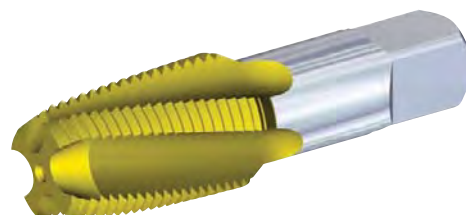
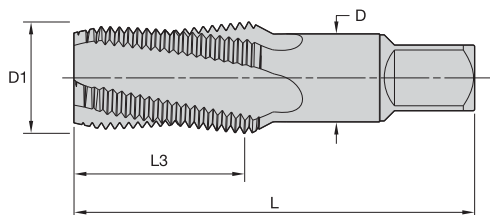


Multipurpose Taps

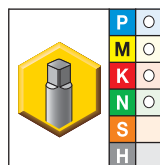
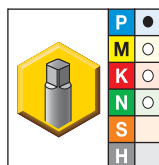
G0tap™ Spiral-Flute HSS-E Pipe Taps



- KSU31 TiN
- KSP39 oxide



■ T854 • Standard Chamfer • Standard Projection

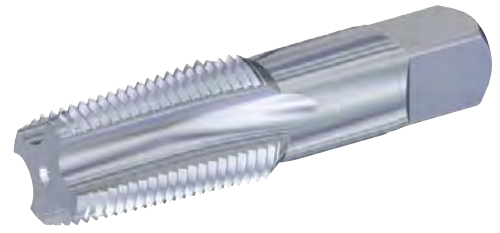
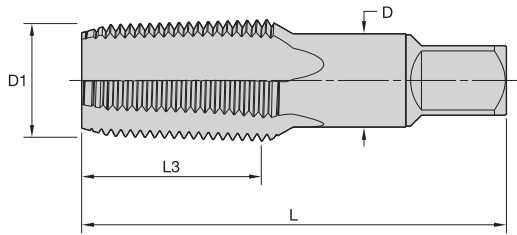


- first choice
- alternate choice

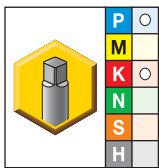
Tapping

KSU31	KSP39	D1 size	L	L3	D	number of flutes	thread type
T854NPT00625-27R-A	T854NPT00625-27R-A	1/16 - 27	2.13	.69	.313	4	NPT
—	T854NPTF00625-27R-A	1/16 - 27	2.13	.69	.313	4	NPTF
T854NPT01250-27R-AS	T854NPT01250-27R-AS	1/8 - 27	2.13	.75	.313	4	NPT
T854NPTF01250-27R-AS	T854NPTF01250-27R-AS	1/8 - 27	2.13	.75	.313	4	NPTF
T854NPT01250-27R-A	T854NPT01250-27R-A	1/8 - 27	2.13	.75	.438	4	NPT
T854NPTF01250-27R-A	T854NPTF01250-27R-A	1/8 - 27	2.13	.75	.438	4	NPTF
T854NPT02500-18R-A	T854NPT02500-18R-A	1/4 - 18	2.44	1.03	.563	4	NPT
T854NPTF02500-18R-A	T854NPTF02500-18R-A	1/4 - 18	2.44	1.03	.563	4	NPTF
T854NPT03750-18R-A	T854NPT03750-18R-A	3/8 - 18	2.56	1.03	.700	4	NPT
T854NPTF03750-18R-A	T854NPTF03750-18R-A	3/8 - 18	2.56	1.03	.700	4	NPTF
T854NPT05000-14R-A	T854NPT05000-14R-A	1/2 - 14	3.13	1.38	.688	4	NPT
T854NPTF05000-14R-A	T854NPTF05000-14R-A	1/2 - 14	3.13	1.38	.688	4	NPTF
T854NPT07500-14R-A	T854NPT07500-14R-A	3/4 - 14	3.25	1.38	.906	4	NPT
—	T854NPTF07500-14R-A	3/4 - 14	3.25	1.38	.906	4	NPTF
T854NPT10000-11.5R-A	T854NPT10000-11.5R-A	1 - 11 1/2	3.75	1.75	1.125	4	NPT
—	T854NPTF10000-11.5R-A	1 - 11 1/2	3.75	1.75	1.125	4	NPTF

- KSU30 bright



■ T846 • NPT • Standard Chamfer • Standard Projection



- first choice
- alternate choice

KSU30	D1 size	L	L3	D	number of flutes	thread type
T846NPT01250-27R-AS	1/8 - 27	2.13	.75	.313	4	NPT
T846NPT02500-18R-A	1/4 - 18	2.44	1.03	.563	4	NPT
T846NPT03750-18R-A	3/8 - 18	2.56	1.03	.700	4	NPT
T846NPT05000-14R-A	1/2 - 14	3.13	1.38	.688	4	NPT
T846NPT07500-14R-A	3/4 - 14	3.25	1.38	.906	5	NPT

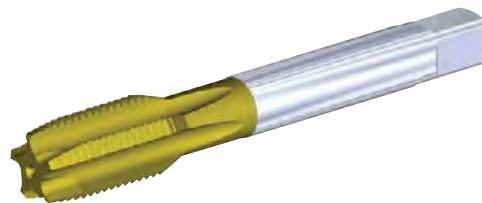
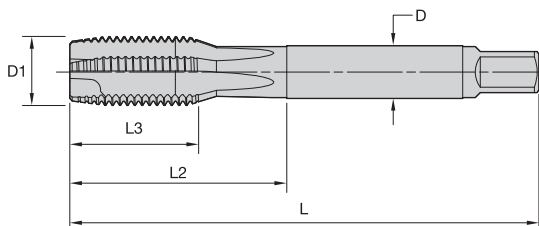


Multipurpose Taps

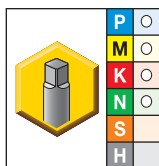
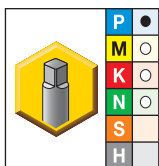
G0tap™ Spiral-Point HSS-E ISO Pipe Taps • Through Holes



- KSU31 TiN
- KSP39 oxide



■ T877 • (G) Whitworth Pipe Thread • DIN EN ISO 228 • Form B

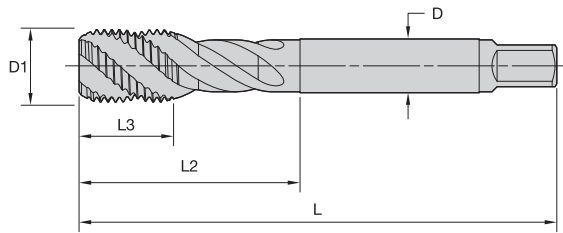


- first choice
- alternate choice

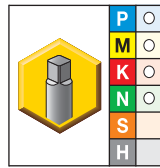
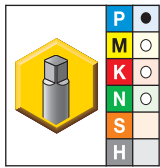
Tapping

	KSU31	KSP39	D1 size	L	L3	L2	D	number of flutes	thread type
	T877G01250-28R-D56	T877G01250-28R-D56	1/8 - 28	90	15	35	7	3	G
	T877G02500-19R-D56	T877G02500-19R-D56	1/4 - 19	100	22	44	11	3	G
	T877G03750-19R-D56	T877G03750-19R-D56	3/8 - 19	100	22	47	12	4	G
	T877G05000-14R-D56	T877G05000-14R-D56	1/2 - 14	125	25	55	16	4	G
	T877G06250-14R-D56	T877G06250-14R-D56	5/8 - 14	125	25	61	18	4	G
	T877G07500-14R-D56	T877G07500-14R-D56	3/4 - 14	140	25	60	20	4	G
	T877G08750-14R-D56	T877G08750-14R-D56	7/8 - 14	150	28	68	22	4	G
	T877G10000-11R-D56	T877G10000-11R-D56	1 - 11	160	30	68	25	5	G

- KSU31 TiN
- KSP39 oxide



■ T857 • (G) Whitworth Pipe Thread • DIN EN ISO 228 • Form C • Tension/Compression Holders



- first choice
- alternate choice

KSU31	KSP39	D1 size	L	L3	L2	D	number of flutes	thread type
T857G01250-28R-D56	T857G01250-28R-D56	1/8 - 28	90	15	37	7	3	G
T857G02500-19R-D56	T857G02500-19R-D56	1/4 - 19	100	15	44	11	3	G
T857G03750-19R-D56	T857G03750-19R-D56	3/8 - 19	100	15	47	12	4	G
T857G05000-14R-D56	T857G05000-14R-D56	1/2 - 14	125	18	55	16	4	G
T857G06250-14R-D56	T857G06250-14R-D56	5/8 - 14	125	18	61	18	4	G
T857G07500-14R-D56	T857G07500-14R-D56	3/4 - 14	140	20	65	20	4	G
T857G08750-14R-D56	T857G08750-14R-D56	7/8 - 14	150	22	68	22	4	G
T857G10000-11R-D56	T857G10000-11R-D56	1 - 11	160	24	74	25	5	G

NOTE: Suitable for tension/compression holders.

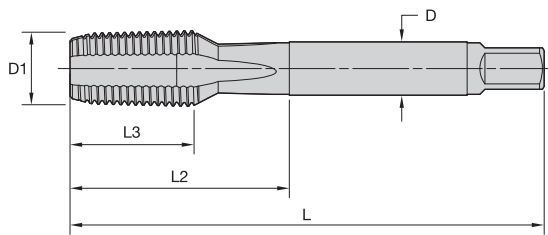


Multipurpose Taps

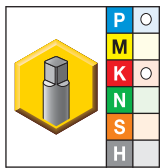
GOtap™ Straight-Flute HSS-E American National Taper Pipe Taps • Through and Blind Holes



• KSU30 bright



■ T848 • NPT and NPTF • Standard Projection • Form C

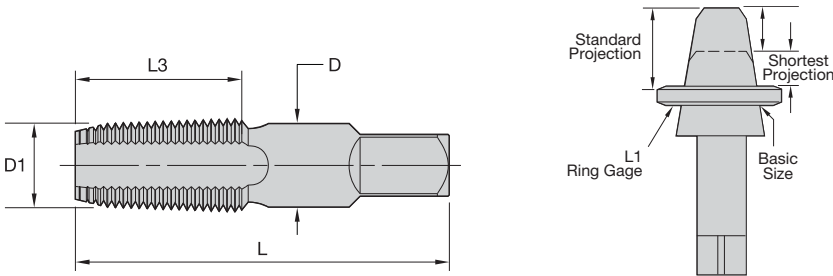


● first choice
○ alternate choice

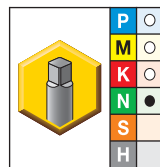
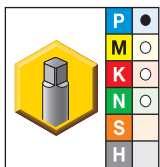
Tapping

KSU30	D1 size	L	L3	L2	D	number of flutes	thread type
T848NPT00625-27R-D56	1/16 - 27	90	13	35	6	3	NPT
T848NPTF00625-27R-D56	1/16 - 27	90	13	35	6	3	NPTF
T848NPT01250-27R-D56	1/8 - 27	90	13	36	7	4	NPT
T848NPTF01250-27R-D56	1/8 - 27	90	13	36	7	4	NPTF
T848NPT02500-18R-D56	1/4 - 18	100	20	39	11	4	NPT
T848NPTF02500-18R-D56	1/4 - 18	100	20	39	11	4	NPTF
T848NPT03750-18R-D56	3/8 - 18	110	20	39	12	4	NPT
T848NPTF03750-18R-D56	3/8 - 18	110	20	39	12	4	NPTF
T848NPT05000-14R-D56	1/2 - 14	125	26	56	16	4	NPT
T848NPTF05000-14R-D56	1/2 - 14	125	26	56	16	4	NPTF
T848NPT07500-14R-D56	3/4 - 14	140	26	55	20	4	NPT
T848NPTF07500-14R-D56	3/4 - 14	140	26	55	20	4	NPTF
T848NPT10000-11,5R-D56	1 - 11 1/2	160	32	71	25	5	NPT
T848NPTF10000-11,5R-D56	1 - 11 1/2	160	32	71	25	5	NPTF

- Manufactured from select high-speed steel.
- Ground thread pipe taps are standard in American Standard Pipe Form (NPT) and American Standard Dryseal Pipe Thread Form (NPTF).
- NPT threads require the use of a sealer, such as Teflon® tape or pipe compound.
- NPTF dryseal threads give a pressure-tight joint without the use of sealer.
- The nominal size of a pipe tap is that of the pipe fitting to be tapped, not the actual size of the tap; thread taper is 3/4" per foot.
- Alternate tap coatings are available as stock modifications.



KHSST Taper Pipe Tap • Chamfer 2-1/2-3-1/2 Pitches



- first choice
- alternate choice

TiN	uncoated	D1 size	L	L3	D	number of flutes	thread type
KHSST09137	KHSST28443	1/16 - 27	2.13	.69	.313	4	NPT/ANPT
KHSST09140	KHSST08703	1/8 - 27	2.13	.75	.313	4	NPT/ANPT
KHSST28141	KHSST08705	1/8 - 27	2.13	.75	.313	4	NPTF
KHSST28139	KHSST08704	1/8 - 27	2.13	.75	.438	4	NPT/ANPT
KHSST28140	—	1/8 - 27	2.13	.75	.438	4	NPTF
KHSST09143	KHSST08709	1/4 - 18	2.44	1.06	.563	4	NPT/ANPT
—	KHSST28445	1/4 - 18	2.44	1.06	.563	4	NPTF
KHSST28142	KHSST28446	3/8 - 18	2.56	1.06	.700	4	NPT/ANPT
—	KHSST08712	3/8 - 18	2.56	1.06	.700	4	NPTF
KHSST09147	KHSST08715	1/2 - 14	3.13	1.66	.687	4	NPT/ANPT
KHSST28060	KHSST28444	1/2 - 14	3.13	1.66	.687	4	NPTF
KHSST28178	KHSST28177	3/4 - 14	3.25	1.38	.906	5	NPT/ANPT
—	KHSST28181	3/4 - 14	3.25	1.38	.906	5	NPTF
—	KHSST28107	1 - 11 1/2	3.75	1.75	1.125	5	NPTF
KHSST09151	KHSST28106	1 - 11 1/2	3.75	1.75	1.125	5	NPT/ANPT
—	KHSST08724	1 1/4 - 11 1/2	4.00	1.75	1.313	5	NPT/ANPT
—	KHSST28002	1 1/2 - 11 1/2	4.25	3.00	1.500	7	NPT/ANPT
—	KHSST28109	2 - 11 1/2	4.25	1.75	1.875	7	NPT/ANPT

* Pipe tap projection is the distance the small end of the tap projects through an American National Standard Pipe Tap Thread Ring Gage.
NOTE: ANPT Taps marked NPT may be used for NPT and ANPT applications.

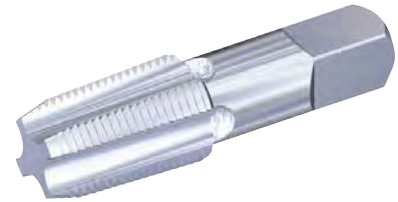
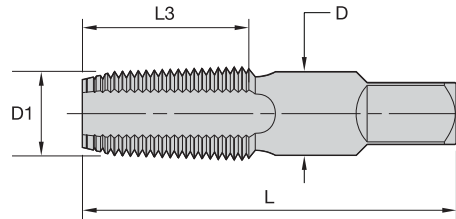


General-Purpose Taps

NPS and NPSF Straight-Pipe Taps

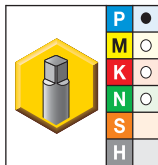


- Manufactured from select tap high-speed steel.
- Ground thread pipe taps are standard in American National Standard Straight Pipe (NPS) thread form and American National Standard Dryseal Straight Pipe (NPSF) thread form.
- NPS threads are suitable for tapping holes or couplings for low-pressure work when used with a sealer; also suitable for NPSC and NPSM work.
- NPSF dryseal taps are intended for low-pressure work, such as fuel and oil lines, where a sealer is not used.
- Dryseal threads give a low-pressure, pressure-tight joint without the use of sealer.



■ KHSST Straight Pipe • Chamfer 2-1/2-3-1/2 Pitches

Tapping



- first choice
- alternate choice

uncoated	D1 size	L	L3	D	number of flutes	thread series
KHSST28091	1/8 - 27	2.13	.75	.313	4	NPS
KHSST28093 *	1/8 - 27	2.13	.75	.313	4	NPSF
KHSST28092 *	1/8 - 27	2.13	.75	.438	4	NPS
KHSST28094	1/8 - 27	2.13	.75	.438	4	NPSF
KHSST28067	1/4 - 18	2.44	1.06	.563	4	NPS
KHSST28068	1/4 - 18	2.44	1.06	.563	4	NPSF
KHSST28196	3/8 - 18	2.56	1.06	.700	4	NPS
KHSST28197	3/8 - 18	2.56	1.06	.700	4	NPSF
KHSST28057	1/2 - 14	3.13	1.66	.688	4	NPS
KHSST28058	1/2 - 14	3.13	1.66	.688	4	NPSF
KHSST28172	3/4 - 14	3.25	1.38	.906	5	NPS
KHSST28173 *	3/4 - 14	3.25	1.38	.906	5	NPSF
KHSST28104	1 - 11 1/2	3.75	1.75	1.125	5	NPS

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

NOVO KNOWS CAD/CAM

With the addition of NOVO™ applications to your team, your CAD/CAM capabilities become much more accurate, streamlined, and productive.

Before NOVO: The programmer would be in their CAD/CAM software, programming a part. Using the tedious method of finding a tool in a catalog, and then manually inputting the tooling information from the catalog into the CAD/CAM software.

The concern is that assumptions are made, and only partial tooling information is entered.

With NOVO: The powerful digital intelligence of NOVO applications not only help the programmer find the right tool for the metalcutting job, but also automatically integrates all the tooling data into a complete CAD/CAM solution. The integration of all the tooling data increases the viability of the part being programmed, and is delivered quickly — saving you time.

NOVO applications can ensure you have the right tools on your machines, in the right sequence. Resulting in flawless execution that accelerates every job, and maximizes every shift. kennametal.com/novo



➤ High-Performance Solid Carbide Thread Mills

Our solid carbide thread mills are designed to deliver high-quality internal threading on 3-axis CNC machines. Because these mills are made of carbide, they are capable of easily cutting most difficult materials up to 63 HRC. Thread mills make interrupted cuts and short chips.

The combination of these design elements offers a range of benefits to improve overall thread quality and tool production. Short, easily evacuated chips generate less heat and friction, so there is a lower risk of damage to threading. Also, the superior carbide grades make threading easier and machining times shorter.

Features and Benefits

System Requirements

- 3-axis CNC machine.
- Good clamping for tool and workpiece.
- Internal coolant supply.

Features

- Interrupted cut.
- Short chips.
- Optimized carbide grades.
- Drill, thread, chamfer.










Advantages

- Versatile.
- Better surface quality.
- No chip problems.
- No need to reverse the spindle.
- More production safety.

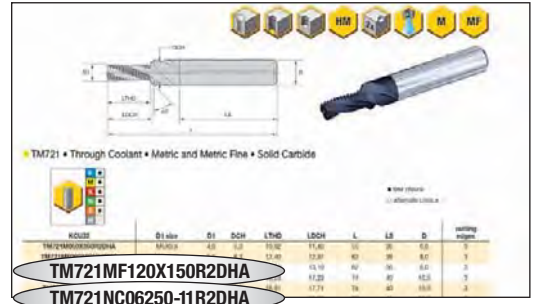




Through and Blind Holes (2 x D)

			 	  	  
		Thread Mill	Thread Mill and Chamfer	Drill, Thread Mill, and Chamfer	Mill, Thread Mill, and Chamfer
P	<35 HRC	TM711	TM721	—	TM741_RHSF
	35–43 HRC	—	TM721	—	TM741_RHSF
M		TM711	TM721	—	TM741_RHSF
K		TM711	TM721	TM731	TM741_RHSF
N	Wrought	TM711	TM721	—	TM731
	Cast	TM711	TM721	TM731	TM741_RHSF
S		TM711	TM721	—	TM741_LHSF
H	44–63 HRC	—	—	—	TM741_RHSF TM741_LHSF

Solid Thread Mills Identification System

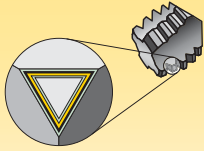


Metric							
TM721	MF	120	X	150	R	2D	HA
TM721	NC	06250	-	11	R	2D	HA
Thread Mill Design	Type of Thread	Nominal Diameter of Thread		Pitch	Cutting Direction	Depth of Cut	Shank
		mm or inch (depending on type)		mm or TPI (depending on type)			

M = Metric coarse-pitch thread (ISO form)
MF = Metric fine-pitch thread (ISO form)
NC = Unified coarse series thread
NF = Unified fine series thread

DIN 6535
HA = Plain Shank
HB = Weldon® Shank
HE = Whistle Notch Shank

Style
TM711 = Solid Thread Mill; Through Coolant
TM721 = Solid Thread Mill and Chamfer; Through Coolant
TM731 = Solid Thread Mill, Chamfer, and Drill; Through Coolant
TM741 = Solid Thread Mill, Chamfer, and Mill; Through Coolant

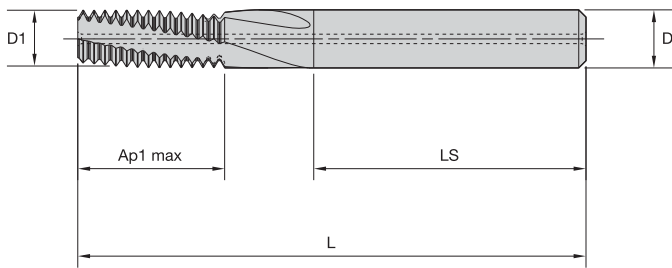


Coatings are designed for optimized tapping performance in specific materials.

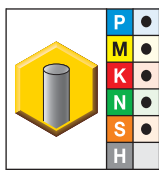
P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High-Temp Alloys
H	Hardened Materials

wear resistance ← → toughness

Grade	Coating	Grade Description		Performance Index												
				05	10	15	20	25	30	35	40	45				
KCUB2		Coated carbide. PVD — Fine-grain carbide substrate with high hardness TiCN coating. Universal grade for thread milling most materials.	P													
			M													
			K													
			N													
			S													
KCUB3		Coated carbide. PVD — Carbide substrate with heat-resistant TiAlN coating. Universal grade for thread milling most materials.	P													
			M													
			K													
			N													
			S													
KCUB6		Coated carbide. PVD — two-layer coating with heat-resistant TiAlN base layer and low-friction MoS ₂ top layer over carbide substrate. Use for thread milling most materials including high hardness materials.	P													
			M													
			K													
			N													
			S													
			H													



■ **TM711 • Through Coolant • Metric and Metric Fine • Solid Carbide • Solid Carbide**



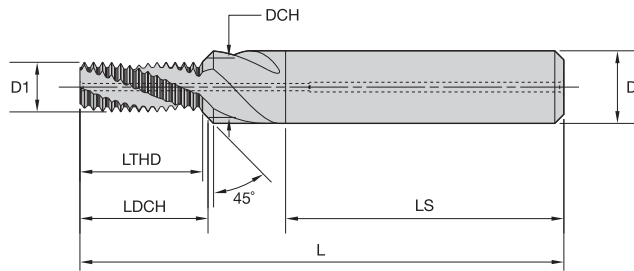
● first choice
○ alternate choice

KCU33	D1 size	D1	Ap1 max	L	LS	D	cutting edges
TM711M030X050R2DHA	M3 X 0.5	2,4	—	42	28	4,0	3
TM711MF040X050R2DHA	M4 X 0.5	3,4	8,2	55	36	6,0	3
TM711M040X070R2DHA	M4 X 0.7	3,2	—	55	36	6,0	3
TM711MF050X050R2DHA	M5 X 0.5	4,3	10,2	55	36	6,0	3
TM711M050X080R2DHA	M5 X 0.8	4,0	—	55	36	6,0	3
TM711MF060X075R2DHA	M6 X 0.75	5,0	12,0	55	36	6,0	3
TM711M060X100R2DHA	M6 X 1	4,8	12,0	55	36	6,0	3
TM711MF080X075R2DHA	M8 X 0.75	6,0	16,8	63	36	6,0	3
TM711MF080X100R2DHA	M8 X 1.0	6,0	16,4	63	36	6,0	3
TM711M080X125R2DHA	M8 X 1.25	5,9	16,0	63	36	6,0	3
TM711MF100X100R2DHA	M10 X 1.0	8,0	20,5	70	36	8,0	3
TM711M100X150R2DHA	M10 X 1.5	8,0	20,2	70	36	8,0	3
TM711MF120X100R2DHA	M12 X 1.0	10,0	24,5	80	40	10,0	4
TM711MF120X150R2DHA	M12 X 1.5	10,0	24,7	80	40	10,0	4
TM711M120X175R2DHA	M12 X 1.75	10,0	25,3	80	40	10,0	4
TM711MF140X150R2DHA	M14 X 1.5	10,0	29,2	80	40	10,0	4
TM711M140X200R2DHA	M14 X 2.0	11,6	28,0	90	45	12,0	4
TM711MF160X150R2DHA	M16 X 1.5	12,0	32,2	90	45	12,0	4
TM711M160X200R2DHA	M16 X 2.0	12,0	32,9	90	45	12,0	4
TM711MF180X150R2DHA	M18 X 1.5	14,0	36,7	90	45	14,0	4
TM711M180X250R2DHA	M18 X 2.5	14,0	38,7	90	45	14,0	4
TM711MF200X150R2DHA	M20 X 1.5	14,0	41,2	90	45	14,0	4
TM711M200X250R2DHA	M20 X 2.5	14,0	41,2	90	45	14,0	4

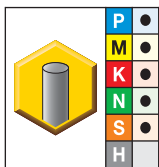
Shank Tolerance

D	tolerance h6
6	+0, -0,008
8-10	+0, -0,009
12-18	+0, -0,011
20-30	+0, -0,013





■ **TM721 • UNC • Through Coolant • Inch • Solid Carbide • Solid Carbide**



● first choice
○ alternate choice

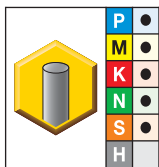
SKU	D1 size	D1	DCH	LTHD	LDCH	L	LS	D	cutting edges
TM721NC2500-20R2DHA	1/4-20	4,7	6,7	13,36	14,23	62	36	8,0	3
TM721NC3125-18R2DHA	5/16-18	6,2	8,3	16,26	17,19	74	40	10,0	3
TM721NC3750-16R2DHA	3/8-16	7,7	9,8	19,89	20,85	80	45	12,0	3
TM721NC4375-14R2DHA	7/16-14	9,0	11,4	22,72	23,79	80	45	12,0	3
TM721NC0500-13R2DHA	1/2-13	10,4	13,0	26,43	27,60	90	45	14,0	4
TM721NC5625-12R2DHA	9/16-12	11,8	14,6	30,75	31,99	100	48	16,0	4
TM721NC0625-11R2DHA	5/8-11	13,1	16,2	33,54	34,89	102	48	18,0	4

Shank Tolerance

D	tolerance h6
6	+0, -0,008
8-10	+0, -0,009
12-18	+0, -0,011
20-30	+0, -0,013

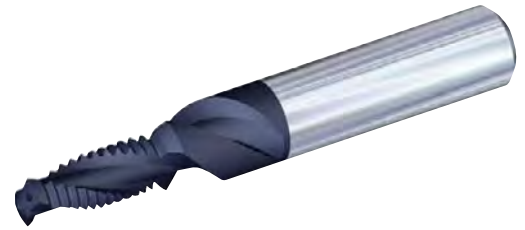
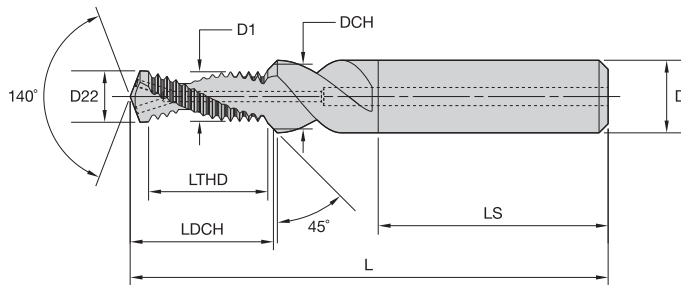


■ **TM721 • Through Coolant • Metric and Metric Fine • Solid Carbide • Solid Carbide**

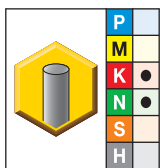


● first choice
○ alternate choice

SKU	D1 size	D1	DCH	LTHD	LDCH	L	LS	D	cutting edges
TM721M060X100R2DHA	M6X1	4,8	6,3	12,52	13,19	62	36	8,0	3
TM721MF080X100R2DHA	M8X1	6,7	8,3	16,53	17,23	74	40	10,0	3
TM721M080X125R2DHA	M8X1.25	6,5	8,3	16,91	17,71	74	40	10,0	3
TM721M100X150R2DHA	M10X1.5	8,2	10,3	20,29	21,22	80	45	12,0	3
TM721MF120X125R2DHA	M12X1.25	10,4	12,3	24,43	25,24	90	45	14,0	4
TM721M120X175R2DHA	M12X1.75	9,9	12,3	25,42	26,48	90	45	14,0	4
TM721MF140X150R2DHA	M14X1.5	12,1	14,3	29,31	30,25	100	48	16,0	4
TM721M140X200R2DHA	M14X2	11,6	14,3	29,05	30,24	100	48	16,0	4
TM721M160X200R2DHA	M16X2	13,6	16,3	33,05	34,24	102	48	18,0	4



■ **TM731 • Through Coolant • Metric and Metric Fine • Solid Carbide • Solid Carbide**



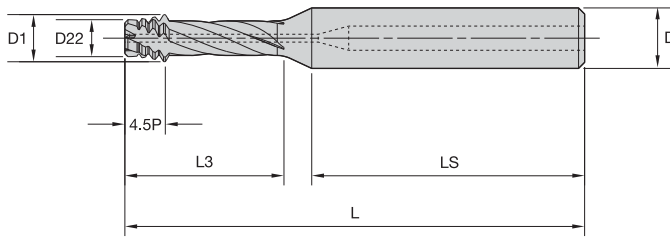
● first choice
○ alternate choice

Material	D1 size	D22	D1	DCH	LTHD	LDCH	L	LS	D	cutting edges
KCU32										
TM731M040X070R2DHA	M4X0.7	3,3	3,2	4,3	7,74	9,59	49	36	6,0	2
TM731M050X080R2DHA	M5X0.8	4,2	4,0	5,3	9,65	11,82	55	36	6,0	2
TM731M060X100R2DHA	M6X1	5,0	4,8	6,3	12,06	14,69	62	36	8,0	2
TM731MF080X100R2DHA	M8X1	7,0	6,8	8,3	16,09	19,10	74	40	10,0	2
TM731M080X125R2DHA	M8X1.25	6,8	6,5	8,3	15,08	18,42	74	40	10,0	2
TM731M100X150R2DHA	M10X1.5	8,5	8,2	10,3	19,59	23,65	79	45	12,0	2
TM731M120X175R2DHA	M12X1.75	10,3	9,9	12,3	22,86	27,63	89	45	14,0	2
TM731M160X200R2DHA	M16X2	14,0	13,6	16,3	32,13	38,00	102	48	18,0	2

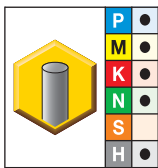
Shank Tolerance

D	tolerance h6
6	+0, -0,008
8-10	+0, -0,009
12-18	+0, -0,011
20-30	+0, -0,013





■ **TM741 • UNC and UNF • Through Coolant • Right Hand • Inch • Solid Carbide**



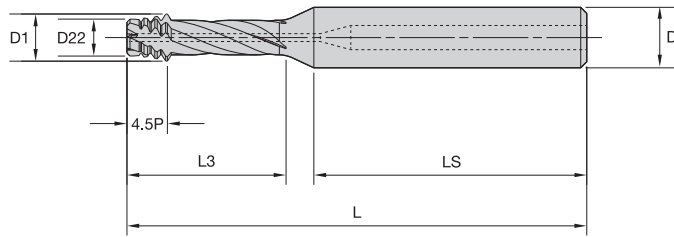
● first choice
○ alternate choice

Tapping

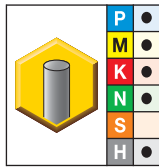
KCU36	D1 size	D1	D22	L3	L	LS	D	cutting edges
TM741NC2500-20R2DHA	1/4-20	4,64	3,34	17,0	60	36	8,0	3
TM741NF2500-28R2DHA	1/4-28	4,66	3,62	17,0	60	36	8,0	3
TM741NC3125-18R2DHA	5/16-18	5,64	4,12	21,9	76	40	10,0	4
TM741NF3125-24R2DHA	5/16-24	5,64	4,48	21,9	76	40	10,0	4
TM741NC3750-16R2DHA	3/8-16	7,16	5,42	26,3	76	40	10,0	4
TM741NF3750-24R2DHA	3/8-24	7,14	6,00	26,3	76	40	10,0	4
TM741NC0500-13R2DHA	1/2-13	10,08	7,95	33,4	86	45	12,0	4
TM741NF0500-20R2DHA	1/2-20	8,45	7,06	33,0	86	45	12,0	4
TM741NF0625-18R2DHA	5/8-18	12,38	10,83	42,0	98	48	16,0	4
TM741NC0750-10R2DHA	3/4-10	15,50	12,77	51,3	111	50	20,0	5
TM741NC0750-16R2DHA	3/4-16	15,38	13,65	51,3	111	50	20,0	5

Shank Tolerance

D	tolerance h6
6	+0, -0,008
8-10	+0, -0,009
12-18	+0, -0,011
20-30	+0, -0,013



■ **TM741 • Through Coolant • Right Hand • Metric and Metric Fine • Solid Carbide**



● first choice
○ alternate choice

KCU36	D1 size	D1	D22	L3	L	LS	D	cutting edges
TM741M060X100R2DHA	M6X1	4,51	3,41	16,5	60	36	8,0	3
TM741MF080X100R2DHA	M8X1	6,23	5,13	21,9	71	40	10,0	4
TM741M080X125R2DHA	M8X1.25	6,23	4,91	21,9	71	40	10,0	4
TM741MF100X100R2DHA	M10X1	6,23	5,13	21,9	71	40	10,0	4
TM741MF100X125R2DHA	M10X1.25	6,23	4,91	21,9	71	40	10,0	4
TM741M100X150R2DHA	M10X1.5	7,75	6,11	26,3	76	40	10,0	4
TM741MF120X150R2DHA	M12X1.5	7,75	6,11	26,3	76	40	10,0	4
TM741M120X175R2DHA	M12X1.75	9,16	7,21	32,4	86	45	12,0	4
TM741M140X200R2DHA	M14X2	11,08	8,91	41,0	98	48	16,0	4
TM741M160X200R2DHA	M16X2	11,08	8,91	41,0	98	48	16,0	4
TM741M180X250R2DHA	M18X2.5	14,38	11,71	51,3	111	50	20,0	5
TM741M200X250R2DHA	M20X2.5	14,38	11,71	51,3	111	50	20,0	5

Shank Tolerance

D	tolerance h6
6	+0, -0,008
8-10	+0, -0,009
12-18	+0, -0,011
20-30	+0, -0,013







High-Performance Thread Mills

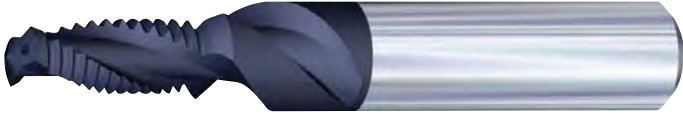
Application Data • TM711 and TM721 • Metric • Inch



Tapping


													
		Cutting Speed – vc Range – m/min			Feed/Tooth by Diameter			Cutting Speed – vc Range – m/min			Feed/Tooth by Diameter		
Material Group		min	Starting Value	max		<10mm	>10mm	min	Starting Value	max		<10mm	>10mm
		P	1	90	115	150	mm/r	0,05	0,08	140	185	240	mm/r
2	90		115	150	mm/r	0,05	0,08	140	185	240	mm/r	0,06	0,10
3	40		50	70	mm/r	0,02	0,03	70	90	120	mm/r	0,03	0,04
4	–		–	–	–	–	–	70	90	120	mm/r	0,03	0,04
5	60		80	100	mm/r	0,04	0,06	70	90	120	mm/r	0,05	0,08
6	–		–	–	–	–	–	–	–	–	–	–	–
M	1	60	80	100	mm/r	0,04	0,06	70	90	120	mm/r	0,05	0,08
	2	60	80	100	mm/r	0,04	0,06	70	90	120	mm/r	0,05	0,08
	3	–	–	–	–	–	–	–	–	–	–	–	–
K	1	120	150	200	mm/r	0,06	0,10	130	170	220	mm/r	0,06	0,11
	2	120	150	200	mm/r	0,06	0,10	130	170	220	mm/r	0,06	0,11
	3	90	115	150	mm/r	0,05	0,07	110	140	180	mm/r	0,05	0,07
N	1	250	275	300	mm/r	0,07	0,09	270	300	330	mm/r	0,08	0,16
	2	200	225	250	mm/r	0,05	0,06	270	300	330	mm/r	0,08	0,16
	3	170	190	210	mm/r	0,04	0,05	160	175	190	mm/r	0,08	0,16
	4	250	275	300	mm/r	0,07	0,09	270	300	330	mm/r	0,08	0,16
	5	270	300	330	mm/r	0,12	0,13	250	275	300	mm/r	0,11	0,20
	6	170	190	210	mm/r	0,05	0,06	90	100	110	mm/r	0,11	0,20
S	1	60	80	100	mm/r	0,04	0,06	70	90	120	mm/r	0,05	0,08
	2	50	65	80	mm/r	0,03	0,04	50	60	80	mm/r	0,03	0,05
	3	50	65	80	mm/r	0,03	0,04	50	60	80	mm/r	0,03	0,05
	4	50	65	80	mm/r	0,03	0,04	50	60	80	mm/r	0,03	0,05

													
		Cutting Speed – vc Range – SFM			Feed/Tooth by Diameter			Cutting Speed – vc Range – SFM			Feed/Tooth by Diameter		
Material Group		min	Starting Value	max		<0.375"	>0.375"	min	Starting Value	max		<0.375"	>0.375"
		P	1	300	380	490	IPR	0.002	0.003	460	610	790	IPR
2	300		380	490	IPR	0.002	0.003	460	610	790	IPR	0.002	0.004
3	130		160	230	IPR	0.001	0.001	230	300	390	IPR	0.001	0.001
4	–		–	–	–	–	–	230	300	390	IPR	0.001	0.001
5	200		260	330	IPR	0.002	0.002	230	300	390	IPR	0.002	0.003
6	–		–	–	–	–	–	–	–	–	–	–	–
M	1	200	260	330	IPR	0.002	0.002	230	300	390	IPR	0.002	0.003
	2	200	260	330	IPR	0.002	0.002	230	300	390	IPR	0.002	0.003
	3	–	–	–	–	–	–	–	–	–	–	–	–
K	1	390	490	660	IPR	0.002	0.004	430	560	720	IPR	0.002	0.004
	2	390	490	660	IPR	0.002	0.004	430	560	720	IPR	0.002	0.004
	3	300	380	490	IPR	0.002	0.003	360	460	590	IPR	0.002	0.003
N	1	820	900	980	IPR	0.003	0.004	890	980	1080	IPR	0.003	0.006
	2	660	740	820	IPR	0.002	0.002	890	980	1080	IPR	0.003	0.006
	3	560	620	690	IPR	0.002	0.002	520	570	620	IPR	0.003	0.006
	4	820	900	980	IPR	0.003	0.004	890	980	1080	IPR	0.003	0.006
	5	890	980	1080	IPR	0.005	0.005	820	900	980	IPR	0.004	0.008
	6	560	620	690	IPR	0.002	0.002	300	330	360	IPR	0.004	0.008
S	1	200	260	330	IPR	0.002	0.002	230	300	390	IPR	0.002	0.003
	2	160	210	260	IPR	0.001	0.002	160	200	260	IPR	0.001	0.002
	3	160	210	260	IPR	0.001	0.002	160	200	260	IPR	0.001	0.002
	4	160	210	260	IPR	0.001	0.002	160	200	260	IPR	0.001	0.002



Drill, Chamfer, and Thread Mill TM731

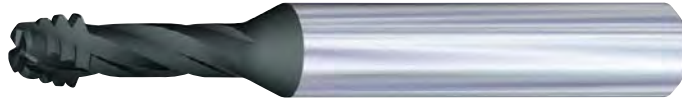
Material Group	Cutting Speed – vc			Drilling			Milling					
	Range – m/min			Recommended Feed by Diameter			Feed/Tooth by Diameter					
	min	Starting Value	max		<6mm	6–10mm	10–16mm		<6mm	6–10mm	10–16mm	
K	1	130	175	230	mm/r	0,10	0,16	0,30	mm/r	0,05	0,07	0,10
N	2	270	300	330	mm/r	0,15	0,25	0,34	mm/r	0,06	0,08	0,12
	3	140	150	170	mm/r	0,15	0,25	0,34	mm/r	0,06	0,08	0,12
	4	270	300	330	mm/r	0,15	0,25	0,34	mm/r	0,06	0,08	0,12
	5	110	120	130	mm/r	0,12	0,20	0,32	mm/r	0,06	0,08	0,12



Drill, Chamfer, and Thread Mill TM731

Material Group	Cutting Speed – vc			Drilling			Milling					
	Range – SFM			Recommended Feed by Diameter			Feed/Tooth by Diameter					
	min	Starting Value	max		<0.250"	0.250–0.375"	0.375–0.625"		<0.250"	0.250–0.375"	0.375–0.625"	
K	1	430	570	750	IPR	0.004	0.006	0.012	IPR	0.002	0.003	0.004
N	2	890	980	1080	IPR	0.006	0.010	0.013	IPR	0.002	0.003	0.005
	3	460	490	560	IPR	0.006	0.010	0.013	IPR	0.002	0.003	0.005
	4	890	980	1080	IPR	0.006	0.010	0.013	IPR	0.002	0.003	0.005
	5	360	390	430	IPR	0.005	0.008	0.013	IPR	0.002	0.003	0.005





Mill, Chamfer, and Thread Mill TM741

Tapping

Material Group	TM Style	Grade	Cutting Speed – vc			Feed/Tooth by Diameter			
			Range – m/min				<10mm	>10mm	
			min	Starting Value	max				
P	1	TM741 R	KCU36	170	225	290	mm/r	0,05	0,08
	2	TM741 R	KCU36	170	225	290	mm/r	0,05	0,08
	3	TM741 R	KCU36	120	150	200	mm/r	0,03	0,05
	4	TM741 R	KCU36	100	125	160	mm/r	0,03	0,05
	5	TM741 R	KCU36	120	150	200	mm/r	0,03	0,04
	6	TM741 R	KCU36	60	80	100	mm/r	0,03	0,04
M	1	TM741 R	KCU36	120	150	200	mm/r	0,03	0,04
	2	TM741 R	KCU36	120	150	200	mm/r	0,03	0,04
	3	TM741 R	KCU36	120	150	200	mm/r	0,03	0,04
K	1	TM741 R	KCU36	190	250	330	mm/r	0,06	0,10
	2	TM741 R	KCU36	190	250	330	mm/r	0,06	0,10
	3	TM741 R	KCU36	140	185	240	mm/r	0,04	0,07
N	1	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-
	3	TM741 R	KCU36	180	230	300	mm/r	0,06	0,07
	4	TM741 R	KCU36	210	275	360	mm/r	0,06	0,07
	5	-	-	-	-	-	-	-	-
	6	TM741 R	KCU36	210	275	360	mm/r	0,06	0,07
S	1	TM741 L	KCU36	120	150	200	mm/r	0,025	0,045
	2	TM741 L	KCU36	50	60	80	mm/r	0,015	0,025
	3	TM741 L	KCU36	50	60	80	mm/r	0,015	0,025
	4	TM741 L	KCU36	70	90	120	mm/r	0,025	0,035
H	1	TM741	KCU36	80	100	130	mm/r	0,030	0,050
	2	TM741	KCU36	80	100	130	mm/r	0,030	0,050
	3	TM741	KCU36	50	65	80	mm/r	0,020	0,030
	4	TM741	KCU36	50	65	80	mm/r	0,020	0,030



Mill, Chamfer, and Thread Mill TM741

Material Group	TM Style	Grade	Cutting Speed – vc			Feed/Tooth By Diameter			
			Range – SFM				<0.375"	>0.375"	
			min	Starting Value	max				
P	1	TM741 R	KCU36	560	740	950	IPR	0.002	0.003
	2	TM741 R	KCU36	560	740	950	IPR	0.002	0.003
	3	TM741 R	KCU36	390	490	660	IPR	0.001	0.002
	4	TM741 R	KCU36	330	410	520	IPR	0.001	0.002
	5	TM741 R	KCU36	390	490	660	IPR	0.001	0.002
	6	TM741 R	KCU36	200	260	330	IPR	0.001	0.002
M	1	TM741 R	KCU36	390	490	660	IPR	0.001	0.002
	2	TM741 R	KCU36	390	490	660	IPR	0.001	0.002
	3	TM741 R	KCU36	390	490	660	IPR	0.001	0.002
K	1	TM741 R	KCU36	620	820	1080	IPR	0.002	0.004
	2	TM741 R	KCU36	620	820	1080	IPR	0.002	0.004
	3	TM741 R	KCU36	460	610	790	IPR	0.002	0.003
N	1	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-
	3	TM741 R	KCU36	590	750	980	IPR	0.002	0.003
	4	TM741 R	KCU36	690	900	1180	IPR	0.002	0.003
	5	-	-	-	-	-	-	-	-
	6	TM741 R	KCU36	690	900	1180	IPR	0.002	0.003
S	1	TM741 L	KCU36	390	490	660	IPR	0.001	0.002
	2	TM741 L	KCU36	160	200	260	IPR	0.001	0.001
	3	TM741 L	KCU36	160	200	260	IPR	0.001	0.001
	4	TM741 L	KCU36	230	300	390	IPR	0.001	0.001
H	1	TM741	KCU36	260	330	430	IPR	0.001	0.002
	2	TM741	KCU36	260	330	430	IPR	0.001	0.002
	3	TM741	KCU36	160	210	260	IPR	0.001	0.001
	4	TM741	KCU36	160	210	260	IPR	0.001	0.001

NOTE: For thread depths over 2 x D up to 3 x D, reduce speed and feed by 25%.

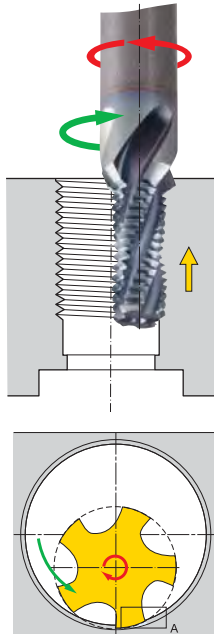
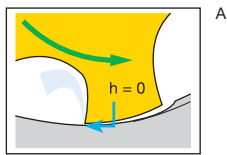
Milling Methods

Climb Milling

Properties:

- Tool rotation direction clockwise
 - Tool moves counter-clockwise
 - Pitch "upwards"
- ↓
- Right-hand thread

Climb milling is always when the cutting edge goes out of the material with a chip thickness $h = 0$

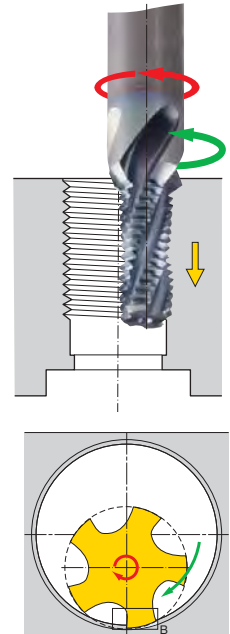
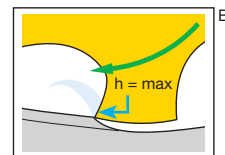


Conventional Milling

Properties:

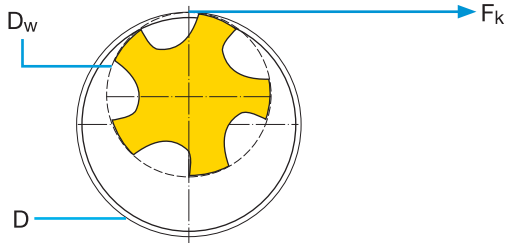
- Tool rotation direction clockwise
 - Tool moves clockwise
 - Pitch "downwards"
- ↓
- Right-hand thread

Conventional milling is always when the cutting edge goes out of the material with a chip thickness $h = \text{max}$



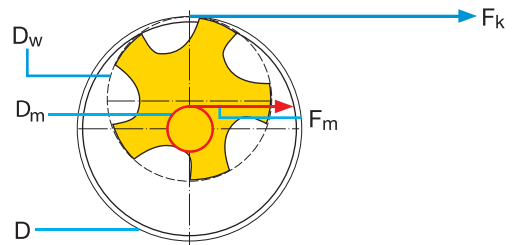
Counter Feed F_k

$$F_k = n \cdot f_z \cdot Z \text{ [mm/min]}$$

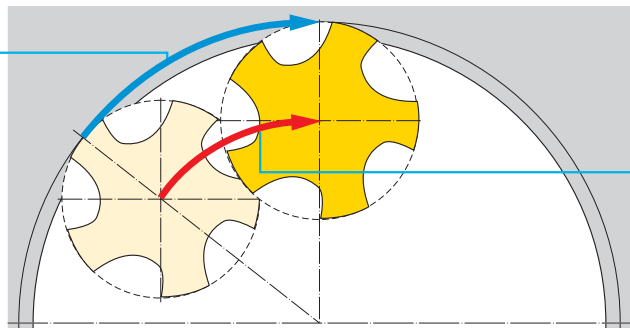


Center Point Feed F_m

$$F_m = \frac{F_k \cdot (D - D_w)}{D} \text{ [mm/min]}$$



Counter Feed (F_k)



Center Point Feed (F_m)

- D_w = Tool diameter [mm]
- n = RPM [min^{-1}]
- f_z = Feed per tooth [mm]
- Z = Number of teeth on tool (radial)
- D = Nominal diameter of thread = Diameter of external contour [mm]
- D_m = Diameter of the center point ($D - D_w$) [mm]

Drill Thread Mill TM741 • Right Hand

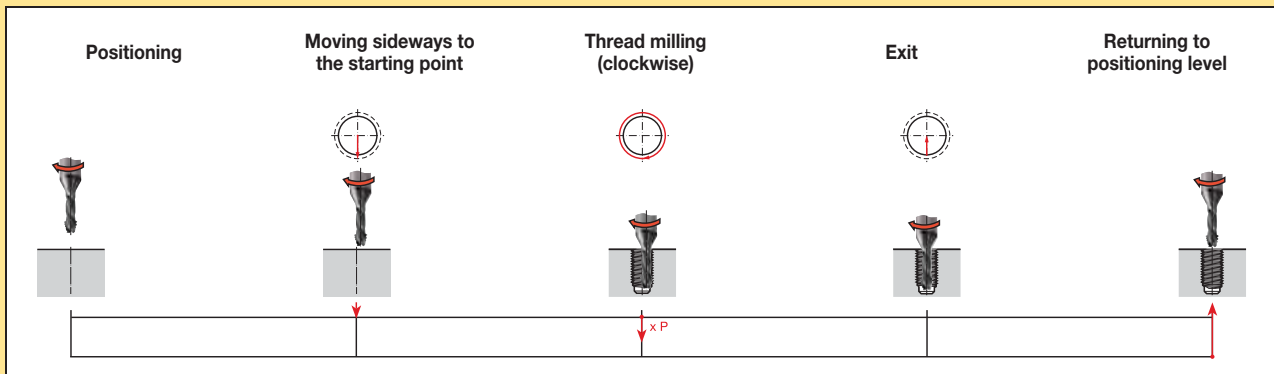
Preparation

None

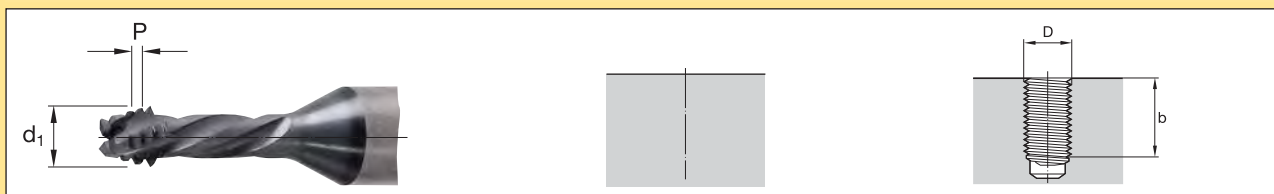
Process Principle

Milling thread and core hole, countersinking (conventional milling)

Cycle



Required Specification Values



Example

Size — M10-6H Thread diameter D 10mm Pitch P 1,5mm Core hole diameter D ₁ 8,5mm Material — Hard steel, 50 HRC Grade — KCU36	Tool — TM741 Right Hand Catalog number TM741M100X150R2DHA Number of teeth Z 4 Tool diameter d ₁ 7,75mm* Tool radius compensation k ¹ 0,08mm** Tool radius to be programmed ² 3,795mm*** Thread depth b ³ 20mm Cutting speed v _c 100 m/min Feed (milling) f _z 0,04 mm/tooth Number of turns ⁵ 17	$N = \frac{v_c \cdot 1000}{d_1 \cdot \pi} \quad S = 4109$
		$v_f = f_z \cdot Z \cdot n \quad F = 657 \text{ (contour)}$
		$N = \frac{v_f \text{ contour} \cdot (D - d_1)}{D} \quad F = 148 \text{ (center point)}$

*(measured on the cutting part)

** $(0.01 \times D)$; adjust to application

*** $(1/2 d_1 - k)$

Program to DIN 66025 (conventional milling, on the contour, incremental)

Positioning the tool	N 10 G 54 G 90 G 00 X... Y... Z 1.500 S 4109 T01 ² M03
Incremental programming	N 20 G 91
Moving sideways to the starting point	N 30 G 42 G 01 X 0 Y-5 F 657 (contour) [F 148] ⁴ (center point)
Thread milling	N 40 G 02 X 0 Y 0 Z-1.500 I 0 J 5.000
Repeat thread milling	... ⁵
Exit	N 50 G 40 G 01 X 0 Y 5
Retracting tool to positioning level	N 70 G 90 G 00 Z 2

Cutting time t_h

51.6 seconds

NOTES:

¹ The cutter radius measured over the tooth crests of the threaded part must be reduced by the amount of the cutter radius compensation. This is necessary to achieve a depth of cut to the middle of the 6H/ISO2 nut tolerance. Please note, however, that this also depends on the radial deflection of the tool (tensile strength of the material, projecting length of the tool).

² The cutter radius to be programmed is normally included in the tool memory.

³ The thread depth b must be divisible by the thread pitch P.

⁴ The feed values in brackets must be used for controllers, which do not calculate the center point feed themselves.

⁵ Set N40 must be repeated with the number of threads. Repetitions N = thread depth b/pitch P (rounded up to the nearest integer).

Drill Thread Mill TM741 • Left Hand

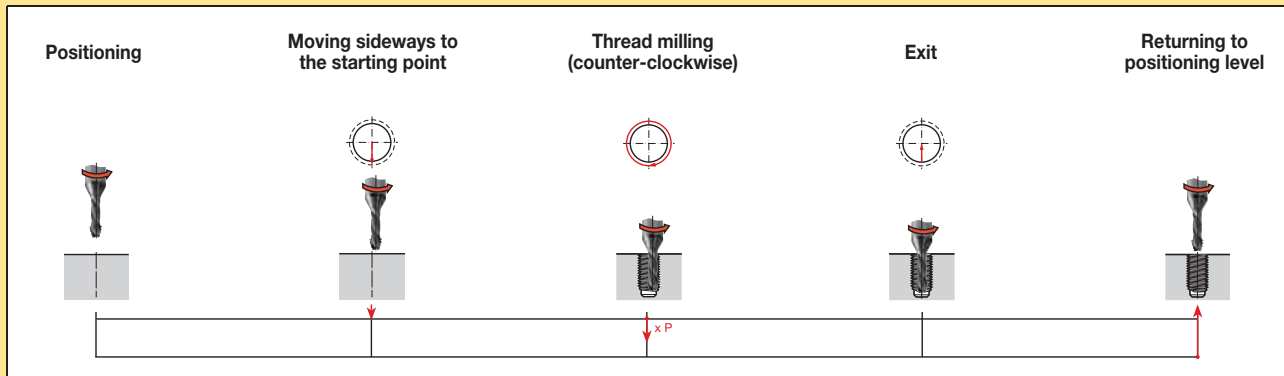
Preparation

None

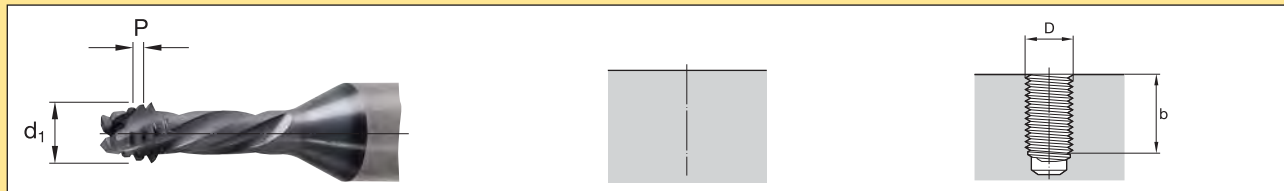
Process Principle

Milling thread and core hole, countersinking (climb milling)

Cycle



Required Specification Values



Example

Size — M10-6H Thread diameter D 10mm Pitch P 1,5mm Core hole diameter D_1 8,5mm Material — TiAl6V4 titanium Grade — KCU36	Tool — TM741 Left Hand Catalog number TM741M100X150L2DHA Number of teeth Z 4 Tool diameter d_1 7,75mm* Tool radius compensation k_1 0,08mm** Tool radius to be programmed ² 3,795mm*** Thread depth b^3 20mm Cutting speed v_c 100 m/min Feed (milling) f_z 0,03 mm/tooth Number of turns ⁵ 17	$N = \frac{v_c \cdot 1000}{d_1 \cdot \pi} \quad S = 4109$
		$v_f = f_z \cdot Z \cdot n \quad F = 493 \text{ (contour)}$
		$v_f = \frac{v_f \text{ contour} \cdot (D - d_1)}{D} \quad F = 111 \text{ (center point)}$

* (measured on the cutting part) ** (0.01 x D) *** (1/2 $d_1 - k$)

Program to DIN 66025 (climb milling, on the contour, incremental)

Positioning the tool	N10 G54 G90 G00 X... Y... Z1.500 S4109 T01 ² M04
Incremental programming	N20 G91
Moving sideways to the starting point	N30 G42 G01 X0 Y-5 F493 (contour) [F111] ⁴ (center point)
Thread milling	N40 G02 X0 Y0 Z-1.500 I0 J5.000
Repeat thread milling	... ⁵
Exit	N50 G40 G01 X0 Y5
Retracting tool to positioning level	N70 G90 G00 Z2

Cutting time t_h

68.8 seconds

NOTES:

- ¹ The cutter radius measured over the tooth crests of the threaded part must be reduced by the amount of the cutter radius compensation. This is necessary to achieve a depth of cut to the middle of the 6H/ISO2 nut tolerance. Please note, however, that this also depends on the radial deflection of the tool (tensile strength of the material, projecting length of the tool).
- ² The cutter radius to be programmed is normally included in the tool memory.
- ³ The thread depth b must be divisible by the thread pitch P .
- ⁴ The feed values in brackets must be used for controllers, which do not calculate the center point feed themselves.
- ⁵ Set N40 must be repeated with the number of threads. Repetitions N = thread depth b /pitch P (rounded up to the nearest integer).

Drill Thread Mill TM731

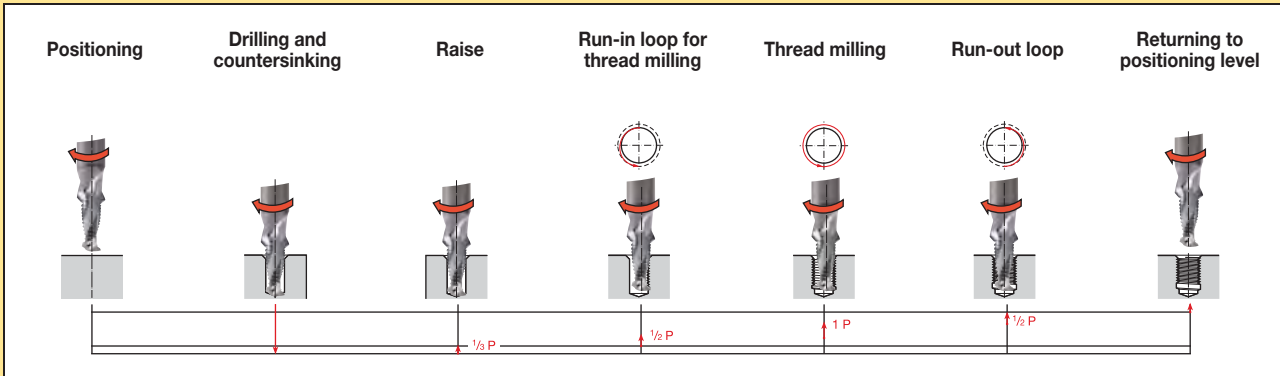
Preparation

None

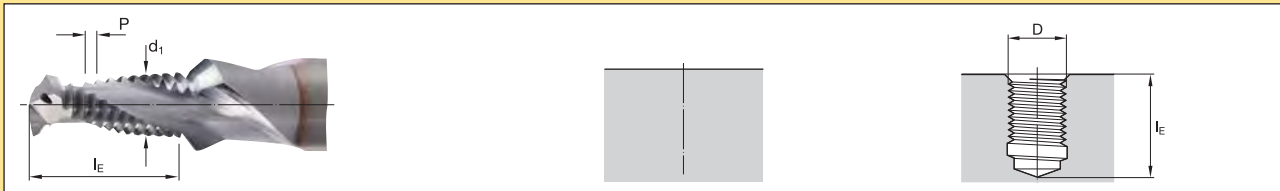
Process Principle

Drilling, countersinking, thread milling (climb milling)

Cycle



Required Specification Values



Example

<p>Size — M10-6H</p> <p>Thread diameter D 10mm</p> <p>Pitch P 1,5mm</p> <p>Core hole diameter D₁ 8,5mm</p> <p>Material — Gray cast iron</p> <p>Grade — KCU32</p>	<p>Tool — TM731</p> <p>Catalog number TM731M100X150R2DHA</p> <p>Number of teeth Z 2</p> <p>Tool diameter d₁ 8,2mm*</p> <p>Tool radius compensation k¹ 0,1mm**</p> <p>Tool radius to be programmed² 4mm***</p> <p>Dilling/Countersink depth l_E 19,11mm</p> <p>Cutting speed v_C 250 m/min</p> <p>Feed (drilling, countersinking) f_b 0,25 mm/U</p> <p>Feed (milling) f_Z 0,1 mm/tooth</p>	$N = \frac{v_C \cdot 1000}{d_1 \cdot \pi} \quad S = 9709$
		$v_b = f_b \cdot n \quad F = 2427 \text{ (drilling, countersinking)}$
		$v_f = f_z \cdot Z \cdot n \quad F = 1942 \text{ (contour)}$
		$v_f = \frac{v_f \text{ contour} \cdot (D - d_1)}{D} \quad F = 350 \text{ (center point)}$

* (measured on the cutting part) ** (0.01 x D) *** (1/2 d₁ - k)

Program to DIN 66025 (climb milling, on the contour, incremental)

Positioning the tool	N10 G54 G90 G00 X... Y... Z2 S9709 T01 ² M03
Drilling and countersinking	N20 G91 G01 Z-21.110 F2427 (drill, countersink)
Raise	N30 G01 Z0.500
Moving sideways to the starting point	N40 G41 Y-4.250 F971 (milling, 1/2 contour) [F175] ³ (1/2 center point)
Run-in loop in arc	N50 G03 X0 Y9.250 Z0.750 I0 J4.625
Thread milling	N60 G03 X0 Y0 Z1.500 I0 J-5.000
Run-out loop in arc	N70 G03 X0 Y-9.250 Z0.750 I0 J-4.625 F1942 [F350] ³ (center point)
Exit	N80 G00 G40 X0 Y4.250
Retracting tool to positioning level	N90 G90 Z2

Cutting time t_h

2.3 seconds

NOTES:

- The cutter radius measured over the tooth crests of the threaded part must be reduced by the amount of the cutter radius compensation. This is necessary to achieve a depth of cut to the middle of the 6H/ISO2 nut tolerance. Please note, however, that this also depends on the radial deflection of the tool (tensile strength of the material, projecting length of the tool).
- The cutter radius to be programmed is normally included in the tool memory.
- The feed values in brackets must be used for controllers, which do not calculate the center point feed themselves.

Thread Mill TM721

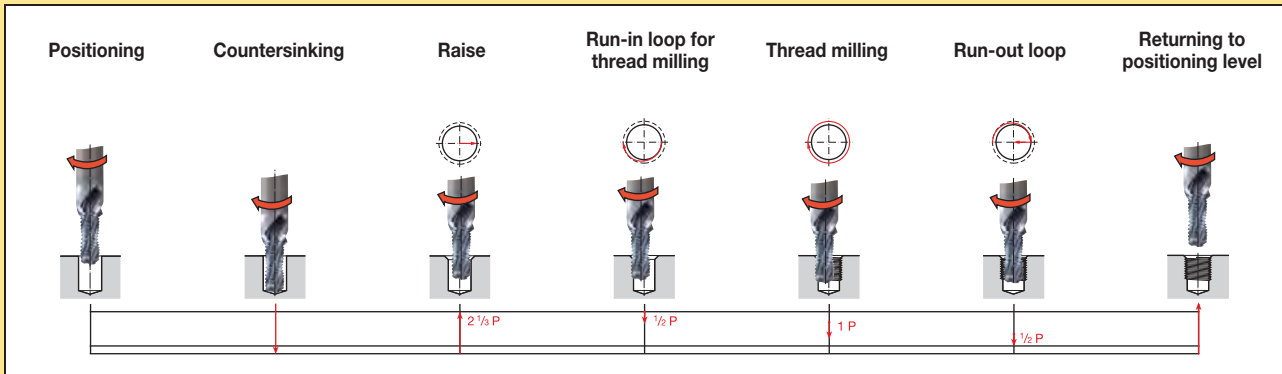
Preparation

Drilling of thread hole

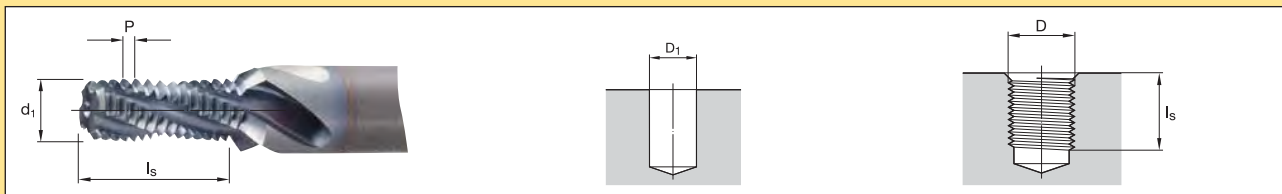
Process Principle

Countersinking, thread milling (conventional milling)

Cycle



Required Specification Values



Example

Size — M10-6H
Thread diameter D 10mm
Pitch P 1,5mm
Core hole diameter D₁ 8,5mm
Material — Cast aluminum
Grade — KCU32

Tool — TM721
Catalog number TM721M100X150R2DHA
Number of teeth Z 3
Tool diameter d₁ 8,2mm*
Tool radius compensation k¹ 0,1mm**
Tool radius to be programmed² 4mm***
Countersink depth l_s 21,2mm
Cutting speed v_c 250 m/min
Feed (countersinking) f_s 0,3 mm/U
Feed (milling) f_z 0,09 mm/tooth

$$N = \frac{v_c \cdot 1000}{d_1 \cdot \pi} \quad S = 9709$$

$$v_s = f_s \cdot n \quad F = 2913 \text{ (countersinking)}$$

$$v_f = f_z \cdot Z \cdot n \quad F = 2622 \text{ (contour)}$$

$$v_f = \frac{v_f \text{ contour} \cdot (D - d_1)}{D} \quad F = 472 \text{ (center point)}$$

*(measured on the cutting part) ** (0.01 x D) *** (1/2 d₁ - k)

Program to DIN 66025 (conventional milling, on the contour, incremental)

Positioning the tool	N 10 G 54 G 90 G 00 X... Y... Z 2 S 9709 T01 ² M03
Advancing tool to full thread depth	N 20 G 91 Z-21.200
Countersinking	N 30 G 01 Z-2 F 2913 (countersink)
Raise	N 40 G 00 Z 3.450
Moving sideways to the starting point	N 50 G 42 G01 X 4.250 F 1311 (milling, 1/2 contour) [F 236] ³ (milling, 1/2 center point)
Run-in loop in arc	N 60 G 02 X-9.25 Y 0.000 Z-0.750 I-4.625 J 0
Thread milling	N 70 G 02 X 0 Y 0 Z-1.500 I 5 J 0.000 F2622 [F 472] ³ (center point)
Run-out loop in arc	N 80 G 02 X 9.25 Y 0.000 Z-0.750 I 4.625 J 0
Exit	N 90 G 40 G 01 X-4.25
Retracting tool to positioning level	N 100 G 90 G 00 Z 2

Cutting time t_h

1.4 seconds

NOTES:

¹ The cutter radius measured over the tooth crests of the threaded part must be reduced by the amount of the cutter radius compensation. This is necessary to achieve a depth of cut to the middle of the 6H/ISO2 nut tolerance. Please note, however, that this also depends on the radial deflection of the tool (tensile strength of the material, projecting length of the tool).

² The cutter radius to be programmed is normally included in the tool memory.

³ The feed values in brackets must be used for controllers, which do not calculate the center point feed themselves.

High-Performance Taps • Carbide • Metric

		Through Holes					Blind Holes				
		Range – m/min					Range – m/min				
Material Group	Tap Style	Grade	min	Starting Value	max	Tap Style	Grade	min	Starting Value	max	
P	1	T320, T321	KC7542	60	100	130	T331	KC7542	50	70	90
	2	T320, T321	KC7542	60	90	120	T331	KC7542	40	60	80
	3	T320, T321	KC7542	50	80	100	T331	KC7542	40	60	80
K	1	T340, T353	KC7542, KCK17	70	105	140	T351, T353	KC7542, KCK17	50	70	90
	2	T340, T353	KC7542, KCK17	60	100	130	T351, T353	KC7542, KCK17	50	70	90
	3	T340, T353	KC7542, KCK17	60	90	120	T351, T353	KC7542, KCK17	40	60	80
N	2	–	–	–	–	–	T471, T491	KCN14	60	80	100
	3	–	–	–	–	–	T471, T491	KCN14	50	70	90
	4	–	–	–	–	–	T471, T491	KCN14	40	60	80
H	1	T410	KCU36	1,2	1,5	2,0	T410	KCU36	0,8	1,1	1,4
	2	T410	KCU36	0,6	0,8	1,0	T410	KCU36	0,4	0,5	0,7

NOTE: Increase speed of T321 coolant taps by up to 25% of speeds listed for non-coolant T320 taps.

Tapping

High-Performance Taps • Carbide • Inch

		Through Holes					Blind Holes				
		Range – SFM					Range – SFM				
Material Group	Tap Style	Grade	min	Starting Value	max	Tap Style	Grade	min	Starting Value	max	
P	1	T320, T321	KC7542	200	330	430	T331	KC7542	160	230	300
	2	T320, T321	KC7542	200	300	390	T331	KC7542	130	200	260
	3	T320, T321	KC7542	160	260	330	T331	KC7542	130	200	260
K	1	T340, T353	KC7542, KCK17	230	340	460	T351, T353	KC7542, KCK17	160	230	300
	2	T340, T353	KC7542, KCK17	200	330	430	T351, T353	KC7542, KCK17	160	230	300
	3	T340, T353	KC7542, KCK17	200	300	390	T351, T353	KC7542, KCK17	130	200	260
N	2	–	–	–	–	–	T471, T491	KCN14	200	260	330
	3	–	–	–	–	–	T471, T491	KCN14	160	230	300
	4	–	–	–	–	–	T471, T491	KCN14	130	200	260
H	1	T410	KCU36	4	5	6	T410	KCU36	3	3	4
	2	T410	KCU36	2	2	3	T410	KCU36	1	2	2

NOTE: Increase speed of T321 coolant taps by up to 25% of speeds listed for non-coolant T320 taps.

■ High-Performance Taps • HSS-E-PM • Metric

Material Group	 Through Holes					 Blind Holes					
	Range – m/min					Range – m/min					
	Tap Style	Grade	min	Starting Value	max	Tap Style	Grade	min	Starting Value	max	
	P	1	T620	KP6525	20	30	45	T630, T632, T650	KP6525	14	21
		T622	KSP21	18	30	50	T622	KSP21	13	21	35
2		T620	KP6525	17	25	38	T630, T632, T650	KP6525	12	18	26
		T622	KSP21	15	25	42	T622	KSP21	10	18	29
3		T620	KP6525	12	15	20	T630, T632, T650	KP6525	8	11	14
4		T600	KSP21	5	6	8	T604	KSH26	3	4	5
M	5	T620	KP6525	12	15	20	T630, T632, T650	KP6525	8	11	14
	6	T600	KSP21	6	8	10	T604	KSH26	4	6	7
	1	T620	KM6515	12	15	20	T630, T632, T650	KM6515	8	11	14
K	2	T620	KM6515	9	12	16	T630, T632, T650	KM6515	6	8	11
	3	T620	KM6515	8	10	13	T630, T632, T650	KM6515	5	7	9
	1	T640	KP6525	27	35	46	T640, T642	KP6525	19	25	32
N	2	T640	KP6525	23	30	39	T640, T642	KP6525	16	21	27
	3	T640	KP6525	19	25	33	T640, T642	KP6525	13	18	23
	1	T670	KSN38	42	55	72	T680	KSN38	30	39	50
S		T622	KSN28	37	55	72	T622	KSN28	26	39	50
	2	T640	KP6525	30	45	59	T640, T642	KP6525	21	32	41
		T622	KSN28	33	50	65	T622	KSN28	23	35	46
	4	T640	KP6525	7	10	15	T640, T642	KP6525	5	7	11
	1	T620	KP6525	8	12	18	T630, T632	KP6525	6	8	13

NOTE: Increase speed by up to 25% when using coolant taps (T621, T623, T625, T627, T631, T633, T641, T643, T651).



High-Performance Taps • HSS-E-PM • Inch

Material Group	 Through Holes					 Blind Holes						
	Range – SFM					Range – SFM						
	Tap Style	Grade	min	Starting Value	max	Tap Style	Grade	min	Starting Value	max		
	P	1	T620	KP6525	70	100	150	T630, T632, T650	KP6525	50	70	100
T622			KSP21	60	100	160	T622	KSP21	40	70	120	
T624			KSP27	70	100	150	T624, T626	KSP27	50	70	100	
2		T620	KP6525	50	80	120	T630, T632, T650	KP6525	40	60	90	
		T622	KSP21	50	80	140	T622	KSP21	30	60	100	
		T624	KSP27	50	80	120	T624, T626	KSP27	40	60	90	
3		T620	KP6525	40	50	60	T630, T632, T650	KP6525	30	30	40	
4		T600	KSP21	15	20	26	T604	KSP21	11	14	18	
5		T620	KP6525	40	50	60	T630, T632, T650	KP6525	30	30	40	
6		T600	KSP21	20	30	30	T604	KSP21	10	20	20	
M		1	T620	KM6515	40	50	60	T630, T632, T650	KM6515	30	30	40
		1	T624	KSP27	20	30	30	T624, T626	KSP27	10	20	20
	2	T620	KM6515	30	40	50	T630, T632, T650	KM6515	20	30	40	
	3	T620	KM6515	30	30	40	T630, T632, T650	KM6515	20	20	30	
K	1	T640	KP6525	90	110	150	T640, T642	KP6525	60	80	100	
	2	T640	KP6525	80	100	130	T640, T642	KP6525	50	70	90	
	3	T640	KP6525	60	80	110	T640, T642	KP6525	40	60	70	
N	1	T672	KSMN34	110	160	210	T682, T686	KSMN34	80	110	150	
		T622	KSN28	120	180	230	T622	KSN28	80	130	160	
	2	T640	KP6525	100	150	190	T640, T642	KP6525	70	100	130	
		T672	KSMN34	100	150	190	T682, T686	KSMN34	70	100	130	
		T622	KSN28	110	160	210	T622	KSN28	80	110	150	
4	T640	KP6525	22	30	49	T640, T642	KP6525	15	23	34		
S	1	T620	KP6525	30	40	60	T630, T632	KP6525	18	28	41	
	2	T690	KSP27	11	16	25	T692, T694	KSP27	8	11	17	
	3	T690	KSS29	5	8	12	T692, T694	KSS29	4	6	9	
	4	T660	KSSM24	9	13	20	T662	KSSM24	6	9	14	
T660		KSS20	4	7	10	T662	KSS20	3	5	7		

NOTE: Increase speed by up to 25% when using coolant taps (T621, T623, T625, T627, T631, T633, T641, T643, T651).



GOtap™ • Metric

Material Group												
	Through Holes					Blind Holes						
	Range – m/min					Range – m/min						
	Tap Style	Grade	min	Starting Value	max	Tap Style	Grade	min	Starting Value	max		
P	1	T820	KSU31, KSP32	23	30	38	T830, T832, T838, T839	KSU31, KSP32	15	21	30	
		T820	KSP39, KSU30	11	15	19	T830, T832, T838, T839	KSP39, KSU30	7	11	15	
		T854	KSU31	6	8	10	T854	KSU31	6	8	10	
		T854	KSP39	5	6	8	T854	KSP39	5	6	8	
		T877	KSU31	17	22	28	T857	KSU31	11	15	22	
		T877	KSP39	8	10	13	T857	KSP39	5	7	10	
	2	T848	KSU30	5	6	8	T848	KSU30	3	4	6	
		T820	KSU31, KSP32	18	24	30	T830, T832, T838, T839	KSU31, KSP32	12	17	24	
	3	T820	KSP39, KSU30	11	14	18	T830, T832, T838, T839	KSP39, KSU30	7	10	14	
		T820	KSU31, KSP32	17	22	28	T830, T832, T838, T839	KSU31, KSP32	11	15	22	
		T820	KSP39, KSU30	9	12	15	T830, T832, T838, T839	KSP39, KSU30	6	8	12	
		T846	KSU31	6	8	10	T846	KSU31	6	8	10	
T846		KSU30	4	5	6	T846	KSU30	4	5	6		
M	1	T820	KSMN34, KSP32	14	18	23	T830, T832, T838, T839	KSMN34, KSP32	9	13	18	
		T820	KSP39, KSU30	8	10	13	T830, T832, T838, T839	KSP39, KSU30	5	7	10	
		T854	KSU31	6	8	10	T854	KSU31	6	8	10	
		T854	KSP39	4	5	6	T854	KSP39	4	5	6	
		T877	KSU31	9	12	15	T857	KSU31	6	8	11	
		T877	KSP39	5	7	9	T857	KSP39	4	5	7	
	3	T848	KSU30	4	5	6	T848	KSU30	3	4	6	
		T820	KSMN34, KSP32	11	15	19	T830, T832, T838, T839	KSMN34, KSP32	7	11	15	
	K	1	T820	KSP39, KSU30	7	9	11	T830, T832, T838, T839	KSP39, KSU30	4	6	9
			T846	KSU31	11	15	19	T846	KSU31	11	15	19
		2	T846	KSU30	6	8	10	T846	KSU30	6	8	10
			T820	KSU31, KSP32	16	21	26	T830, T832, T838, T839	KSU31, KSP32	10	15	21
T820			KSP39, KSU30	9	12	15	T830, T832, T838, T839	KSP39, KSU30	6	8	12	
T877			KSU31	14	18	23	T857	KSU31	9	13	18	
T877			KSP39	7	9	11	T857	KSP39	4	6	9	
T848	KSU30	4	5	6	T848	KSU30	2	4	5			
N	1	T820	KSMN34, KSP32	37	49	61	T830, T832, T838, T839	KSMN34, KSP32	24	34	49	
		T820	KSU30	20	27	34	T830, T832	KSU30	13	19	27	
	2	T820	KSMN34, KSP32	30	40	50	T830, T832, T838, T839	KSMN34, KSP32	20	28	40	
		T820	KSU30	16	21	26	T830, T832	KSU30	10	15	21	
		T877	KSU31	17	22	27	T857	KSU31	11	15	22	
		T877	KSP39	8	10	12	T857	KSP39	5	7	10	
		T848	KSU30	10	13	16	T848	KSU30	6	9	13	
		T820	KSMN34, KSP32	37	49	61	T830, T832, T838, T839	KSMN34, KSP32	24	34	49	
	4	T820	KSU30	20	27	33	T830, T832	KSU30	13	19	27	

KSU30 = Bright
 KSP39 = Oxide
 KSU31 = TiN
 KSP32 = TiCN/TiN
 KSMN34 = TiN + CrC/C



GOtap™ • Inch

Material Group	 Through Holes					 Blind Holes						
	Range – SFM					Range – SFM						
	Tap Style	Grade	min	Starting Value	max	Tap Style	Grade	min	Starting Value	max		
	P	1	T820	KSU31, KSP32	75	100	125	T830, T832, T838, T839	KSU31, KSP32	50	70	100
T820			KSP39, KSU30	35	50	60	T830, T832, T838, T839	KSP39, KSU30	25	35	50	
T854			KSU31	20	25	35	T854	KSU31	20	25	35	
T854			KSP39	15	20	25	T854	KSP39	15	20	25	
T877			KSU31	55	70	90	T857	KSU31	35	50	70	
T877			KSP39	25	35	40	T857	KSP39	15	25	35	
2		T848	KSU30	15	20	25	T848	KSU30	10	15	20	
		T820	KSU31, KSP32	60	80	100	T830, T832, T838, T839	KSU31, KSP32	40	55	80	
3		T820	KSP39, KSU30	35	45	55	T830, T832, T838, T839	KSP39, KSU30	25	30	45	
		T820	KSU31, KSP32	55	70	90	T830, T832, T838, T839	KSU31, KSP32	35	50	70	
		T820	KSP39, KSU30	30	40	50	T830, T832, T838, T839	KSP39, KSU30	20	30	40	
		T846	KSU31	20	25	35	T846	KSU31	20	25	35	
		T846	KSU30	10	15	20	T846	KSU30	10	15	20	
		T820	KSMN34, KSP32	45	60	75	T830, T832, T838, T839	KSMN34, KSP32	30	40	60	
M		1	T820	KSP39, KSU30	25	35	40	T830, T832, T838, T839	KSP39, KSU30	15	25	35
			T854	KSU31	20	25	35	T854	KSU31	20	25	35
			T854	KSP39	10	15	20	T854	KSP39	10	15	20
			T877	KSU31	30	40	50	T857	KSU31	20	25	40
	T877		KSP39	15	25	30	T857	KSP39	10	15	25	
	T848		KSU30	10	15	20	T848	KSU30	10	15	20	
3	T820	KSMN34, KSP32	35	50	60	T830, T832, T838, T839	KSMN34, KSP32	25	35	50		
	T820	KSP39, KSU30	20	30	35	T830, T832, T838, T839	KSP39, KSU30	15	20	30		
K	1	T846	KSU31	35	50	60	T846	KSU31	35	50	60	
		T846	KSU30	20	25	35	T846	KSU30	20	25	35	
	2	T820	KSU31, KSP32	50	70	85	T830, T832, T838, T839	KSU31, KSP32	35	50	70	
		T820	KSP39, KSU30	30	40	50	T830, T832, T838, T839	KSP39, KSU30	20	30	40	
		T877	KSU31	45	60	75	T857	KSU31	30	40	60	
		T877	KSP39	20	30	35	T857	KSP39	15	20	30	
T848	KSU30	10	15	20	T848	KSU30	10	10	15			
N	1	T820	KSMN34, KSP32	120	160	200	T830, T832, T838, T839	KSMN34, KSP32	80	115	160	
		T820	KSU30	65	90	110	T830, T832	KSU30	45	60	90	
	2	T820	KSMN34, KSP32	100	130	165	T830, T832, T838, T839	KSMN34, KSP32	65	90	130	
		T820	KSU30	50	70	85	T830, T832	KSU30	35	50	70	
		T877	KSU31	55	70	90	T857	KSU31	35	50	70	
		T877	KSP39	25	35	40	T857	KSP39	15	25	35	
		T848	KSU30	30	45	55	T848	KSU30	20	30	45	
		T820	KSMN34, KSP32	55	70	90	T830, T832, T838, T839	KSMN34, KSP32	35	50	70	
	4	T820	KSU30	25	35	40	T830, T832	KSU30	15	25	35	

KSU30 = Bright
 KSP39 = Oxide
 KSU31 = TiN
 KSP32 = TiCN/TiN
 KSMN34 = TiN + CrC/C

Tapping



General Purpose HSS • Metric

Material Group									
	Through Holes					Blind Holes			
	Range – m/min					Range – m/min			
	Tap Style	min	Starting Value	max		Tap Style	min	Starting Value	max
P	1	KHSST Spiral Point	13	17	21	KHSST Spiral Flute	7	8	10
	2	KHSST Spiral Point	10	12	15	KHSST Spiral Flute	5	6	8
	3	KHSST Spiral Point	6	8	10	KHSST Spiral Flute	3	4	5
	5	KHSST Spiral Point	5	6	8	KHSST Spiral Flute	2	3	4
M	1	KHSST Spiral Point	6	8	10	KHSST Spiral Flute	3	4	5
	2	KHSST Spiral Point	5	6	8	KHSST Spiral Flute	2	3	4
	3	KHSST Spiral Point	4	5	6	KHSST Spiral Flute	2	2	3
K	1	KHSST Hand	22	27	34	KHSST Hand	11	14	17
	2	KHSST Hand	18	23	29	KHSST Hand	9	11	14
N	1	KHSST Spiral Point	29	37	46	KHSST Spiral Flute	15	18	23
	2	KHSST Spiral Point	24	30	38	KHSST Spiral Flute	12	15	19

NOTE: Increase speed by up to 50% when using coated taps (TiN, TiCN).

Tapping

General Purpose HSS • Inch

Material Group									
	Through Holes					Blind Holes			
	Range – SFM					Range – SFM			
	Tap Style	min	Starting Value	max		Tap Style	min	Starting Value	max
P	1	KHSST Spiral Point	44	55	69	KHSST Spiral Flute	22	28	34
	2	KHSST Spiral Point	32	40	50	KHSST Spiral Flute	16	20	25
	3	KHSST Spiral Point	20	25	31	KHSST Spiral Flute	10	13	16
	5	KHSST Spiral Point	16	20	25	KHSST Spiral Flute	8	10	13
M	1	KHSST Spiral Point	20	25	31	KHSST Spiral Flute	10	13	16
	2	KHSST Spiral Point	16	20	25	KHSST Spiral Flute	8	10	13
	3	KHSST Spiral Point	12	15	19	KHSST Spiral Flute	6	8	9
K	1	KHSST Hand	72	90	113	KHSST Hand	36	45	56
	2	KHSST Hand	60	75	94	KHSST Hand	30	38	47
N	1	KHSST Spiral Point	96	120	150	KHSST Spiral Flute	48	60	75
	2	KHSST Spiral Point	80	100	125	KHSST Spiral Flute	40	50	63

NOTE: Increase speed by up to 50% when using coated taps (TiN, TiCN).

Taps and Thread Milling Technical Information

Use the technical information offered here to assist with tapping and thread milling operations. This tech data includes information about tap dimensions and recommendations, as well as how to solve basic tapping and thread milling problems.

Included in This Section:

- Illustrations of tap terms.
- Explanations of tap chamfers.
- Dimensional information for various tap styles and lengths.
- Tap limitation data.
- Chip handling methods for different tap styles.
- Tap recommendations.
- Descriptions of screw thread tolerance and tolerance information.
- Information regarding surface treatments and coatings.
- Guidelines and tables for determining tapping speeds.
- Troubleshooting charts.
- Hardness conversion table.
- Taps custom order worksheet.
- Thread milling application sheet.
- Tap drill size charts.

This section will help you learn more about tapping and thread milling applications to maximize the performance of your tools.

How to Apply This Technical Information

Below is an example of how the technical information in this catalog can be useful:

Problem

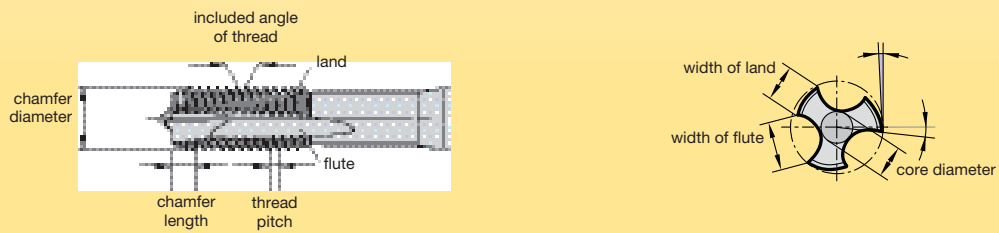
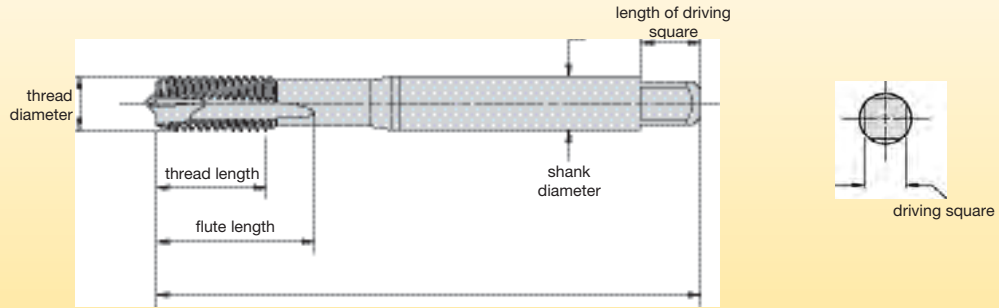
- Thread holes are oversized and taps are experiencing decreased tool life when used in stainless steel materials.

Solution

- Consult the troubleshooting portion of the technical information section to discover ways to correct the issue.



Definitions and Angles, Centers, and Flute Forms



Flute Forms



Straight-flute, form C plug chamfer without spiral point



Right-hand spiral flute



Straight-flute, form B plug chamfer with spiral point



Left-hand spiral flute

Types of Centers (Standard to DIN 2197/DIN 2175)

center on thread section			
tap diameter range			
<p>≤M10, 3/8 bottom or semi-bottom chamfer</p> <p>external center removed</p>	<p>≤M10, 3/8 plug chamfer</p> <p>full external center</p>	<p>>M10, 3/8 all chamfers</p> <p>partial external center</p>	<p>internal center</p>

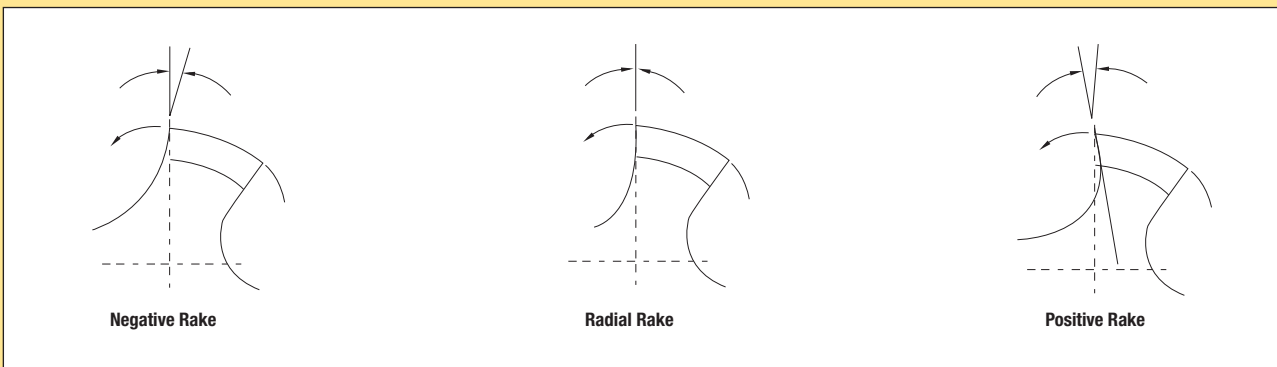
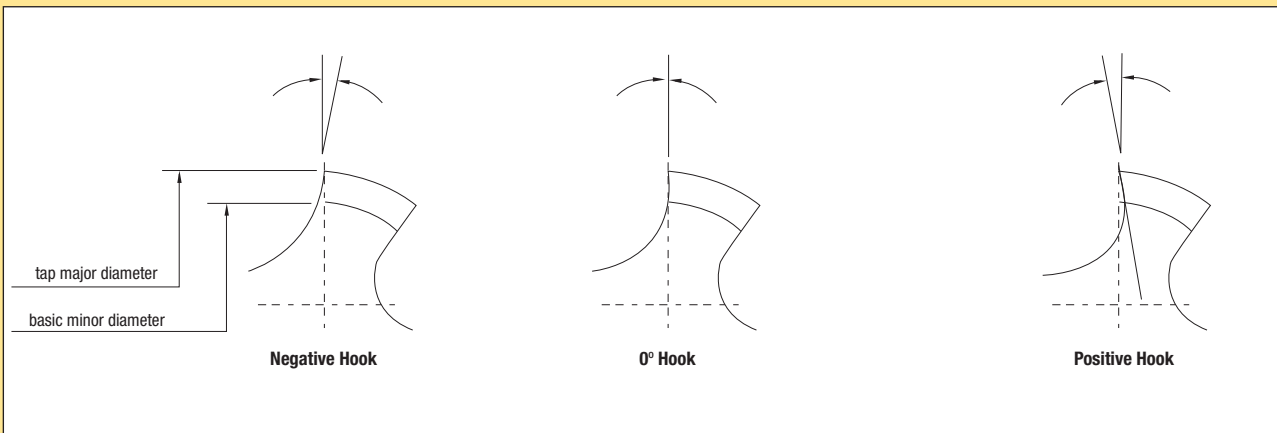
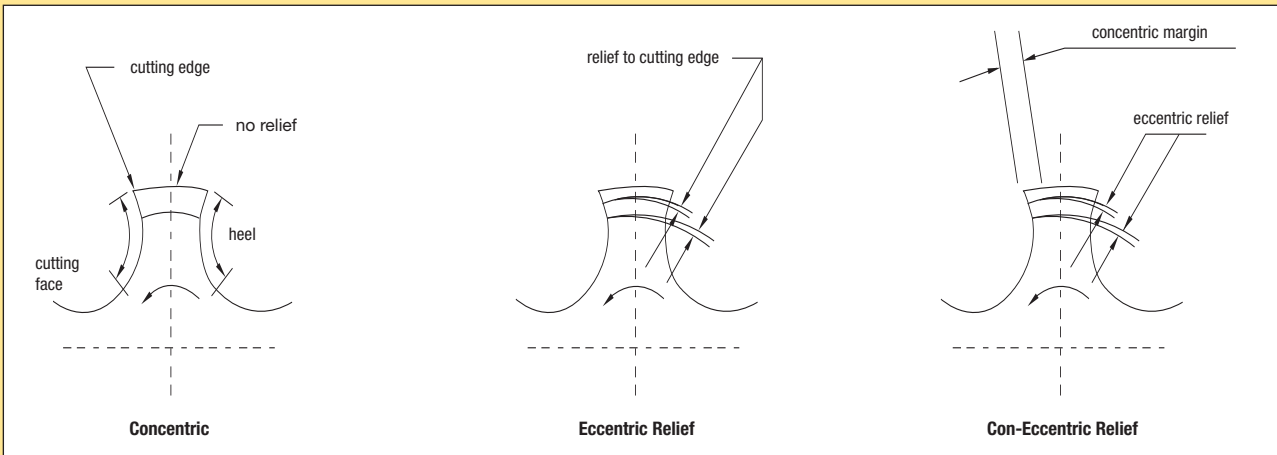
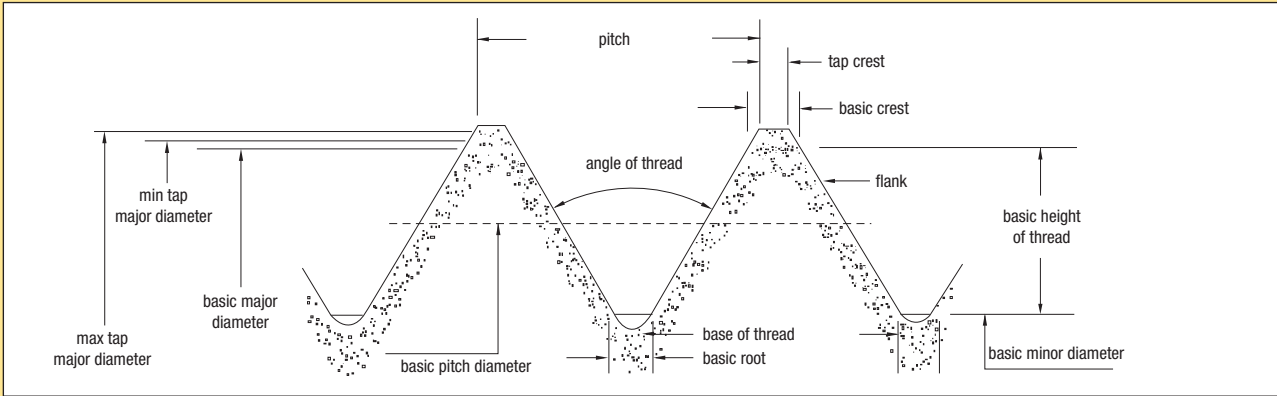
Coolant Hole Types



Axial coolant delivery with axial coolant exit hole

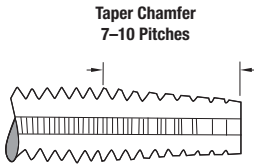


Axial coolant delivery with radial coolant hole exiting in the flutes

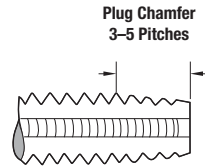


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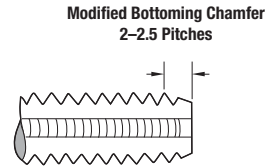
■ Tap Chamfers • ANSI Taps



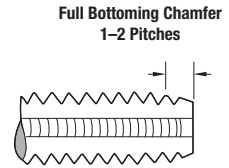
Taper (7-10 pitches)
The taper chamfer has the longest standard chamfer ensuring easier starting. It requires less tapping torque because of more working teeth.



Plug (3-5 pitches)
The most common chamfer for use by hand or machine in through or blind holes. This chamfer is more efficient than a bottoming or modified bottoming chamfer.



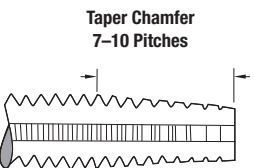
Semi-Bottom (2-2.5 pitches)
This short chamfer enables threading close to the bottom of blind holes. Due to the slightly longer chamfer and more working teeth, this chamfer is more efficient than a bottoming chamfer.



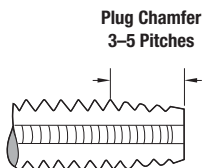
Bottoming (1-2 pitches)
For threading close to the bottom of blind holes, the bottoming chamfer is the least efficient chamfer available.

Tap Chamfers

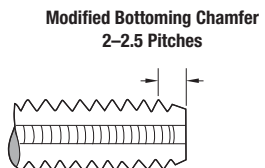
■ Tap Chamfers • DIN Taps



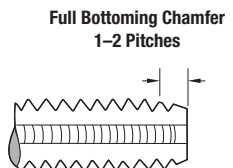
Form A (6-8 pitches)
The Form A chamfer has the longest standard chamfer ensuring easier starting. It requires less tapping torque because of more working teeth.



Form B/D (3.5-5 pitches)
The most common chamfers for use by hand or machine in through or blind holes. Form B applies to spiral-point taps and Form D applies to straight-flute and spiral-flute taps. This chamfer is more efficient than Form E or Form C chamfers.

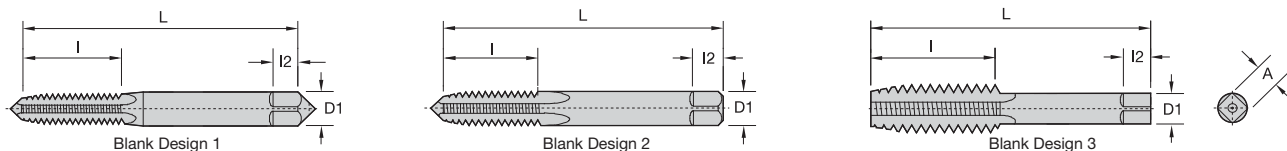


Form C (2-2.5 pitches)
This short chamfer enables threading close to the bottom of blind holes. Due to the slightly longer chamfer and more working teeth, this chamfer is more efficient than a Form E chamfer.



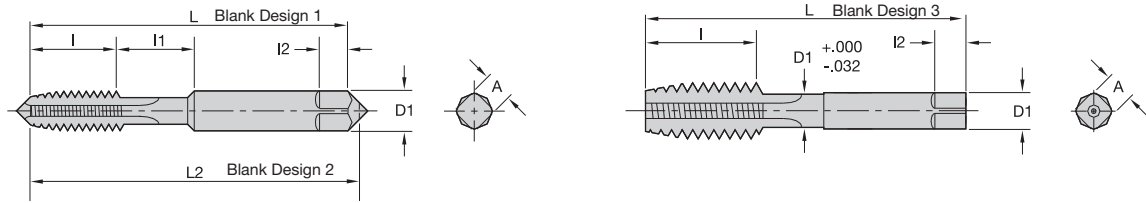
Form E (1.5-2 pitches)
For threading close to the bottom of blind holes, the Form E chamfer is the least efficient chamfer available.

Hand Tap Chamfers



nominal diameter range (in)	machine screw size number (in)	nominal fractional diameter (in)	nominal metric diameter mm (in)	blank design number	overall length L	thread length l	square length l2	shank diameter D1	square size A
.052-.065	0 (.0600)	—	M1.6 (.0630)	1	1.63	.31	.19	.1410	.110
.065-.078	1 (.0730)	—	M1.8 (.0709)	1	1.69	.38	.19	.1410	.110
.078-.091	2 (.0860)	—	M2 (0787), M2.2 (.0866)	1	1.75	.44	.19	.1410	.110
.091-.104	3 (.0990)	—	M2.5 (.0984)	1	1.81	.50	.19	.1410	.110
.104-.117	4 (.1120)	—	—	1	1.88	.56	.19	.1410	.110
.117-.130	5 (.1250)	—	M3 (.1181)	1	1.94	.63	.19	.1410	.110
.130-.145	6 (.1380)	—	M3.5 (.1378)	1	2.00	.69	.19	.1410	.110
.145-.171	8 (.1640)	—	M4 (.1575)	1	2.13	.75	.25	.1680	.131
.171-.197	10 (.1900)	—	M4.5 (.1772), M5 (.1969)	1	2.38	.88	.25	.1940	.152
.197-.223	12 (.2160)	—	—	1	2.38	.94	.28	.2200	.165
.223-.260	—	1/4 (.2500)	M6 (.2362)	2	2.50	1.00	.31	.2550	.191
.260-.323	—	5/16 (.3125)	M7 (.2756), M8 (.3150)	2	2.72	1.13	.38	.3180	.238
.323-.395	—	3/8 (.3750)	M10 (.3937)	2	2.94	1.25	.44	.3810	.286
.395-.448	—	7/16 (.4375)	—	3	3.16	1.44	.41	.3230	.242
.448-.510	—	1/2 (.5000)	M12 (.4724)	3	3.38	1.66	.44	.3670	.275
.510-.573	—	9/16 (.5625)	M14 (.5512)	3	3.59	1.66	.50	.4290	.322
.573-.635	—	5/8 (.6250)	M16 (.6299)	3	3.81	1.81	.56	.4800	.360
.635-.709	—	11/16 (.6875)	M18 (.7087)	3	4.03	1.81	.63	.5420	.406
.709-.760	—	3/4 (.7500)	—	3	4.25	2.00	.69	.5900	.442
.760-.823	—	13/16 (.8125)	M20 (.7874)	3	4.47	2.00	.69	.6520	.489
.823-.885	—	7/8 (.8750)	M22 (.8661)	3	4.69	2.22	.75	.6970	.523
.885-.948	—	15/16 (.9375)	M24 (.9449)	3	4.91	2.22	.75	.7600	.570
.948-1.010	—	1 (1.0000)	M25 (.9843)	3	5.13	2.50	.81	.8000	.600
1.010-1.073	—	1-1/16 (1.0625)	M27 (1.0630)	3	5.13	2.50	.88	.8960	.672
1.073-1.135	—	1-1/8 (1.1250)	—	3	5.44	2.56	.88	.8960	.672
1.135-1.198	—	1-3/16 (1.1875)	M30 (1.1811)	3	5.44	2.56	1.00	1.0210	.766
1.198-1.260	—	1-1/4 (1.2500)	—	3	5.75	2.56	1.00	1.0210	.766
1.260-1.323	—	1-5/16 (1.3125)	M33 (1.2992)	3	5.75	2.56	1.06	1.1080	.831
1.323-1.385	—	1-3/8 (1.3750)	—	3	6.06	3.00	1.06	1.1080	.831
1.358-1.448	—	1-7/16 (1.4375)	M36 (1.4173)	3	6.06	3.00	1.13	1.2330	.925
1.448-1.510	—	1-1/2 (1.5000)	—	3	6.38	3.00	1.13	1.2330	.925
1.510-1.635	—	1-5/8 (1.6250)	M39 (1.5354)	3	6.69	3.19	1.13	1.3050	.979
1.635-1.760	—	1-3/4 (1.7500)	M42 (1.6535)	3	7.00	3.19	1.25	1.4300	1.072
1.760-1.885	—	1-7/8 (1.8750)	—	3	7.31	3.56	1.25	1.5190	1.139
1.885-2.010	—	2 (2.0000)	M48 (1.8898)	3	7.63	3.56	1.38	1.6440	1.233
2.010-2.135	—	2-1/8 (2.1250)	—	3	8.00	3.56	1.38	1.7690	1.327
2.135-2.260	—	2-1/4 (2.2500)	M56 (2.2047)	3	8.25	3.56	1.44	1.8940	1.420
2.260-2.385	—	2-3/8 (2.3750)	—	3	8.50	4.00	1.44	2.0190	1.514
2.385-2.510	—	2-1/2 (2.5000)	—	3	8.75	4.00	1.50	2.1000	1.575
2.510-2.635	—	2-5/8 (2.6250)	M64 (2.5197)	3	8.75	4.00	1.50	2.2250	1.669
2.635-2.760	—	2-3/4 (2.7500)	—	3	9.25	4.00	1.56	2.3500	1.762
2.760-2.885	—	2-7/8 (2.8750)	M72 (2.8346)	3	9.25	4.00	1.56	2.4750	1.856
2.885-3.010	—	3 (3.0000)	—	3	9.75	4.56	1.63	2.5430	1.907
3.010-3.135	—	3-1/8 (3.1250)	—	3	9.75	4.56	1.63	2.6680	2.001
3.135-3.260	—	3-1/4 (3.2500)	M80 (3.1496)	3	10.00	4.56	1.75	2.7930	2.095
3.260-3.385	—	3-3/8 (3.3750)	—	3	10.00	4.56	1.75	2.8830	2.162
3.385-3.510	—	3-1/2 (3.5000)	—	3	10.25	4.94	2.00	3.0080	2.256
3.510-3.635	—	3-5/8 (3.6250)	M90 (3.5433)	3	10.25	4.94	2.00	3.1330	2.350
3.635-3.760	—	3-3/4 (3.7500)	—	3	10.50	5.31	2.13	3.2170	2.413
3.760-3.885	—	3-7/8 (3.8750)	—	3	10.50	5.31	2.13	3.3420	2.506
3.885-4.010	—	4 (4.0000)	M100 (3.9370)	3	10.75	5.31	2.25	3.4670	2.600

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General Dimensions

Tap Dimensions — Inches

nominal diameter range (in)		machine screw size number (in)	nominal fractional diameter (in)	nominal metric diameter mm (in)	blank design number	overall length L	thread length l	neck length l1	square length l2	shank diameter D1	square size A
.104	.117	4 (.1120)	—	—	1	1.88	.31	.25	.19	.1410	.110
.117	.130	5 (.1250)	—	M3 (.1181)	1	1.94	.31	.31	.19	.1410	.110
.130	.145	6 (.1380)	—	M3.5 (.1378)	1	2.00	.38	.31	.19	.1410	.110
.145	.171	8 (.1640)	—	M4 (.1575)	1	2.13	.38	.38	.25	.1680	.131
.171	.197	10 (.1900)	—	M4.5 (.1772)	1	2.38	.50	.38	.25	.1940	.152
—	—	—	—	M5 (.1969)	—	—	—	—	—	—	—
.197	.223	12 (.2160)	—	—	1	2.38	.50	.44	.28	.2200	.165
.223	.260	—	1/4 (.2500)	M6 (.2362)	2	2.50	.63	.38	.31	.2550	.191
.260	.323	—	5/16 (.3125)	M7, M8 (.2756), (.3150)	2	2.72	.69	.44	.38	.3180	.238
.323	.395	—	3/8 (.3750)	M10 (.3937)	2	2.94	.75	.50	.44	.3810	.286
.395	.448	—	7/16 (.4375)	—	3	3.16	.88	—	.41	.3230	.242
.448	.510	—	1/2 (.5000)	M12 (.4724)	3	3.38	.94	—	.44	.3670	.275
.510	.573	—	9/16 (.5625)	M14 (.5541)	3	3.59	1.00	—	.50	.4290	.322
.573	.635	—	5/8 (.6250)	M16 (.6299)	3	3.81	1.09	—	.56	.4800	.360
.635	.709	—	11/16 (.6875)	M18 (.7087)	3	4.03	1.09	—	.63	.5420	.406
.709	.760	—	3/4 (.7500)	—	3	4.25	1.22	—	.69	.5900	.442
.760	.823	—	13/16 (.8125)	M20 (.7874)	3	4.47	1.22	—	.69	.6520	.489
.823	.885	—	7/8 (.8750)	M22 (.8661)	3	4.69	1.34	—	.75	.3670	.523
.885	.948	—	15/16 (.9375)	M24 (.9449)	3	4.91	1.34	—	.75	.7600	.570
.948	1.010	—	1 (1.0000)	M25 (.9843)	3	5.13	1.50	—	.81	.8000	.600

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NOTE: Thread length l is based on a length of 12 pitches of the UNC thread series. Thread length “l” is a minimum value and has no tolerance. When thread length “l” is added to neck length “l1”, the total shall be no less than the minimum USCTI Table 302 thread length “l”. Unless otherwise specified, all tolerances are in accordance with USCTI Table 302. For eccentricity tolerances, see USCTI Table 317. Table 302 is provided for reference only. The Kennametal tap dimensions may differ.

Tolerances

element	nominal diameter range (in)	direction	tolerance (in)
length overall — L	.0520–1.0100	plus or minus	.031
	1.0100–4.0100	plus or minus	.063
length of thread — l	.0520–.2230	plus or minus	.047
	.2230–.5100	plus or minus	.063
	.5100–1.5100	plus or minus	.094
	1.5100–4.0100	plus or minus	.125
length of square — l2	.0520–1.0100	plus or minus	.031
	1.0100–4.0100	plus or minus	.063
diameter of shank — d1	.0520–.2230	minus	.0015
	.2230–.6350	minus	.0015
	.6350–1.0100	minus	.0020
	1.0100–1.5100	minus	.0020
	1.5100–2.0100	minus	.0030
	2.0100–4.0100	minus	.0030
size of square — a	.0520–.5100	minus	.004
	.5100–1.0100	minus	.006
	1.0100–2.0100	minus	.008
	2.0100–4.0100	minus	.010

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Special Taps

Unless otherwise specified: Special taps over 1.010–1.510" diameter inclusive, having 14 or more threads per inch or 1,75mm pitch and finer, and sizes over 1.510" diameter with 10 or more threads per inch or 2,5mm pitch and finer, are made to general dimensions shown in USCTI Table 303. Special tap thread limits are determined using the formulas shown in USCTI Table 331 for Unified Inch Screw Threads and USCTI Table 341 for metric m-profile screw threads.

NOTE: Tap sizes .395" and smaller have an external center on the thread end (may be removed on bottoming taps). Sizes .125" and smaller have an external center on the shank end. Sizes .224–.395" have truncated partial cone centers on the shank end (length of cone approximately 1/4 of diameter of shank). Sizes over .395" have internal centers on both the thread and shank ends.

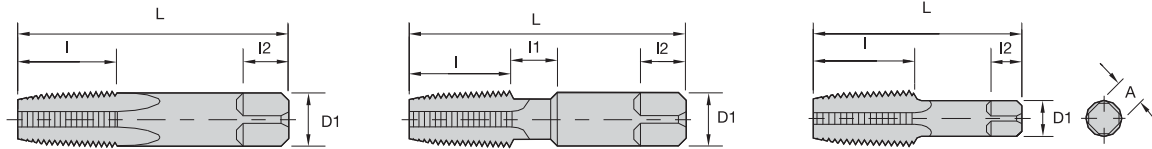
For standard thread limits and tolerances for Unified Inch Screw Threads, see USCTI Table 327, and for metric threads, see USCTI Table 337.

For eccentricity tolerances of tap elements, see USCTI Table 317.



Technical Information

Standard Pipe Tap Dimensions • Straight and Taper • Ground Thread • Reference USCTI Table 311



General Dimensions

dimensions (in)

nominal size (in)	overall length L	thread length I	square length I2	shank diameter D1	square size A	optional neck length I1
1/16	2.13	.69	.38	.3125	.234	.375
1/8	2.13	.75	.38	.3125	.234	-
1/8	2.13	.75	.38	.4375	.328	.375
1/4	2.44	1.06	.44	.5625	.421	.375
3/8	2.56	1.06	.50	.7000	.531	.375
1/2	3.13	1.38	.63	.6875	.515	-
3/4	3.25	1.38	.69	.9063	.679	-
1	3.75	1.75	.81	1.1250	.843	-
1-1/4	4.00	1.75	.94	1.3125	.984	-
1-1/2	4.25	1.75	1.00	1.5000	1.125	-
2	4.25	1.75	1.13	1.8750	1.406	-
2-1/2	5.50	2.56	1.25	2.2500	1.687	-
3	6.00	2.63	1.38	2.6250	1.968	-
3-1/2	6.50	2.69	1.50	2.8125	2.108	-
4	6.75	2.75	1.56	3.0000	2.250	-

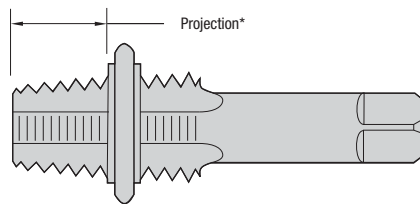
Tolerances

element	range	direction	tolerance
length overall — L	1/16–3/4 inc.	plus/minus	.031
	1–4 inc.	plus/minus	.063
length of thread — I	1/16–3/4 inc.	plus/minus	.063
	1–1-1/4 inc.	plus/minus	.094
length of square — I2	1-1/2–4	plus/minus	.125
	1/16–3/4 inc.	plus/minus	.031
diameter of shank — d1	1–4 inc.	plus/minus	.063
	1/16–1/8	minus	.0015
size of square — a	1/4–1 inc.	minus	.0020
	1-1/4–4 inc.	minus	.0030
	1/16–1/8	minus	.004
	1/4–3/4 inc.	minus	.006
	1–4 inc.	minus	.008

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Tapping

American National Standard Taper Pipe Thread Form (NPT)
 Aeronautical National Taper Pipe Thread Form (ANPT)
 Dryseal American National Standard Taper Pipe Thread Form (NPTF)



taper per foot limits

nominal size (in)	threads per inch	projection* (in)	projection tolerance + / -	taper per foot limits		length L1	tap drill size** NPT, ANPT, NPTF
				min	max		
1/16	27	.312	.063	.719	.781	.160	C
1/8	27	.312	.063	.719	.781	.1615	Q
1/4	18	.459	.063	.719	.781	.2278	7/16
3/8	18	.454	.063	.719	.781	.240	9/16
1/2	14	.579	.063	.719	.781	.320	45/64
3/4	14	.565	.063	.719	.781	.339	29/32
1	11-1/2	.678	.094	.719	.781	.400	1-9/64
1-1/4	11-1/2	.686	.094	.719	.781	.420	1-31/64
1-1/2	11-1/2	.699	.094	.719	.781	.420	1-23/32
2	11-1/2	.667	.094	.719	.781	.436	2-3/16
2-1/2	8	.925	.094	.734	.781	.682	2-39/64
3	8	.925	.094	.734	.781	.766	3-15/64
3-1/2	8	.938	.125	.734	.781	.821	—
4	8	.950	.125	.734	.781	.844	—

*Distance from small end of tap projects through L1 taper thread ring gage.

**Recommended size given permits direct tapping without reaming the hole, but only gives a full thread for approximately the L1 length.

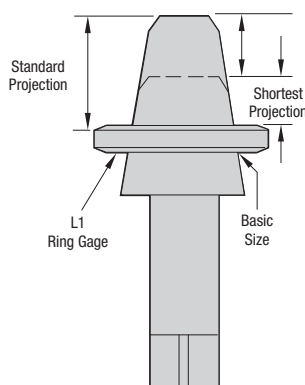
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■ Pipe Taps

General-purpose pipe taps are appropriate for threading a wide variety of materials, both ferrous and non-ferrous.

Ground thread pipe taps are standard in American Standard Pipe Form (NPT) and American Standard Dryseal Pipe Form (NPFT). NPT threads require the use of a sealer, like Teflon® tape or pipe compound. Dryseal taps are used to tap fittings, which will give a pressure-tight joint without the use of a sealer.

The nominal size of a pipe tap is that of the pipe fitting to be tapped, not the actual size of the tap. The thread tapers 3/4" per foot. All pipe taps are furnished with 2-1/2–3-1/2 thread chamfer.

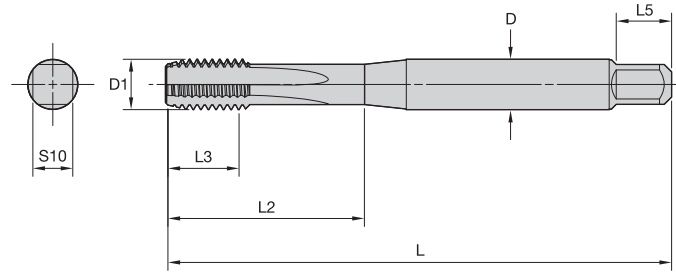


Short projection pipe taps are made with a projection shorter than standard for taper pipe tapping where the depth of tapping is limited.

Special short projection taper pipe taps can be furnished with American National Standard Taper Pipe thread (ANPT) or Dryseal American National Standard Taper Pipe thread (NPTF, PTF-SAE Short, or PTF-SPL Extra Short).

For information on short projection pipe taps and hole preparation for NPT, NPTF, and ANPT internal pipe threads, consult Kennametal Technical Bulletins.

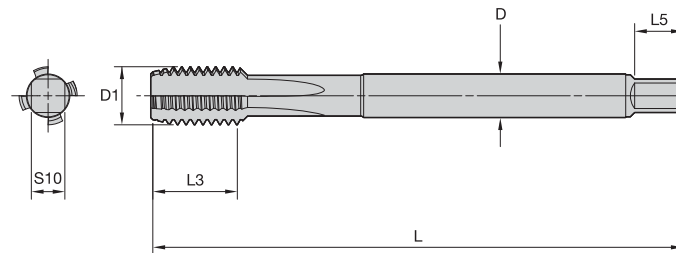




■ DIN 371

D1	pitch	D	L	L3*	L2	L5	S10
M3	0.5	3.5	56	11	18	6	2.7
M3.5	0.6	4	56	12	20	6	3
M4	0.7	4.5	63	13	21	6	3.4
M4.5	0.75	6	70	16	25	8	4.9
M5	0.8	6	70	16	25	8	4.9
M6	1	6	80	19	30	8	4.9
M7	1	7	80	19	30	8	5.5
M8	0.75	8	80	18	30	9	6.2
M8	1.25	8	90	22	35	9	6.2
M9	0.75	9	80	18	30	10	7
M9	1.25	9	90	22	35	10	7
M10	1	10	90	20	35	11	8
M10	1.5	10	100	24	39	11	8

*Maximum

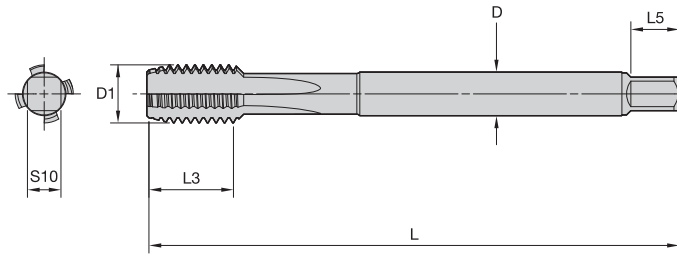


■ DIN 376

D1	pitch	D	L	L3*	L5	S10
M8	1.25	6	90	22	8	4.9
M9	1.25	7	90	22	8	5.5
M10	1.5	7	100	24	8	5.5
M11	1.5	8	100	24	9	6.2
M12	1.75	9	110	28	10	7
M14	2	11	110	30	12	9
M16	2	12	110	32	12	9
M18	2.5	14	125	34	14	11
M20	2.5	16	140	34	15	12
M22	2.5	18	140	34	17	14.5
M24	3	18	160	38	17	14.5
M27	3	20	160	38	19	16
M30	3.5	22	180	45	21	18
M33	3.5	25	180	50	23	20
M36	4	28	200	56	25	22
M39	4	32	200	60	27	24
M42	4.5	32	200	60	27	24
M45	4.5	36	220	65	32	29

*Maximum

Tapping

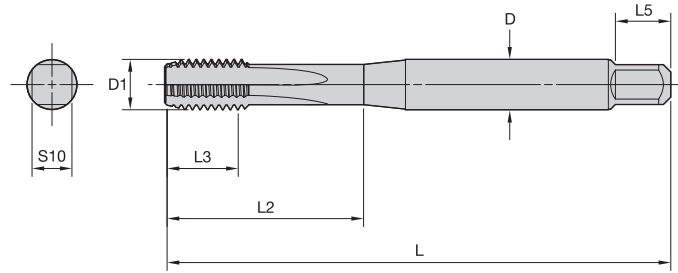


■ DIN 374

D1	pitch		D	L	L3*	L5	S10
	minimum	maximum					
M8	0.2	0.75	6	80	18	8	4.9
M8	—	1	6	90	22	8	4.9
M9	0.2	0.75	7	80	18	8	5.5
M9	—	1	7	90	22	8	5.5
M10	0.2	1	7	90	20	8	5.5
M10	—	1.25	7	100	24	8	5.5
M11	0.35	1	8	90	20	9	6.2
M12	0.35	1.5	9	100	22	10	7
M14	0.35	1.5	11	100	22	12	9
M16	0.35	1.5	12	100	22	12	9
M16	—	2	12	110	32	12	9
M18	0.35	1.5	14	110	25	14	11
M18	—	2	14	125	34	14	11
M20	0.35	1.5	16	125	25	15	12
M20	—	2	16	140	34	15	12
M22	0.35	1.5	18	125	25	17	14.5
M22	—	2	18	140	34	17	14.5
M24	0.35	2	18	140	28	17	14.5
M27	0.35	2	20	140	28	19	16
M30	0.35	2	22	150	28	21	18
M30	—	3	22	180	45	21	18

*Maximum

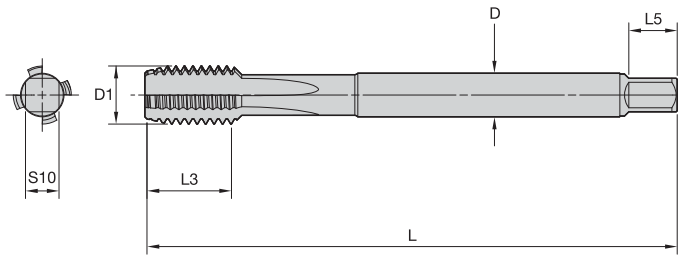




■ JIS Type 2 Metric Coarse

D1	pitch	D	L	metric dimensions		L5	S10
				L3	L2		
M3	0.5	4	46	11	19	6	3.2
M3.5	0.6	4	48	13	20	6	3.2
M4	0.7	5	52	13	21	7	4
M4.5	0.75	5	55	13	21	7	4
M5	0.8	5.5	60	16	24	7	4.5
M6	1	6	62	19	29	7	4.5

Tapping



■ JIS Type 3 Metric Coarse

D1	pitch	D	L	metric dimensions		L5	S10
				L3	L2		
M8	1.25	6.2	70	22	8	5	
M9	1.25	7	72	22	8	5.5	
M10	1.5	7	75	24	8	5.5	
M11	1.5	8	80	25	9	6	
M12	1.75	8.5	82	29	9	6.5	
M14	2	10.5	88	30	11	8	
M16	2	12.5	95	32	13	10	
M18	2.5	14	100	37	14	11	
M20	2.5	15	105	37	15	12	
M22	2.5	17	115	38	16	13	
M24	3	19	120	45	18	15	

■ Thread Cutting • UNC, UNF, and 8-pitch

tap size	Threads per Inch			65% thread						70% thread						75% thread					
				Metric			Inch			Metric			Inch			Metric			Inch		
	UNC	UNF	8-pitch	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill
#0	-	80	-	1.20	1.26	1.30	0.0472	0.0494	0.0512	1.20	1.24	1.30	0.0472	0.0486	0.0512	1.20	1.21	1.30	0.0472	0.0478	0.0512
#1	64	-	-	1.50	1.52	1.60	0.0591	0.0598	0.0630	1.40	1.49	1.50	0.0551	0.0588	0.0591	1.40	1.47	1.50	0.0551	0.0578	0.0591
	-	72	-	1.50	1.56	1.60	0.0591	0.0613	0.0630	1.50	1.53	1.60	0.0591	0.0604	0.0630	1.50	1.51	1.60	0.0591	0.0595	0.0630
#2	56	-	-	1.80	1.80	1.80	0.0709	0.0709	0.0709	1.70	1.77	1.80	0.0669	0.0698	0.0709	1.70	1.74	1.80	0.0669	0.0686	0.0709
	-	64	-	1.80	1.85	1.90	0.0709	0.0728	0.0748	1.80	1.82	1.90	0.0709	0.0718	0.0748	1.80	1.80	1.80	0.0669	0.0708	0.0709
#3	48	-	-	2.00	2.07	2.10	0.0787	0.0814	0.0827	2.00	2.03	2.10	0.0787	0.0801	0.0827	2.00	2.00	2.00	0.0787	0.0787	0.0787
	-	56	-	2.10	2.13	2.20	0.0827	0.0839	0.0866	2.10	2.10	2.10	0.0827	0.0828	0.0866	2.00	2.07	2.10	0.0787	0.0816	0.0827
#4	40	-	-	2.30	2.31	2.38	0.0906	0.0909	0.0938	2.20	2.27	2.30	0.0866	0.0893	0.0906	2.20	2.23	2.30	0.0866	0.0876	0.0906
	-	48	-	2.40	2.40	2.40	0.0938	0.0944	0.0945	2.30	2.36	2.38	0.0906	0.0931	0.0938	2.30	2.33	2.38	0.0906	0.0917	0.0938
#5	40	-	-	2.64	2.64	2.64	0.1024	0.1039	0.1040	2.60	2.60	2.60	0.1015	0.1023	0.1024	2.50	2.56	2.58	0.0984	0.1006	0.1015
	-	44	-	2.64	2.69	2.70	0.1040	0.1058	0.1063	2.64	2.65	2.70	0.1040	0.1043	0.1063	2.60	2.61	2.64	0.1024	0.1029	0.1040
#6	32	-	-	2.82	2.83	2.87	0.1100	0.1116	0.1130	2.78	2.78	2.78	0.1094	0.1096	0.1102	2.71	2.73	2.78	0.1065	0.1076	0.1094
	-	40	-	2.95	2.97	3.00	0.1160	0.1169	0.1181	2.90	2.93	2.95	0.1142	0.1153	0.1160	2.87	2.89	2.90	0.1130	0.1136	0.1142
#8	32	-	-	3.50	3.50	3.50	0.1360	0.1376	0.1378	3.40	3.44	3.46	0.1339	0.1356	0.1360	3.30	3.39	3.40	0.1299	0.1336	0.1339
	-	36	-	3.57	3.57	3.57	0.1378	0.1405	0.1406	3.50	3.52	3.57	0.1378	0.1387	0.1406	3.46	3.48	3.50	0.1360	0.1369	0.1378
#10	24	-	-	3.90	3.93	3.97	0.1535	0.1548	0.1563	3.80	3.86	3.90	0.1496	0.1521	0.1535	3.73	3.79	3.80	0.1470	0.1494	0.1496
	-	32	-	4.10	4.16	4.20	0.1614	0.1636	0.1654	4.10	4.10	4.10	0.1614	0.1616	0.1654	4.04	4.05	4.09	0.1590	0.1596	0.1610
#12	24	-	-	4.50	4.59	4.60	0.1772	0.1808	0.1811	4.50	4.52	4.60	0.1772	0.1781	0.1811	4.40	4.46	4.50	0.1732	0.1754	0.1772
	-	28	-	4.70	4.72	4.76	0.1850	0.1858	0.1875	4.62	4.66	4.70	0.1820	0.1835	0.1850	4.60	4.60	4.60	0.1811	0.1812	0.1820
1/4	20	-	-	5.20	5.28	5.30	0.2047	0.2078	0.2087	5.20	5.20	5.20	0.2031	0.2045	0.2047	5.11	5.11	5.11	0.2010	0.2013	0.2031
	-	28	-	5.56	5.58	5.60	0.2188	0.2198	0.2205	5.50	5.53	5.56	0.2165	0.2175	0.2188	5.41	5.47	5.50	0.2130	0.2152	0.2165
5/16	18	-	-	6.75	6.75	6.75	0.2656	0.2656	0.2656	6.63	6.65	6.70	0.2610	0.2620	0.2638	6.53	6.56	6.60	0.2570	0.2584	0.2598
	-	24	-	7.00	7.04	7.10	0.2756	0.2773	0.2795	6.90	6.98	7.00	0.2717	0.2746	0.2756	6.90	6.91	7.00	0.2717	0.2719	0.2756
3/8	16	-	-	8.10	8.18	8.20	0.3189	0.3222	0.3228	8.00	8.08	8.10	0.3150	0.3182	0.3189	7.94	7.98	8.00	0.3125	0.3141	0.3150
	-	24	-	8.60	8.63	8.70	0.3386	0.3398	0.3425	8.50	8.56	8.60	0.3346	0.3371	0.3386	8.43	8.49	8.50	0.3320	0.3344	0.3346
7/16	14	-	-	9.53	9.58	9.60	0.3750	0.3772	0.3780	9.40	9.46	9.50	0.3701	0.3726	0.3740	9.30	9.34	9.35	0.3661	0.3679	0.3680
	-	20	-	10.00	10.04	10.10	0.3937	0.3953	0.3976	9.92	9.96	10.00	0.3906	0.3920	0.3937	9.80	9.88	9.90	0.3858	0.3888	0.3898
1/2	13	-	-	11.00	11.05	11.10	0.4331	0.4351	0.4370	10.90	10.92	11.00	0.4291	0.4301	0.4331	10.80	10.80	10.80	0.4219	0.4251	0.4252
	-	20	-	11.60	11.63	11.70	0.4528	0.4578	0.4606	11.51	11.55	11.60	0.4528	0.4545	0.4606	11.40	11.46	11.50	0.4488	0.4513	0.4528
9/16	12	-	-	12.50	12.50	12.50	0.4921	0.4921	0.4921	12.30	12.36	12.40	0.4844	0.4867	0.4882	12.20	12.23	12.30	0.4803	0.4813	0.4843
	-	18	-	13.10	13.10	13.10	0.5118	0.5156	0.5157	13.00	13.00	13.00	0.5118	0.5120	0.5157	12.80	12.91	13.00	0.5039	0.5084	0.5118
5/8	11	-	-	13.80	13.93	14.00	0.5433	0.5482	0.5512	13.50	13.78	13.80	0.5315	0.5423	0.5433	13.50	13.63	13.80	0.5315	0.5364	0.5433
	-	18	-	14.50	14.68	15.00	0.5709	0.5781	0.5906	14.50	14.59	15.00	0.5709	0.5745	0.5906	14.50	14.50	14.50	0.5709	0.5709	0.5709
3/4	10	-	-	16.50	16.91	17.00	0.6496	0.6656	0.6693	16.50	16.74	17.00	0.6496	0.6591	0.6693	16.50	16.58	17.00	0.6496	0.6526	0.6560
	-	16	-	17.50	17.71	18.00	0.6890	0.6972	0.7087	17.50	17.61	18.00	0.6890	0.6932	0.7087	17.50	17.50	17.50	0.6890	0.6891	0.6969
7/8	9	-	-	19.50	19.84	20.00	0.7677	0.7812	0.7874	19.50	19.66	20.00	0.7677	0.7740	0.7874	19.00	19.48	19.50	0.7660	0.7668	0.7677
	-	14	-	20.50	20.69	21.00	0.8071	0.8147	0.8268	20.50	20.58	21.00	0.8071	0.8101	0.8268	20.00	20.46	20.50	0.8012	0.8054	0.8071
1	8	-	-	22.50	22.72	22.77	0.8858	0.8945	0.8965	22.50	22.51	22.77	0.8858	0.8863	0.8965	22.23	22.31	22.44	0.8750	0.8782	0.8840
	-	12	-	23.50	23.61	23.81	0.9252	0.9296	0.9375	23.42	23.48	23.50	0.9220	0.9242	0.9252	23.30	23.34	23.42	0.9173	0.9188	0.9220
1-1/8	7	-	-	25.50	25.51	25.60	1.0039	1.0044	1.0080	25.07	25.28	25.40	0.9870	0.9951	1.0000	25.00	25.04	25.07	0.9843	0.9858	0.9870
	-	12	-	26.70	26.79	27.00	1.0512	1.0546	1.0610	26.59	26.65	26.70	1.0470	1.0492	1.0512	26.50	26.51	26.59	1.0433	1.0438	1.0470
1-1/4	-	-	8	25.81	25.89	26.00	1.0160	1.0195	1.0236	25.67	25.69	25.81	1.0110	1.0113	1.0160	25.40	25.48	25.50	1.0000	1.0032	1.0039
	7	-	-	28.58	28.69	29.00	1.1250	1.1294	1.1417	28.18	28.45	28.50	1.1090	1.1201	1.1220	28.18	28.21	28.50	1.1090	1.1108	1.1220
	-	12	-	29.77	29.96	30.00	1.1720	1.1796	1.1811	29.77	29.83	30.00	1.1720	1.1742	1.1811	29.50	29.69	29.73	1.1614	1.1688	1.1720
-	-	8	29.00	29.07	29.50	1.1417	1.1445	1.1560	28.58	28.86	29.00	1.1250	1.1363	1.1417	28.58	28.66	29.00	1.1250	1.1282	1.1417	



(continued)

Tap Drill Size Chart

Thread Cutting • UNC, UNF, and 8-pitch



(Thread Cutting • UNC, UNF, and 8-pitch — continued)

tap size	Threads per Inch			65% thread						70% thread						75% thread					
	UNC	UNF	8-pitch	Metric			Inch			Metric			Inch			Metric			Inch		
				smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill
1-3/8	6	-	-	31.00	31.35	31.50	1.2200	1.2343	1.2402	31.00	31.08	31.50	1.2200	1.2235	1.2402	30.56	30.80	30.96	1.2030	1.2126	1.2190
	-	12	-	33.00	33.14	33.34	1.2992	1.3046	1.3130	33.00	33.00	33.00	1.2992	1.2992	1.2992	32.54	32.86	32.94	1.2810	1.2938	1.2970
	-	-	8	32.00	32.24	32.50	1.2598	1.2695	1.2795	32.00	32.04	32.50	1.2598	1.2613	1.2795	31.75	31.83	32.00	1.2500	1.2532	1.2598
1-1/2	6	-	-	34.50	34.53	34.93	1.3583	1.3593	1.3750	34.13	34.25	34.50	1.3440	1.3485	1.3583	33.73	33.98	34.00	1.3280	1.3376	1.3386
	-	12	-	36.12	36.31	36.50	1.4220	1.4296	1.4375	36.12	36.18	36.50	1.4220	1.4242	1.4375	36.00	36.04	36.12	1.4173	1.4188	1.4220
	-	-	8	35.00	35.42	35.50	1.3780	1.3945	1.3976	35.00	35.21	35.50	1.3780	1.3863	1.3976	35.00	35.01	35.50	1.3780	1.3782	1.3976
1-5/8	-	-	8	38.50	38.59	39.00	1.5157	1.5195	1.5354	38.10	38.39	38.46	1.5000	1.5113	1.5140	38.10	38.18	38.46	1.5000	1.5032	1.5140
1-3/4	5	-	-	40.00	40.16	41.00	1.5750	1.5811	1.6140	39.50	39.83	40.00	1.5551	1.5681	1.5748	39.50	39.50	39.50	1.5551	1.5552	1.5748
	-	-	8	41.00	41.77	42.00	1.6140	1.6445	1.6540	41.00	41.56	42.00	1.6140	1.6363	1.6540	41.00	41.36	42.00	1.6140	1.6282	1.6540
1-7/8	-	-	8	44.00	44.94	45.00	1.7320	1.7695	1.7720	44.00	44.74	45.00	1.7320	1.7613	1.7720	44.00	44.53	45.00	1.7320	1.7532	1.7720
2	4 1/2	-	-	46.00	46.03	47.00	1.8110	1.8124	1.8500	45.00	45.67	46.00	1.7720	1.7979	1.8110	45.00	45.30	46.00	1.7720	1.7835	1.8110
	-	-	8	48.00	48.12	49.00	1.8900	1.8945	1.9290	47.00	47.91	48.00	1.8500	1.8863	1.8900	47.00	47.71	48.00	1.8500	1.8782	1.8900
2-1/4	4 1/2	-	-	52.00	52.38	53.00	2.0470	2.0624	2.0870	52.00	52.02	53.00	2.0470	2.0479	2.0870	51.00	51.65	52.00	2.0080	2.0335	2.0470
	-	-	8	54.00	54.47	55.00	2.1260	2.1445	2.1650	54.00	54.26	55.00	2.1260	2.1363	2.1650	54.00	54.06	55.00	2.1260	2.1282	2.1650
2-1/2	4	-	-	58.00	58.14	59.00	2.2840	2.2889	2.3230	57.00	57.73	58.00	2.2440	2.2727	2.2840	57.00	57.31	58.00	2.2440	2.2564	2.2840
	-	-	8	60.00	60.82	61.00	2.3620	2.3945	2.4020	60.00	60.61	61.00	2.3620	2.3863	2.4020	60.00	60.41	61.00	2.3620	2.3782	2.4020

Tapping

Thread Cutting • M and MF

Thread Cutting • M and MF

tap size	pitch		65% thread						70% thread						75% thread					
	M	MF	Metric			Inch			Metric			Inch			Metric			Inch		
			smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill
M1.6	0.35	-	1.20	1.30	1.30	0.0512	0.0512	0.0512	1.20	1.28	1.30	0.0472	0.0504	0.0512	1.20	1.26	1.30	0.0472	0.0496	0.0512
M1.7	0.35	-	1.40	1.40	1.40	0.0551	0.0551	0.0551	1.32	1.38	1.40	0.0520	0.0543	0.0550	1.32	1.36	1.40	0.0520	0.0535	0.0550
M1.8	0.35	-	1.50	1.50	1.50	0.0591	0.0591	0.0591	1.40	1.48	1.50	0.0551	0.0583	0.0591	1.40	1.46	1.50	0.0551	0.0575	0.0591
M2	0.4	-	1.60	1.66	1.70	0.0630	0.0654	0.0669	1.60	1.64	1.70	0.0630	0.0646	0.0669	1.60	1.61	1.70	0.0630	0.0634	0.0669
M2.2	0.45	-	1.80	1.82	1.90	0.0709	0.0717	0.0748	1.70	1.79	1.80	0.0669	0.0705	0.0709	1.70	1.76	1.80	0.0669	0.0693	0.0709
M2.5	0.45	-	2.10	2.12	2.20	0.0827	0.0835	0.0866	2.00	2.09	2.10	0.0787	0.0823	0.0827	2.00	2.06	2.10	0.0787	0.0811	0.0827
M2.6	0.45	-	2.20	2.22	2.30	0.0866	0.0874	0.0906	2.10	2.19	2.20	0.0827	0.0862	0.0866	2.10	2.16	2.20	0.0827	0.0850	0.0866
M3	0.5	-	2.58	2.58	2.58	0.1015	0.1016	0.1024	2.50	2.55	2.58	0.0984	0.1004	0.1015	2.50	2.51	2.58	0.0984	0.0988	0.1015
	-	0.35	2.70	2.70	2.70	0.1063	0.1063	0.1063	2.64	2.68	2.70	0.1040	0.1055	0.1063	2.64	2.66	2.70	0.1040	0.1047	0.1063
M3.5	0.6	-	2.95	2.99	3.00	0.1160	0.1177	0.1181	2.95	2.95	3.00	0.1160	0.1161	0.1181	2.90	2.92	2.95	0.1142	0.1150	0.1160
M4	0.7	-	3.40	3.41	3.46	0.1339	0.1343	0.1360	3.30	3.36	3.40	0.1299	0.1323	0.1339	3.30	3.32	3.40	0.1299	0.1307	0.1339
	-	0.5	3.57	3.58	3.60	0.1406	0.1409	0.1417	3.50	3.54	3.57	0.1378	0.1394	0.1406	3.50	3.51	3.57	0.1378	0.1382	0.1406
M4.5	0.75	-	3.80	3.87	3.90	0.1496	0.1524	0.1535	3.80	3.82	3.90	0.1496	0.1504	0.1535	3.73	3.77	3.80	0.1470	0.1484	0.1496
M5	0.8	-	4.30	4.32	4.37	0.1693	0.1701	0.1719	4.22	4.27	4.30	0.1660	0.1681	0.1693	4.22	4.22	4.30	0.1660	0.1661	0.1693
	-	0.5	4.50	4.58	4.60	0.1772	0.1803	0.1811	4.50	4.54	4.60	0.1772	0.1787	0.1811	4.50	4.51	4.60	0.1772	0.1776	0.1811
M6	1	-	5.16	5.16	5.16	0.2031	0.2031	0.2031	5.00	5.09	5.10	0.1969	0.2004	0.2008	5.00	5.03	5.10	0.1969	0.1980	0.2008
	-	0.75	5.30	5.37	5.40	0.2087	0.2114	0.2126	5.30	5.32	5.40	0.2087	0.2094	0.2126	5.20	5.27	5.30	0.2047	0.2075	0.2087
M7	1	-	6.10	6.16	6.20	0.2402	0.2425	0.2441	6.00	6.09	6.10	0.2362	0.2398	0.2402	6.00	6.03	6.10	0.2362	0.2374	0.2402

(continued)

(Thread Cutting • M and MF – continued)

tap size	pitch		65% thread						70% thread						75% thread					
			Metric			Inch			Metric			Inch			Metric			Inch		
	M	MF	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill
M8	1.25	–	6.90	6.94	7.00	0.2717	0.2732	0.2756	6.80	6.86	6.90	0.2677	0.2701	0.2717	6.75	6.78	6.80	0.2656	0.2669	0.2677
	–	1	7.15	7.16	7.20	0.2813	0.2819	0.2835	7.00	7.09	7.10	0.2756	0.2791	0.2795	7.00	7.03	7.10	0.2756	0.2768	0.2795
	–	0.75	7.30	7.37	7.40	0.2874	0.2902	0.2913	7.30	7.32	7.40	0.2874	0.2882	0.2913	7.20	7.27	7.30	0.2835	0.2862	0.2874
M10	1.5	–	8.70	8.73	8.73	0.3425	0.3437	0.3438	8.60	8.64	8.70	0.3386	0.3402	0.3425	8.50	8.54	8.60	0.3346	0.3362	0.3386
	–	1.25	8.90	8.94	9.00	0.3504	0.3520	0.3543	8.80	8.86	8.90	0.3465	0.3488	0.3504	8.73	8.78	8.80	0.3438	0.3457	0.3465
	–	1	9.13	9.16	9.20	0.3594	0.3606	0.3622	9.00	9.09	9.10	0.3543	0.3579	0.3583	9.00	9.03	9.10	0.3543	0.3555	0.3583
	–	0.75	9.35	9.37	9.40	0.3680	0.3689	0.3701	9.30	9.32	9.35	0.3661	0.3669	0.3680	9.20	9.27	9.30	0.3622	0.3650	0.3661
M12	1.75	–	10.50	10.52	10.60	0.4134	0.4142	0.4173	10.40	10.41	10.50	0.4094	0.4098	0.4134	10.30	10.30	10.30	0.4055	0.4055	0.4055
	–	1.5	10.72	10.73	10.80	0.4219	0.4224	0.4252	10.60	10.64	10.70	0.4173	0.4189	0.4213	10.50	10.54	10.60	0.4134	0.4150	0.4173
	–	1.25	10.90	10.94	11.00	0.4291	0.4307	0.4331	10.80	10.86	10.90	0.4252	0.4276	0.4291	10.72	10.78	10.80	0.4219	0.4244	0.4252
	–	1	11.15	11.16	11.20	0.4375	0.4394	0.4409	11.00	11.09	11.10	0.4331	0.4366	0.4370	11.00	11.03	11.10	0.4331	0.4343	0.4370
M14	2	–	12.30	12.31	12.40	0.4844	0.4846	0.4882	12.10	12.18	12.20	0.4764	0.4795	0.4803	12.00	12.05	12.10	0.4724	0.4744	0.4764
	–	1.5	12.70	12.73	12.80	0.5000	0.5012	0.5039	12.60	12.64	12.70	0.4961	0.4976	0.5000	12.50	12.54	12.60	0.4921	0.4937	0.4961
M16	2	–	14.20	14.31	14.50	0.5591	0.5634	0.5709	14.00	14.18	14.20	0.5512	0.5583	0.5591	14.00	14.05	14.20	0.5512	0.5531	0.5591
	–	1.5	14.50	14.73	15.00	0.5709	0.5799	0.5906	14.50	14.64	15.00	0.5709	0.5764	0.5906	14.50	14.54	15.00	0.5709	0.5724	0.5906
M18	2.5	–	15.80	15.89	16.00	0.6220	0.6256	0.6299	15.50	15.73	15.80	0.6102	0.6193	0.6220	15.50	15.56	15.80	0.6102	0.6126	0.6220
	–	1.5	16.50	16.73	17.00	0.6496	0.6587	0.6693	16.50	16.64	17.00	0.6496	0.6551	0.6693	16.50	16.54	17.00	0.6496	0.6512	0.6693
M20	2.5	–	17.50	17.89	18.00	0.6890	0.7043	0.7087	17.50	17.73	18.00	0.6890	0.6980	0.7087	17.50	17.56	18.00	0.6890	0.6913	0.7087
	–	1.5	18.50	18.73	19.00	0.7283	0.7374	0.7480	18.50	18.64	19.00	0.7283	0.7339	0.7480	18.50	18.54	19.00	0.7283	0.7299	0.7480
	–	1	19.00	19.16	19.50	0.7480	0.7543	0.7677	19.00	19.09	19.50	0.7480	0.7516	0.7677	19.00	19.03	19.50	0.7480	0.7492	0.7677
M22	2.5	–	19.50	19.89	20.00	0.7677	0.7831	0.7874	19.50	19.73	20.00	0.7677	0.7768	0.7874	19.50	19.56	20.00	0.7677	0.7701	0.7874
	–	2	20.00	20.31	20.50	0.7874	0.7996	0.8071	20.00	20.18	20.50	0.7874	0.7945	0.8071	20.00	20.05	20.50	0.7874	0.7894	0.8071
	–	1.5	20.50	20.73	21.00	0.8071	0.8161	0.8268	20.50	20.64	21.00	0.8071	0.8126	0.8268	20.50	20.54	21.00	0.8071	0.8087	0.8268
M24	3	–	21.43	21.47	21.50	0.8440	0.8453	0.8460	21.15	21.27	21.33	0.8327	0.8374	0.8398	21.00	21.08	21.15	0.8268	0.8299	0.8327
	–	2	22.23	22.31	22.44	0.8750	0.8783	0.8840	22.00	22.18	22.23	0.8661	0.8732	0.8750	22.00	22.05	22.23	0.8661	0.8681	0.8750
	–	1.5	22.50	22.73	22.77	0.8858	0.8949	0.8965	22.50	22.64	22.77	0.8858	0.8913	0.8965	22.50	22.54	22.77	0.8858	0.8874	0.8965
M27	3	–	24.30	24.47	24.50	0.9567	0.9634	0.9646	24.00	24.27	24.30	0.9449	0.9555	0.9567	24.00	24.08	24.30	0.9449	0.9480	0.9567
	–	2	25.07	25.31	25.40	0.9870	0.9965	1.0000	25.07	25.18	25.40	0.9870	0.9913	1.0000	25.00	25.05	25.07	0.9843	0.9862	0.9870
	–	1.5	25.67	25.73	25.81	1.0110	1.0130	1.0160	25.61	25.64	25.65	1.0080	1.0094	1.0098	25.50	25.54	25.60	1.0039	1.0055	1.0080
M30	3.5	–	27.00	27.04	27.50	1.0630	1.0646	1.0827	26.70	26.82	27.00	1.0512	1.0559	1.0610	26.59	26.59	26.59	1.0433	1.0469	1.0470
	–	2	28.18	28.31	28.50	1.1090	1.1146	1.1220	28.18	28.18	28.18	1.1090	1.1094	1.1220	28.00	28.05	28.10	1.1024	1.1043	1.1063
	–	1.5	28.58	28.73	29.00	1.1250	1.1311	1.1417	28.58	28.64	29.00	1.1250	1.1276	1.1417	28.50	28.54	28.58	1.1220	1.1236	1.1250
M33	3.5	–	30.00	30.04	30.16	1.1811	1.1827	1.1875	29.77	29.82	30.00	1.1720	1.1740	1.1811	29.50	29.59	29.73	1.1614	1.1650	1.1720
	–	2	31.00	31.31	31.50	1.2200	1.2327	1.2402	31.00	31.18	31.50	1.2200	1.2276	1.2402	31.00	31.05	31.50	1.2200	1.2224	1.2402
M36	4	–	32.54	32.62	32.94	1.2810	1.2843	1.2970	32.00	32.36	32.50	1.2598	1.2740	1.2795	32.00	32.10	32.50	1.2598	1.2638	1.2795
	–	3	33.40	33.47	33.50	1.3130	1.3177	1.3189	33.00	33.27	33.34	1.2992	1.3098	1.3130	33.00	33.08	33.34	1.2992	1.3024	1.3130
	–	2	34.13	34.31	34.50	1.3440	1.3508	1.3583	34.13	34.18	34.50	1.3440	1.3457	1.3583	34.00	34.05	34.13	1.3386	1.3406	1.3440
M39	4	–	35.50	35.62	35.72	1.3976	1.4024	1.4060	35.00	35.36	35.50	1.3780	1.3921	1.3976	35.00	35.10	35.50	1.3780	1.3819	1.3976
	–	2	37.31	37.31	37.31	1.4567	1.4689	1.4690	37.00	37.18	37.31	1.4567	1.4638	1.4690	37.00	37.05	37.31	1.4567	1.4587	1.4690
M42	4.5	–	38.10	38.20	38.46	1.5000	1.5039	1.5140	37.50	37.91	38.00	1.4764	1.4925	1.4961	37.50	37.62	38.00	1.4764	1.4811	1.4961
	–	3	39.00	39.47	39.50	1.5354	1.5539	1.5551	39.00	39.27	39.50	1.5354	1.5461	1.5551	39.00	39.08	39.50	1.5354	1.5386	1.5551
	–	2	40.00	40.31	41.00	1.5750	1.5870	1.6140	40.00	40.18	41.00	1.5750	1.5819	1.6140	40.00	40.05	41.00	1.5750	1.5768	1.6140



■ Thread Forming • UNC and UNF

tap size	pitch		65% thread						70% thread						75% thread					
			Metric			Inch			Metric			Inch			Metric			Inch		
			smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill
#0	-	80	1.32	1.38	1.40	0.0520	0.0545	0.0550	1.32	1.38	1.40	0.0520	0.0540	0.0550	1.32	1.36	1.40	0.0520	0.0536	0.0550
#1	64	-	1.60	1.68	1.70	0.0630	0.0661	0.0669	1.60	1.67	1.70	0.0630	0.0655	0.0669	1.60	1.65	1.70	0.0630	0.0650	0.0669
	-	72	1.70	1.70	1.70	0.0669	0.0669	0.0669	1.60	1.69	1.70	0.0630	0.0663	0.0669	1.60	1.67	1.70	0.0630	0.0659	0.0669
#2	56	-	1.98	1.98	1.98	0.0781	0.0781	0.0781	1.90	1.97	1.98	0.0748	0.0774	0.0781	1.90	1.95	1.98	0.0748	0.0769	0.0781
	-	64	2.00	2.01	2.10	0.0787	0.0791	0.0827	2.00	2.00	2.00	0.0781	0.0785	0.0787	1.98	1.98	1.98	0.0748	0.0780	0.0781
#3	48	-	2.20	2.28	2.30	0.0866	0.0898	0.0906	2.20	2.27	2.30	0.0866	0.0890	0.0906	2.20	2.25	2.30	0.0866	0.0884	0.0906
	-	56	2.30	2.31	2.38	0.0906	0.0911	0.0938	2.30	2.31	2.38	0.0866	0.0904	0.0906	2.20	2.28	2.30	0.0866	0.0899	0.0906
#4	40	-	2.50	2.57	2.58	0.0984	0.1010	0.1015	2.50	2.55	2.58	0.0984	0.1000	0.1015	2.50	2.52	2.58	0.0984	0.0993	0.1015
	-	48	2.60	2.61	2.64	0.1024	0.1028	0.1040	2.60	2.60	2.60	0.1015	0.1020	0.1024	2.58	2.58	2.58	0.0984	0.1014	0.1015
#5	40	-	2.90	2.90	2.90	0.1130	0.1140	0.1142	2.87	2.88	2.90	0.1130	0.1130	0.1130	2.82	2.85	2.87	0.1110	0.1123	0.1130
	-	44	2.90	2.92	2.95	0.1142	0.1150	0.1160	2.90	2.91	2.95	0.1130	0.1141	0.1142	2.87	2.88	2.90	0.1130	0.1134	0.1142
#6	32	-	3.10	3.16	3.18	0.1220	0.1243	0.1250	3.10	3.14	3.18	0.1220	0.1230	0.1250	3.10	3.10	3.10	0.1220	0.1221	0.1250
	-	40	3.20	3.23	3.26	0.1260	0.1270	0.1285	3.20	3.21	3.26	0.1260	0.1260	0.1260	3.18	3.18	3.18	0.1250	0.1253	0.1260
#8	32	-	3.80	3.82	3.90	0.1496	0.1503	0.1535	3.80	3.80	3.80	0.1470	0.1490	0.1496	3.73	3.76	3.80	0.1470	0.1481	0.1496
	-	36	3.80	3.86	3.90	0.1496	0.1518	0.1535	3.80	3.84	3.90	0.1496	0.1507	0.1535	3.80	3.80	3.80	0.1496	0.1498	0.1535
#10	24	-	4.30	4.36	4.37	0.1693	0.1716	0.1719	4.30	4.34	4.37	0.1693	0.1700	0.1719	4.22	4.29	4.30	0.1660	0.1688	0.1693
	-	32	4.40	4.48	4.50	0.1732	0.1762	0.1772	4.40	4.46	4.50	0.1732	0.1750	0.1772	4.40	4.42	4.50	0.1732	0.1741	0.1772
#12	24	-	5.00	5.02	5.10	0.1969	0.1976	0.2008	5.00	5.00	5.00	0.1929	0.1960	0.1969	4.90	4.95	5.00	0.1929	0.1948	0.1969
	-	28	5.00	5.09	5.10	0.1969	0.2002	0.2008	5.00	5.07	5.10	0.1969	0.1990	0.2008	5.00	5.02	5.10	0.1969	0.1978	0.2008
1/4	20	-	5.70	5.79	5.80	0.2244	0.2279	0.2283	5.70	5.76	5.80	0.2244	0.2260	0.2283	5.70	5.70	5.70	0.2244	0.2245	0.2283
	-	28	5.95	5.95	5.95	0.2323	0.2342	0.2344	5.90	5.94	5.95	0.2323	0.2329	0.2344	5.80	5.89	5.90	0.2283	0.2318	0.2323
5/16	18	-	7.30	7.31	7.40	0.2874	0.2879	0.2913	7.30	7.30	7.30	0.2835	0.2861	0.2874	7.20	7.22	7.30	0.2835	0.2842	0.2874
	-	24	7.40	7.47	7.50	0.2913	0.2941	0.2953	7.40	7.46	7.50	0.2913	0.2927	0.2953	7.40	7.40	7.40	0.2874	0.2912	0.2913
3/8	16	-	8.80	8.82	8.90	0.3465	0.3474	0.3504	8.80	8.80	8.80	0.3438	0.3452	0.3465	8.70	8.71	8.73	0.3425	0.3431	0.3438
	-	24	9.00	9.06	9.10	0.3543	0.3566	0.3583	9.00	9.06	9.10	0.3543	0.3552	0.3583	8.90	8.98	9.00	0.3504	0.3537	0.3543
7/16	14	-	10.30	10.31	10.32	0.4055	0.4059	0.4063	10.20	10.29	10.30	0.4016	0.4035	0.4055	10.10	10.19	10.20	0.3976	0.4011	0.4016
	-	20	10.50	10.55	10.60	0.4134	0.4154	0.4173	10.50	10.55	10.60	0.4134	0.4137	0.4173	10.40	10.46	10.50	0.4094	0.4120	0.4134
1/2	13	-	11.80	11.84	11.90	0.4646	0.4660	0.4685	11.80	11.82	11.90	0.4606	0.4634	0.4646	11.70	11.70	11.70	0.4606	0.4608	0.4646
	-	20	12.10	12.14	12.20	0.4764	0.4779	0.4803	12.10	12.14	12.20	0.4724	0.4762	0.4764	12.00	12.05	12.10	0.4724	0.4745	0.4764
9/16	12	-	13.10	13.35	13.50	0.5157	0.5257	0.5315	13.10	13.33	13.50	0.5157	0.5229	0.5315	13.10	13.21	13.50	0.5157	0.5200	0.5315
	-	18	13.50	13.66	13.80	0.5315	0.5379	0.5433	13.50	13.67	13.80	0.5315	0.5361	0.5433	13.50	13.57	13.80	0.5315	0.5342	0.5433
5/8	11	-	14.50	14.85	15.00	0.5709	0.5848	0.5906	14.50	14.83	15.00	0.5709	0.5817	0.5906	14.50	14.70	15.00	0.5709	0.5787	0.5906
	-	18	15.10	15.25	15.50	0.5945	0.6004	0.6102	15.10	15.26	15.50	0.5945	0.5986	0.6102	15.10	15.16	15.50	0.5945	0.5967	0.6102
3/4	10	-	17.50	17.93	18.00	0.6890	0.7058	0.7087	17.50	17.91	18.00	0.6890	0.7024	0.7087	17.50	17.75	18.00	0.6890	0.6990	0.7087
	-	16	18.00	18.35	18.50	0.7087	0.7224	0.7283	18.00	18.37	18.50	0.7087	0.7202	0.7283	18.00	18.24	18.50	0.7087	0.7181	0.7283
7/8	9	-	20.50	20.98	21.00	0.8071	0.8259	0.8268	20.50	20.96	21.00	0.8071	0.8221	0.8268	20.50	20.78	21.00	0.8071	0.8183	0.8268
	-	14	21.33	21.42	21.43	0.8398	0.8434	0.8440	21.43	21.45	21.50	0.8398	0.8410	0.8440	21.15	21.30	21.33	0.8327	0.8386	0.8398
1	8	-	24.00	24.00	24.00	0.9380	0.9448	0.9449	23.81	23.98	24.00	0.9380	0.9405	0.9449	23.50	23.78	23.81	0.9252	0.9363	0.9375
	-	12	24.30	24.47	24.50	0.9567	0.9632	0.9646	24.30	24.49	24.50	0.9567	0.9603	0.9646	24.30	24.32	24.50	0.9567	0.9575	0.9646

Tapping

Thread Forming • M and MF

tap size	pitch		65% thread						70% thread						75% thread					
			Metric			Inch			Metric			Inch			Metric			Inch		
	M	MF	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill	smallest drill	theoretical	largest drill
M1.6	0.35	-	1.40	1.45	1.50	0.0551	0.0571	0.0591	1.40	1.43	1.50	0.0551	0.0563	0.0591	1.40	1.42	1.50	0.0551	0.0559	0.0591
M1.7	0.35	-	1.50	1.58	1.60	0.0591	0.0623	0.0630	1.50	1.57	1.60	0.0591	0.0620	0.0630	1.50	1.56	1.60	0.0591	0.0617	0.0630
M1.8	0.35	-	1.60	1.65	1.70	0.0630	0.0650	0.0669	1.60	1.63	1.70	0.0630	0.0642	0.0669	1.60	1.62	1.70	0.0630	0.0638	0.0669
M2	0.4	-	1.80	1.82	1.90	0.0709	0.0717	0.0748	1.80	1.81	1.90	0.0709	0.0713	0.0748	1.80	1.80	1.80	0.0709	0.0709	0.0709
M2.2	0.45	-	2.00	2.00	2.00	0.0787	0.0787	0.0787	1.98	1.99	2.00	0.0781	0.0783	0.0787	1.90	1.97	1.98	0.0748	0.0776	0.0781
M2.5	0.45	-	2.30	2.30	2.30	0.0906	0.0906	0.0906	2.20	2.29	2.30	0.0866	0.0902	0.0906	2.20	2.27	2.30	0.0866	0.0894	0.0906
M2.6	0.45	-	2.40	2.43	2.44	0.0945	0.0957	0.0960	2.40	2.42	2.44	0.0945	0.0953	0.0960	2.40	2.41	2.44	0.0945	0.0949	0.0960
M3	0.5	-	2.78	2.78	2.80	0.1094	0.1094	0.1094	2.71	2.76	2.78	0.1065	0.1087	0.1094	2.71	2.75	2.78	0.1065	0.1083	0.1094
	-	0.35	2.87	2.88	2.90	0.1130	0.1134	0.1142	2.87	2.87	2.87	0.1130	0.1130	0.1130	2.82	2.86	2.87	0.1110	0.1126	0.1130
M3.5	0.6	-	3.20	3.23	3.26	0.1260	0.1272	0.1285	3.20	3.21	3.26	0.1260	0.1264	0.1285	3.18	3.19	3.20	0.1250	0.1256	0.1260
M4	0.7	-	3.66	3.69	3.70	0.1440	0.1453	0.1457	3.66	3.67	3.70	0.1440	0.1445	0.1457	3.60	3.64	3.66	0.1417	0.1433	0.1440
	-	0.5	3.73	3.78	3.80	0.1470	0.1488	0.1496	3.73	3.76	3.80	0.1470	0.1480	0.1496	3.73	3.75	3.80	0.1470	0.1476	0.1496
M4.5	0.75	-	4.10	4.17	4.20	0.1614	0.1642	0.1654	4.10	4.14	4.20	0.1614	0.1630	0.1654	4.10	4.12	4.20	0.1614	0.1622	0.1654
M5	0.8	-	4.62	4.65	4.70	0.1820	0.1831	0.1850	4.60	4.62	4.62	0.1811	0.1819	0.1820	4.50	4.59	4.60	0.1772	0.1807	0.1811
	-	0.5	4.76	4.78	4.80	0.1875	0.1882	0.1890	4.70	4.76	4.76	0.1850	0.1874	0.1875	4.70	4.75	4.76	0.1850	0.1870	0.1875
M6	1	-	5.56	5.56	5.60	0.2188	0.2189	0.2205	5.50	5.52	5.56	0.2165	0.2173	0.2188	5.41	5.49	5.50	0.2130	0.2161	0.2165
	-	0.75	5.62	5.67	5.70	0.2211	0.2232	0.2244	5.62	5.64	5.70	0.2211	0.2220	0.2244	5.62	5.62	5.70	0.2211	0.2213	0.2244
M7	1	-	6.53	6.56	6.60	0.2570	0.2583	0.2598	6.50	6.52	6.53	0.2559	0.2567	0.2570	6.40	6.49	6.50	0.2520	0.2555	0.2559
M8	1.25	-	7.40	7.45	7.50	0.2913	0.2933	0.2953	7.40	7.41	7.50	0.2913	0.2917	0.2953	7.30	7.36	7.40	0.2874	0.2898	0.2913
	-	1	7.54	7.56	7.60	0.2969	0.2976	0.2992	7.50	7.52	7.54	0.2953	0.2961	0.2969	7.40	7.49	7.50	0.2913	0.2949	0.2953
	-	0.75	7.60	7.67	7.70	0.2992	0.3020	0.3031	7.60	7.64	7.70	0.2992	0.3008	0.3031	7.60	7.62	7.70	0.2992	0.3000	0.3031
M10	1.5	-	9.30	9.34	9.35	0.3661	0.3677	0.3680	9.20	9.29	9.30	0.3622	0.3657	0.3661	9.20	9.24	9.30	0.3622	0.3638	0.3661
	-	1.25	9.40	9.45	9.50	0.3701	0.3720	0.3740	9.40	9.41	9.50	0.3701	0.3705	0.3740	9.35	9.36	9.40	0.3680	0.3685	0.3701
	-	1	9.53	9.56	9.60	0.3750	0.3764	0.3780	9.50	9.52	9.53	0.3740	0.3748	0.3750	9.40	9.49	9.50	0.3701	0.3736	0.3740
	-	0.75	9.60	9.67	9.70	0.3780	0.3807	0.3819	9.60	9.64	9.70	0.3780	0.3795	0.3819	9.60	9.62	9.70	0.3780	0.3787	0.3819
M12	1.75	-	11.20	11.23	11.30	0.4409	0.4421	0.4449	11.15	11.17	11.20	0.4375	0.4398	0.4409	11.10	11.11	11.15	0.4370	0.4374	0.4375
	-	1.5	11.30	11.34	11.40	0.4449	0.4465	0.4488	11.20	11.29	11.30	0.4449	0.4484	0.4488	11.20	11.24	11.30	0.4409	0.4425	0.4449
	-	1.25	11.40	11.45	11.50	0.4488	0.4508	0.4528	11.40	11.41	11.50	0.4488	0.4492	0.4528	11.30	11.36	11.40	0.4449	0.4472	0.4488
	-	1	11.51	11.56	11.60	0.4531	0.4551	0.4567	11.51	11.52	11.60	0.4531	0.4535	0.4567	11.40	11.49	11.50	0.4488	0.4524	0.4528
M14	2	-	13.10	13.12	13.50	0.5157	0.5165	0.5315	13.00	13.05	13.10	0.5118	0.5138	0.5157	12.80	12.98	13.00	0.5039	0.5110	0.5118
	-	1.5	13.10	13.34	13.50	0.5157	0.5252	0.5315	13.10	13.29	13.50	0.5157	0.5232	0.5315	13.10	13.24	13.50	0.5157	0.5213	0.5315
M16	2	-	15.10	15.12	15.50	0.5945	0.5953	0.6102	15.00	15.05	15.10	0.5906	0.5925	0.5945	14.50	14.98	15.00	0.5709	0.5898	0.5906
	-	1.5	15.10	15.34	15.50	0.5945	0.6039	0.6102	15.10	15.29	15.50	0.5945	0.6020	0.6102	15.10	15.24	15.50	0.5945	0.6000	0.6102
M18	2.5	-	16.50	16.90	17.00	0.6496	0.6654	0.6693	16.50	16.81	17.00	0.6496	0.6618	0.6693	16.50	16.73	17.00	0.6496	0.6587	0.6693
	-	1.5	17.00	17.34	17.50	0.6693	0.6827	0.6890	17.00	17.29	17.50	0.6693	0.6807	0.6890	17.00	17.24	17.50	0.6693	0.6787	0.6890
M20	2.5	-	18.50	18.90	19.00	0.7283	0.7441	0.7480	18.50	18.81	19.00	0.7283	0.7406	0.7480	18.50	18.73	19.00	0.7283	0.7374	0.7480
	-	1.5	19.00	19.34	19.50	0.7480	0.7614	0.7677	19.00	19.29	19.50	0.7480	0.7594	0.7677	19.00	19.24	19.50	0.7480	0.7575	0.7677
-	1	19.50	19.56	20.00	0.7677	0.7701	0.7874	19.50	19.52	20.00	0.7677	0.7685	0.7874	19.00	19.49	19.50	0.7480	0.7673	0.7677	
M22	2.5	-	20.50	20.90	21.00	0.8071	0.8228	0.8268	20.50	20.81	21.00	0.8071	0.8193	0.8268	20.50	20.73	21.00	0.8071	0.8161	0.8268
	-	2	21.00	21.12	21.15	0.8268	0.8315	0.8327	21.00	21.05	21.15	0.8268	0.8287	0.8327	20.50	20.98	21.00	0.8071	0.8260	0.8268
	-	1.5	21.33	21.34	21.43	0.8398	0.8402	0.8440	21.15	21.29	21.33	0.8327	0.8382	0.8398	21.15	21.24	21.33	0.8327	0.8362	0.8398
M24	3	-	22.50	22.67	22.77	0.8858	0.8925	0.8965	22.50	22.57	22.77	0.8858	0.8886	0.8965	22.44	22.47	22.50	0.8840	0.8846	0.8858
	-	2	23.10	23.12	23.30	0.9094	0.9102	0.9173	23.00	23.05	23.10	0.9055	0.9075	0.9094	22.77	22.98	23.00	0.8965	0.9047	0.9055
	-	1.5	23.30	23.34	23.42	0.9173	0.9189	0.9220	23.10	23.29	23.30	0.9094	0.9169	0.9173	23.10	23.24	23.30	0.9094	0.9150	0.9173



■ Pipe Taps

pipe tap size	NPT and NPTF		NPSM	NPSC	NPSF
	without reamer	with reamer			
1/16-27	0.2420	0.2344	–	0.2500	0.2460
1/8-27	0.3320	0.3281	0.3580	0.3320	0.3390
1/4-18	0.4375	0.4219	0.4688	0.4375	0.4375
3/8-18	0.5625	0.5625	0.6030	0.5781	0.5781
1/2-14	0.7031	0.6875	0.7480	0.7087	0.7087
3/4-14	0.9063	0.8906	0.9531	0.9219	0.9219
1-11 1/2	1.1406	1.1250	1.2031	1.1563	1.1563
1 1/4-11 1/2	1.4844	1.4688	1.5460	1.5000	–
1 1/2-11 1/2	1.7188	1.7031	1.7813	1.7344	–
2-11 1/2	2.1875	2.1719	2.2500	2.2031	–



Tapping

**Through Holes
Push Chips**



Spiral Point

LHSF



- Spiral point or LHSF (Left-Hand Spiral Flute).
- Ideal for materials with long chips.

**Blind Holes
Pull Chips**



RHSF



- RHSF (Right-Hand Spiral Flute).
- Ideal for materials with long chips.

**Blind or Through Holes
Store Chips**



STFL



- STFL (Straight Flute).
- Ideal for materials with short chips.

**Blind or Through Holes
No Chips**



Forming Tap



- Forming.
- Ideal for ductile materials <32 HRC.

■ Unified Inch Screw Threads

thread size/pitch	recommended tap limits ¹		min all classes (Basic)	internal thread pitch diameter limits	
	class 2B	class 3B		max class 2B	max class 3B
0 - 80	H2	H2	0.0519	0.0542	0.0536
1 - 64	H2	H2	0.0629	0.0655	0.0648
1 - 72	H2	H2	0.0640	0.0665	0.0659
2 - 56	H2	H2	0.0744	0.0772	0.0765
2 - 64	H2	H2	0.0759	0.0786	0.0779
3 - 48	H3	H2	0.0855	0.0885	0.0877
3 - 56	H2	H2	0.0874	0.0902	0.0895
4 - 40	H3	H2	0.0958	0.0991	0.0982
4 - 48	H3	H2	0.0985	0.1016	0.1008
5 - 40	H3	H2	0.1088	0.1121	0.1113
5 - 44	H3	H2	0.1102	0.1134	0.1126
6 - 32	H3	H2	0.1177	0.1214	0.1204
6 - 40	H3	H2	0.1218	0.1252	0.1243
8 - 32	H3	H3	0.1437	0.1475	0.1465
8 - 36	H3	H3	0.1460	0.1496	0.1487
10 - 24	H3	H3	0.1629	0.1672	0.1661
10 - 32	H3	H3	0.1697	0.1736	0.1726
12 - 24	H3	H3	0.1889	0.1933	0.1922
12 - 28	H3	H3	0.1928	0.1970	0.1959
1/4 - 20	H5	H3	0.2175	0.2224	0.2211
1/4 - 28	H4	H3	0.2268	0.2311	0.2300
5/16 - 18	H5	H3	0.2764	0.2817	0.2803
5/16 - 24	H4	H3	0.2854	0.2902	0.2890
3/8 - 16	H5	H3	0.3344	0.3401	0.3387
3/8 - 24	H4	H3	0.3479	0.3528	0.3516
7/16 - 14	H5	H3	0.3911	0.3972	0.3957
7/16 - 20	H5	H3	0.4050	0.4104	0.4091
1/2 - 13	H5	H4	0.4500	0.4565	0.4548
1/2 - 20	H5	H3	0.4675	0.4731	0.4717
9/16 - 12	H5	H4	0.5084	0.5152	0.5135
9/16 - 18	H5	H3	0.5264	0.5323	0.5308
5/8 - 11	H5	H4	0.5660	0.5732	0.5714
5/8 - 18	H5	H3	0.5889	0.5949	0.5934
3/4 - 10	H5	H4	0.6850	0.6927	0.6907

Tapping

¹Tap H limit selected for 3B will also produce thread to 2B.

(continued)

NOTE: The above recommended taps normally produce the class of thread indicated in average materials when used with reasonable care. However, if the specified tap does not provide a satisfactory gage fit, choose an alternate tap limit.

■ Unified Inch Screw Threads *(continued)*

thread size/pitch	recommended tap limits ¹		internal thread pitch diameter limits		
	class 2B	class 3B	min all classes (Basic)	max class 2B	max class 3B
3/4 - 16	H5	H4	0.7094	0.7159	0.7143
7/8 - 9	H6	H4	0.8028	0.8110	0.8089
7/8 - 14	H6	H4	0.8286	0.8356	0.8339
1" - 8	H6	H5	0.9188	0.9276	0.9254
1" - 12	H6	H4	0.9459	0.9535	0.9516
1-1/8 - 7	H8	H6	1.0322	1.0416	1.0393
1-1/8 - 8	H8	H6	1.0438	1.0528	1.0505
1-1/8 - 12	H6	H5	1.0709	1.0787	1.0768
1-1/4 - 7	H8	H6	1.1572	1.1668	1.1644
1-1/4 - 8	H8	H6	1.1688	1.1780	1.1757
1-1/4 - 12	H6	H5	1.1959	1.2039	1.2019
1-3/8 - 6	H8	H6	1.2667	1.2771	1.2745
1-3/8 - 8	H8	H6	1.2938	1.3031	1.3008
1-3/8 - 12	H6	H5	1.3209	1.3291	1.3270
1-1/2 - 6	H8	H6	1.3917	1.4022	1.3996
1-1/2 - 8	H8	H6	1.4188	1.4283	1.4259
1-1/2 - 12	H6	H5	1.4459	1.4542	1.4522
1-3/4 - 5	H8	H7	1.6201	1.6317	1.6288
2 - 4 1/2	H8	H7	1.8557	1.8681	1.8650

¹Tap H limit selected for 3B will also produce thread to 2B.



■ Tap Recommendations for Class 6H Metric Screw Threads

thread size		recommended tap limit number	internal thread product limits — class 6H			
nominal diameter (mm)	pitch (mm)		pitch diameter (mm)		pitch diameter (in)	
		min	max	min	max	
1,6	0,35	D3	1,373	1,458	.05406	.05740
2	0,4	D3	1,740	1,830	.06850	.07205
2,5	0,45	D3	2,208	2,303	.08693	.09067
3	0,5	D3	2,675	2,775	.10531	.10925
3,5	0,6	D4	3,110	3,222	.12244	.12685
4	0,7	D4	3,545	3,663	.13957	.14421
4,5	0,75	D4	4,013	4,131	.15789	.16264
5	0,8	D4	4,480	4,605	.17638	.18130
6	1	D5	5,350	5,500	.21063	.21654
7	1	D5	6,350	6,500	.25000	.25591
8	1,25	D5	7,188	7,348	.28299	.28929
10	1,5	D6	9,026	9,206	.35535	.36244
12	1,75	D6	10,863	11,063	.42768	.43555
14	2	D7	12,701	12,913	.50004	.50839
16	2	D7	14,701	14,913	.57878	.58713
20	2,5	D7	18,376	18,600	.72346	.73228
24	3	D8	22,051	22,316	.86815	.87858
30	3,5	D9	27,727	28,007	1.09161	1.10264
36	4	D9	33,402	33,702	1.31504	1.32685

In addition to the nominal size and pitch of a tap, there is another important dimensional factor to be considered when selecting a ground thread tap for a given job. This factor is the pitch diameter tap limit, "H" and "L". "H" represents (high) above basic pitch diameter; "L" (low) is below basic pitch diameter. Tap limits have been established to provide a choice in the selection of the tap size best suited to produce the class of thread desired.

Figure 1 illustrates the numbering system and the .0005" diameter increment separation between successive limits. Because the starting point is basic pitch diameter, dividing the limit number by two establishes, in thousandths of an inch, the amount the maximum tap pitch diameter is above basic in the "H" series and the amount the minimum tap pitch diameter is under basic in the "L" series.

Figure 2 illustrates the positioning of the tap limits in relation to the various classes of threads for a 1/4-20 size.

Figure 1

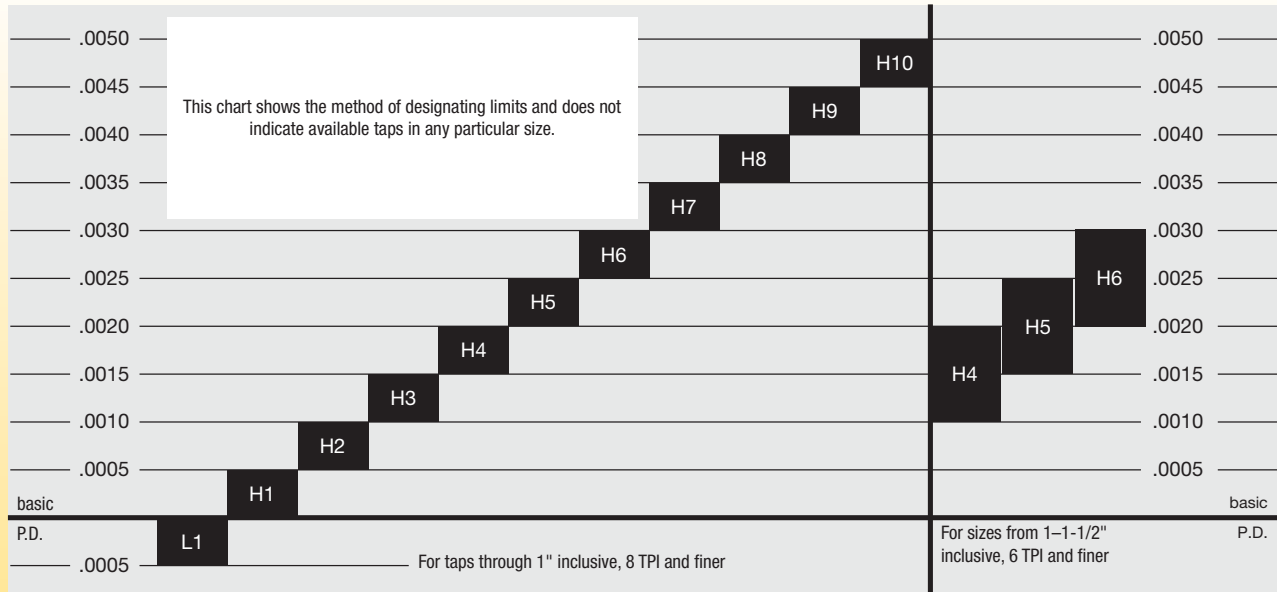
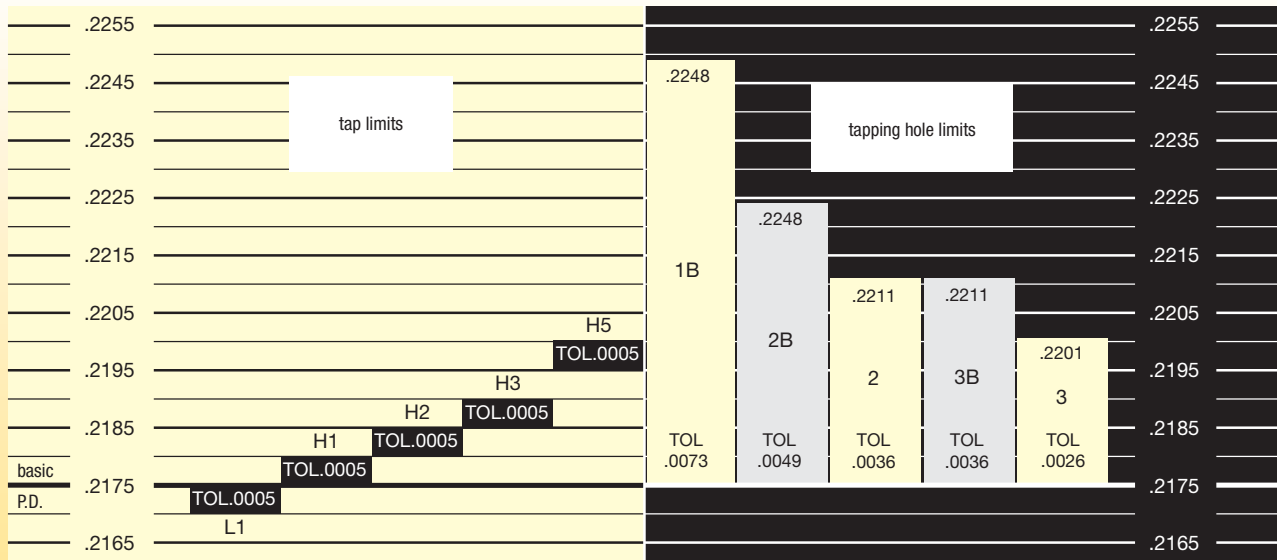
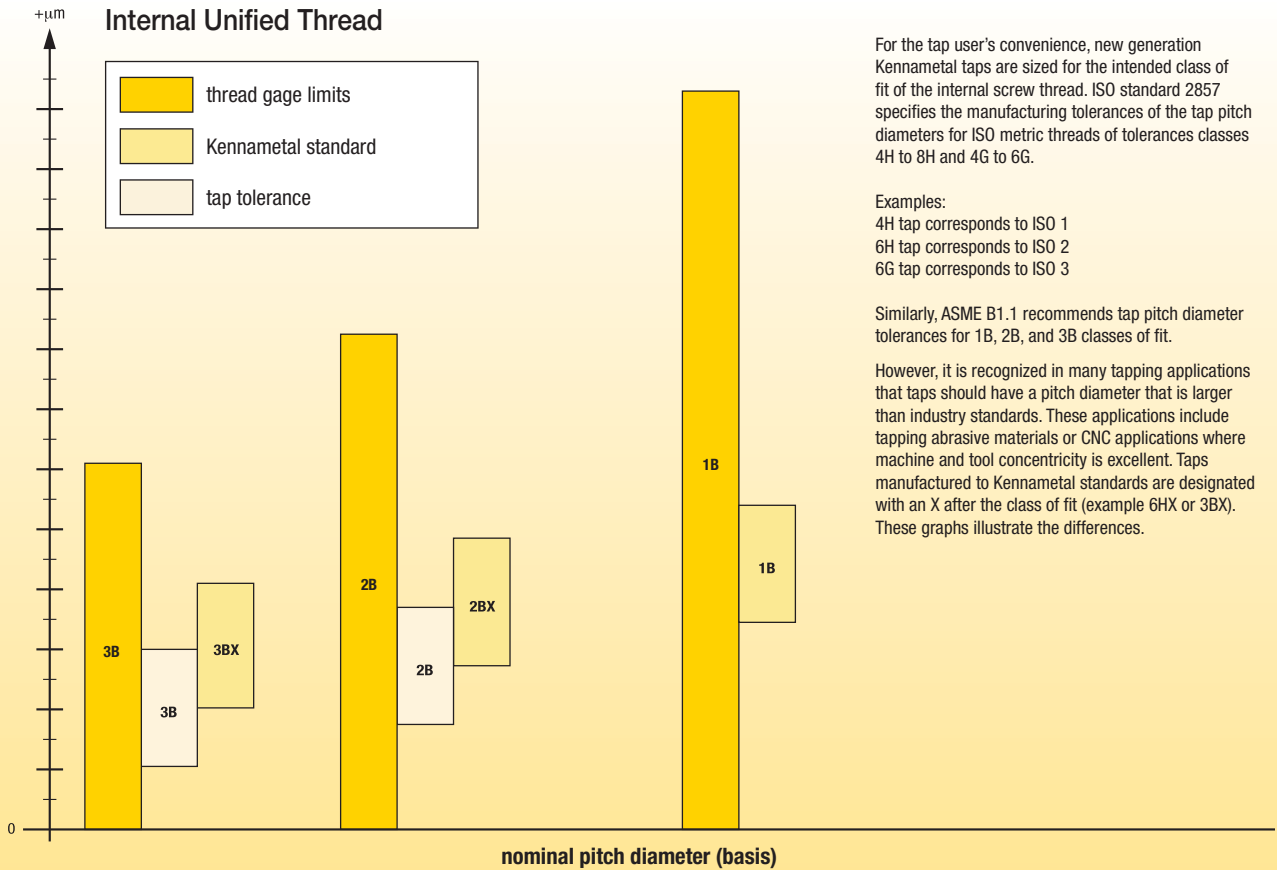


Figure 2

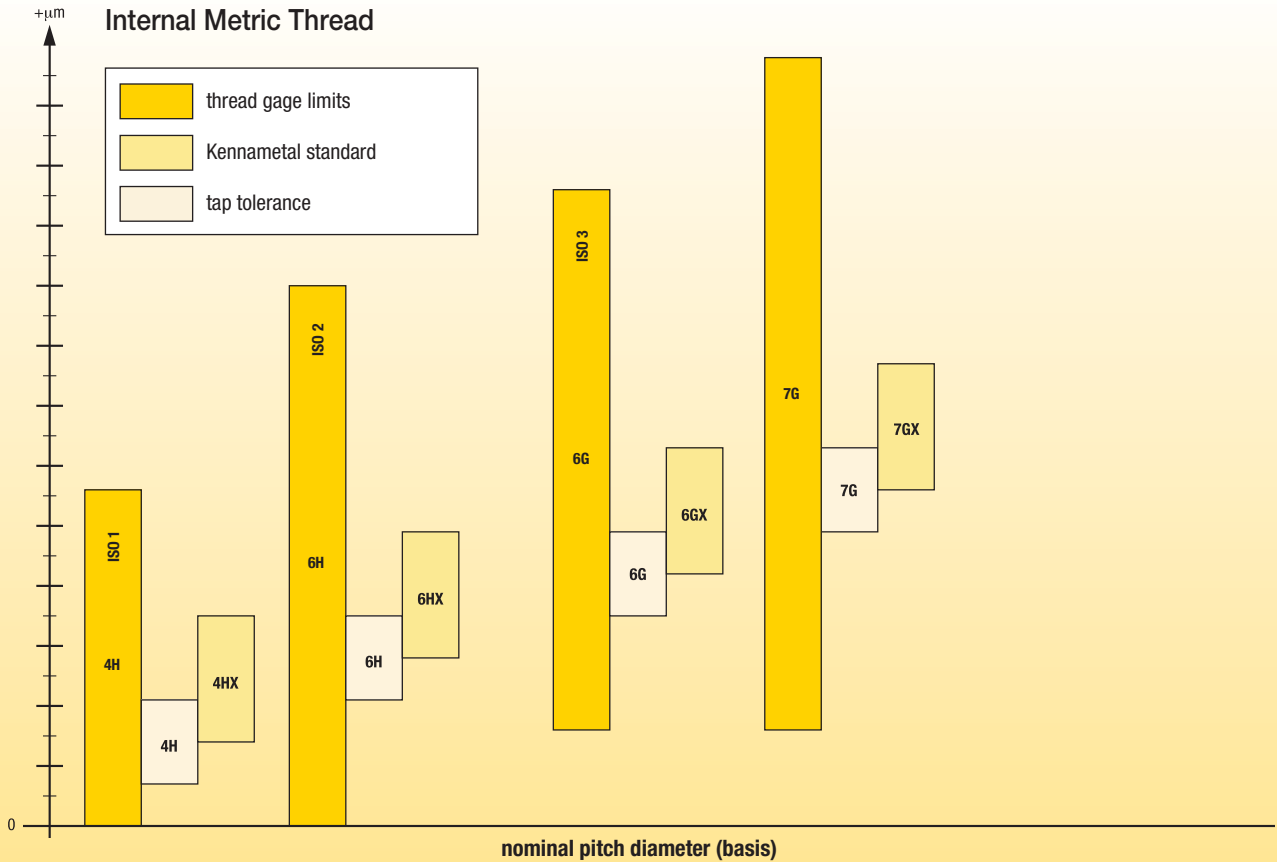
Class of Thread – 1/4-20 UNC and NC



Internal Unified Thread



Internal Metric Thread



It is generally recognized that, in mass production, it is impossible to reproduce in exact detail the theoretically perfect product as laid out on the drawing board. The allowed slight variation between the theoretically perfect product drawing and each unit of the actual product is called the tolerance.

Allowance

An intentional difference in correlated dimensions of mating parts. It is the minimum clearance or maximum interference between such parts.

Angle of Thread

The angle included between the flanks of the thread measured in an axial plane.

Half Angle of Thread

The angle included between a flank of the thread and the normal (90°) to the axis, measured in an axial plane.

Lead of Thread

The distance a screw thread advances axially in one turn. On a single-thread screw, the lead and pitch are identical. On a double thread, the lead is 2x pitch; on a triple thread, the lead is 3x pitch, etc.

Major Diameter

The largest diameter of a straight-screw thread.

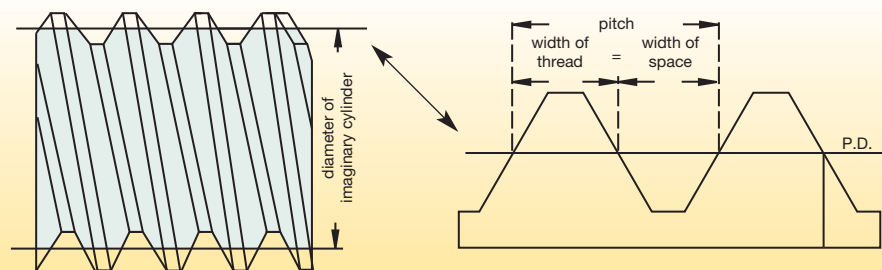
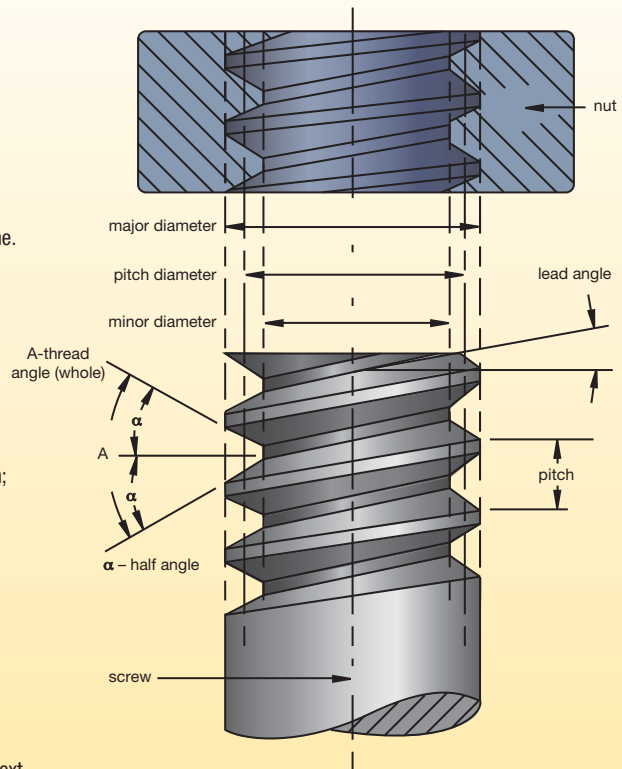
Minor Diameter

The smallest diameter of a straight-screw thread.

Pitch

The distance from a point on a screw thread to a corresponding point on the next thread measured parallel to the axis.

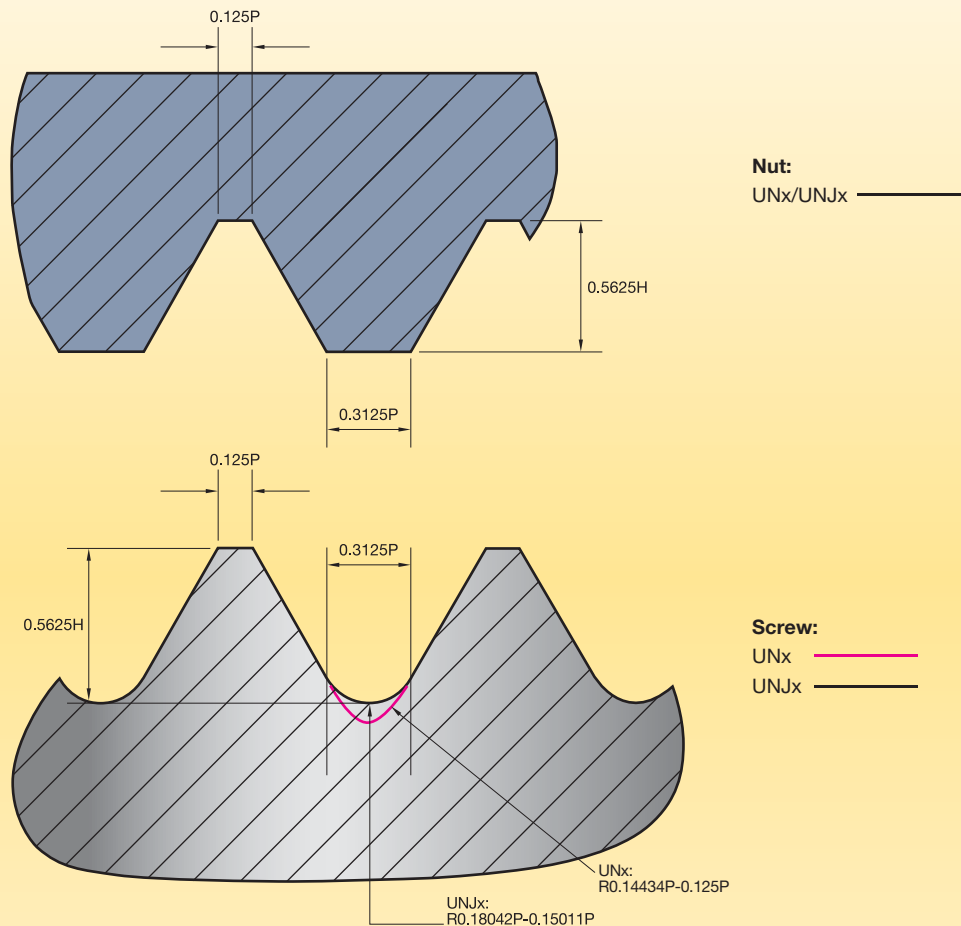
The pitch in inches = $\frac{1}{\text{number of threads per inch}}$



Pitch Diameter

On a straight-screw thread, the diameter of an imaginary cylinder that would pass through the threads at such points as to make equal the width of the threads and the width of the spaces cut by the surface of the cylinder.

A thread system is available for aerospace and other applications where high fatigue strength is required. The UNJ thread form is defined by ASME B1.15 and is similar to Military Specification MIL-S-8879. Screw thread assemblies consist of external and internal threads. In order to minimize the stress on the external UNJ thread, a controlled root radius is required that is equal to $0.15011P$ to $0.18042P$, where P is the thread pitch. Internal UNJ threads are not required to have a radius at either the major or minor diameters.

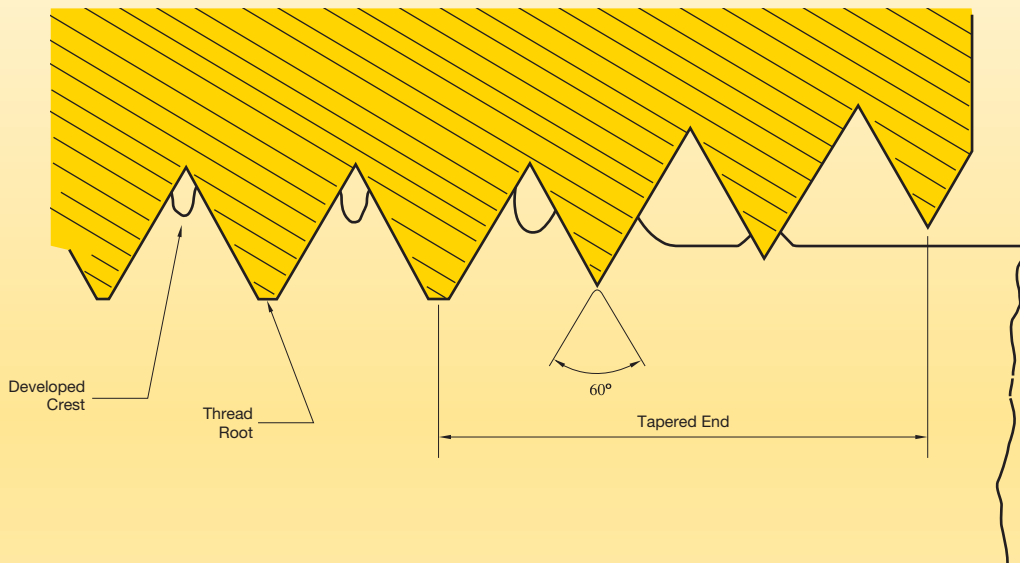


Because external UNJ threads must be produced with a defined root radius, standard UN tooling may not be used. However, internal UNF threads may be produced with ground thread UN taps sized to produce the proper class of fit. The tap does not need to be marked with a letter J. Attention must be paid to the tap drill since the minor diameter has to be specified so as to provide clearance with the root radius on the external thread.

For UNJ thread specifications, the reader is referred to ASME B1.15. Please note this standard includes Class 3 and Class 2 UNJ screw threads. However, only Class 3 UNJ threads meet the requirements of Military Specification MIL-S-8879. For Unified Inch (UN) thread specifications, refer to ASME B1.1.

Unlike cutting taps, which remove material, forming taps generate an internal screw thread by displacing material and forming it into the V-shaped thread. A common misconception is that a thread rolling action occurs. Instead, the threads are formed over the tapered entry

section of the tap as the tap rotates into the hole. A succession of deeper penetrating lobes over the entry plastically displaces material radially between the tap's thread flanks until the entry length is reached. At this point, the thread is fully formed at the correct thread height.



Forming taps have numerous advantages over cutting taps. The most obvious advantage is that forming taps do not create chips. There are no chip removal problems. Bird nesting is a situation that occurs when chips wrap around the shank of spiral-fluted taps when tapping blind holes in long chipping materials. Forming taps help this to be avoided. Since forming taps avoid this problem, they are stronger and more resistant to breakage. Another misconception is that forming taps produce stronger threads. Although the forming process strain hardens the thread flanks, it has very little effect on the major diameter, the location where internal threads strip.

Forming taps can only be used in ductile materials. Due to increased friction relative to cutting, forming taps require higher torque than cutting taps. In some situations, oil-based lubrications are required, and this might not be convenient on CNC machining centers that use water soluble coolant. In this situation, the lubricant concentration should be increased.

Since forming taps displace material, larger diameter pre-tap holes are required. This is especially important when converting from cutting taps to forming taps. If a cutting tap hole size is used, the displaced material will over-fill the tap's threads and breakage will result. Please consult hole size charts for forming taps.

coating	properties and application	precautions
Titanium Nitride (TiN)	Proprietary TiN coating (hardness 2300 Vickers) offers significantly improved wear life and thread finish, often at higher tapping speeds, in a broad range of materials, especially steels, irons, and plastics. Golden color.	Use with caution in non-ferrous materials such as aluminum because of tendency to gall.
Titanium Carbonitride (TiCN)	Proprietary TiCN coating (hardness 3000 Vickers) is harder, tougher, and more wear resistant than TiN under conditions of moderate cutting temperatures. Like TiN, TiCN may be used at higher cutting speeds in a broad range of materials, especially steels and irons. Blue-gray color.	Use with caution in non-ferrous materials such as aluminum because of tendency to gall. TiAIN is a better choice when used at extreme temperatures.
Titanium Nitride + Chromium Carbide Carbon (TiN + CrC/C)	Proprietary coating (hardness 2300 Vickers) that combines the wear resistance of smooth TiN coating with a lubricious top layer of chromium carbide carbon. Effective in stainless steel and non-ferrous materials including aluminum and titanium. Ideal choice for 300 series stainless steels, wrought, and die cast aluminums. Black/gray color.	Effective in both ferrous and non-ferrous materials.
Titanium Aluminum Nitride (TiAlN)	Nanolayer TiAlN coating (hardness 3300 Vickers) offers improved wear life and thread finish, especially in conditions where high temperatures can be generated. Use for PH stainless steels and nickel-based alloys like INCONEL®. Violet/gray color.	Use with caution in non-ferrous materials because of tendency to gall.
Chromium Nitride (CrN)	CrN is medium hard (hardness 1800 Vickers) and has a lower wear resistance than TiN, TiCN, and TiAlN. However, unlike these coatings, CrN does not gall when used in some non-ferrous work materials. Use for brass, bronze, zinc alloys, and magnesium alloys. Silver color.	Ineffective in ferrous materials.
Nitride	Hardened case extends wear life in abrasive materials. Use for aluminum and other non-ferrous materials.	Avoid on taper pipe, fast spiral, and small diameter (<#6) or fine pitch taps due to tendency for thread chipping.
Oxide	Helps prevent galling in ferrous (iron-based) materials. For free machining steel. Use for steels, stainless steels, and irons.	Has a tendency to cause galling in non-ferrous materials such as aluminum.
Nitride and Oxide	Combines the benefits of nitride and oxide surface treatments. For steels, stainless steels, and nickel alloys.	See precautions for nitride and oxide surface treatments.

Factors when trying to determine the best tapping speeds:

- Material to be tapped
- Length of chamfer on tap
- Percentage of full thread to be cut
- Length of hole (depth of thread)
- Pitch of thread
- Cutting fluids
- Machine equipment
- Horizontal or vertical tapping

The best and most efficient operating speeds for taps cannot be calculated with the same certainty, as for many other metalcutting tools.

With other tools, the feed per revolution can be set at any desired point and can be varied as conditions demand. Taps, on the other hand, must always be advanced at a rate equal to one pitch for every revolution. The style of tap may vary the conditions.

For example, with a bottoming tap, the first thread on each land cuts the full height of thread, while, with a taper or starting tap, a number of threads do their share of the cutting before the full height of thread is reached.

The depth of thread also varies, depending on the pitch. The coarser the thread, the greater the advance of the tap per revolution and the greater the amount of material removed.

The method of feeding the tap, and the type of equipment for driving, also influences the permissible speeds. If taps are mechanically fed at the proper rate of advance, they can be operated at higher speeds than if they are required to feed themselves and pull some part of the machine along with them.

Speeds may be modified to take into account any or all of these factors:

- Speeds must be lowered as length of thread increases because, in deep thread holes, the accumulated chips increase friction and interfere with lubrication.
- Bottoming taps must be run slower than plug taps.
- Tapping full height of thread calls for slower speed than if the commercial 75% height only is required.
- Coarse-thread taps in the larger diameters should be run more slowly than fine-thread taps of the same diameters.
- The quantity and quality of cutting fluid may affect the permissible speeds as much as 100%.
- Taper threaded taps, such as pipe taps, should be operated from 1/2–3/4 the speed of a straight thread tap of comparable major diameter.

■ RPM Formulas

SFM = Surface Feet per Minute

RPM = Revolutions per Minute

IPM = Inches per Minute

TPI = Threads per Inch

S m/min = Surface Meters per Minute

$\pi = 3.1416$

mm/min = millimeters per minute

P = Pitch (1/number of threads per inch)

Inch Sizes

$$\begin{aligned} \text{SFM} &= \frac{\text{RPM} \times \text{tool diameter}}{3.82} && \text{or} && 0.26 \times \text{RPM} \times \text{tool diameter} \\ \text{RPM} &= \frac{3.82 \times \text{SFM}}{\text{tool diameter}} \\ \text{IPM} &= \frac{\text{RPM}}{\text{TPI}^*} && \text{or} && *P \times \text{RPM} \end{aligned}$$

Metric Sizes

$$\begin{aligned} \text{S m/min} &= \frac{\pi \times \text{tool diameter} \times \text{RPM}}{1000} \\ \text{RPM} &= \frac{\text{mm/min} \times 1000}{\pi \times \text{tool diameter}} \\ \text{mm/min} &= \text{mm P} \times \text{RPM} \end{aligned}$$

■ **UNC/UNF and NPT/NPTF**

tap size	taper pipe taps	surface feet per minute (SFM)																	
		5'	10'	15'	20'	25'	30'	40'	50'	60'	70'	80'	90'	100'	110'	120'	130'	140'	150'
		revolutions per minute (RPM)																	
0	—	318	637	955	1273	1592	1910	2546	3183	3820	4456	5093	5729	6366	7003	7639	8276	8913	9549
1	—	273	546	819	1046	1308	1570	2093	2617	3140	3663	4186	4710	5233	5756	6279	6805	7326	1849
2	—	212	424	637	888	1110	1333	1777	2221	2665	3109	3554	3999	4442	4886	5330	5774	6218	6662
3	—	191	382	573	772	964	1157	1543	1929	2315	2701	3086	3472	3858	4244	4629	5015	5401	5787
4	—	174	347	521	682	853	1023	1364	1705	2046	2387	2728	3069	3411	3751	4092	4434	4775	5115
5	—	147	294	441	611	764	917	1222	1528	1833	2139	2445	2750	3056	3361	3667	3973	4278	4584
6	—	136	273	409	553	691	829	1106	1382	1659	1935	2212	2488	2766	3042	3318	3595	3871	4148
8	—	119	239	358	466	583	699	932	1165	1398	1631	1864	2097	2330	2563	2796	3029	3262	3495
10	—	101	201	302	402	502	603	804	1005	1205	1406	1607	1808	2009	2210	2411	2612	2813	3014
12	—	87	174	260	354	442	531	707	884	1061	1238	1415	1592	1769	1945	2122	2300	2476	2653
1/4	—	76	153	229	306	382	458	611	764	917	1070	1222	1375	1528	1681	1833	1986	2139	2292
5/16	—	62	123	185	245	306	367	489	611	733	856	978	1100	1222	1345	1467	1589	1711	1833
3/8	—	50	101	151	204	255	305	407	509	611	713	815	917	1019	1120	1222	1324	1426	1528
7/16	1/8	43	87	130	175	219	262	349	437	524	611	698	786	873	960	1048	1135	1222	1310
1/2	—	38	76	115	153	191	229	305	382	458	535	611	688	764	840	917	993	1070	1146
9/16	1/4	34	68	102	137	172	206	274	342	410	478	547	616	683	752	820	888	952	1020
5/8	—	32	64	96	122	153	183	244	306	367	428	489	550	611	672	733	794	856	917
11/16	3/8	28	55	83	111	138	167	222	278	333	389	444	500	556	611	667	722	778	833
3/4	—	25	51	76	102	128	153	203	255	305	357	407	458	509	560	611	662	713	764
7/8	1/2	22	43	65	87	109	131	175	218	262	306	350	392	437	480	524	568	611	655
1	—	19	38	57	76	96	115	153	191	230	268	305	344	382	420	458	497	535	573
1-1/8	3/4	17	34	51	68	84	102	136	170	204	238	272	306	340	373	407	441	475	509
1-1/4	—	15	31	46	61	76	92	122	153	183	214	244	275	305	336	367	397	428	458
1-3/8	1	14	28	42	56	69	83	111	139	167	194	222	250	278	306	333	361	389	417
1-1/2	—	13	25	38	51	63	76	102	127	153	178	204	229	255	280	305	331	356	382
1-5/8	—	12	23	35	47	59	71	94	118	141	165	188	212	235	259	282	306	329	353
1-3/4	—	11	22	33	44	55	65	87	109	131	153	175	196	218	240	262	284	306	327
1-7/8	—	10	20	30	41	51	61	81	102	122	143	163	183	204	224	244	265	285	306
2	—	9	19	29	38	48	57	76	96	115	134	153	172	191	210	229	248	267	287



■ **Metric**

metric taps	vc = meters per minute (m/min)																	
	1,5	3	4,5	6	7,5	10	12	15	18	21	24	27	30	33	36	39	42	45
	revolutions per minute (RPM)																	
M1	490	979	1469	1959	2449	2938	3918	4897	5877	6856	7836	8815	9795	10774	11754	12733	13713	14692
M2	242	484	725	967	1209	1451	1934	2418	2901	3385	3868	4352	4835	5319	5803	6286	6770	7253
M3	162	324	486	647	809	971	1295	1619	1942	2266	2590	2914	3237	3561	3885	4208	4532	4856
M3.5	138	277	415	554	692	830	1107	1384	1661	1938	2214	2491	2768	3045	3322	3599	3875	4152
M4	122	243	365	487	608	730	973	1217	1460	1703	1946	2190	2433	2676	2920	3163	3406	3650
M5	97	194	291	388	485	582	776	970	1163	1357	1551	1745	1939	2133	2327	2521	2715	2905
M6	81	162	243	324	405	486	647	809	971	1133	1295	1457	1619	1781	1942	2104	2266	2428
M7	69	138	208	277	346	415	554	692	830	969	1107	1246	1384	1522	1661	1799	1938	2076
M8	61	121	182	243	303	364	485	606	728	849	970	1091	1213	1334	1455	1577	1698	1819
M10	48	97	145	194	242	291	388	485	582	679	776	873	970	1067	1163	1260	1357	1454
M12	40	81	121	162	202	243	324	405	486	567	647	728	809	890	971	1052	1133	1214
M14	35	69	104	139	173	208	277	347	416	485	555	624	693	763	832	901	971	1040
M16	30	61	91	121	152	182	243	303	364	424	485	546	606	667	728	788	849	910
M18	27	54	81	108	135	162	216	269	323	377	431	485	539	593	647	700	754	808
M20	24	49	73	97	121	146	194	243	291	340	388	437	485	534	582	631	680	728
M22	22	44	66	88	110	132	176	221	265	309	353	397	441	485	529	573	618	662
M24	20	40	61	81	101	121	162	202	243	283	323	364	404	445	485	526	566	606
M27	18	36	54	72	90	108	144	180	216	252	287	323	359	395	431	467	503	539
M30	16	32	49	65	81	97	129	162	194	226	259	291	323	356	388	420	453	485

Partial List of Solutions to Tapping Problems

application	symptom	common cause	remedy
general	gage out of limits	tap size and gage mismatch	select tap size for gage
	oversize thread	alignment, spindle feed	correct
	oversize at top	runout or alignment	correct
	go gage binds part way	worn tool, tap cuts off lead	replace tap, synchronous holder
	thread shaving	feed error, high axial force	program, synchronous holder
	chipping	high cutting force, worn tap	tap geometry, replace tap
	breakage	chip jamming flutes	tap geometry, tapping depth
	—	worn tool, high torque	replace tap with new tool
	short life, low speed	excessive wear	SC or HSS-E-PM HP taps
steel	birdnest blind hole	long, ductile chips	T630 KP6505 (oxide), peck feed
	chipping	high material hardness	T600, T602 KSP21 (TiN)
	breakage in blind holes	hole depth >2D, chip jamming	T604 KHS26 (TiN/MoS ₂)
stainless steel	oversize thread, low life	galling	T620, T630 KM6515 (TiN-CrC/C)
	short life	work hardened core hole	replace drill
cast iron	excessive wear	abrasion	T640 KP6525 (TiCN)
aluminum, cast	excessive wear	high silicon	T640 KP6525 (TiCN)
aluminum, wrought	oversize thread	galling	T672, T682, T686 KSMN34 (TiN-CrC/C)
nickel, cobalt alloys	short life	high cutting temperature	T690, T692, T694 KSP27 (AlCrTiN)
titanium	short life	high cutting temperature	T660, T662 KSSM24 (TiN-CrC/C)

Thread Mills

	vibration marks	major crest wear	edge chipping	cone-shaped thread	entry marks
cutting speed	check	reduce	—	—	—
feed per tooth	check	increase	reduce	—	—
workpiece clamping	improve	improve	improve	—	improve
machine tool stability	improve	improve	improve	—	improve
cantilever arm	shorten	shorten	—	—	shorten
helix angle	increase	reduce	—	—	—
radial runout	check	check	—	—	—
coating	—	improve	improve	—	—
milling operation	—	climb mill	climb mill	climb mill	—
line feed/entry ramp	check	check	—	—	improve
coolant pressure	—	check (>20 bar, 290 psi)	check (>20 bar, 290 psi)	—	—

drill size	decimal (in)	drill size	decimal (in)	drill size	decimal (in)	drill size	decimal (in)	drill size	decimal (in)	drill size	decimal (in)
0,30mm	.0118	54	.0550	3,10mm	.1220	5,50mm	.2165	8,50mm	.3346	9/16	.5625
0,32mm	.0126	1,40mm	.0551	1/18	.1250	7/32	.2188	8,60mm	.3386	14,50mm	.5709
80	.0135	1,45mm	.0571	3,20mm	.1260	5,60mm	.2205	R	.3390	37/64	.5781
0,35mm	.0138	1,50mm	.0591	30	.1285	2	.2210	8,70mm	.3425	14,75mm	.5807
79	.0145	53	.0595	3,30mm	.1299	5,70mm	.2244	11/32	.3438	15,00mm	.5906
0,38mm	.0150	1,55mm	.0610	3,40mm	.1339	1	.2280	8,80mm	.3465	19/32	.5938
1/64	.0156	1/16	.0625	29	.1360	5,80mm	.2283	S	.3480	15,25mm	.6004
0,40mm	.0157	1,60mm	.0630	3,50mm	.1378	5,90mm	.2323	8,90mm	.3504	39/64	.6094
78	.0160	52	.0635	28	.1405	A	.2340	9,00mm	.3543	15,50mm	.6102
0,42mm	.0165	1,65mm	.0650	9/64	.1406	15/64	.2344	T	.3580	15,75mm	.6201
0,45mm	.0177	1,70mm	.0669	3,60mm	.1417	6,00mm	.2362	9,10mm	.3583	5/8	.6250
77	.0180	51	.0670	27	.1440	B	.2380	23/64	.3594	16,00mm	.6299
0,48mm	.0189	1,75mm	.0689	3,70mm	.1457	6,10mm	.2402	9,20mm	.3622	16,25mm	.6398
0,50mm	.0197	50	.0700	26	.1470	C	.2420	9,30mm	.3661	41/64	.6406
76	.0200	1,80mm	.0709	25	.1495	6,20mm	.2441	U	.3680	16,50mm	.6496
75	.0210	1,85mm	.0728	3,80mm	.1496	D	.2460	9,40mm	.3701	21/32	.6562
0,55mm	.0217	49	.0730	24	.1520	6,30mm	.2480	9,50mm	.3740	16,75mm	.6594
74	.0225	1,90mm	.0748	3,90mm	.1535	1/4, E	.2500	3/8	.3750	17,00mm	.6693
0,60mm	.0236	48	.0760	23	.1540	6,40mm	.2520	V	.3770	43/64	.6719
73	.0240	1,95mm	.0768	5/32	.1562	6,50mm	.2559	9,60mm	.3780	17,25mm	.6791
0,62mm	.0244	5/64	.0781	22	.1570	F	.2570	9,70mm	.3819	11/16	.6875
72	.0250	47	.0785	4,00mm	.1575	6,60mm	.2598	9,80mm	.3858	17,50mm	.6890
0,65mm	.0256	2,00mm	.0787	21	.1590	G	.2610	W	.3860	45/64	.7031
71	.0260	2,05mm	.0807	20	.1610	6,70mm	.2638	9,90mm	.3898	18,00mm	.7087
0,70mm	.0276	46	.0810	4,10mm	.1614	17/64	.2656	25/64	.3906	23/32	.7188
70	.0280	45	.0820	4,20mm	.1654	H	.2660	10,00mm	.3937	18,50mm	.7283
69	.0292	2,10mm	.0827	19	.1660	6,80mm	.2677	X	.3970	47/64	.7344
0,75mm	.0295	2,15mm	.0846	4,30mm	.1693	6,90mm	.2717	10,20mm	.4016	19,00mm	.7480
68	.0310	44	.0860	18	.1695	I	.2720	Y	.4040	3/4	.7500
1/32	.0312	2,20mm	.0866	11/64	.1719	7,00mm	.2756	13/32	.4062	49/64	.7656
0,80mm	.0315	2,25mm	.0886	17	.1730	J	.2770	Z	.4130	19,50mm	.7677
67	.0320	43	.0890	4,40mm	.1732	7,10mm	.2795	10,50mm	.4134	25/32	.7812
66	.0330	2,30mm	.0906	16	.1770	K	.2810	27/64	.4219	20,00mm	.7874
0,85mm	.0335	2,35mm	.0925	4,50mm	.1772	9/32	.2812	10,80mm	.4252	51/64	.7969
65	.0350	42	.0935	15	.1800	7,20mm	.2835	11,00mm	.4331	20,50mm	.8071
0,90mm	.0354	3/32	.0938	4,60mm	.1811	7,30mm	.2874	7/16	.4375	13/16	.8125
64	.0360	2,40mm	.0945	14	.1820	L	.2900	11,20mm	.4409	21,00mm	.8268
63	.0370	41	.0960	4,70mm, 13	.1850	7,40mm	.2913	11,50mm	.4528	53/64	.8281
0,95mm	.0374	2,45mm	.0965	3/16	.1875	M	.2950	29/64	.4531	27/32	.8438
62	.0380	40	.0980	4,80mm, 12	.1890	7,50mm	.2953	11,80mm	.4646	21,50mm	.8465
61	.0390	2,50mm	.0984	11	.1910	19/64	.2969	15/32	.4688	55/64	.8594
1,00mm	.0394	39	.0995	4,90mm	.1929	7,60mm	.2992	12,00mm	.4724	22,00mm	.8661
60	.0400	38	.1015	10	.1935	N	.3020	12,20mm	.4803	7/8	.8750
59	.0410	2,60mm	.1024	9	.1960	7,70mm	.3031	31/64	.4844	22,50mm	.8858
1,05mm	.0413	37	.1040	5,00mm	.1969	7,80mm	.3071	12,50mm	.4921	57/64	.8906
58	.0420	2,70mm	.1063	8	.1990	7,90mm	.3110	1/2	.5000	23,00mm	.9055
57	.0430	36	.1065	5,10mm	.2008	5/16	.3125	12,80mm	.5039	29/32	.9062
1,10mm	.0433	7/64	.1094	7	.2010	8,00mm	.3150	13,00mm	.5118	59/64	.9219
1,15mm	.0453	35	.1100	13/64	.2031	O	.3160	33/64	.5156	23,50mm	.9252
56	.0465	2,80mm	.1102	6	.2040	8,10mm	.3189	13,20mm	.5197	15/16	.9375
3/64	.0469	34	.1110	5,20mm	.2047	8,20mm	.3228	17/32	.5312	24,00mm	.9449
1,20mm	.0472	33	.1130	5	.2055	P	.3230	13,50mm	.5315	61/64	.9531
1,25mm	.0492	2,90mm	.1142	5,30mm	.2087	8,30mm	.3268	13,80mm	.5433	24,50mm	.9646
1,30mm	.0512	32	.1160	4	.2090	21/64	.3281	35/64	.5469	31/32	.9688
55	.0520	3,00mm	.1181	5,40mm	.2126	8,40mm	.3307	14,00mm	.5512	25,00mm	.9843
1,35mm	.0531	31	.1200	3	.2130	Q	.3320	14,25mm	.5610	63/64	.9844
—	—	—	—	—	—	—	—	—	—	1"	1.0000

■ Metric
 ■ Fractional
 ■ Wire gage
 ■ Letter size

Tap Custom-Order Worksheet

Use this Custom-Order Worksheet to modify an existing product to meet your specifications. If your custom requirements do not fall into these categories, simply contact your Kennametal Distributor.

Trust our experienced distributors and Kennametal engineering team to design the best solution for you.

1. Start with the standard product most similar to your specifications:

catalog number

grade/coating

2. Type of tap needed:

solid carbide high-performance HSS general purpose spiral point
 hand forming spiral flute
 _____ pipe (and style) _____ other

3. Direction of cut (circle one):

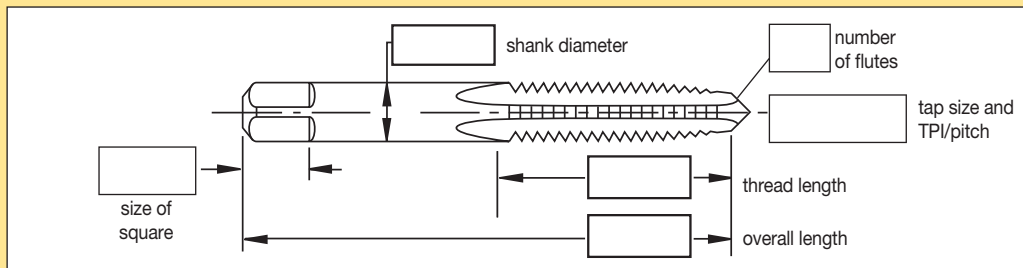
left hand

right hand

4. Material overview:

ANSI DIN JIS other

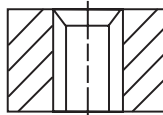
5. Desired dimension:



6. Choose one:

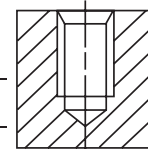
through hole:

hole diameter _____
 hole depth _____



blind hole:

hole diameter _____
 hole depth _____



7. Chamfer:

taper: 7-10 pitch plug: 3-5 pitch semi-bottom: 2-3 pitch bottom: 1-2 pitch



8. Class of fit:

H limit

metric D limit

diameter pitch limit

9. Workpiece material:

10. Hardness:

11. Number of taps required:

12. Price

Contact your Authorized Kennametal Distributor partners.

13. Other comments or special characteristics:

customer company name	date
address	phone number
city, state, zip	fax number
customer contact	customer email address
sales representative	

■ Application Sheet for Thread Milling

Test form thread data:	Date:
Customer Data	
Company:	Department:
Street:	Position:
Postal code:	Telephone:
City:	Fax:
Country:	E-mail:
Tool Data	
Engaged Kennametal tool:	Tool life:
Competitive tool:	
Workpiece Data	
Thread size:	Name of workpiece:
Class of fit:	Picture, sketch...
Thread depth: mm	
Thread type: <input type="checkbox"/> Through hole <input type="checkbox"/> Blind hole	
Drill hole ø: mm	
Depth of drill hole: mm	
Type of drilled hole: <input type="checkbox"/> Drilled <input type="checkbox"/> No hole	
Material:	
Hardness:	
Machine Data	
Manufacturer:	Description:
CNC-machine type: <input type="checkbox"/> Turning machine <input type="checkbox"/> Milling machine	Working direction: <input type="checkbox"/> Horizontal <input type="checkbox"/> Vertical
Control type: <input type="checkbox"/> DIN <input type="checkbox"/> Heidenhain	Coolant: <input type="checkbox"/> Emulsion <input type="checkbox"/> MQL <input type="checkbox"/> Compressed air <input type="checkbox"/> Dry
Coolant supply type: <input type="checkbox"/> Internal <input type="checkbox"/> External	Coolant pressure: Bar
Revolutions max: <input type="checkbox"/> 1/min	Spindle power: kW
Clamping device: <input type="checkbox"/> Weldon® <input type="checkbox"/> Collet <input type="checkbox"/> Shrinking <input type="checkbox"/> Hydraulic expansion	
Cutting Conditions	
Cutting speed vc: m/min	Revolutions: 1/min
Feed fz: mm/tooth	Programmed feed: mm/min
Milling direction: <input type="checkbox"/> Climb milling <input type="checkbox"/> Down milling	Type of feed: <input type="checkbox"/> Feed on contour <input type="checkbox"/> Feed on center
Allocated cut over depth of thread: <input type="checkbox"/> Yes <input type="checkbox"/> No	Allocated cut over profile: <input type="checkbox"/> By depth of profile <input type="checkbox"/> By thread depth
Number of cuts:	Number of cuts:

Knowing the hardness of the work material to be tapped is essential in selecting the best tap for the job.

10 mm/min ball 3000 kg	120° cone 150 kg	1/16" ball 100 kg	model C	1000 lb per sq. in.	10 mm/min ball 3000 kg	120° cone 150 kg	1/16" ball 100 kg	model C	1000 lb per sq. in.
Brinell	Rockwell C	Rockwell B	Shore Scleroscope	tensile strength	Brinell	Rockwell C	Rockwell B	Shore Scleroscope	tensile strength
800	72	-	100	-	276	30	105	42	136
780	71	-	99	-	269	29	104	41	132
760	70	-	98	-	261	28	103	40	129
745	68	-	97	367	258	27	102	39	127
725	67	-	96	357	255	26	102	39	125
712	66	-	95	350	249	25	101	38	123
682	65	-	93	337	245	24	100	37	119
668	64	-	91	326	240	23	99	36	117
652	63	-	89	318	237	23	99	35	115
626	62	-	87	306	229	22	98	34	113
614	61	-	85	299	224	21	97	33	110
601	60	-	83	292	217	20	96	33	107
590	59	-	81	290	211	19	95	32	104
576	57	-	79	281	206	18	94	32	102
552	56	-	76	270	203	17	94	31	100
545	55	-	75	268	200	16	93	31	98
529	54	-	74	259	196	15	92	30	96
514	53	120	72	254	191	14	92	30	94
502	52	119	70	247	187	13	91	29	92
495	51	119	69	244	185	12	91	29	91
477	49	118	67	233	183	11	90	28	90
461	48	117	66	227	180	10	89	28	89
451	47	117	65	223	175	9	88	27	86
444	46	116	64	219	170	7	87	27	84
427	46	115	62	209	167	6	87	27	82
415	44	115	60	204	165	5	86	26	81
401	43	114	58	196	163	4	85	26	80
388	42	114	57	191	160	3	84	25	78
375	41	113	55	184	156	2	83	25	76
370	40	112	54	182	154	1	82	25	75
362	39	111	53	179	152	-	82	24	74
351	38	111	51	173	150	-	81	24	74
346	37	110	50	170	147	-	80	24	72
341	37	110	49	168	145	-	79	23	71
331	36	109	47	163	143	-	79	23	70
323	35	109	46	158	141	-	78	23	69
311	34	108	46	153	140	-	77	22	69
301	33	107	45	148	135	-	75	22	67
293	32	106	44	144	130	-	72	22	65
285	31	105	43	140	-	-	-	-	-

Tapping

High-Performance Multipurpose HSS-E GOtap™

GOtap is the solution for high-performance multipurpose tapping. GOtap includes optimized flute geometries and PVD coatings capable of tapping a broad assortment of ductile materials, such as stainless steels, carbon and alloy steels, cast aluminum, and ductile iron. The unmatched versatility of GOtap means lower inventory costs with no loss of productivity, consistent tool life, and high-quality thread finish.

ADVANCED TECHNOLOGY

- Manufactured with high-vanadium HSS-E material for exceptional wear characteristics and longer tool life.
- Optimized geometries for efficient chip evacuation in both through and blind holes.
- Advanced PVD coatings to reduce tapping torque resulting in high-quality thread finish and longer tool life.

Experience the advantages at your Authorized Kennametal Distributor or at kennametal.com.





Solid End Milling

Solid End Milling Introduction	N2-N3
Duo-Lock Modular Milling	O1-O57
High-Performance Solid Carbide End Mills	P1-P171
General Purpose Solid Carbide End Mills	Q1-Q47



Solid End Milling Products

Our latest Metalcutting Innovations are designed to deliver higher productivity, longer tool life, and increased application versatility.

For more information about the latest products and services from Kennametal, please contact your Kennametal Representative or Authorized Kennametal Distributor, or visit kennametal.com.



MODULAR END MILLS

See Section O for more details.

HARVI™ I
HARVI II
HARVI III
MaxiMet™
High-Performance Rougher
High-Performance Finisher
Corner Tooling



HIGH CAPABILITY END MILLS

See Section P for more details.

HARVI I
HARVI II
HARVI II Long
HARVI III
CXE/CXER





MATERIAL SPECIFIC END MILLS

See Section P for more details.

Aluminum Machining
CFRP Machining
Hard Materials Machining



APPLICATION SPECIFIC END MILLS

See Section P for more details.

High-Performance Roughing End Mills
High-Performance Finishing End Mills
RSM II
KenFeed™
GOmill™

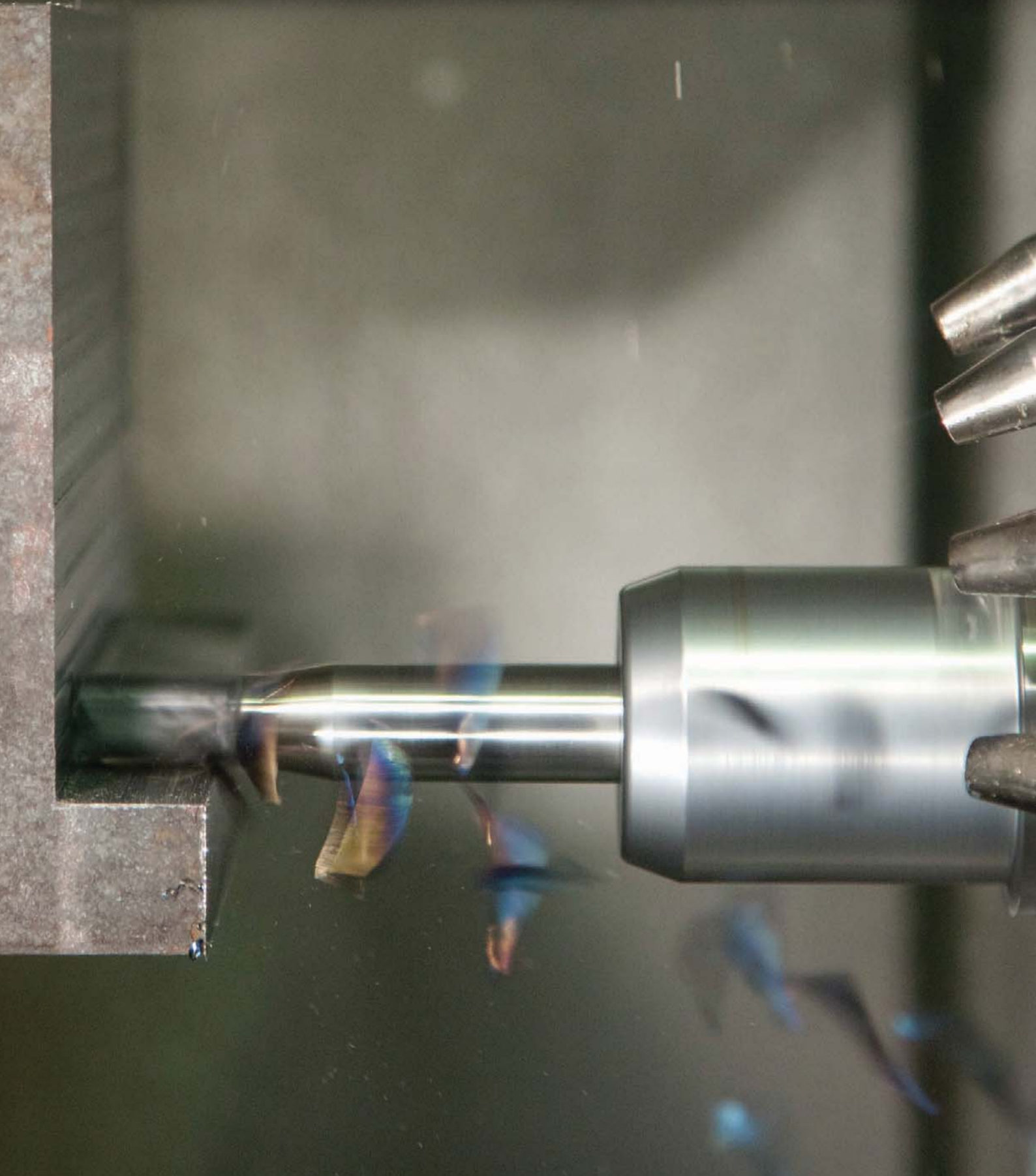


GENERAL PURPOSE END MILLS

See Section Q for more details.










































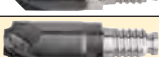

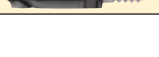


GOmill GP 2FL
GOmill GP 3FL
GOmill GP 4FL





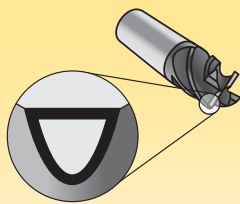
Solid End Milling • Duo-Lock Modular Milling

Duo-Lock Tool Selector and Grades	02-04
HARVI Modular End Mills.....	06-024
MaxiMet Modular End Mills	026-030
Modular Roughing End Mills	032-039
Modular Finishing End Mills	040-045
Modular Corner Rounding and Chamfering End Mills.....	046-051
Adapters	052-056
Assembly Information	057

product line		series	D1 diameter (inch)	length of cut	flute Z	helix	internal coolant
HARVI™ I		UKDV	3/8–1 1/4	1.5 x D			
HARVI I		ULDV	3/8–1 1/4	1.5 x D			
HARVI II		UCDV	3/8–1 1/4	1.5 x D			
HARVI II		UDDV	3/8–1 1/4	1.5 x D			
HARVI III		UJDV	3/8–1 1/4	1.5 x D			
HARVI Ball Nose		UKBV	3/8–1	1.5 x D			
HARVI III Ball Nose		UJBV	3/8–1	1.5 x D			
MaxiMet™		ABDF	3/8–3/4	1.5 x D			
MaxiMet		ABDE	3/8–1	1.5 x D			
KenFeed™		KMDA	3/8–3/4	0.75 x D			
HP Rougher		RQDB	3/8–1	1.5 x D			
HP Rougher		RKDF	3/8–1	1.5 x D			
HP Rougher		RQBB	3/8–1	1.5 x D			
HP Finisher		F MDF	3/8–1	1.5 x D			
HP Finisher		FSDE	3/8–1	1.5 x D			
Corner Tooling		XADA	3/8–5/8	.359–.605			
Corner Tooling		XRDA	3/8–5/8	.359–.730			

							shank	center cutting	neck	P	M	K	N	S	H							product page(s)	cutting data page(s)
										●	●			○								O8	O10
										●	●	○		●	○							O9	O11
										●	●	●		○	○							O12	O14
										●				●	○							O13	O15
										○	●			●	○							O16	O17
										●	●	●		○	○							O18	O20
										○	●	○		●	○							O19	O21-O22
														●								O28	O30
													●									O29	O30
										○					●							contact us	contact us
										●	●	●		○	○							O34	O37
										○	●	○		●	○							O35	O38
										●	●	●		○	○							O36	O39
										●	●	●		○	○							O42	O44
										○	●			●	○							O43	O45
										●	●	●	●	○	○							O48	O50
										●	●	●	●	○	○							O49	O51

● first choice
○ alternate choice



Coatings provide high-speed capability and are engineered for roughing to finishing.

P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High-Temp Alloys
H	Hardened Materials

wear resistance ← → toughness

Grades

Coating	Grade Description		05	10	15	20	25	30	35	40	45	
K600	Carbide grade made from high-quality, micrograin materials for cutting all types of workpiece materials. Very high toughness ensures a controlled wear rate. The micrograin structure enables extremely sharp cutting edges.											
		N										
KCPM15	Coated carbide grade with thick PVD coating and optimized chemistry and process for increased wear resistance. Outstanding protection in milling stainless steel to mitigate crater, DOCN (depth-of-cut notching), and flank wear. Excellent performance up to 52 HRC.	P										
		M										
		K										
KC643M	Coated fine-grain grade with PVD multilayer (AlTiN). KC643M™ is a very thin and hard PVD coating particularly suited for cutting steel, cast iron, stainless steel (wet), and titanium (wet). This grade can be used for materials with hardness up to 52 HRC.	P										
		M										
		K										
		S										
KC639M	PVD- (AlTiN) coated carbide on a submicron carbide substrate. This hard coating provides outstanding performance in milling hardened materials (58–65 HRC).	P										
		H										
KCSM15	Coated carbide grade with thick PVD coating and optimized chemistry and process for increased wear resistance. Outstanding protection in milling stainless steel to mitigate crater, DOCN (depth-of-cut notching), and flank wear. Excellent performance up to 52 HRC.											
		S										
		H										

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Whether your operation is turning, milling, or holemaking, Kennametal brands are the high-performance tooling you need. We offer standard and custom solutions for a wide range of applications.

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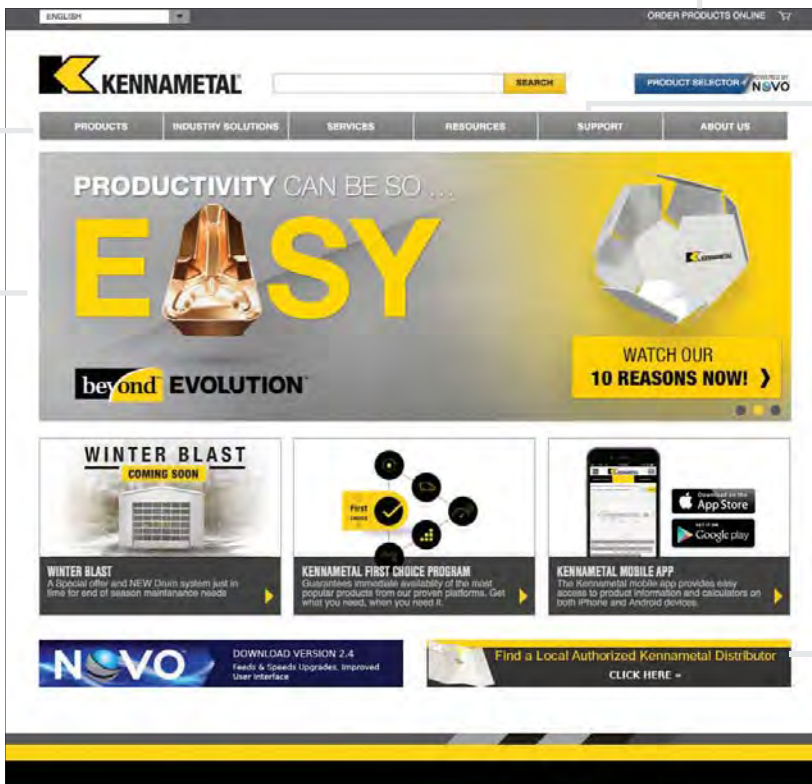
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➤ DUO-LOCK[®] HARVI[™]

Primary Application

HARVI geometries for Duo-Lock[™] target applications where solid carbide end mills are currently used. The Duo-Lock[™] system combines the highest runout accuracy and length repeatability with maximum coupling stability. This enables the Duo-Lock[™] system to use the full potential of Kennametal cutting geometries and grades with the flexibility of a modular system. Significant metal removal rates can be achieved. A wide range of diameters and corner configurations, such as chamfer, radii, and sharp edges, are available from stock.

- Cutting data and tool life comparable to high-performance solid carbide.
- Proprietary HARVI geometries enable roughing and finishing with one tool.
- 1.5 x D standard cutting edge length enables fewer passes.
- Up to 1 x D full slotting increases metal removal rates, increasing productivity significantly.
- Extensive offering of straight and conical shank tools, and integral adapters that include DV, BT, and HSK.

Features and Benefits

Advanced Technology

- New asymmetrical HARVI 4-flute geometry for higher feed-per-tooth rates.
- Variable helix design for chatter-free machining at high feed rates.
- Less pressure on cutting edge through tailored axial and radial rake angles.
- Eccentric relief design increases tool life through higher edge stability.
- Proprietary tapered core for highest tool stability when roughing and finishing.

Tailored Grades

- KCSM15[™] Beyond[™] grade for exceptional tool life in titanium and stainless steels.
- KCPM15[™] Beyond grade for outstanding wear protection in stainless steel to mitigate cratering, depth-of-cut notching, and flank wear.
- Universal KC643M[™] grade for cutting steel, cast iron, stainless steel (wet), and titanium (wet).

Customization

- Intermediate diameters are available between 3/8–1 1/4".
- Chip divider geometry helps reduce power usage and improve chip formation in difficult-to-cut materials.
- Engineered solutions including shank and non-standard length versions available.
- Custom solutions within standard blank dimension are available.

Extensive Standard Offering

- Diameter ranges 3/8–1 1/4".
- Necked, corner radii, chamfer, and square-end tips available.
- Integral adapters to reduce interface for maximum accuracy.
- Steel extensions with Safe-Lock[™] by HAIMER shanks to prevent pullout.
- Cut-to-size extra-long extensions available upon request off the shelf.

High-performance modular solid carbide end mills.



High-Performance Geometries

Highest metal removal rates with up to 1 x D full slotting and up to 1.5 x D side milling at 50% ae capability.

Intelligent Thread
Ensures that stress levels remain below critical values.

3rd Contact Surface
Delivers high stiffness and highest accuracy below .0002" runout.

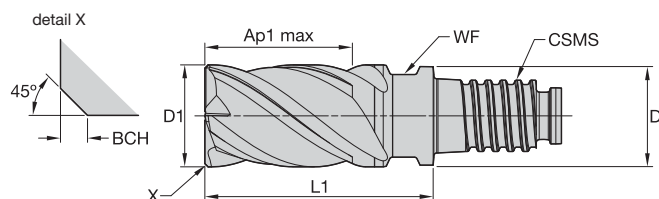
Unequal Flute Spacing
Reduces vibrations. Improves surface finish.

37° / 39° Variable Helix Technology
Minimizes chatter and harmonics for smoother machining.

Double Cone
Eliminates expensive presetting processes by providing an axial .0004" repeatability.

DUO-LOCK®
by HAIMER® and Kennametal

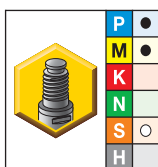
- Asymmetrical flute spacing and variable helix configuration minimize chatter and harmonics for smoother machining.
- Center cutting.
- Single tool for both roughing and finishing, reducing setups.
- Standard items listed. Additional styles and coatings made-to-order.



End Mill Tolerances

D1	tolerance e8
13/32–23/32"	-0,00126"/-0,00232"
23/32–1-3/16"	-0,00157"/-0,00287"
> 1-3/16"	-0,00197"/-0,00350"

UKDV • 4 Flute • Inch

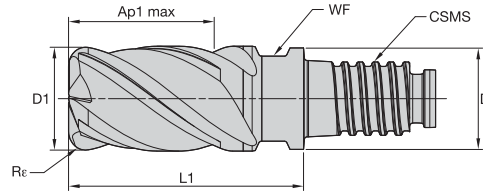


- first choice
- alternate choice

KCPM15	D1	D	Ap1 max	L1	CSMS system size	WF	BCH
UKDV0375Y4CU	3/8	.359	9/16	.843	DL10	.315	—
UKDV0375Y4CV	3/8	.359	9/16	.843	DL10	.315	.020
UKDV0500Y4CU	1/2	.480	3/4	1.126	DL12	.374	—
UKDV0500Y4CV	1/2	.480	3/4	1.126	DL12	.374	.020
UKDV0625Y4CU	5/8	.605	15/16	1.406	DL16	.512	—
UKDV0625Y4CV	5/8	.605	15/16	1.406	DL16	.512	.020
UKDV0750Y4CU	3/4	.730	1 1/8	1.689	DL20	.630	—
UKDV0750Y4CV	3/4	.730	1 1/8	1.689	DL20	.630	.020
UKDV1000Y4CU	1	.961	1 1/2	2.252	DL25	.827	—
UKDV1000Y4CV	1	.961	1 1/2	2.264	DL25	.827	.020
UKDV1250Y4CU	1 1/4	1.211	1 7/8	2.803	DL32	1.102	—
UKDV1250Y4CV	1 1/4	1.211	1 7/8	2.803	DL32	1.102	.020

NOTE: For application data, please see page O10.

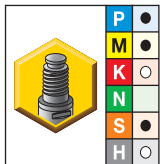
- Asymmetrical flute spacing and variable helix configuration minimize chatter and harmonics for smoother machining.
- Center cutting.
- Single tool for both roughing and finishing, reducing setups.
- Standard items listed. Additional styles and coatings made-to-order.



End Mill Tolerances

D1	tolerance e8
13/32–23/32"	-0,00126"/-0,00232"
23/32–1-3/16"	-0,00157"/-0,00287"
> 1-3/16"	-0,00197"/-0,00350"

■ ULDV • 4 Flute • Inch



- first choice
- alternate choice

KCSM15	D1	D	Ap1 max	L1	CSMS system size	WF	Re
ULDV0375Y4CQA	3/8	.359	9/16	.843	DL10	.315	.015
ULDV0375Y4CQB	3/8	.359	9/16	.843	DL10	.315	.030
ULDV0375Y4CQC	3/8	.359	9/16	.843	DL10	.315	.060
ULDV0375Y4CQD	3/8	.359	9/16	.843	DL10	.315	.090
ULDV0500Y4CQA	1/2	.480	3/4	1.126	DL12	.374	.015
ULDV0500Y4CQB	1/2	.480	3/4	1.126	DL12	.374	.030
ULDV0500Y4CQC	1/2	.480	3/4	1.126	DL12	.374	.060
ULDV0500Y4CQD	1/2	.480	3/4	1.126	DL12	.374	.090
ULDV0500Y4CQE	1/2	.480	3/4	1.126	DL12	.374	.120
ULDV0625Y4CQA	5/8	.605	15/16	1.406	DL16	.512	.015
ULDV0625Y4CQB	5/8	.605	15/16	1.406	DL16	.512	.030
ULDV0625Y4CQD	5/8	.605	15/16	1.406	DL16	.512	.120
ULDV0625Y4CQE	5/8	.605	15/16	1.406	DL16	.512	.120
ULDV0625Y4CQC	5/8	.605	15/16	1.406	DL16	.512	.060
ULDV0750Y4CQB	3/4	.730	1 1/8	1.689	DL20	.630	.030
ULDV0750Y4CQC	3/4	.730	1 1/8	1.689	DL20	.630	.060
ULDV0750Y4CQD	3/4	.730	1 1/8	1.689	DL20	.630	.090
ULDV0750Y4CQE	3/4	.730	1 1/8	1.689	DL20	.630	.120
ULDV1000Y4CQB	1	.961	1 1/2	2.252	DL25	.827	.030
ULDV1000Y4CQC	1	.961	1 1/2	2.252	DL25	.827	.060
ULDV1000Y4CQD	1	.961	1 1/2	2.252	DL25	.827	.090
ULDV1000Y4CQE	1	.961	1 1/2	2.252	DL25	.827	.120
ULDV1000Y4CQF	1	.961	1 1/2	2.252	DL25	.827	.250
ULDV1250Y4CQD	1 1/4	1.211	1 7/8	2.803	DL32	1.102	.090
ULDV1250Y4CQF	1 1/4	1.211	1 7/8	2.803	DL32	1.102	.250

NOTE: For application data, please see page O11.

■ HARVI • UKDV • Asymmetrical Flute Spacing

Material Group																				
	Side Milling (A) and Slotting (B)			short		medium		long		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.										
	A		B	adapter reach						D1 – Diameter										
	ap		ae	KCPM15		KCPM15		KCPM15		frac.	3/8	1/2	5/8	3/4	1	1 1/4				
	min		max	min		min		min		dec.	.3750	.5000	.6250	.7500	1.0000	1.2500				
P	0	1.5 x D	0.5 x D	1 x D	490	-	660	441	-	594	441	-	594	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	1	1.5 x D	0.5 x D	1 x D	490	-	660	441	-	594	441	-	594	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	2	1.5 x D	0.5 x D	1 x D	460	-	620	414	-	558	414	-	558	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	3	1.5 x D	0.5 x D	1 x D	390	-	520	351	-	468	351	-	468	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	4	1.5 x D	0.4 x D	0.75 x D	300	-	490	270	-	441	270	-	441	IPT	.0017	.0022	.0026	.0029	.0034	.0034
	5	1.5 x D	0.4 x D	1 x D	200	-	330	170	-	280.5	160	-	264	IPT	.0016	.0020	.0023	.0026	.0033	.0033
M	1	1.5 x D	0.4 x D	1 x D	300	-	380	240	-	304	210	-	266	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	2	1.5 x D	0.4 x D	1 x D	200	-	260	160	-	208	140	-	182	IPT	.0016	.0020	.0023	.0026	.0033	.0033
	3	1.5 x D	0.4 x D	1 x D	200	-	230	160	-	184	140	-	161	IPT	.0013	.0016	.0019	.0021	.0024	.0024
S	1	1.5 x D	0.3 x D	0.3 x D	160	-	300	128	-	240	96	-	180	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	2	1.5 x D	0.3 x D	0.3 x D	80	-	130	64	-	104	48	-	78	IPT	.0010	.0013	.0015	.0018	.0022	.0022
	3	1.5 x D	0.3 x D	0.3 x D	80	-	130	64	-	104	48	-	78	IPT	.0010	.0013	.0015	.0018	.0022	.0022
	4	1.5 x D	0.4 x D	1 x D	160	-	200	128	-	160	96	-	120	IPT	.0014	.0018	.0021	.0024	.0030	.0030

NOTE: Those guidelines may require variations to achieve optimum results.
 Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
 Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
 Above parameters are based on ideal conditions. Please adjust parameters according to system stability.
 For side milling with ap larger than 1 x D, reduce fz by 20%!
 Cylindrical shanks not recommended for full slotting.

Duo-Lock Modular Milling

■ HARVI • ULDV • Asymmetrical Flute Spacing

Material Group																				
	Side Milling (A) and Slotting (B)			short			medium			long			Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.							
	A		B	adapter reach									D1 – Diameter							
	ap		ae	KCSM15		KCSM15		KCSM15		KCSM15		frac.	3/8	1/2	5/8	3/4	1	1 1/4		
	min		max	min		max		min		max		dec.	.3750	.5000	.6250	.7500	1.2500	1.2500		
P	0	1.5 x D	0.5 x D	1 x D	490	-	660	441	-	594	441	-	594	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	1	1.5 x D	0.5 x D	1 x D	490	-	660	441	-	594	441	-	594	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	2	1.5 x D	0.5 x D	1 x D	460	-	620	414	-	558	414	-	558	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	3	1.5 x D	0.5 x D	1 x D	390	-	520	351	-	468	351	-	468	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	4	1.5 x D	0.4 x D	0.75 x D	300	-	490	270	-	441	270	-	441	IPT	.0017	.0022	.0026	.0029	.0034	.0034
	5	1.5 x D	0.4 x D	1 x D	200	-	330	170	-	280.5	160	-	264	IPT	.0016	.0020	.0023	.0026	.0033	.0033
M	6	1.5 x D	0.4 x D	0.75 x D	160	-	250	136	-	212.5	128	-	200	IPT	.0013	.0016	.0019	.0021	.0024	.0024
	1	1.5 x D	0.4 x D	1 x D	300	-	380	240	-	304	210	-	266	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	2	1.5 x D	0.4 x D	1 x D	200	-	260	160	-	208	140	-	182	IPT	.0016	.0020	.0023	.0026	.0033	.0033
K	3	1.5 x D	0.4 x D	1 x D	200	-	230	160	-	184	140	-	161	IPT	.0013	.0016	.0019	.0021	.0024	.0024
	1	1.5 x D	0.5 x D	1 x D	390	-	490	351	-	441	351	-	441	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	2	1.5 x D	0.5 x D	1 x D	360	-	460	324	-	414	324	-	414	IPT	.0019	.0025	.0029	.0033	.0041	.0041
S	3	1.5 x D	0.5 x D	1 x D	360	-	430	324	-	387	324	-	387	IPT	.0016	.0020	.0023	.0026	.0033	.0033
	1	1.5 x D	0.3 x D	0.3 x D	160	-	300	128	-	240	96	-	180	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	2	1.5 x D	0.3 x D	0.3 x D	80	-	130	64	-	104	48	-	78	IPT	.0010	.0013	.0015	.0018	.0022	.0022
	3	1.5 x D	0.3 x D	0.3 x D	80	-	130	64	-	104	48	-	78	IPT	.0010	.0013	.0015	.0018	.0022	.0022
H	4	1.5 x D	0.4 x D	1 x D	160	-	200	128	-	160	96	-	120	IPT	.0014	.0018	.0021	.0024	.0030	.0030
	1	1.5 x D	0.4 x D	0.75 x D	260	-	460	208	-	368	156	-	276	IPT	.0017	.0022	.0026	.0029	.0034	.0034
	2	1.5 x D	0.2 x D	0.5 x D	230	-	390	184	-	312	138	-	234	IPT	.0013	.0016	.0019	.0021	.0024	.0024

NOTE: Those guidelines may require variations to achieve optimum results.

Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

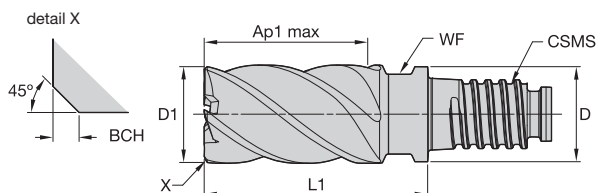
Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. Please adjust parameters according to system stability.

For side milling with ap larger than 1 x D, reduce fz by 20%!

Cylindrical shanks not recommended for full slotting.

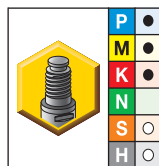
- Unequal flute spacing and variable helix configuration minimize chatter and harmonics for smoother machining.
- Non-center cutting.
- Ramping up to 3°.
- Five-flute geometry able to slot up to 1 x D.
- Single tool for both roughing and finishing, reducing setups.
- Standard items listed. Additional styles and coatings made-to-order.



End Mill Tolerances

D1	tolerance e8
13/32–23/32"	-0,00126"/-0,00232"
23/32–1-3/16"	-0,00157"/-0,00287"
> 1-3/16"	-0,00197"/-0,00350"

UCDV • 5 Flute • Inch

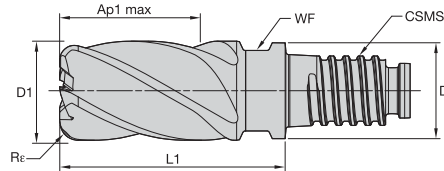


- first choice
- alternate choice

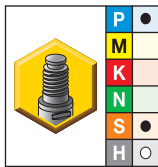
KCPM15	D1	D	Ap1 max	L1	CSMS system size	WF	BCH
UCDV0375Y5CU	3/8	.359	9/16	.843	DL10	.315	—
UCDV0375Y5CV	3/8	.359	9/16	.843	DL10	.315	.020
UCDV0500Y5CU	1/2	.480	3/4	1.126	DL12	.374	—
UCDV0500Y5CV	1/2	.480	3/4	1.126	DL12	.374	.020
UCDV0625Y5CU	5/8	.605	15/16	1.406	DL16	.512	—
UCDV0625Y5CV	5/8	.605	15/16	1.406	DL16	.512	.020
UCDV0750Y5CU	3/4	.730	1 1/8	1.689	DL20	.630	—
UCDV0750Y5CV	3/4	.730	1 1/8	1.689	DL20	.630	.020
UCDV1000Y5CU	1	.961	1 1/2	2.252	DL25	.827	—
UCDV1000Y5CV	1	.961	1 1/2	2.252	DL25	.827	.020
UCDV1250Y5CU	1 1/4	1.211	1 7/8	2.803	DL32	1.102	—
UCDV1250Y5CV	1 1/4	1.211	1 7/8	2.803	DL32	1.102	.020

NOTE: For application data, please see page O14.

- Unequal flute spacing and variable helix configuration minimize chatter and harmonics for smoother machining.
- Non-center cutting.
- Ramping up to 3°.
- Five-flute geometry able to slot up to 1 x D.
- Single tool for both roughing and finishing, reducing setups.
- Standard items listed. Additional styles and coatings made-to-order.


End Mill Tolerances

D1	tolerance e8
13/32–23/32"	-0,00126"/-0,00232"
23/32–1-3/16"	-0,00157"/-0,00287"
> 1-3/16"	-0,00197"/-0,00350"

■ UDDV • 5 Flute • Inch


- first choice
- alternate choice

KC643M	D1	D	Ap1 max	L1	CSMS system size	WF	Rε
UDDV0375Y5CQA	3/8	.359	9/16	.843	DL10	.315	.015
UDDV0375Y5CQB	3/8	.359	9/16	.843	DL10	.315	.030
UDDV0375Y5CQC	3/8	.359	9/16	.843	DL10	.315	.060
UDDV0375Y5CQD	3/8	.359	9/16	.843	DL10	.315	.090
UDDV0500Y5CQA	1/2	.480	3/4	1.126	DL12	.374	.015
UDDV0500Y5CQB	1/2	.480	3/4	1.126	DL12	.374	.030
UDDV0500Y5CQC	1/2	.480	3/4	1.126	DL12	.374	.060
UDDV0500Y5CQD	1/2	.480	3/4	1.126	DL12	.374	.090
UDDV0500Y5CQE	1/2	.480	3/4	1.126	DL12	.374	.120
UDDV0625Y5CQA	5/8	.605	15/16	1.406	DL16	.512	.015
UDDV0625Y5CQB	5/8	.605	15/16	1.406	DL16	.512	.030
UDDV0625Y5CQC	5/8	.605	15/16	1.406	DL16	.512	.060
UDDV0625Y5CQD	5/8	.605	15/16	1.406	DL16	.512	.090
UDDV0625Y5CQE	5/8	.605	15/16	1.406	DL16	.512	.120
UDDV0750Y5CQB	3/4	.730	1 1/8	1.689	DL20	.630	.030
UDDV0750Y5CQC	3/4	.730	1 1/8	1.689	DL20	.630	.060
UDDV0750Y5CQD	3/4	.730	1 1/8	1.689	DL20	.630	.090
UDDV0750Y5CQE	3/4	.730	1 1/8	1.689	DL20	.630	.120
UDDV1000Y5CQB	1	.961	1 1/2	2.252	DL25	.827	.030
UDDV1000Y5CQC	1	.961	1 1/2	2.252	DL25	.827	.060
UDDV1000Y5CQD	1	.961	1 1/2	2.252	DL25	.827	.090
UDDV1000Y5CQE	1	.961	1 1/2	2.252	DL25	.827	.120
UDDV1000Y5CQF	1	.961	1 1/2	2.252	DL25	.827	.250
UDDV1250Y5CQD	1 1/4	1.211	1 7/8	2.803	DL32	1.102	.090
UDDV1250Y5CQF	1 1/4	1.211	1 7/8	2.803	DL32	1.102	.250

NOTE: For application data, please see page O15.

■ HARVI II • UCDV • Unequal Flute Spacing

Material Group																				
	Side Milling (A) and Slotting (B)			short		medium		long		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.										
	A		B	adapter reach						D1 – Diameter										
	ap		ae	KCPM15		KCPM15		KCPM15		frac.	3/8	1/2	5/8	3/4	1	1 1/4				
	min	max	min	max	min	max	min	max	dec.	.3750	.5000	.6250	.7500	1.2500	1.2500					
P	0	1.5 x D	0.5 x D	1 x D	490	-	660	441	-	594	441	-	594	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	1	1.5 x D	0.5 x D	1 x D	490	-	660	441	-	594	441	-	594	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	2	1.5 x D	0.5 x D	1 x D	460	-	620	414	-	558	414	-	558	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	3	1.5 x D	0.5 x D	1 x D	390	-	520	351	-	468	351	-	468	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	4	1.5 x D	0.4 x D	0.75 x D	300	-	490	270	-	441	270	-	441	IPT	.0017	.0022	.0026	.0029	.0034	.0034
	5	1.5 x D	0.4 x D	1 x D	200	-	330	170	-	280.5	160	-	264	IPT	.0016	.0020	.0023	.0026	.0033	.0033
M	6	1.5 x D	0.4 x D	0.75 x D	160	-	250	136	-	212.5	128	-	200	IPT	.0013	.0016	.0019	.0021	.0024	.0024
	1	1.5 x D	0.4 x D	1 x D	300	-	380	240	-	304	210	-	266	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	2	1.5 x D	0.4 x D	1 x D	200	-	260	160	-	208	140	-	182	IPT	.0016	.0020	.0023	.0026	.0033	.0033
K	3	1.5 x D	0.4 x D	1 x D	200	-	230	160	-	184	140	-	161	IPT	.0013	.0016	.0019	.0021	.0024	.0024
	1	1.5 x D	0.5 x D	1 x D	390	-	490	351	-	441	351	-	441	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	2	1.5 x D	0.5 x D	1 x D	360	-	460	324	-	414	324	-	414	IPT	.0019	.0025	.0029	.0033	.0041	.0041
S	3	1.5 x D	0.5 x D	1 x D	360	-	430	324	-	387	324	-	387	IPT	.0016	.0020	.0023	.0026	.0033	.0033
	1	1.5 x D	0.3 x D	0.3 x D	160	-	300	128	-	240	96	-	180	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	2	1.5 x D	0.3 x D	0.3 x D	80	-	130	64	-	104	48	-	78	IPT	.0010	.0013	.0015	.0018	.0022	.0022
	3	1.5 x D	0.3 x D	0.3 x D	80	-	130	64	-	104	48	-	78	IPT	.0010	.0013	.0015	.0018	.0022	.0022
H	4	1.5 x D	0.4 x D	1 x D	160	-	200	128	-	160	96	-	120	IPT	.0014	.0018	.0021	.0024	.0030	.0030
	1	1.5 x D	0.4 x D	0.75 x D	260	-	460	208	-	368	156	-	276	IPT	.0017	.0022	.0026	.0029	.0034	.0034
	2	1.5 x D	0.2 x D	0.5 x D	230	-	390	184	-	312	138	-	234	IPT	.0013	.0016	.0019	.0021	.0024	.0024

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
 Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
 Above parameters are based on ideal conditions. Please adjust parameters according to system stability.
 For side milling with Ap bigger than 1 x D reduce Fz by 20%!
 Cylindrical shanks not recommended for full slotting.

Duo-Lock Modular Milling

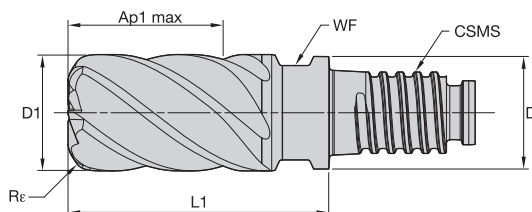
■ HARVI II • UDDV • Unequal Flute Spacing

Material Group													Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.							
	Side Milling (A) and Slotting (B)			short		medium			long			D1 – Diameter								
	A		B	adapter reach																
	ap		ae	KC643M		KC643M			KC643M			frac.	3/8	1/2	5/8	3/4	1	1 1/4		
	min		max	min		max		min		max		dec.	.3750	.5000	.6250	.7500	1.2500	1.2500		
P	5	1.5 x D	0.4 x D	1 x D	200	-	330	170	-	280.5	160	-	264	IPT	.0016	.0020	.0023	.0026	.0033	.0033
	6	1.5 x D	0.4 x D	0.75 x D	160	-	250	136	-	212.5	128	-	200	IPT	.0013	.0016	.0019	.0021	.0024	.0024
S	1	1.5 x D	0.3 x D	0.3 x D	160	-	300	128	-	240	96	-	180	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	2	1.5 x D	0.3 x D	0.3 x D	80	-	130	64	-	104	48	-	78	IPT	.0010	.0013	.0015	.0018	.0022	.0022
	3	1.5 x D	0.3 x D	0.3 x D	80	-	130	64	-	104	48	-	78	IPT	.0010	.0013	.0015	.0018	.0022	.0022
	4	1.5 x D	0.4 x D	1 x D	160	-	200	128	-	160	96	-	120	IPT	.0014	.0018	.0021	.0024	.0030	.0030
H	1	1.5 x D	0.4 x D	0.75 x D	260	-	460	208	-	368	156	-	276	IPT	.0017	.0022	.0026	.0029	.0034	.0034
	2	1.5 x D	0.2 x D	0.5 x D	230	-	390	184	-	312	138	-	234	IPT	.0013	.0016	.0019	.0021	.0024	.0024

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
 Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
 Above parameters are based on ideal conditions. Please adjust parameters according to system stability.
 For side milling with Ap bigger than 1 x D reduce Fz by 20%!
 Cylindrical shanks not recommended for full slotting.



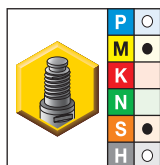
- Unequal flute spacing and variable helix configuration minimize chatter and harmonics for smoother machining.
- Center cutting.
- Optimized geometry for titanium machining.
- Single tool for both roughing and finishing, reducing setups.
- Standard items listed. Additional styles and coatings made-to-order.



End Mill Tolerances

D1	tolerance e8
13/32–23/32"	-0,00126"/-0,00232"
23/32–1-3/16"	-0,00157"/-0,00287"
>1-3/16"	-0,00197"/-0,00350"

■ UJDV • 6 Flute with Eccentric Relief Grind • Inch



- first choice
- alternate choice

KCSM15	D1	D	Ap1 max	L1	CSMS system size	WF	Rε
UJDV0375Y6CQA	3/8	.359	9/16	.843	DL10	.315	.015
UJDV0375Y6CQB	3/8	.359	9/16	.843	DL10	.315	.030
UJDV0375Y6CQC	3/8	.359	9/16	.843	DL10	.315	.060
UJDV0375Y6CQD	3/8	.359	9/16	.843	DL10	.315	.090
UJDV0500Y6CQA	1/2	.480	3/4	1.126	DL12	.374	.015
UJDV0500Y6CQB	1/2	.480	3/4	1.126	DL12	.374	.030
UJDV0500Y6CQC	1/2	.480	3/4	1.126	DL12	.374	.060
UJDV0500Y6CQD	1/2	.480	3/4	1.126	DL12	.374	.090
UJDV0500Y6CQE	1/2	.480	3/4	1.126	DL12	.374	.120
UJDV0625Y6CQA	5/8	.605	15/16	1.406	DL16	.512	.015
UJDV0625Y6CQB	5/8	.605	15/16	1.406	DL16	.512	.030
UJDV0625Y6CQC	5/8	.605	15/16	1.406	DL16	.512	.060
UJDV0625Y6CQD	5/8	.605	15/16	1.406	DL16	.512	.090
UJDV0625Y6CQE	5/8	.605	15/16	1.406	DL16	.512	.120
UJDV0750Y6CQB	3/4	.730	1 1/8	1.689	DL20	.630	.030
UJDV0750Y6CQC	3/4	.730	1 1/8	1.689	DL20	.630	.060
UJDV0750Y6CQD	3/4	.730	1 1/8	1.689	DL20	.630	.090
UJDV0750Y6CQE	3/4	.730	1 1/8	1.689	DL20	.630	.120
UJDV1000Y6CQB	1	.961	1 1/2	2.252	DL25	.827	.030
UJDV1000Y6CQC	1	.961	1 1/2	2.252	DL25	.827	.090
UJDV1000Y6CQD	1	.961	1 1/2	2.252	DL25	.827	.090
UJDV1000Y6CQE	1	.961	1 1/2	2.252	DL25	.827	.120
UJDV1000Y6CQF	1	.961	1 1/2	2.252	DL25	.827	.030
UJDV1250Y6CQD	1 1/4	1.211	1 7/8	2.803	DL32	1.102	.090
UJDV1250Y6CQF	1 1/4	1.211	1 7/8	2.803	DL32	1.102	.250

NOTE: For application data, please see page O17.

■ HARVI III • UJDV • Unequal Flute Spacing • Roughing

Material Group													Recommended feed per tooth (IPT = inch/th) for side milling (A).						
				short			medium			long			D1 – Diameter						
		A		adapter reach									frac. 3/8 1/2 5/8 3/4 1 1 1/4 dec. .3750 .5000 .6250 .7500 1.2500 1.2500						
				KCSM15			KCSM15			KCSM15									
ap		ae		Cutting Speed – vc SFM			Cutting Speed – vc SFM			Cutting Speed – vc SFM									
				min		max	min		max	min		max							
P	4	Ap max	0.4 x D	300	–	490	270	–	441	270	–	441	IPT	.0017	.0022	.0026	.0029	.0034	.0034
	5	Ap max	0.4 x D	200	–	330	170	–	280.5	160	–	264	IPT	.0016	.0020	.0023	.0026	.0033	.0033
M	1	Ap max	0.4 x D	300	–	380	240	–	304	210	–	266	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	2	Ap max	0.4 x D	200	–	260	160	–	208	140	–	182	IPT	.0016	.0020	.0023	.0026	.0033	.0033
	3	Ap max	0.4 x D	200	–	230	160	–	184	140	–	161	IPT	.0013	.0016	.0019	.0021	.0024	.0024
S	1	Ap max	0.4 x D	160	–	300	128	–	240	96	–	180	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	2	Ap max	0.4 x D	80	–	130	64	–	104	48	–	78	IPT	.0010	.0013	.0015	.0018	.0022	.0022
	3	Ap max	0.4 x D	80	–	130	64	–	104	48	–	78	IPT	.0010	.0013	.0015	.0018	.0022	.0022
	4	Ap max	0.4 x D	160	–	200	128	–	160	96	–	120	IPT	.0014	.0018	.0021	.0024	.0030	.0030
H	1	Ap max	0.4 x D	260	–	460	208	–	368	156	–	276	IPT	.0017	.0022	.0026	.0029	.0034	.0034
	2	Ap max	0.4 x D	230	–	390	184	–	312	138	–	234	IPT	.0013	.0016	.0019	.0021	.0024	.0024

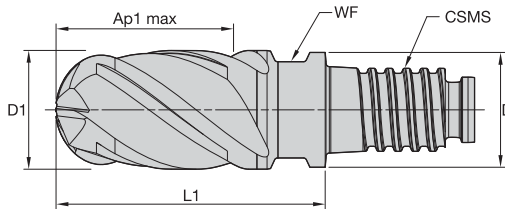
NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
 Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
 Above parameters are based on ideal conditions. Please adjust parameters according to system stability.
 For side milling with Ap bigger than 1 x D, reduce fz by 20%!
 Cylindrical shanks not recommended for full slotting.

■ HARVI III • UJDV • Unequal Flute Spacing • Finishing

Material Group													Recommended feed per tooth (IPT = inch/th) for side milling (A).						
				short			medium			long			D1 – Diameter						
		A		adapter reach									frac. 3/8 1/2 5/8 3/4 1 1 1/4 dec. .3750 .5000 .6250 .7500 1.2500 1.2500						
				KCSM15			KCSM15			KCSM15									
ap		ae		Cutting Speed – vc SFM			Cutting Speed – vc SFM			Cutting Speed – vc SFM									
				min		max	min		max	min		max							
P	4	Ap max	0.06 x D	560	–	940	504	–	846	504	–	846	IPT	.0021	.0026	.0031	.0034	.0041	.0041
	5	Ap max	0.06 x D	370	–	620	314.5	–	527	296	–	496	IPT	.0019	.0024	.0028	.0031	.0040	.0040
M	1	Ap max	0.06 x D	560	–	720	448	–	576	392	–	504	IPT	.0023	.0029	.0035	.0039	.0049	.0049
	2	Ap max	0.06 x D	370	–	500	296	–	400	259	–	350	IPT	.0019	.0024	.0028	.0031	.0040	.0040
	3	Ap max	0.06 x D	370	–	440	296	–	352	259	–	308	IPT	.0016	.0020	.0023	.0025	.0029	.0029
S	1	Ap max	0.06 x D	310	–	560	248	–	448	186	–	336	IPT	.0023	.0029	.0035	.0039	.0049	.0049
	2	Ap max	0.06 x D	160	–	250	128	–	200	96	–	150	IPT	.0012	.0016	.0019	.0021	.0027	.0027
	3	Ap max	0.06 x D	160	–	250	128	–	200	96	–	150	IPT	.0012	.0016	.0019	.0021	.0027	.0027
	4	Ap max	0.06 x D	310	–	370	248	–	296	186	–	222	IPT	.0017	.0022	.0026	.0029	.0036	.0036
H	1	Ap max	0.06 x D	500	–	870	400	–	696	300	–	522	IPT	.0021	.0026	.0031	.0034	.0041	.0041
	2	Ap max	0.06 x D	440	–	750	352	–	600	264	–	450	IPT	.0016	.0020	.0023	.0025	.0029	.0029

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
 Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
 Above parameters are based on ideal conditions. Please adjust parameters according to system stability.
 For side milling with Ap bigger than 1 x D, reduce fz by 20%!
 Cylindrical shanks not recommended for full slotting.

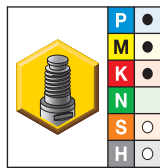
- Asymmetrical flute spacing and variable helix configuration minimize chatter and harmonics for smoother machining.
- Center cutting.
- Single tool for both roughing and finishing, reducing setups.
- Standard items listed. Additional styles and coatings made-to-order.



End Mill Tolerances

D1	tolerance e8
13/32-23/32"	-0,00126"/-0,00232"
23/32-1-3/16"	-0,00157"/-0,00287"

UKBV • 4 Flute Ball Nose • Inch

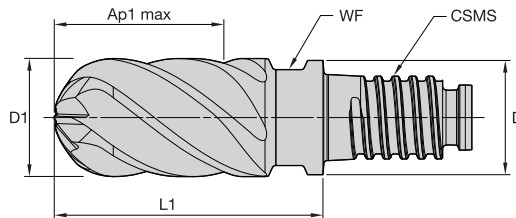


- first choice
- alternate choice

KCPM15	D1	D	Ap1 max	L1	CSMS system size	WF
UKBV0375Y4CN	3/8	.359	9/16	.843	DL10	.315
UKBV0500Y4CN	1/2	.480	3/4	1.126	DL12	.374
UKBV0625Y4CN	5/8	.605	15/16	1.406	DL16	.512
UKBV0750Y4CN	3/4	.730	1 1/8	1.689	DL20	.630
UKBV1000Y4CN	1	.961	1 1/2	2.252	DL25	.827

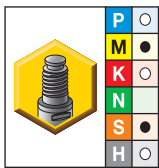
NOTE: For application data, please see page O20.

- Unequal flute spacing and variable helix configuration minimize chatter and harmonics for smoother machining.
- Center cutting.
- Optimized geometry for titanium machining.
- Single tool for both roughing and finishing, reducing setups.
- Standard items listed. Additional styles and coatings made-to-order.



End Mill Tolerances	
D1	tolerance e8
13/32–23/32"	-0,00126"/-0,00232"
23/32–1-3/16"	-0,00157"/-0,00287"

■ UJBV • 6 Flute Ball Nose with Eccentric Relief Grind • Inch



- first choice
- alternate choice

KCSM15	D1	D	Ap1 max	L1	CSMS system size	WF
UJBV0375Y6CN	3/8	.359	9/16	.843	DL10	.315
UJBV0500Y6CN	1/2	.480	3/4	1.126	DL12	.374
UJBV0625Y6CN	5/8	.605	15/16	1.406	DL16	.512
UJBV0750Y6CN	3/4	.730	1 1/8	1.689	DL20	.630
UJBV1000Y6CN	1	.961	1 1/2	2.252	DL25	.827

NOTE: For application data, please see pages O21–O22.



Duo-Lock Modular Milling



■ HARVI Ball Nose • UKBV • Asymmetrical Flute Spacing • Roughing • Finishing

Material Group						Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.														
	Side Milling (A) and Slotting (B)			short	medium	long	adapter reach						D1 – Diameter							
	A		B	KCPM15		KCPM15		KCPM15												
	Cutting Speed – vc SFM		Cutting Speed – vc SFM		Cutting Speed – vc SFM		frac.	3/8	1/2	5/8	3/4	1	1 1/4							
	ap	ae	ap	min	max	min	max	min	max	dec.	.3750	.5000	.6250	.7500	1.2500	1.2500				
P	0	1.25 x D	0.5 x D	1 x D	490	-	660	441	-	594	441	-	594	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	1	1.25 x D	0.5 x D	1 x D	490	-	660	441	-	594	441	-	594	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	2	1.25 x D	0.5 x D	1 x D	460	-	620	414	-	558	414	-	558	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	3	1.25 x D	0.5 x D	1 x D	390	-	520	351	-	468	351	-	468	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	4	1.25 x D	0.4 x D	0.75 x D	300	-	490	270	-	441	270	-	441	IPT	.0017	.0022	.0026	.0029	.0034	.0034
	5	1.25 x D	0.4 x D	1 x D	200	-	330	170	-	280.5	160	-	264	IPT	.0016	.0020	.0023	.0026	.0033	.0033
M	6	1.25 x D	0.4 x D	0.75 x D	160	-	250	136	-	212.5	128	-	200	IPT	.0013	.0016	.0019	.0021	.0024	.0024
	1	1.25 x D	0.4 x D	1 x D	300	-	380	240	-	304	210	-	266	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	2	1.25 x D	0.4 x D	1 x D	200	-	260	160	-	208	140	-	182	IPT	.0016	.0020	.0023	.0026	.0033	.0033
K	3	1.25 x D	0.4 x D	1 x D	200	-	230	160	-	184	140	-	161	IPT	.0013	.0016	.0019	.0021	.0024	.0024
	1	1.25 x D	0.5 x D	1 x D	390	-	490	351	-	441	351	-	441	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	2	1.25 x D	0.5 x D	1 x D	360	-	460	324	-	414	324	-	414	IPT	.0019	.0025	.0029	.0033	.0041	.0041
S	3	1.25 x D	0.5 x D	1 x D	360	-	430	324	-	387	324	-	387	IPT	.0016	.0020	.0023	.0026	.0033	.0033
	1	1 x D	0.3 x D	0.3 x D	160	-	300	128	-	240	96	-	180	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	2	1 x D	0.3 x D	0.3 x D	80	-	130	64	-	104	48	-	78	IPT	.0010	.0013	.0015	.0018	.0022	.0022
	3	1.25 x D	0.3 x D	0.3 x D	80	-	130	64	-	104	48	-	78	IPT	.0010	.0013	.0015	.0018	.0022	.0022
H	4	1.25 x D	0.4 x D	1 x D	160	-	200	128	-	160	96	-	120	IPT	.0014	.0018	.0021	.0024	.0030	.0030
	1	1.25 x D	0.4 x D	0.75 x D	260	-	460	208	-	368	156	-	276	IPT	.0017	.0022	.0026	.0029	.0034	.0034
	2	1.25 x D	0.2 x D	0.5 x D	230	-	390	184	-	312	138	-	234	IPT	.0013	.0016	.0019	.0021	.0024	.0024

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
 Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
 Above parameters are based on ideal conditions. Please adjust parameters according to system stability.
 For side milling with ap larger than 1 x D, reduce fz by 20%!
 Cylindrical shanks not recommended for full slotting.

Duo-Lock Modular Milling



■ HARVI III Ball Nose • UJBV • Unequal Flute Spacing • Roughing

Material Group													Recommended feed per tooth (IPT = inch/th) for side milling (A).						
	Side Milling (A)		short			medium			long										
	A		adapter reach										D1 – Diameter						
			KCSM15			KCSM15			KCSM15										
			Cutting Speed – vc SFM			Cutting Speed – vc SFM			Cutting Speed – vc SFM				frac.	3/8	1/2	5/8	3/4	1	
ap	ae	min		max	min		max	min		max	min		max	dec.	.3750	.5000	.6250	.7500	1.2500
P	0	Ap max	0.4 x D	490	–	660	441	–	594	441	–	594	IPT	.0023	.0029	.0034	.0037	.0042	
	1	Ap max	0.4 x D	490	–	660	441	–	594	441	–	594	IPT	.0023	.0029	.0034	.0037	.0042	
	2	Ap max	0.4 x D	460	–	620	414	–	558	414	–	558	IPT	.0023	.0029	.0034	.0037	.0042	
	3	Ap max	0.4 x D	390	–	520	351	–	468	351	–	468	IPT	.0019	.0025	.0029	.0033	.0041	
	4	Ap max	0.4 x D	300	–	490	270	–	441	270	–	441	IPT	.0017	.0022	.0026	.0029	.0034	
	5	Ap max	0.4 x D	200	–	330	170	–	280.5	160	–	264	IPT	.0016	.0020	.0023	.0026	.0033	
M	1	Ap max	0.4 x D	300	–	380	240	–	304	210	–	266	IPT	.0019	.0025	.0029	.0033	.0041	
	2	Ap max	0.4 x D	200	–	260	160	–	208	140	–	182	IPT	.0016	.0020	.0023	.0026	.0033	
	3	Ap max	0.4 x D	200	–	230	160	–	184	140	–	161	IPT	.0013	.0016	.0019	.0021	.0024	
K	1	Ap max	0.4 x D	390	–	490	351	–	441	351	–	441	IPT	.0023	.0029	.0034	.0037	.0042	
	2	Ap max	0.4 x D	360	–	460	324	–	414	324	–	414	IPT	.0019	.0025	.0029	.0033	.0041	
	3	Ap max	0.4 x D	360	–	430	324	–	387	324	–	387	IPT	.0016	.0020	.0023	.0026	.0033	
S	1	Ap max	0.4 x D	160	–	300	128	–	240	96	–	180	IPT	.0019	.0025	.0029	.0033	.0041	
	2	Ap max	0.4 x D	80	–	130	64	–	104	48	–	78	IPT	.0010	.0013	.0015	.0018	.0022	
	3	Ap max	0.4 x D	80	–	130	64	–	104	48	–	78	IPT	.0010	.0013	.0015	.0018	.0022	
	4	Ap max	0.4 x D	160	–	200	128	–	160	96	–	120	IPT	.0014	.0018	.0021	.0024	.0030	
H	1	Ap max	0.4 x D	260	–	460	208	–	368	156	–	276	IPT	.0017	.0022	.0026	.0029	.0034	
	2	Ap max	0.4 x D	230	–	390	184	–	312	138	–	234	IPT	.0013	.0016	.0019	.0021	.0024	

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
 Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
 Above parameters are based on ideal conditions. Please adjust parameters according to system stability.
 For side milling with Ap bigger than 1 x D, reduce fz by 20%!
 Cylindrical shanks not recommended for full slotting.


 Duo-Lock Modular Milling

■ HARVI III Ball Nose • UJBV • Unequal Flute Spacing • Finishing

Material Group													Recommended feed per tooth (IPT = inch/th) for side milling (A).					
		A		adapter reach									D1 – Diameter					
				KCSM15			KCSM15			KCSM15								
				Cutting Speed – vc SFM			Cutting Speed – vc SFM			Cutting Speed – vc SFM			frac.	3/8	1/2	5/8	3/4	1
ap	ae	min		max	min		max	min		max	dec.	.3750	.5000	.6250	.7500	1.2500		
P	0	Ap max	0.06 x D	940	–	1250	846	–	1125	846	–	1125	IPT	.0028	.0035	.0040	.0045	.0050
	1	Ap max	0.06 x D	940	–	1250	846	–	1125	846	–	1125	IPT	.0028	.0035	.0040	.0045	.0050
	2	Ap max	0.06 x D	870	–	1180	783	–	1062	783	–	1062	IPT	.0028	.0035	.0040	.0045	.0050
	3	Ap max	0.06 x D	750	–	1000	675	–	900	675	–	900	IPT	.0023	.0029	.0035	.0039	.0049
	4	Ap max	0.06 x D	560	–	940	504	–	846	504	–	846	IPT	.0021	.0026	.0031	.0034	.0041
	5	Ap max	0.06 x D	370	–	620	314.5	–	527	296	–	496	IPT	.0019	.0024	.0028	.0031	.0040
M	6	Ap max	0.06 x D	310	–	470	263.5	–	399.5	248	–	376	IPT	.0016	.0020	.0023	.0025	.0029
	1	Ap max	0.06 x D	560	–	720	448	–	576	392	–	504	IPT	.0023	.0029	.0035	.0039	.0049
	2	Ap max	0.06 x D	370	–	500	296	–	400	259	–	350	IPT	.0019	.0024	.0028	.0031	.0040
K	3	Ap max	0.06 x D	370	–	440	296	–	352	259	–	308	IPT	.0016	.0020	.0023	.0025	.0029
	1	Ap max	0.06 x D	750	–	940	675	–	846	675	–	846	IPT	.0028	.0035	.0040	.0045	.0050
	2	Ap max	0.06 x D	690	–	870	621	–	783	621	–	783	IPT	.0023	.0029	.0035	.0039	.0049
S	3	Ap max	0.06 x D	690	–	810	621	–	729	621	–	729	IPT	.0019	.0024	.0028	.0031	.0040
	1	Ap max	0.06 x D	310	–	560	248	–	448	186	–	336	IPT	.0023	.0029	.0035	.0039	.0049
	2	Ap max	0.06 x D	160	–	250	128	–	200	96	–	150	IPT	.0012	.0016	.0019	.0021	.0027
	3	Ap max	0.06 x D	160	–	250	128	–	200	96	–	150	IPT	.0012	.0016	.0019	.0021	.0027
H	4	Ap max	0.06 x D	310	–	370	248	–	296	186	–	222	IPT	.0017	.0022	.0026	.0029	.0036
	1	Ap max	0.06 x D	500	–	870	400	–	696	300	–	522	IPT	.0021	.0026	.0031	.0034	.0041
	2	Ap max	0.06 x D	440	–	750	352	–	600	264	–	450	IPT	.0016	.0020	.0023	.0025	.0029

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
 Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
 Above parameters are based on ideal conditions. Please adjust parameters according to system stability.
 For side milling with ap larger than 1 x D, reduce fz by 20%!
 Cylindrical shanks not recommended for full slotting.

Duo-Lock Modular Milling



Duo-Lock™ HARVI™ III

Duo-Lock™ HARVI

CHALLENGE

CHALLENGE

- Facing steel (1215) material.
- External emulsion.
- Current solution solid carbide.

- Roughing of sensor mounting slot in cast iron.
- External emulsion.
- Current solution solid carbide.

SOLUTION

SOLUTION

- Duo-Lock Ø 5/8".
- HARVI III UJDV.
- Corner radius R = .015".

- Duo-Lock Ø .630" — cylindrical shank.
- HARVI UKDV.
- Corner radius R = .020".

CUTTING DATA

CUTTING DATA

- v_c 699 SFM
- f_z .0020 IPT
- a_p .050"
- a_e .472"

- v_c 190 SFM
- f_z .0026
- a_p .863"
- a_e .314"

RESULT

RESULT

- 40% higher feed per tooth.
- 15% increase in cutting speed.
- Good surface finish and minimum wear on edges.

- Less wear.
- More stable process.

BENEFIT

BENEFIT

- Reduced machining time.
- Increased productivity.
- Reduced tooling cost.

- No unpredictable breakage like with competitive solid carbide tool.
- Stable machining process.



Duo-Lock™ HARVI™ III

Duo-Lock™ HARVI III

CHALLENGE

CHALLENGE

- Finishing contour milling with lightly interrupted cut.
- Blade machining of X20Cr and X22Cr (M3).
- External emulsion.
- Current solution solid carbide.

- Hard machining — side milling.
- Hardened steel (17–4 PH) — 35 HRC.
- External emulsion.
- Current solution solid carbide.

SOLUTION

SOLUTION

- Duo-Lock Ø .630" — cylindrical shank.
- HydroForce™ with reducer sleeve.
- HARVI III UJDV geometry in KCSM15™.
- Corner radius R = .157".

- Duo-Lock Ø 5/8".
- HARVI III UJDV.
- Corner radius R = .015".

CUTTING DATA

CUTTING DATA

- v_c 1148 SFM
- f_z .0047 IPT
- a_p .020"
- a_e .157"

- v_c 736 SFM
- f_z .0044 IPT
- a_p .600"
- a_e .030"

RESULT

RESULT

- Tool life increased from 34 to 103 parts.
- Machining time per part reduced by 50%.

- 15% increase in cutting speed.
- Good surface finish and minimum wear on edges.

BENEFIT

BENEFIT

- Increase of productivity.
- Cost reduction through almost triple tool life.
- Improved surface finish.

- Reduced machining time.
- Increased productivity.
- Reduced tooling cost.

CFRP Machining Tooling

KCN05™

Engineered for machining difficult CFRP (Carbon-Fiber Reinforced Polymer) and non-ferrous components. KCN05 solid carbide tooling provides excellent tool life and produces smooth finishes with improved edge quality.

- Excellent tool life due to KCN05 diamond-film coating.
- Proprietary substrate improves coating adhesion to extend tool life.
- Design minimizes delamination and bur formation.
- Compression-style end mills for trimming operations.
- Left-hand down cut and ball nose cutters for machining cavities.
- Bur-style router for highest Metal Removal Rates (MRR).



Visit kennametal.com or contact your local Authorized Kennametal Distributor.



kennametal.com

➤ DUO-ΛOCK® MaxiMet™

High-Performance Modular Solid Carbide End Mills

Primary Application

The MaxiMet system provides extraordinary metal removal rates by combining roughing and finishing operations with any aluminum plunging, slotting, and profiling application. Its proprietary flute geometry is designed for high stiffness and improved chip evacuation to generate exceptional wall-to-floor perpendicularity, even in thin-wall applications. To ensure a superior floor surface finish, the MaxiMet front geometry is equipped with a wiper facet grind.

- Only one tool needed for roughing and finishing operations.
- Slotting depths up to 1 x D and side milling up to 0.5 x D radial and 1.5 x D axial engagement.
- Unequal flute spacing for chatter-free performance with 3-flute series.
- Multiple corner radii and extended neck configurations available as standard.

Features and Benefits

Advanced Technology

- Increase output with fewer tool changes and higher metal removal rates.
- No specific tools necessary for roughing and finishing.
- Fewer passes due to 1 x D slotting capability.
- Perfect for MQL (minimum quantity lubrication) methods.

Tailored Grades

- K600 uncoated grade for longest tool life in aluminum and other non-ferrous materials.

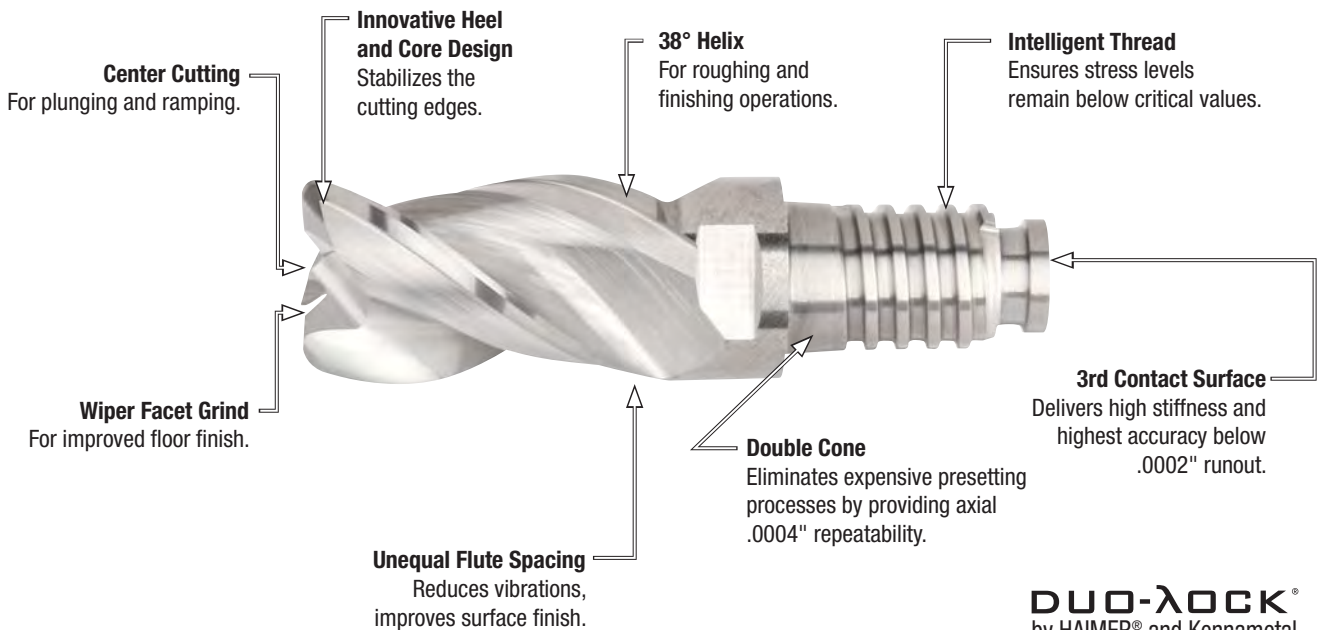
Customization

- Intermediate diameters are available between 3/8–1 1/4".

Extensive Standard Offering

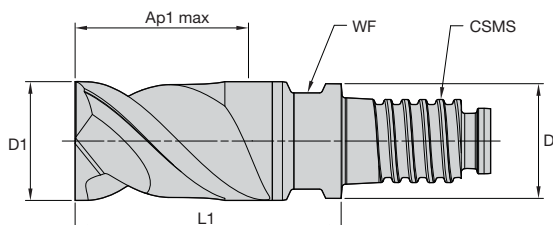
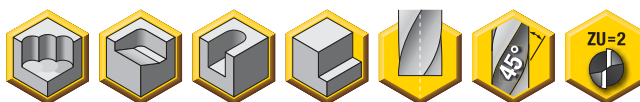
- Diameter ranges 3/8–1".
- Necked, corner radii, and square-end tips available.
- Integral adapters reduce the amount of interface for maximum accuracy. Steel extensions with Safe-Lock™ by HAIMER shanks prevent pullout.
- Cut-to-size extra-long extensions available upon request off the shelf.

For high metal removal rates and superior surface finishes.



DUO-LOCK[®]
by HAIMER[®] and Kennametal

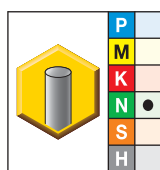
- Center cutting.
- Optimized for thin-wall applications.
- Wiper facet, special end gash, and flute geometry enable improved surface finishes.
- Standard items listed. Additional styles and coatings made-to-order.



End Mill Tolerances

D1	tolerance e8
13/32-23/32"	-0,00126"/-0,00232"
23/32-1-3/16"	-0,00157"/-0,00287"

ABDF • 2 Flute • Inch

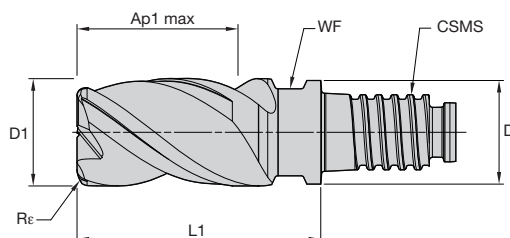
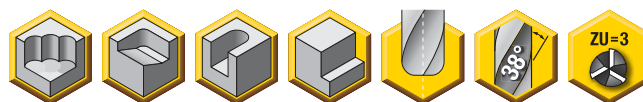


- first choice
- alternate choice

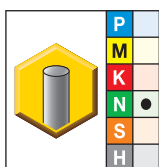
K600	D1	D	Ap1 max	L1	CSMS system size	WF
ABDF0375Y2CU	3/8	.359	9/16	.843	DL10	.315
ABDF0500Y2CU	1/2	.480	3/4	1.126	DL12	.374
ABDF0625Y2CU	5/8	.605	15/16	1.406	DL16	.512
ABDF0750Y2CU	3/4	.730	1 1/8	1.689	DL20	.630

NOTE: For application data, please see page O30.

- Center cutting.
- Optimized for thin-wall applications.
- Wiper facet, special end gash, and flute geometry enable improved surface finishes.
- Standard items listed. Additional styles and coatings made-to-order.


End Mill Tolerances

D1	tolerance e8
13/32-23/32"	-0,00126"/-0,00232"
23/32-1-3/16"	-0,00157"/-0,00287"

ABDE • 3 Flute • Inch


- first choice
- alternate choice

K600	D1	D	Ap1 max	L1	CSMS system size	WF	Re
ABDE0375Y3CQA	3/8	.359	9/16	.843	DL10	.315	.015
ABDE0375Y3CQB	3/8	.359	9/16	.843	DL10	.315	.030
ABDE0375Y3CQC	3/8	.359	9/16	.843	DL10	.315	.060
ABDE0375Y3CQD	3/8	.359	9/16	.843	DL10	.315	.090
ABDE0500Y3CQA	1/2	.480	3/4	1.126	DL12	.374	.015
ABDE0500Y3CQB	1/2	.480	3/4	1.126	DL12	.374	.030
ABDE0500Y3CQC	1/2	.480	3/4	1.126	DL12	.374	.060
ABDE0500Y3CQD	1/2	.480	3/4	1.126	DL12	.374	.090
ABDE0500Y3CQE	1/2	.480	3/4	1.126	DL12	.374	.120
ABDE0625Y3CQA	5/8	.605	15/16	1.406	DL16	.512	.015
ABDE0625Y3CQB	5/8	.605	15/16	1.406	DL16	.512	.030
ABDE0625Y3CQC	5/8	.605	15/16	1.406	DL16	.512	.060
ABDE0625Y3CQD	5/8	.605	15/16	1.406	DL16	.512	.090
ABDE0625Y3CQE	5/8	.605	15/16	1.406	DL16	.512	.120
ABDE0750Y3CQB	3/4	.730	1 1/8	1.689	DL20	.630	.030
ABDE0750Y3CQC	3/4	.730	1 1/8	1.689	DL20	.630	.060
ABDE0750Y3CQD	3/4	.730	1 1/8	1.689	DL20	.630	.090
ABDE0750Y3CQE	3/4	.730	1 1/8	1.689	DL20	.630	.120
ABDE1000Y3CQB	1	.961	1 1/2	2.252	DL25	.827	.030
ABDE1000Y3CQC	1	.961	1 1/2	2.252	DL25	.827	.060
ABDE1000Y3CQD	1	.961	1 1/2	2.252	DL25	.827	.090
ABDE1000Y3CQE	1	.961	1 1/2	2.252	DL25	.827	.120
ABDE1000Y3CQF	1	.961	1 1/2	2.252	DL25	.827	.250

NOTE: For application data, please see page O30.

■ MaxiMet • ABDF • Wiper Facet

		Side Milling (A) and Slotting (B)			short		medium			long			Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.					
		A		B	adapter reach									D1 – Diameter				
					K600		K600			K600			frac.	3/8	1/2	5/8	3/4	
					Cutting Speed – vc SFM		Cutting Speed – vc SFM			Cutting Speed – vc SFM			dec.	.3750	.5000	.6250	.7500	
Material Group		ap	ae	ap	min	max	min	max	min	max	min	max	dec.					
N	1	1.5 x D	0.3 x D	1.0 x D	1640	6560	1312	3936	984	3936	984	3936	IPT	.0029	.0038	.0048	.0057	
	2	1.5 x D	0.3 x D	1.0 x D	1640	4920	1312	2952	984	2952	984	2952	IPT	.0023	.0031	.0038	.0046	
	3	1.5 x D	0.3 x D	1.0 x D	1640	4920	1312	2952	984	2952	984	2952	IPT	.0020	.0027	.0033	.0040	
	4	1.5 x D	0.3 x D	1.0 x D	1310	2460	1048	1476	786	1476	786	1476	IPT	.0020	.0027	.0033	.0040	
	5	1.5 x D	0.3 x D	1.0 x D	820	3280	656	1968	492	1968	492	1968	IPT	.0026	.0034	.0043	.0052	

NOTE: Ap for spindle with ceramic bearings multiply by 0.5.
 For better surface finish reduce feed per tooth.
 Above parameters are based on ideal conditions. Please adjust parameters according to system stability.
 For side milling with Ap bigger than 1 x D reduce Fz by 20%!
 Cylindrical shanks not recommended for full slotting.

■ MaxiMet • ABDE • Wiper Facet • Unequal Flute Spacing

		Side Milling (A) and Slotting (B)			short		medium			long			Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.					
		A		B	adapter reach									D1 – Diameter				
					K600		K600			K600			frac.	3/8	1/2	5/8	3/4	
					Cutting Speed – vc SFM		Cutting Speed – vc SFM			Cutting Speed – vc SFM			dec.	.3750	.5000	.6250	.7500	
Material Group		ap	ae	ap	min	max	min	max	min	max	min	max	dec.					
N	1	1.5 x D	0.3 x D	1.0 x D	1640	6560	1312	3936	984	3936	984	3936	IPT	.0029	.0038	.0048	.0057	
	2	1.5 x D	0.3 x D	1.0 x D	1640	4920	1312	2952	984	2952	984	2952	IPT	.0023	.0031	.0038	.0046	
	3	1.5 x D	0.3 x D	1.0 x D	1640	4920	1312	2952	984	2952	984	2952	IPT	.0020	.0027	.0033	.0040	
	4	1.5 x D	0.3 x D	1.0 x D	1310	2460	1048	1476	786	1476	786	1476	IPT	.0020	.0027	.0033	.0040	
	5	1.5 x D	0.3 x D	1.0 x D	820	3280	656	1968	492	1968	492	1968	IPT	.0026	.0034	.0043	.0052	

NOTE: Ap for spindle with ceramic bearings multiply by 0.5.
 For better surface finish reduce feed per tooth.
 Above parameters are based on ideal conditions. Please adjust parameters according to system stability.
 For side milling with Ap bigger than 1 x D reduce Fz by 20%!
 Cylindrical shanks not recommended for full slotting.

Duo-Lock Modular Milling

HARVI™ II Long

- Long wall semi- and fine-finishing.
- Significant straight wall accuracy.
- Thin wall machining up to 5 x D.
- Eliminates feed rate reduction in corner machining.
- For machining titanium, steels, and stainless steels.

KC643M™

- Universal grade suitable for cutting steel, cast iron, stainless steel, and titanium.

Advanced Technology

- Five unequally spaced flutes for chatter-free machining at high feed rates, improving surface finish and tool life.
- Innovative core design increases stability for exceptionally straight walls.



Visit kennametal.com or contact your local Authorized Kennametal Distributor.



kennametal.com

➤ DUO-λOCK®

High-Performance Modular Roughing Solid Carbide End Mills

Primary Application

Duo-Lock™ high-performance roughing tools provide superior metal removal rates while reducing machine power consumption. Applicable on a wide range of workpiece materials such as steels, stainless steels, and difficult-to-machine materials. Tailored to roughing profiles, provides excellent chip management, and reduces cutting forces to the necessary level. Combines roughing and semi-finishing for fewer tool changes.

- High-performance universal tools for almost all cutting materials.
- Lowering cutting forces and spindle power consumption.
- Center cutting for ramping, profiling, high-feed slotting, and side milling.

Features and Benefits

Advanced Technology

- Up to full length of cut for:
 - Slotting
 - Side milling
 - Profiling
 - Semi-finishing
- Various roughing profiles available to choose from for the right balance between cutting forces, feed rates, and surface quality.
- Fewer passes due to 1 x D slotting capability.

Tailored Grades

- KCPM15™ Beyond™ grade for outstanding wear protection in stainless steel to mitigate crater, depth-of-cut notching, and flank wear.
- KCSM15™ Beyond grade for exceptional tool life in titanium and stainless steels.

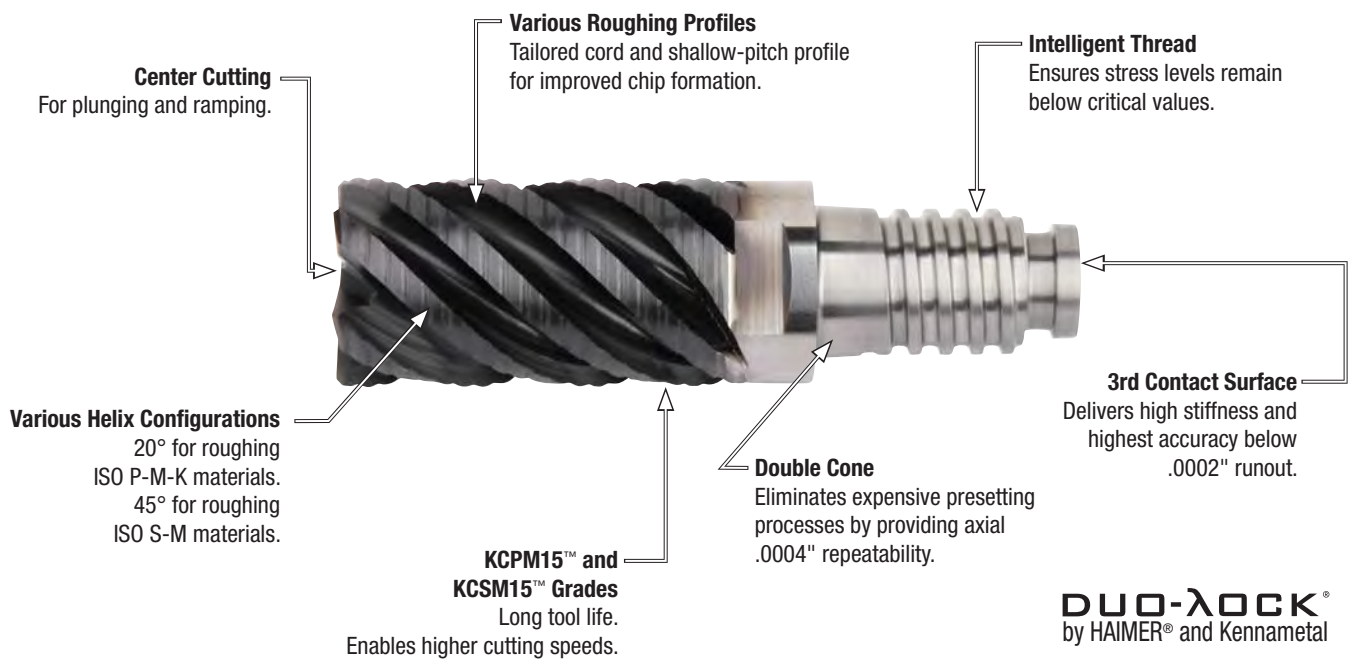
Customization

- Intermediate diameters are available between 3/8–1 1/4".

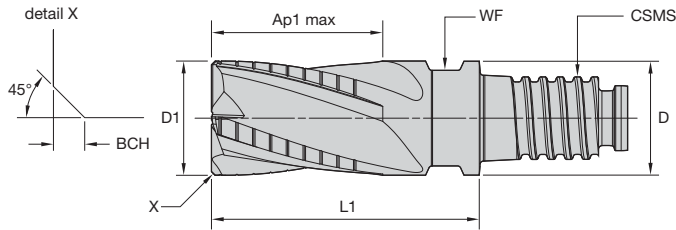
Extensive Standard Offering

- Diameter ranges 3/8–1".
- Necked, corner radii, and chamfered tips offered.
- Integral adapters reduce the amount of interface for maximum accuracy. Steel extensions with Safe-Lock™ by HAIMER shanks prevent pullout.
- Cut-to-size extra-long extensions available upon request off the shelf.

For high metal removal rates
and low power consumption.

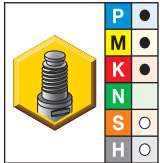


- Center cutting.
- Cord profile reduces machine power consumption.
- Standard items listed. Additional styles and coatings made-to-order.



End Mill Tolerances	
D1	tolerance d11
13/32-11/16"	-0.002/-0.0063"
23/32-1-3/16"	-0.026/ -0.0077"

RQDB • Inch

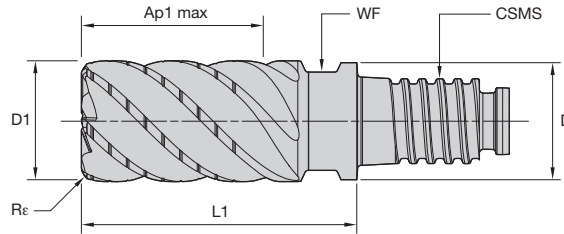


- first choice
- alternate choice

KCPM15	D1	D	Ap1 max	L1	CSMS system size	WF	BCH	Z U
RQDB0375Y4CV	3/8	.359	9/16	.843	DL10	.315	.020	4
RQDB0500Y4CV	1/2	.480	3/4	1.126	DL12	.374	.020	4
RQDB0625Y4CV	5/8	.605	15/16	1.406	DL16	.512	.020	4
RQDB0750Y4CV	3/4	.730	1 1/8	1.689	DL20	.630	.020	4
RQDB1000Y5CV	1	.961	1 1/2	2.252	DL25	.827	.020	5

NOTE: For application data, please see page O37.

- Center cutting.
- Shallow-pitch profile reduces machine power consumption.
- Standard items listed. Additional styles and coatings made-to-order.



End Mill Tolerances

D1	tolerance d11
13/32-11/16"	-0.002/-0.0063"
23/32-1-3/16"	-0.026/ -0.0077"

■ RKDF • Inch



- first choice
- alternate choice

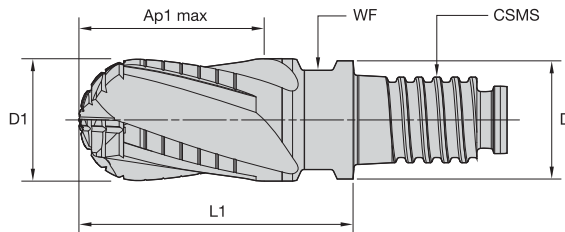
KCSM15	D1	D	Ap1 max	L1	CSMS system size	WF	Re	Z U
RKDF0375Y4CQA	3/8	.359	9/16	.843	DL10	.315	.015	4
RKDF0500Y4CQB	1/2	.480	3/4	1.126	DL12	.374	.030	4
RKDF0625Y4CQB	5/8	.605	15/16	1.406	DL16	.512	.030	4
RKDF0750Y6CQB	3/4	.730	1 1/8	1.689	DL20	.630	.030	6
RKDF1000Y6CQB	1	.961	1 1/2	2.252	DL25	.827	.030	6

NOTE: For application data, please see page O38.



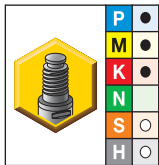
Duo-Lock Modular Milling

- Center cutting.
- Cord profile reduces machine power consumption.
- Standard items listed. Additional styles and coatings made-to-order.



End Mill Tolerances	
D1	tolerance d11
13/32-11/16"	-0.002/-0.0063"
23/32-1-3/16"	-0.026/ -0.0077"

RQBB • Inch



- first choice
- alternate choice

KCPM15	D1	D	Ap1 max	L1	CSMS system size	WF
RQBB0375Y4CN	3/8	.359	9/16	.843	DL10	.315
RQBB0500Y4CN	1/2	.480	3/4	1.126	DL12	.374
RQBB0625Y4CN	5/8	.605	15/16	1.406	DL16	.512
RQBB0750Y4CN	3/4	.730	1 1/8	1.689	DL20	.630
RQBB1000Y4CN	1	.961	1 1/2	2.252	DL25	.827

NOTE: For application data, please see page O39.

Duo-Lock Modular Milling

■ RQDB • Inch

Material Group																			
	Side Milling (A) and Slotting (B)			short		medium				long				Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.					
	A		B	adapter reach															
	ap		ae	KCPM15		KCPM15				KCPM15				D1 – Diameter					
	ap		ae	ap		Cutting Speed – vc SFM		Cutting Speed – vc SFM		Cutting Speed – vc SFM		frac.	3/8	1/2	5/8	3/4	1		
	min	max	min	max	min	max	min	max	min	max	dec.	.3750	.5000	.6250	.7500	1.2500			
P	0	1.5 x D	0.5 x D	1 x D	390	–	520	351	–	468	351	–	468	IPT	.0020	.0025	.0029	.0032	.0036
	1	1.5 x D	0.5 x D	1 x D	390	–	520	351	–	468	351	–	468	IPT	.0020	.0025	.0029	.0032	.0036
	2	1.5 x D	0.5 x D	1 x D	370	–	500	333	–	450	333	–	450	IPT	.0020	.0025	.0029	.0032	.0036
	3	1.5 x D	0.4 x D	0.75 x D	310	–	420	279	–	378	279	–	378	IPT	.0017	.0021	.0025	.0028	.0035
	4	1.5 x D	0.3 x D	0.3 x D	240	–	390	216	–	351	216	–	351	IPT	.0015	.0019	.0022	.0024	.0029
M	5	1.5 x D	0.4 x D	0.75 x D	160	–	260	136	–	221	128	–	208	IPT	.0013	.0017	.0020	.0022	.0028
	1	1.5 x D	0.4 x D	0.75 x D	240	–	300	192	–	240	168	–	210	IPT	.0017	.0021	.0025	.0028	.0035
	2	1.5 x D	0.4 x D	0.75 x D	160	–	210	128	–	168	112	–	147	IPT	.0013	.0017	.0020	.0022	.0028
K	3	1.5 x D	0.4 x D	0.75 x D	160	–	180	128	–	144	112	–	126	IPT	.0011	.0014	.0016	.0018	.0021
	1	1.5 x D	0.5 x D	1 x D	310	–	390	279	–	351	279	–	351	IPT	.0020	.0025	.0029	.0032	.0036
	2	1.5 x D	0.4 x D	1 x D	290	–	370	261	–	333	261	–	333	IPT	.0017	.0021	.0025	.0028	.0035
S	3	1.5 x D	0.4 x D	1 x D	290	–	340	261	–	306	261	–	306	IPT	.0013	.0017	.0020	.0022	.0028
	1	1.5 x D	0.4 x D	0.75 x D	130	–	240	104	–	192	78	–	144	IPT	.0017	.0021	.0025	.0028	.0035
H	3	1.5 x D	0.4 x D	0.75 x D	70	–	100	56	–	80	42	–	60	IPT	.0009	.0011	.0013	.0015	.0019
	1	1.5 x D	0.3 x D	0.3 x D	210	–	370	168	–	296	126	–	222	IPT	.0015	.0019	.0022	.0024	.0029

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
 Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
 Above parameters are based on ideal conditions. Please adjust parameters according to system stability.
 For side milling with Ap bigger than 1 x D, reduce fz by 20%!
 Cylindrical shanks not recommended for full slotting.



Duo-Lock Modular Milling

■ RKDF • Inch

Material Group		Side Milling (A) and Slotting (B)			short			medium			long			Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.						
		A		B	adapter reach									D1 – Diameter						
		ap		ae	ap	KCSM15			KCSM15			KCSM15			frac.	3/8	1/2	5/8	3/4	1
		ap		ae	ap	Cutting Speed – vc SFM		max	Cutting Speed – vc SFM		max	Cutting Speed – vc SFM		max	dec.	.3750	.5000	.6250	.7500	1.000
		min	max	min	max	min	max	min	max	min	max	min	max	dec.	.3750	.5000	.6250	.7500	1.000	
P	3	1.0 x D	0.5 x D	0.75 x D	390	–	520	351	–	468	351	–	468	IPT	.0019	.0025	.0029	.0033	.0033	
	4	1.0 x D	0.3 x D	0.75 x D	300	–	490	270	–	441	270	–	441	IPT	.0017	.0022	.0026	.0029	.0028	
	5	1.0 x D	0.4 x D	0.75 x D	200	–	330	170	–	280.5	160	–	264	IPT	.0016	.0020	.0023	.0026	.0026	
	6	1.0 x D	0.3 x D	0.3 x D	160	–	250	136	–	212.5	128	–	200	IPT	.0013	.0016	.0019	.0021	.0020	
M	1	1.0 x D	0.4 x D	0.75 x D	300	–	380	240	–	304	210	–	266	IPT	.0019	.0025	.0029	.0033	.0033	
	2	1.0 x D	0.4 x D	0.75 x D	200	–	260	160	–	208	140	–	182	IPT	.0016	.0020	.0023	.0026	.0026	
	3	1.0 x D	0.4 x D	0.75 x D	200	–	230	160	–	184	140	–	161	IPT	.0013	.0016	.0019	.0021	.0020	
K	1	1.0 x D	0.5 x D	1 x D	390	–	490	351	–	441	351	–	441	IPT	.0023	.0029	.0034	.0037	.0035	
	2	1.0 x D	0.5 x D	1 x D	360	–	460	324	–	414	324	–	414	IPT	.0019	.0025	.0029	.0033	.0033	
	3	1.0 x D	0.5 x D	1 x D	360	–	430	324	–	387	324	–	387	IPT	.0016	.0020	.0023	.0026	.0026	
S	1	1.0 x D	0.3 x D	0.75 x D	160	–	300	128	–	240	96	–	180	IPT	.0019	.0025	.0029	.0033	.0033	
	2	1.0 x D	0.3 x D	0.75 x D	80	–	130	64	–	104	48	–	78	IPT	.0010	.0013	.0015	.0018	.0018	
	3	1.0 x D	0.3 x D	0.75 x D	80	–	130	64	–	104	48	–	78	IPT	.0010	.0013	.0015	.0018	.0018	
	4	1.0 x D	0.4 x D	0.75 x D	160	–	200	128	–	160	96	–	120	IPT	.0014	.0018	.0021	.0024	.0024	
H	1	1.0 x D	0.3 x D	0.3 x D	260	–	460	208	–	368	156	–	276	IPT	.0017	.0022	.0026	.0029	.0028	
	2	1.0 x D	0.2 x D	0.2 x D	230	–	390	184	–	312	138	–	234	IPT	.0013	.0016	.0019	.0021	.0020	
	3	1.0 x D	0.2 x D	0.2 x D	200	–	300	160	–	240	120	–	180	IPT	.0010	.0013	.0015	.0018	.0018	

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
 Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
 Above parameters are based on ideal conditions. Please adjust parameters according to system stability.
 For side milling with Ap bigger than 1 x D reduce fz by 20%!
 Cylindrical shanks not recommended for full slotting.

Duo-Lock Modular Milling

■ RQBB • Inch

Material Group														Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.					
	Side Milling (A) and Slotting (B)			short			medium			long				D1 – Diameter					
	A		B	adapter reach															
	ap		ae	KCPM15			KCPM15			KCPM15				frac.	3/8	1/2	5/8	3/4	1
	ap		ae	Cutting Speed – vc SFM		Cutting Speed – vc SFM		Cutting Speed – vc SFM				dec.	.3750	.5000	.6250	.7500	1.000		
P	0	1.5 x D	0.5 x D	1 x D	490	–	660	441	–	594	441	–	594	IPT	.0023	.0029	.0034	.0037	.0042
	1	1.5 x D	0.5 x D	1 x D	490	–	660	441	–	594	441	–	594	IPT	.0023	.0029	.0034	.0037	.0042
	2	1.5 x D	0.5 x D	1 x D	460	–	620	414	–	558	414	–	558	IPT	.0023	.0029	.0034	.0037	.0042
	3	1.5 x D	0.4 x D	0.75 x D	390	–	520	351	–	468	351	–	468	IPT	.0019	.0025	.0029	.0033	.0038
	4	1.5 x D	0.3 x D	0.3 x D	300	–	490	270	–	441	270	–	441	IPT	.0017	.0022	.0026	.0029	.0033
	5	1.5 x D	0.4 x D	0.75 x D	200	–	330	170	–	280.5	160	–	264	IPT	.0016	.0020	.0023	.0026	.0031
M	1	1.5 x D	0.4 x D	0.75 x D	300	–	380	240	–	304	210	–	266	IPT	.0019	.0025	.0029	.0033	.0038
	2	1.5 x D	0.4 x D	0.75 x D	200	–	260	160	–	208	140	–	182	IPT	.0016	.0020	.0023	.0026	.0031
	3	1.5 x D	0.4 x D	0.75 x D	200	–	230	160	–	184	140	–	161	IPT	.0013	.0016	.0019	.0021	.0024
K	1	1.5 x D	0.5 x D	1 x D	390	–	490	351	–	441	351	–	441	IPT	.0023	.0029	.0034	.0037	.0042
	3	1.5 x D	0.4 x D	1 x D	360	–	460	324	–	414	324	–	414	IPT	.0019	.0025	.0029	.0033	.0038
S	1	1.5 x D	0.4 x D	0.75 x D	160	–	300	128	–	240	96	–	180	IPT	.0019	.0025	.0029	.0033	.0038
	2	1.5 x D	0.3 x D	0.3 x D	80	–	130	64	–	104	48	–	78	IPT	.0010	.0013	.0015	.0018	.0021
	3	1.5 x D	0.3 x D	0.3 x D	80	–	130	64	–	104	48	–	78	IPT	.0010	.0013	.0015	.0018	.0021
	4	1.5 x D	0.3 x D	0.75 x D	160	–	200	128	–	160	96	–	120	IPT	.0014	.0018	.0021	.0024	.0028
H	1	1.5 x D	0.3 x D	0.3 x D	260	–	460	208	–	368	156	–	276	IPT	.0017	.0022	.0026	.0029	.0033
	2	1.5 x D	0.2 x D	0.2 x D	230	–	390	184	–	312	138	–	234	IPT	.0013	.0016	.0019	.0021	.0024
	3	1.5 x D	0.2 x D	0.2 x D	200	–	300	160	–	240	120	–	180	IPT	.0010	.0013	.0015	.0018	.0021

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
 Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
 Above parameters are based on ideal conditions. Please adjust parameters according to system stability.
 For side milling with Ap bigger than 1 x D reduce fz by 20%!
 Cylindrical shanks not recommended for full slotting.

Duo-Lock Modular Milling

➤ DUO-LOCK[®]

High-Performance Modular Finishing Solid Carbide End Mills

Primary Application

Duo-Lock™ high-performance finishing tools are designed for machining titanium, steels, and stainless steels with excellent surface finishes at maximum Metal Removal Rates (MRR) in two basic geometries. The FMDF geometry is perfectly suited for finishing steels and stainless steels. The Duo-Lock™ RSM II geometry is designed for high-speed peel milling with secure chip formation and evacuation in deep cavities with the maximum amount of edges at a given diameter.

- Specifically designed geometries for finishing in a wide range of materials.
- Higher number of flutes and higher helix angles for super finishing applications.
- High metal removal rates for fewer passes, longer tool life, and superior surface finishes.

Features and Benefits

Advanced Technology

- RSM II FSDE geometry:
 - Maximum number of flutes increases feed rates and reduces vibration.
 - Proprietary W-shaped flute form improves chip formation and reduces cutting forces.
 - Unequal flute spacing increases tool life and surface quality.
- FMDF geometry:
 - Excellent geometry for steels and stainless steel.
 - Protection radii helps extend tool life.

Tailored Grades

- KCPM15™ Beyond™ grade for outstanding wear protection in stainless steel to mitigate cratering, depth-of-cut notching, and flank wear.
- KC643M™ grade provides highest fine finishing and longest tool life.

Customization

- Intermediate diameters are available from 3/8–1".

Extensive Standard Offering

- Diameter ranges 3/8–1 1/4".
- Necked and corner radii tips available.
- Integral adapters reduce the amount of interface for maximum accuracy. Steel extensions with Safe-Lock™ by HAIMER shanks prevent pullout.
- Cut-to-size extra-long extensions available upon request off the shelf.

For highest surface quality.



45° Helix Angle with FMDf
Specifically engineered for fine finishing steels and stainless steels.

KCPM15™ Grade
Longest tool life.
Enables higher cutting speeds.

36° Helix Angle with FSDE
Specifically engineered for fine finishing titanium and other ISO S-M materials.

Intelligent Thread
Ensures stress levels remain below critical values.

DUO-LOCK®
by HAIMER® and Kennametal

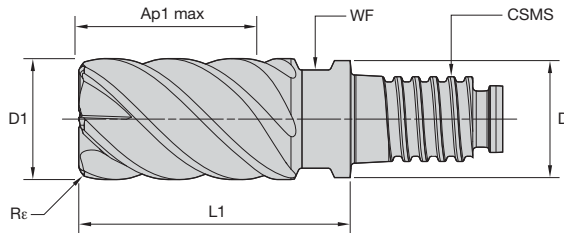
W-Shaped Flute Design with FSDE
Wider flute space for optimized chip evacuation.

KC643M™ Grade
Unmatched fine finishing and tool life.

Double Cone
Eliminates expensive presetting processes by providing axial .0004" repeatability.

3rd Contact Surface
Delivers high stiffness and highest accuracy below .0002" runout.

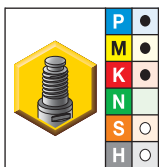
- Center cutting.
- Standard items listed. Additional styles and coatings made-to-order.



End Mill Tolerances

D1	tolerance e8
13/32-23/32"	-0,00126"/-0,00232"
23/32-1-3/16"	-0,00157"/-0,00287"

F MDF • Inch



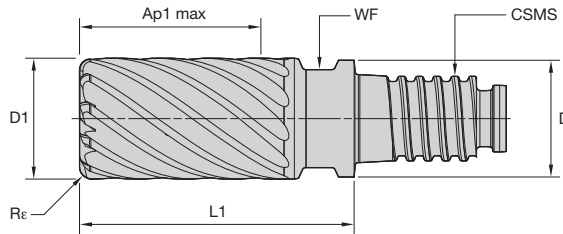
- first choice
- alternate choice

KCPM15	D1	D	Ap1 max	L1	CSMS system size	WF	Re
F MDF0375Y6CQA	3/8	.359	9/16	.843	DL10	.315	.015
F MDF0500Y6CQB	1/2	.480	3/4	1.126	DL12	.374	.030
F MDF0625Y6CQB	5/8	.605	15/16	1.406	DL16	.512	.030
F MDF0750Y6CQB	3/4	.730	1 1/8	1.689	DL20	.630	.030
F MDF1000Y6CQB	1	.961	1 1/2	2.252	DL25	.827	.030

NOTE: For application data, please see page O44.

Duo-Lock Modular Milling

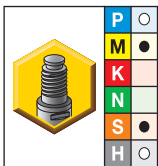
- Non-center cutting.
- Optimized geometry for titanium machining.
- Unequal flute spacing minimizes chatter for smoother machining.
- Standard items listed. Additional styles and coatings made-to-order.



End Mill Tolerances

D1	tolerance e8
13/32-23/32"	-0,00126"/-0,00232"
23/32-1-3/16"	-0,00157"/-0,00287"

FSDE • Inch



- first choice
- alternate choice

KC643M	D1	D	Ap1 max	L1	CSMS system size	WF	Re	Z U
FSDE0375Y9CQA	3/8	.359	9/16	.843	DL10	.315	.015	9
FSDE0375Y9CQB	3/8	.359	9/16	.843	DL10	.315	.030	9
FSDE0375Y9CQC	3/8	.359	9/16	.843	DL10	.315	.060	9
FSDE0375Y9CQD	3/8	.359	9/16	.843	DL10	.315	.090	9
FSDE0500Y9CQA	1/2	.480	3/4	1.126	DL12	.374	.015	9
FSDE0500Y9CQB	1/2	.480	3/4	1.126	DL12	.374	.030	9
FSDE0500Y9CQC	1/2	.480	3/4	1.126	DL12	.374	.060	9
FSDE0500Y9CQD	1/2	.480	3/4	1.126	DL12	.374	.090	9
FSDE0500Y9CQE	1/2	.480	3/4	1.126	DL12	.374	.120	9
FSDE0625Y11CQA	5/8	.605	15/16	1.406	DL16	.512	.015	11
FSDE0625Y11CQB	5/8	.605	15/16	1.406	DL16	.512	.030	11
FSDE0625Y11CQC	5/8	.605	15/16	1.406	DL16	.512	.060	11
FSDE0625Y11CQD	5/8	.605	15/16	1.406	DL16	.512	.090	11
FSDE0625Y11CQE	5/8	.605	15/16	1.406	DL16	.512	.120	11
FSDE0750Y15CQB	3/4	.730	1 1/8	1.689	DL20	.630	.030	15
FSDE0750Y15CQC	3/4	.730	1 1/8	1.689	DL20	.630	.060	15
FSDE0750Y15CQD	3/4	.730	1 1/8	1.689	DL20	.630	.090	15
FSDE0750Y15CQE	3/4	.730	1 1/8	1.689	DL20	.630	.120	15
FSDE1000Y19CQB	1	.961	1 1/2	2.252	DL25	.827	.030	19
FSDE1000Y19CQC	1	.961	1 1/2	2.252	DL25	.827	.060	19
FSDE1000Y19CQD	1	.961	1 1/2	2.252	DL25	.827	.090	19
FSDE1000Y19CQE	1	.961	1 1/2	2.252	DL25	.827	.120	19
FSDE1000Y19CQF	1	.961	1 1/2	2.252	DL25	.827	.250	19

NOTE: For application data, please see page O45.

F MDF • Inch

Material Group													Recommended feed per tooth (IPT = inch/th) for side milling (A).					
	Side Milling (A)		short			medium			long									
	A		adapter reach									D1 – Diameter						
			KCPM15			KCPM15			KCPM15									
			Cutting Speed – vc SFM			Cutting Speed – vc SFM			Cutting Speed – vc SFM			frac.	3/8	1/2	5/8	3/4	1	
ap	ae	min		max	min		max	min		max	dec.	.375	.500	.625	.750	1.000		
P	0	1.5 x D	0.1 x D	490	–	660	441	–	594	441	–	594	IPT	.0027	.0034	.0039	.0044	.0049
	1	1.5 x D	0.1 x D	490	–	660	441	–	594	441	–	594	IPT	.0027	.0034	.0039	.0044	.0049
	2	1.5 x D	0.1 x D	460	–	620	414	–	558	414	–	558	IPT	.0027	.0034	.0039	.0044	.0049
	3	1.5 x D	0.1 x D	390	–	520	351	–	468	351	–	468	IPT	.0023	.0029	.0034	.0039	.0045
	4	1.5 x D	0.1 x D	300	–	490	270	–	441	270	–	441	IPT	.0020	.0026	.0030	.0034	.0039
	5	1.5 x D	0.1 x D	200	–	330	170	–	280.5	160	–	264	IPT	.0018	.0023	.0027	.0031	.0036
M	6	1.5 x D	0.1 x D	160	–	250	136	–	212.5	128	–	200	IPT	.0015	.0019	.0022	.0025	.0028
	1	1.5 x D	0.1 x D	300	–	380	240	–	304	210	–	266	IPT	.0023	.0029	.0034	.0039	.0045
	2	1.5 x D	0.1 x D	200	–	260	160	–	208	140	–	182	IPT	.0018	.0023	.0027	.0031	.0036
K	3	1.5 x D	0.1 x D	200	–	230	160	–	184	140	–	161	IPT	.0015	.0019	.0022	.0025	.0028
	1	1.5 x D	0.1 x D	390	–	490	351	–	441	351	–	441	IPT	.0027	.0034	.0039	.0044	.0049
	2	1.5 x D	0.1 x D	360	–	460	324	–	414	324	–	414	IPT	.0023	.0029	.0034	.0039	.0045
S	3	1.5 x D	0.1 x D	360	–	430	324	–	387	324	–	387	IPT	.0018	.0023	.0027	.0031	.0036
	1	1.5 x D	0.1 x D	160	–	300	128	–	240	96	–	180	IPT	.0023	.0029	.0034	.0039	.0045
	2	1.5 x D	0.1 x D	80	–	130	64	–	104	48	–	78	IPT	.0012	.0015	.0018	.0021	.0024
	3	1.5 x D	0.1 x D	80	–	130	64	–	104	48	–	78	IPT	.0012	.0015	.0018	.0021	.0024
H	4	1.5 x D	0.15 x D	160	–	200	128	–	160	96	–	120	IPT	.0017	.0021	.0025	.0028	.0033
	1	1.5 x D	0.1 x D	260	–	460	208	–	368	156	–	276	IPT	.0020	.0026	.0030	.0034	.0039
	2	1.5 x D	0.1 x D	230	–	390	184	–	312	138	–	234	IPT	.0015	.0019	.0022	.0025	.0028

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
 Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
 Above parameters are based on ideal conditions. Please adjust parameters according to system stability.
 For side milling with Ap bigger than 1 x D, reduce fz by 20%!
 Cylindrical shanks not recommended for full slotting.

Duo-Lock Modular Milling

FSDE • Inch

		Side Milling (A)		short			medium			long			Recommended feed per tooth (IPT = inch/th) for side milling (A).					
		A		adapter reach									D1 – Diameter					
				KC643M			KC643M			KC643M								
				Cutting Speed – vc SFM			Cutting Speed – vc SFM			Cutting Speed – vc SFM			frac.	3/8	1/2	5/8	3/4	1
Material Group		ap	ae	min		max	min		max	min		max	dec.	.375	.500	.625	.750	1.000
P	4	Ap max	0.008–0.012"	445	–	1628	401	–	1465	401	–	1465	IPT	.0045	.0053	.0058	.0061	.0066
	5	Ap max	0.008–0.012"	295	–	1078	251	–	916	236	–	862	IPT	.0040	.0048	.0052	.0056	.0061
M	1	Ap max	0.008–0.012"	445	–	1243	356	–	994	312	–	870	IPT	.0050	.0060	.0066	.0070	.0077
	2	Ap max	0.008–0.012"	295	–	869	236	–	695	207	–	608	IPT	.0040	.0048	.0052	.0056	.0061
	3	Ap max	0.008–0.012"	295	–	759	236	–	607	207	–	531	IPT	.0033	.0040	.0043	.0045	.0048
S	1	Ap max	0.008–0.012"	245	–	979	196	–	783	147	–	587	IPT	.0050	.0060	.0066	.0070	.0077
	2	Ap max	0.008–0.012"	125	–	429	100	–	343	75	–	257	IPT	.0026	.0032	.0035	.0037	.0041
	3	Ap max	0.008–0.012"	125	–	429	100	–	343	75	–	257	IPT	.0026	.0032	.0035	.0037	.0041
	4	Ap max	0.008–0.012"	245	–	649	196	–	519	147	–	389	IPT	.0037	.0044	.0048	.0051	.0056
H	1	Ap max	0.008–0.012"	395	–	1518	316	–	1214	237	–	911	IPT	.0045	.0053	.0058	.0061	.0066
	2	Ap max	0.008–0.012"	345	–	1298	276	–	1038	207	–	779	IPT	.0033	.0040	.0043	.0045	.0048

NOTE: For better surface, finish reduce feed per tooth.
 For side milling with Ap bigger than 1 x D, reduce fz by 20%!
 Cylindrical shanks not recommended for full slotting.

Duo-Lock Modular Milling

DUO-ΛOCK[®]

Corner Rounding and Chamfering Solid Carbide Tips

Primary Application

Duo-Lock™ XRDA corner rounding and XADA chamfering tools perfectly complete the offering of high-performance end mills.

- Universal tools for almost all workpiece materials.
- Able to be reconditioned multiple times.

Features and Benefits

Advanced Technology

- Tailored amount of edges for each diameter.

Tailored Grades

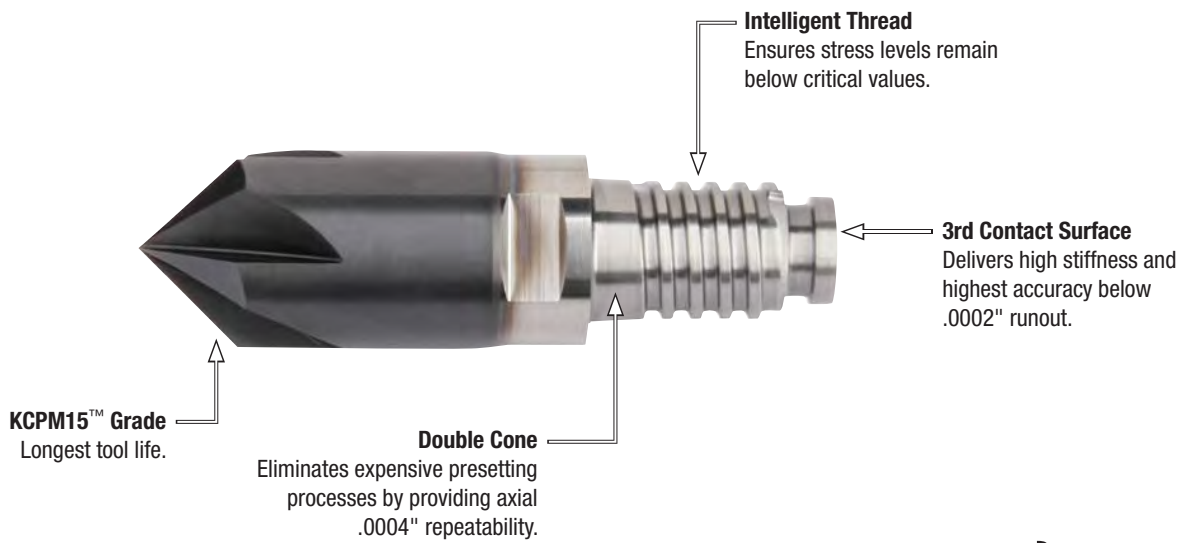
- KCPM15™ Beyond™ grade for outstanding wear protection in various materials to mitigate crater, depth-of-cut notching, and flank wear.

Customization

- Intermediate diameters are available between 3/8–1 1/4".
- Various angles and inverse radii possible.

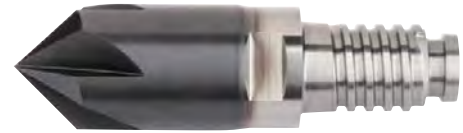
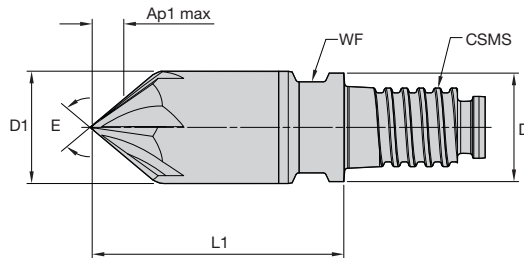
Extensive Standard Offering

- Diameter ranges 3/8–5/8".
- Integral adapters reduce the amount of interface for maximum accuracy. Steel extensions with Safe-Lock™ by HAIMER shanks prevent pullout.
- Cut-to-size extra-long extensions available upon request off the shelf.



DUO-LOCK®
by HAIMER® and Kennametal

- Non-center cutting.
- Standard items listed. Additional styles and coatings made-to-order.



End Mill Tolerances

D1	tolerance e8
13/32–23/32"	-0,00126"/-0,00232"
23/32–1-3/16"	-0,00157"/-0,00287"

XADA • Inch

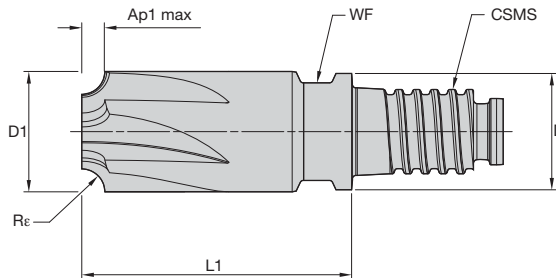


- first choice
- alternate choice

KCPM15	D1	D	Ap1 max	L1	CSMS system size	WF	E	Z U
XADA0375Y4CU60	3/8	.359	.075	.847	DL10	.315	60	4
XADA0375Y4CU45	3/8	.359	.178	.847	DL10	.315	90	4
XADA0500Y5CU60	1/2	.480	.100	1.126	DL12	.374	60	5
XADA0500Y5CU45	1/2	.480	.100	1.130	DL12	.374	90	5
XADA0625Y6CU45	5/8	.605	.125	1.402	DL16	.512	90	6
XADA0625Y6CU60	5/8	.605	.125	1.406	DL16	.512	60	6

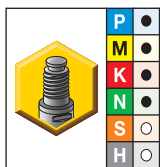
NOTE: For application data, please see page O50.

- Non-center cutting.
- Standard items listed. Additional styles and coatings made-to-order.



End Mill Tolerances	
D1	tolerance e8
13/32-23/32"	-0,00126"/-0,00232"
23/32-1-3/16"	-0,00157"/-0,00287"

■ XRDA • Inch



- first choice
- alternate choice

KCPM15	D1	D	Ap1 max	L1	CSMS system size	WF	Rε	Z U
XRDA0375Y4CUC	3/8	.359	.060	.843	DL10	.315	.060	4
XRDA0375Y4CUE	3/8	.359	.120	.852	DL10	.315	.120	4
XRDA0500Y5CUB	1/2	.480	.030	1.126	DL12	.374	.030	5
XRDA0500Y5CUC	1/2	.480	.060	1.131	DL12	.374	.060	5
XRDA0500Y5CUE	1/2	.480	.120	1.136	DL12	.374	.120	5
XRDA0625Y6CUC	5/8	.605	.060	1.406	DL16	.512	.060	6
XRDA0625Y6CUE	5/8	.605	.120	1.406	DL16	.512	.120	6

NOTE: For application data, please see page O51.



Duo-Lock Modular Milling

■ XADA • Inch

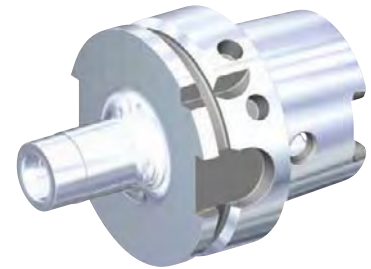
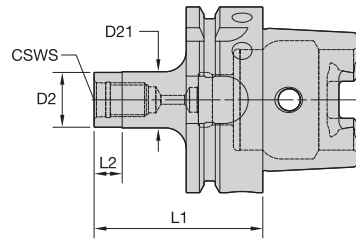
Material Group												Recommended feed per tooth (IPT = inch/th) for side milling (A).				
	Chamfering		short			medium			long							
	A		adapter reach									D1 – Diameter				
			KCPM15			KCPM15			KCPM15							
			Cutting Speed – vc SFM			Cutting Speed – vc SFM			Cutting Speed – vc SFM			frac.	3/8	1/2	5/8	
ap	ae	min		max	min		max	min		max	dec.	.375	.500	.625		
P	0	0.35 x D	0.35 x D	490	–	660	441	–	594	441	–	594	IPT	.0022	.0027	.0032
	1	0.35 x D	0.35 x D	490	–	660	441	–	594	441	–	594	IPT	.0022	.0027	.0032
	2	0.35 x D	0.35 x D	460	–	620	414	–	558	414	–	558	IPT	.0022	.0027	.0032
	3	0.35 x D	0.35 x D	390	–	520	351	–	468	351	–	468	IPT	.0018	.0023	.0027
	4	0.35 x D	0.35 x D	300	–	490	270	–	441	270	–	441	IPT	.0016	.0021	.0024
	5	0.35 x D	0.35 x D	200	–	330	170	–	280.5	160	–	264	IPT	.0015	.0018	.0022
M	1	0.35 x D	0.35 x D	300	–	380	240	–	304	210	–	266	IPT	.0018	.0023	.0027
	2	0.35 x D	0.35 x D	200	–	260	160	–	208	140	–	182	IPT	.0015	.0018	.0022
	3	0.35 x D	0.35 x D	200	–	230	160	–	184	140	–	161	IPT	.0012	.0015	.0018
K	1	0.35 x D	0.35 x D	390	–	490	351	–	441	351	–	441	IPT	.0022	.0027	.0032
	2	0.35 x D	0.35 x D	360	–	460	324	–	414	324	–	414	IPT	.0018	.0023	.0027
	3	0.35 x D	0.35 x D	360	–	430	324	–	387	324	–	387	IPT	.0015	.0018	.0022
N	1	0.35 x D	0.35 x D	1640	–	6560	1312	–	5248	984	–	3936	IPT	.0030	.0040	.0050
	2	0.35 x D	0.35 x D	1640	–	4920	1312	–	3936	984	–	2952	IPT	.0024	.0032	.0040
	3	0.35 x D	0.35 x D	1640	–	4920	1312	–	3936	984	–	2952	IPT	.0021	.0028	.0035
	4	0.35 x D	0.35 x D	1310	–	2460	1048	–	1968	786	–	1476	IPT	.0021	.0028	.0035
	5	0.35 x D	0.35 x D	820	–	3280	656	–	2624	492	–	1968	IPT	.0027	.0036	.0045
	6	0.35 x D	0.35 x D	330	–	2460	264	–	1968	198	–	1476	IPT	.0030	.0040	.0050
S	1	0.35 x D	0.35 x D	160	–	300	128	–	240	96	–	180	IPT	.0018	.0023	.0027
	2	0.35 x D	0.35 x D	80	–	130	64	–	104	48	–	78	IPT	.0010	.0012	.0015
	3	0.35 x D	0.35 x D	80	–	130	64	–	104	48	–	78	IPT	.0010	.0012	.0015
	4	0.35 x D	0.35 x D	160	–	200	128	–	160	96	–	120	IPT	.0013	.0017	.0020
H	1	0.35 x D	0.35 x D	260	–	460	208	–	368	156	–	276	IPT	.0016	.0021	.0024

Duo-Lock Modular Milling

■ XRDA • Inch

Material Group													Recommended feed per tooth (IPT = inch/th) for side milling (A).			
	Corner Rounding		short			medium			long							
	A		adapter reach										D1 – Diameter			
			KCPM15			KCPM15			KCPM15							
			Cutting Speed – vc SFM			Cutting Speed – vc SFM			Cutting Speed – vc SFM				frac.	3/8	1/2	5/8
ap	ae	min		max	min		max	min		max	dec.	.375	.500	.625		
P	0	0.35 x D	0.35 x D	490	–	660	441	–	594	441	–	594	IPT	.0022	.0027	.0032
	1	0.35 x D	0.35 x D	490	–	660	441	–	594	441	–	594	IPT	.0022	.0027	.0032
	2	0.35 x D	0.35 x D	460	–	620	414	–	558	414	–	558	IPT	.0022	.0027	.0032
	3	0.35 x D	0.35 x D	390	–	520	351	–	468	351	–	468	IPT	.0018	.0023	.0027
	4	0.35 x D	0.35 x D	300	–	490	270	–	441	270	–	441	IPT	.0016	.0021	.0024
	5	0.35 x D	0.35 x D	200	–	330	170	–	280.5	160	–	264	IPT	.0015	.0018	.0022
M	6	0.35 x D	0.35 x D	160	–	250	136	–	212.5	128	–	200	IPT	.0012	.0015	.0018
	1	0.35 x D	0.35 x D	300	–	380	240	–	304	210	–	266	IPT	.0018	.0023	.0027
	2	0.35 x D	0.35 x D	200	–	260	160	–	208	140	–	182	IPT	.0015	.0018	.0022
K	3	0.35 x D	0.35 x D	200	–	230	160	–	184	140	–	161	IPT	.0012	.0015	.0018
	1	0.35 x D	0.35 x D	390	–	490	351	–	441	351	–	441	IPT	.0022	.0027	.0032
	2	0.35 x D	0.35 x D	360	–	460	324	–	414	324	–	414	IPT	.0018	.0023	.0027
N	3	0.35 x D	0.35 x D	360	–	430	324	–	387	324	–	387	IPT	.0015	.0018	.0022
	1	0.35 x D	0.35 x D	1640	–	6560	1312	–	5248	984	–	3936	IPT	.0030	.0040	.0050
	2	0.35 x D	0.35 x D	1640	–	4920	1312	–	3936	984	–	2952	IPT	.0024	.0032	.0040
	3	0.35 x D	0.35 x D	1640	–	4920	1312	–	3936	984	–	2952	IPT	.0021	.0028	.0035
	4	0.35 x D	0.35 x D	1310	–	2460	1048	–	1968	786	–	1476	IPT	.0021	.0028	.0035
	5	0.35 x D	0.35 x D	820	–	3280	656	–	2624	492	–	1968	IPT	.0027	.0036	.0045
	6	0.35 x D	0.35 x D	330	–	2460	264	–	1968	198	–	1476	IPT	.0030	.0040	.0050
S	7	0.35 x D	0.35 x D	330	–	2460	264	–	1968	198	–	1476	IPT	.0021	.0028	.0035
	1	0.35 x D	0.35 x D	160	–	300	128	–	240	96	–	180	IPT	.0018	.0023	.0027
	2	0.35 x D	0.35 x D	80	–	130	64	–	104	48	–	78	IPT	.0010	.0012	.0015
	3	0.35 x D	0.35 x D	80	–	130	64	–	104	48	–	78	IPT	.0010	.0012	.0015
H	4	0.35 x D	0.35 x D	160	–	200	128	–	160	96	–	120	IPT	.0013	.0017	.0020
	1	0.35 x D	0.35 x D	260	–	460	208	–	368	156	–	276	IPT	.0016	.0021	.0024

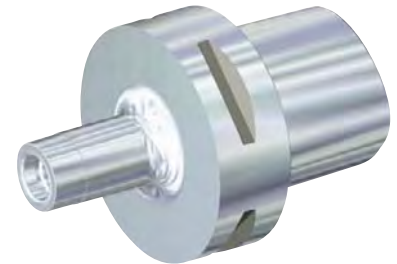
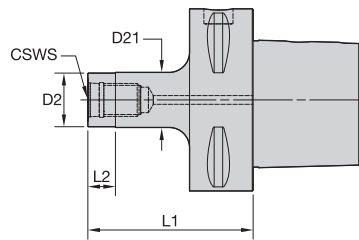
Duo-Lock Modular Milling



■ DL HSK Form A Inch

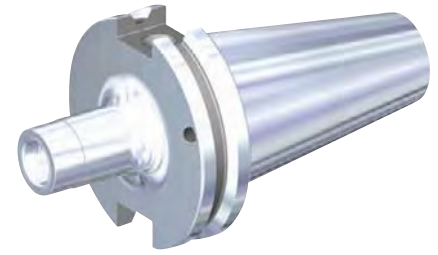
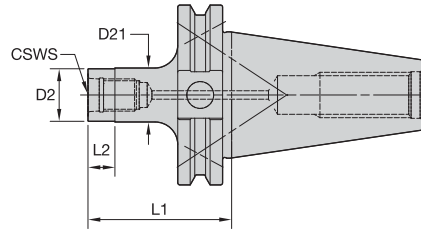
order number	catalog number	CSWS system size	D2	D21	L1	L2	ft. lbs.
6136895	HSK63ADL10200	DL10	.36	.38	2.00	.19	18.40
6136896	HSK63ADL12225	DL12	.48	.50	2.25	.25	21.10
6136897	HSK63ADL16225	DL16	.61	.63	2.25	.31	44.20
6136898	HSK63ADL20225	DL20	.73	.75	2.25	.37	59.00
6136899	HSK63ADL25250	DL25	.96	1.00	2.50	.49	73.80
6136900	HSK63ADL32288	DL32	1.21	1.25	2.88	.61	98.90

PSC63 Duo-Lock™ Integrated



■ DL PSC63 Inch

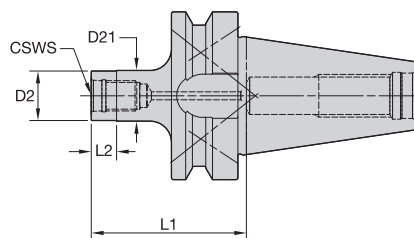
order number	catalog number	CSWS system size	D2	D21	L1	L2	lbs
6136931	PSC63DL10200	DL10	.36	.37	2.00	.19	1.69
6136932	PSC63DL12200	DL12	.48	.50	2.00	.25	1.70
6136933	PSC63DL16225	DL16	.61	.63	2.25	.31	1.73
6136934	PSC63DL20225	DL20	.73	.75	2.25	.37	1.75
6136935	PSC63DL25238	DL25	.96	1.00	2.38	.49	1.84
6136936	PSC63DL32275	DL32	1.21	1.25	2.75	.61	2.02



■ DL CV40 Inch

order number	catalog number	CSWS system size	D2	D21	L1	L2	lbs
6136937	CV40BDL10162	DL10	.36	.38	1.62	.19	1.77
6136938	CV40BDL12162	DL12	.48	.50	1.62	.25	1.78
6136939	CV40BDL16200	DL16	.61	.63	2.00	.31	1.82
6136940	CV40BDL20200	DL20	.73	.75	2.00	.37	1.84
6136941	CV40BDL25225	DL25	.96	1.00	2.25	.49	1.94
6136942	CV40BDL32250	DL32	1.21	1.25	2.50	.61	2.07

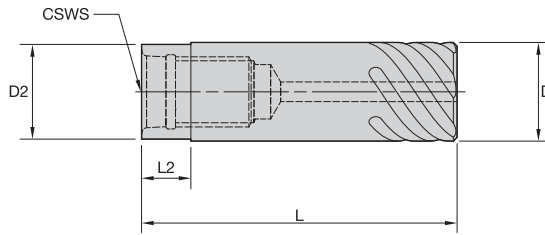
BT40 Duo-Lock™ Integrated



■ DL BT40 Inch

order number	catalog number	CSWS system size	D2	D21	L1	L2	lbs
6136943	BT40BDL10200	DL10	.36	.38	2.00	.19	2.14
6136944	BT40BDL12200	DL12	.48	.50	2.00	.25	2.15
6136945	BT40BDL16225	DL16	.61	.63	2.25	.31	2.19
6136946	BT40BDL20225	DL20	.73	.75	2.25	.37	2.19
6136947	BT40BDL25238	DL25	.96	1.00	2.38	.49	2.26
6136948	BT40BDL32275	DL32	1.21	1.25	2.75	.61	2.41

			40	(2x) MS2221S	2,5mm
			50	(2x) MS1296S	3mm

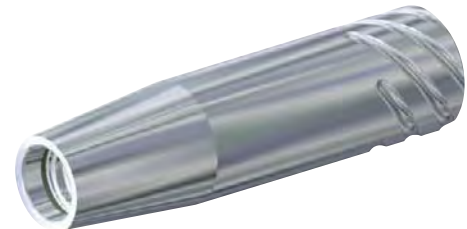
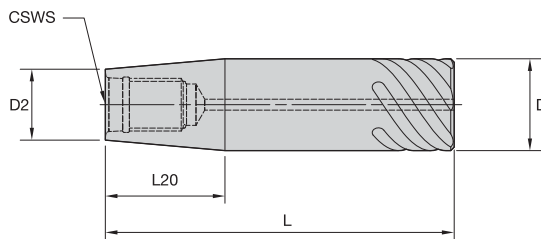


■ DL SS SL Cylindrical Inch

order number	catalog number	CSWS system size	D	D2	L	L2	ft. lbs.
6136800	SS038SLDL100225	DL10	.38	.36	2.25	.19	18.40
6136868	SS050SLDL120250	DL12	.50	.48	2.50	.25	22.10
6136874	SS062SLDL160275	DL16	.63	.61	2.75	.33	44.20
6136880	SS075SLDL200300	DL20	.75	.73	3.00	.39	59.00
6136884	SS100SLDL250350	DL25	1.00	.96	3.50	.52	73.80
6136888	SS125SLDL320400	DL32	1.25	1.21	4.00	.64	95.90

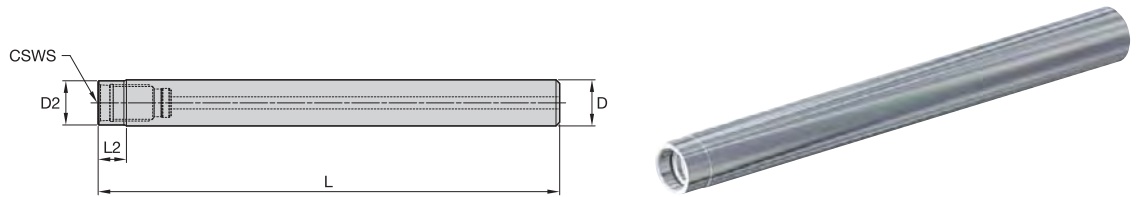
NOTE: Cylindrical shanks not recommended for full slotting.

Duo-Lock Modular Milling



■ DL SS SL Conical Inch

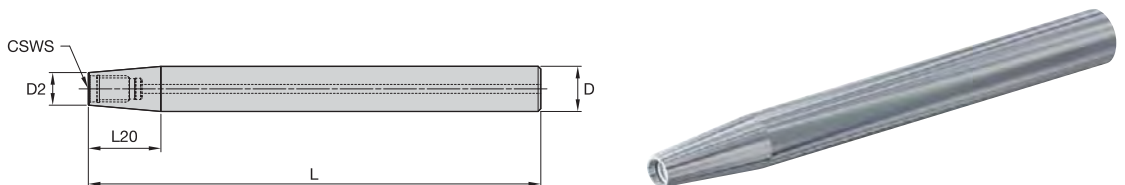
order number	catalog number	CSWS system size	D	D2	L	L20	lbs
6136862	SS050SLDL100250	DL10	.50	.36	2.50	.80	.11
6136864	SS062SLDL100350	DL10	.63	.36	3.50	1.52	.24
6136866	SS075SLDL100450	DL10	.75	.36	4.50	2.23	.42
6136870	SS062SLDL120325	DL12	.63	.48	3.25	.82	.24
6136872	SS075SLDL120425	DL12	.75	.48	4.25	1.53	.45
6136876	SS075SLDL160325	DL16	.75	.61	3.25	.82	.34
6136878	SS100SLDL160450	DL16	1.00	.61	4.50	2.25	.78
6136882	SS100SLDL200375	DL20	1.00	.73	3.75	1.53	.67
6136886	SS125SLDL250425	DL25	1.25	.96	4.25	1.64	1.19
6136890	SS150SLDL320550	DL32	1.50	1.21	5.50	1.64	2.29
6136892	SS200SLDL320750	DL32	2.00	1.21	7.50	4.50	4.92



■ **DL SS Cylindrical Cut Off to Modify Length Inch**

order number	catalog number	CSWS system size	D	D2	L	L2	ft. lbs.
6136861	SS038DL100375	DL10	.38	.36	3.75	.19	18.40
6136869	SS050DL120500	DL12	.50	.48	5.00	.25	22.10
6136875	SS062DL160625	DL16	.63	.61	6.25	.31	44.20
6136881	SS075DL200750	DL20	.75	.73	7.50	.38	59.00
6136885	SS100DL251000	DL25	1.00	.96	10.00	.50	73.80
6136889	SS125DL321000	DL32	1.25	1.21	10.00	.63	95.90

NOTE: Standard catalog cutting data does not apply. Consult tooling application expert before use.



■ **DL SS Conical Cut Off to Modify Length Inch**

order number	catalog number	CSWS system size	D	D2	L	L20	lbs
6136863	SS050DL100500	DL10	.50	.36	5.00	.80	.25
6136865	SS062DL100625	DL10	.63	.36	6.25	1.52	.47
6136867	SS075DL100750	DL10	.75	.36	7.50	2.23	.79
6136871	SS062DL120625	DL12	.63	.48	6.25	.82	.50
6136873	SS075DL120750	DL12	.75	.48	7.50	1.53	.85
6136877	SS075DL160750	DL16	.75	.61	7.50	.82	.86
6136879	SS100DL161000	DL16	1.00	.61	10.00	2.25	1.99
6136883	SS100DL201000	DL20	1.00	.73	10.00	1.53	2.04
6136887	SS125DL251000	DL25	1.25	.96	10.00	1.64	3.14
6136891	SS150DL321000	DL32	1.50	1.21	10.00	1.64	4.51
6136893	SS200DL321000	DL32	2.00	1.21	10.00	4.50	7.18

NOTE: Standard catalog cutting data does not apply. Consult tooling application expert before use.

Duo-Lock Modular Milling



Torque Wrench

order number	catalog number	Description
6135413	TWDLTM	BASIC DUO LOCK WRENCH
6135414	TWTMININSERTDL10	TORQUE WRENCH INSERT DL10
6135415	TWTMININSERTDL12	TORQUE WRENCH INSERT DL12
6135416	TWTMININSERTDL16	TORQUE WRENCH INSERT DL16
6135417	TWTMININSERTDL20	TORQUE WRENCH INSERT DL20
6135418	TWTMININSERTDL25	TORQUE WRENCH INSERT DL25
6135419	TWTMININSERTDL32	TORQUE WRENCH INSERT DL32
6135420	TWTMININSERTDL10W	TORQUE WRENCH INSERT DL10 WEAR
6135421	TWTMININSERTDL12W	TORQUE WRENCH INSERT DL12 WEAR
6135422	TWTMEXT	TORQUE WRENCH EXTENSION HANDLE
6135423	TWTMBC	TORQUE WRENCH BOLT SET

NOTE: Combine basic Duo-Lock™ wrench with selected torque wrench inserts needed.

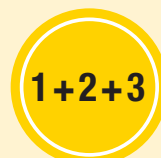
Wrench Kit



Order this

Get that

order number	catalog number	kit description
6342967	TWDL10TM	D-L WRENCH WITH DL10 INSERT AND HANDLES
6342968	TWDL12TM	D-L WRENCH WITH DL12 INSERT AND HANDLES
6342969	TWDL16TM	D-L WRENCH WITH DL16 INSERT AND HANDLES
6342970	TWDL20TM	D-L WRENCH WITH DL20 INSERT AND HANDLES
6343061	TWDL25TM	D-L WRENCH WITH DL25 INSERT AND HANDLES
6343062	TWDL32TM	D-L WRENCH WITH DL32 INSERT AND HANDLES



Duo-Lock Modular Milling

Assembly

Please wear sufficient personal safety equipment such as gloves and eye protection during assembly.

- 1** Clean the Duo-Lock™ cutting insert and shank coupling.



- 2** Mount the Duo-Lock™ adapter in a mounting block with a clamping chuck sufficient to enable torque transmission.



- 3** Screw the Duo-Lock™ cutting tip into adapter by hand.

Attention: Use of protective gloves is mandatory!



- 4** A gap of approx. 0.06–0.12" should be visible.



- 5** Apply the torque shown in the table. Use of a high quality common torque wrench is mandatory. The ERICKSON™ Torque Master wrench is recommended.



Duo-Lock™ Size	Torque Nm	Torque ft. lbs.
DL 10	20	15
DL 12	30	22
DL 16	60	44
DL 20	80	59
DL 25	100	74
DL 32	130	96



Solid End Milling • High-Performance Solid Carbide End Mills

High-Performance Tool Selector and Grades	P2-P11
High-Performance Capability End Mills	P12-P86
High-Performance Solid Carbide Roughing End Mills.....	P88-P104
High-Performance Solid Carbide Finishing End Mills.....	P106-P112
High-Performance Material Specific End Mills	P114-P163
High-Performance Application Specific End Mills	P164-P171

beyond™	*Beyond™ grade	series	D1 diameter (inch)	length of cut	flute Z	helix	internal coolant
	HARVI™ I*	HPHV	1/8–1 1/4	1.8–2 x D1			
	HARVI I*	UBDE/UADE	1/4–1	1.25 x D			
	HARVI I*	HPRSHV	1/2–1	1–1.2 x D1			
	HARVI I*	HPHVBN	1/8–1	1.5–4 x D1			
	HARVI I	HPHVT	1/2–1	1.25–1.8 x D1			
	CXE	CXE	1/8–1	2 x D			
	CXER	CXER	1/8–1	2 x D			
	HARVI II*	UCDE	3/16–1	1.75–3.3 x D1			
	HARVI II*	UCDE	1/4–1	1.75–2 x D1			
	HARVI II	UDDE	1/2–1	1.75–2.5 x D1			
	HARVI II Long	UGDE	1/4–1	3 x D			
	HARVI II Long	UGDE	1/4–1	5 x D			
	HARVI III	UJDE	3/8–1 1/4	1.75–2 x D			
	HARVI III	UJDE	3/8–1	1.75–2.25 x D			
	HARVI III Ball Nose	UJBE	3/8–1	1.5–2 x D			
	HARVI III Ball Nose	UJBE	3/8–1	1.5 x D1			
	HARVI™ III Aerospace Expansion	UJDE	1/2–1.5	1.3–5.3 x D			
	HARVI III Aerospace Expansion	UJBE	1/2–1.5	1.3–5.3 x D			
	HARVI III Taper Ball Nose	UJBE	1/8–7/16	5–6 x D			
	HP Rougher	HPRSS	1/4–3/4	2–3 x D1			
	HP Rougher	MDRHEC	1/4–1	1–2.5 x D1			
	HP Rougher	HPRST	1/4–1	1.5–2.5 x D1			
	RSM II Short	FSDE	3/8–1	2 x D			
	RSM II with neck	FSDE	1/4–1	2 x D1			
	HP Finisher	HPFSS	1/8–3/4	2–4 x D1			
	HP Finisher	HPFSS	1/8–3/8	2–3.25 x D1			
	HP Finisher	HPFT	1/8–3/4	2–4 x D1			
	Aluminum MaxiMet™	ABDF	3/16–1	2 x D1			
	Aluminum MaxiMet	ABDE	3/16–1	1.2–2 x D1			
	Aluminum MaxiMet	ABDF	1/4–1	1–4 x D1			
	Aluminum MaxiMet	ABDE	1/4–1	1.25–4 x D1			
	Aluminum	AADF	1/8–1	1–4 x D1			
	Aluminum	AADE	1/8–1	1.25–4 x D1			
	Aluminum	SFRHEC	1/4–1	2.25–3 x D1			

							shank	center cutting	neck	P	M	K	N	C	S	H							product page(s)	cutting data page(s)
		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	P16-P20	P25
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● first choice
○ alternate choice

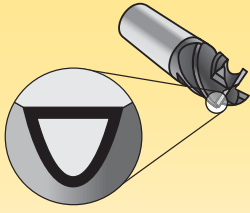
(continued)

(Solid Carbide End Mills — continued)

*Beyond™ grade	series	D1 diameter (inch)	length of cut	flute Z	helix	internal coolant
CFRP	CCNC	1/4–1/2	3 x D1			
CFRP	CDDC	1/4–1/2	3 x D1			
CFRP	CBDB	1/4–1/2	3 x D1			
KenFeed™	KMDA	1/4–3/4	0.5 x D1			
KenFeed	KHDA	1/4–3/4	0.3 x D1			
Hard Steels	HPFDM	1/4–1	1.5–3.5 x D1			
Hard Steels	HPRDM	3/16–1/2	1 x D1			
Hard Steels Ball Nose	HPBNDM	1/8–3/4	1 x D1			
Ceramic Rougher	EADE	3/16–1/2	0,75 x D			
Ceramic Rougher	EADE	3/16–1/2	0,75 x D			
GOmill™	UEDE	5/64–1/2	1.25 x D1			
GOmill	UEDE	5/32–1/2	1.25 x D1			
GOmill	UEBD	5/64–1/2	1.25 x D1			
GOmill	UEBD	5/64–1/2	1.25 x D1			

						shank	center cutting	neck	P	M	K	N	C	S	H							product page(s)	cutting data page(s)
														●								P136	P139
														●								P137	P139
														●								P138	P139
									●						○							P142	P144
															●							P143	P144
									●						●							P148	P151
									●	○	○			○	●							P149	P151
									●						●							P150	P152
														●								P156	P158
														●								P157	P158
									●	●	●				○	○						P166	P170
									●	●	●			●	○							P167	P170
									●	○	●				○	○						P168	P171
									●	○	●				○	○						P169	P171

● first choice
○ alternate choice



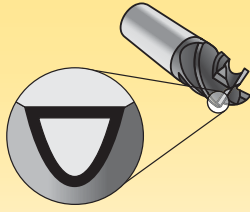
Coatings provide high-speed capability and are engineered for roughing to finishing.

P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High-Temp Alloys
H	Hardened Materials
C	CFRP Materials

wear resistance ← → toughness

Grades

Coating	Grade Description		05	10	15	20	25	30	35	40	45	
KG00	Carbide grade made from high-quality, micrograin materials for cutting all types of workpiece materials. Very high toughness ensures a controlled wear rate. The micrograin structure enables extremely sharp cutting edges.											
		N										
KCPM15	Coated carbide grade with thick PVD coating and optimized chemistry and process for increased wear resistance. Outstanding protection in milling stainless steel to mitigate crater, DOCN (depth-of-cut notching), and flank wear. Excellent performance up to 52 HRC.											
		P										
		M										
		K										
KC643M	Coated fine-grain grade with PVD multilayer (AlTiN). KC643M™ is a very thin and hard PVD coating particularly suited for cutting steel, cast iron, stainless steel (wet), and titanium (wet). This grade can be used for materials with hardness up to 52 HRC.											
		P										
		M										
		K										
		S										
KC637M	Coated, tough, wear-resistant carbide grade with hard PVD coating, particularly suitable for machining steels above 48 HRC.											
		S										
		H										
KC635M	Coated carbide grade with TiAlN coating. KC635M is a high-performance grade for higher speeds and is the first choice for stainless steels. KC635M grade is characterized by a high hardness and wear resistance. This grade is suitable for cutting hard materials (up to 65HRC).											
		P										
		M										
		K										
		S										



Coatings provide high-speed capability and are engineered for roughing to finishing.

P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High-Temp Alloys
H	Hardened Materials
C	CFRP Materials

wear resistance ← → toughness

Grades

Coating	Grade Description		05	10	15	20	25	30	35	40	45
KC625M	Coated carbide grade with PVD (TiCN) coating. For universal use due to its high wear resistance and hardness. Only use wet or with MQL (minimum quantity lubrication).	P									
		K									
		S									
KC639M	PVD- (AlTiN) coated carbide on a submicron carbide substrate. This hard coating provides outstanding performance in milling hardened materials (58–65 HRC).	P									
		H									
KCSM15	Coated carbide grade with thick PVD coating and optimized chemistry and process for increased wear resistance. Outstanding protection in milling stainless steel to mitigate crater, DOCN (depth-of-cut notching), and flank wear. Excellent performance up to 52 HRC.	M									
		S									
		H									
KCN05	High-performance grade A pure, diamond-coated carbide for milling CFRP and graphite. It is a very tough and wear-resistant grade.										
		C									
KC633M	Coated carbide grade with PVD multilayer coating. KC633M™ is designed for dry milling most types of material, apart from the hardened variety. This grade is characterized by good hardness and wear resistance. It provides outstanding protection for solid carbide tools against cratering and abrasion.	P									
		M									
		S									

➤ Beyond™ Solid Carbide End Milling

High-Performance milling in a new dimension



Kennametal is pleased to announce the KCPM15™ and KCSM15™ grades — the first Beyond grades for solid carbide end mills. KCPM15 and KCSM15 grades feature an improved high-performance carbide substrate with proprietary aluminum titanium nitride (AlTiN) PVD coating.

Features and Benefits

- Engineered to increase tool life and productivity by up to 30%.
- For use in milling steels and stainless steels.
- Improved resistance to cratering, flank wear, and depth-of-cut notching.

Coating		Grade Description	Workpiece Materials:					
KCPM15		Coated carbide grade with thick PVD coating and optimized chemistry and process for increased wear resistance. Outstanding protection in milling stainless steel to mitigate crater, DOCN (depth-of-cut notching), and flank wear. Excellent performance up to 52 HRC.	P	M	K	N	S	H
KCSM15		Coated carbide grade with thick PVD coating and optimized chemistry and process for increased wear resistance. Outstanding protection in milling stainless steel to mitigate crater, DOCN (depth-of-cut notching), and flank wear. Excellent performance up to 52 HRC.	M					

Conventional End Mill Cutting Edge

Conventional









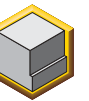
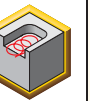
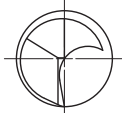








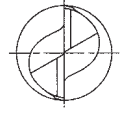








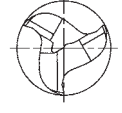








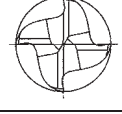








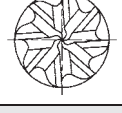








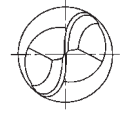


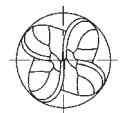


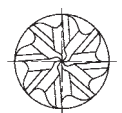

KCPM15™/KCSM15™ End Mill Cutting Edge

KCPM15/KCSM15 grade



View: 1st and 2nd relief.

■ End Mill Type Recommendation

End Mills									
Z = number of teeth		Fine Finishing	Finishing	Roughing	Slot Milling	Plunging	Contour Milling	Peel Milling	Trochoidal Milling
end mill Z = 1									
end mill Z = 2									
end mill Z = 3									
end mill Z = 4/5									
multi-flute cutter Z = 6-19									
Ball Nose and Torus End Mills									
ball nose end mill Z = 2									
ball nose end mill Z = 4									
ball nose end mill Z = 6									



first choice



suitable with limitations



not recommended

Always select a tool with the shortest possible flute length whenever possible. This will increase the stability of the tool and give the best results.

When selecting an end mill, the following machining factors will affect your selection of the correct end mill for your application:

1. Tool overhang.
2. Coolant flow.
3. Machine and setup stability.
4. Machine power and torque.
5. Material to be machined.
6. Machine adapter size (DV40, DV50, HSK63, etc.).
7. See Tool Reference Guides on pages P2-P5.

■ Recommended Adapters per End Mill Platform

SCEM Platform	Recommended Adapters	
	First Choice	Alternate Choice
HARVI™ I	HydroForce™	Shrink Fit
HARVI II	HydroForce	Shrink Fit
HARVI III	HydroForce	Shrink Fit
HARVI II Long	HydroForce	Shrink Fit
High-Performance Roughers	HydroForce	Weldon® Adapter
RSM II	Shrink Fit	Shrink Fit
High-Performance Finishers	HydroForce	Shrink Fit
MaxiMet™/Aluminum Tools	HydroForce	Shrink Fit
Hard Material End Mills/KenFeed™	HydroForce	Shrink Fit
GOmill™	Shrink Fit	Weldon Adapter

■ Select Adapter per Technical Data/Characteristics

Technical data/characteristics	Toolholders				
	HydroForce high torque	Shrink Fit	Milling chuck	ER collet chuck	Weldon adapter
torque transmission	★★★★★	★★★★	★★★★★	★★	★★★★★
radial runout (T.I.R.) ¹	★★★★★	★★★★★	★★★★	★★★	★
radial rigidity ²	★★★★	★★★★★	★★★	★★★	★★★
tool length adjustment	★★★★★	★★★★	★	★★★★	★★
tool shank tolerance requirement	★★★★	★★	★★★	★★★★★	★★★
through coolant	★★★★★	★★★★★	★★★	★★★	★★
minimum quantity lubrication (MQL)	★★★★★	★★★★★	★	★	★
dampening capability	★★★★★	★	★★★	★★★	★★★
shank diameter range ³	★★★★★	★	★★★★★	★★★★★	★
cost of toolholder	★★	★★★	★	★★★★	★★★★★
low requirement of external devices ⁴	★★★★★	★	★★★★	★★★★	★★★★★
ease of handling	★★★★★	★★★	★★	★★★★	★★★★
dust resistance	★★★★★	★★★★★	★★★	★★★	★★★★
high-speed capability	★★★★★	★★★★★	★★★	★★★	★
balancing accuracy	★★★★★	★★★★★	★★★	★★★	★

¹ Radial runout may affect tool life.

² Radial rigidity for Weldon holder is low at a direction perpendicular to the screw.

³ Accepts different shank diameters through the use of reduction sleeves or due to collapse range.

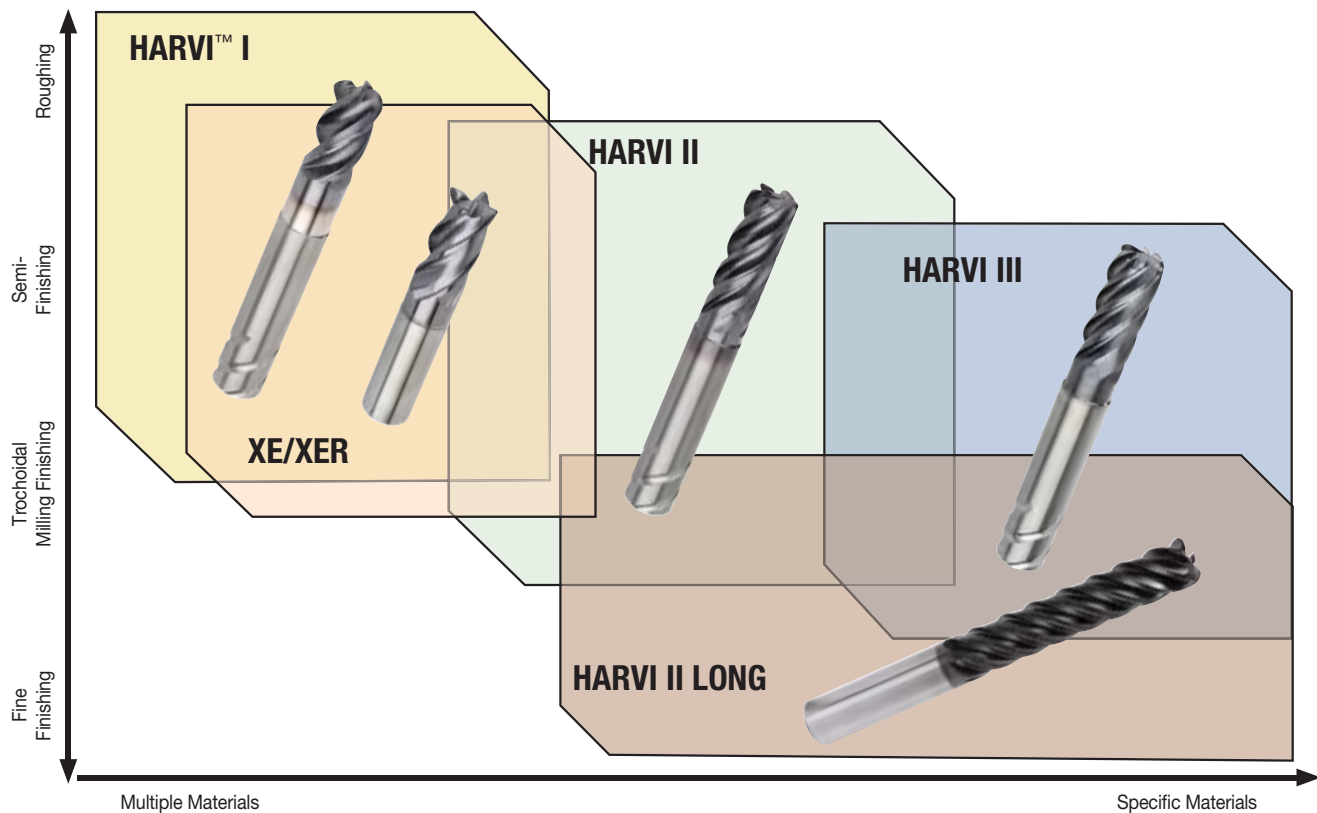
⁴ Collet chucks and milling chucks may require the use of a torque or special wrench; Shrink Fit adapter requires a shrinking unit.

➤ High-Performance Capability End Mills

Primary Application

High-performance capability offers plunging, slotting, and profiling at the highest possible feed rates for a wide range of materials from steel, stainless steel, cast iron, and high-temperature alloys to hard materials. These end mills are designed to provide maximum Metal Removal Rates (MRR) and to achieve superior surface conditions.

Several platforms with a wide range of diameters and corner configurations, such as chamfer, radii, sharp edges, and ball nose, are available from stock.



Designed for roughing and finishing with one tool
in a wide range of applications and workpiece materials.



- Roughing, semi-finishing, and finishing with one tool.
- Outstanding metal removal rates increase productivity.
- Excellent surface quality and accuracy.
- KCPM15™ and KCSM15™ Beyond™ grades for long tool life.
- Increased process safety with Safe-Lock™ by HAIMER® shanks.

HARVI™ I

High-Performance Solid Carbide End Mills

Primary Application

The HARVI I system offers plunging, slotting, and profiling at the highest possible feed rates for a wide range of materials. These end mills are designed to provide maximum Metal Removal Rates (MRR) and to achieve superior surface conditions. A wide range of diameters and corner configurations, such as chamfer, radii, and sharp edges, are available from stock. To prevent pull out of end mills during heavy cuts, the HARVI I system is available equipped with Safe-Lock™ system by HAIMER®.

- Roughing and finishing with one tool.
- Outstanding metal removal rates increase productivity.
- KCPM15™ and KCSM15™ Beyond™ grades for long tool life.

Features and Benefits

Advanced Technology

- Four unequally spaced flutes for chatter-free machining at high feed rates.
- Center cutting design for plunging and improved ramping and helical interpolation capabilities.
- 1 x D full slotting capability in:
 - Steel
 - Stainless steel
 - Titanium

Tailored Grades

- KCPM15 Beyond grade for outstanding wear protection in stainless steel to mitigate crater, depth-of-cut notching, and flank wear.
- KCSM15 Beyond grade for exceptional tool life in titanium.
- Universal KC643M™ grade suitable for cutting steel, cast iron, stainless steel (wet), and titanium (wet).

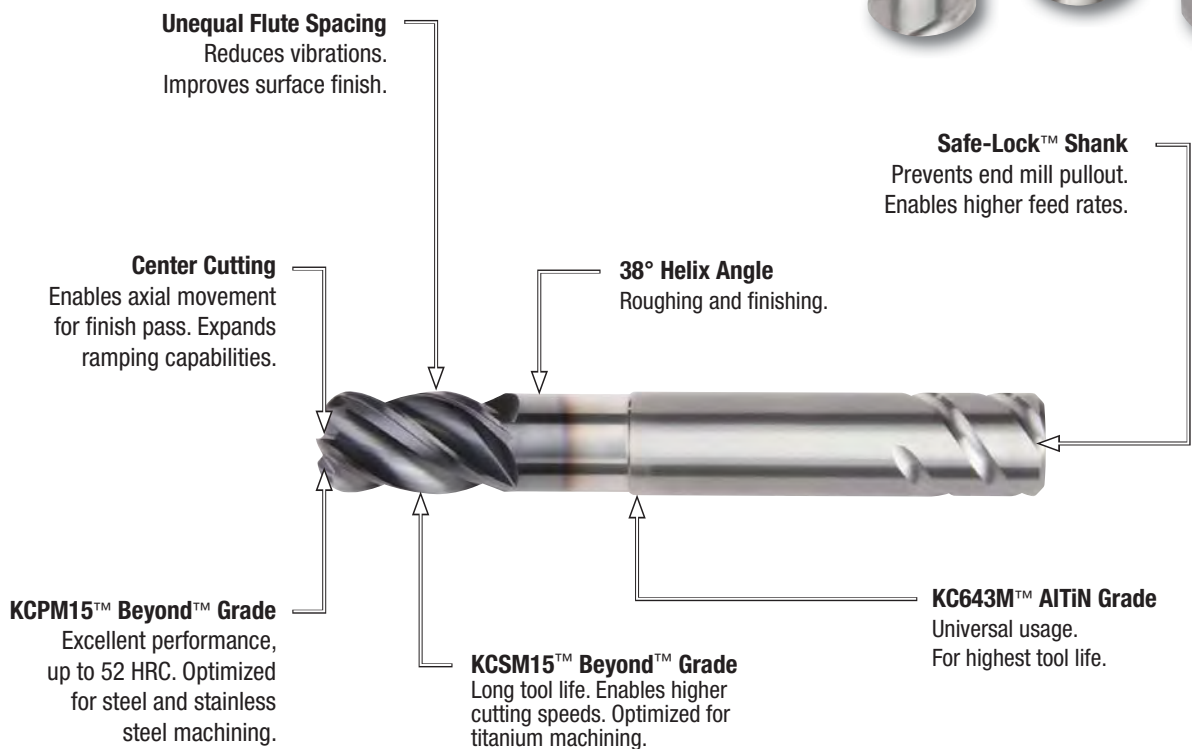
Customization

- Intermediate diameters available.
- Expanded length of tool and increased length of cut are possible.
- Chip divider geometry reduces power consumption and improves chip formation in difficult-to-cut materials.
- Internal coolant axial and radial available.
- Various shanks and non-standard coatings available.
- Multiple steps possible.

Extensive Standard Offering

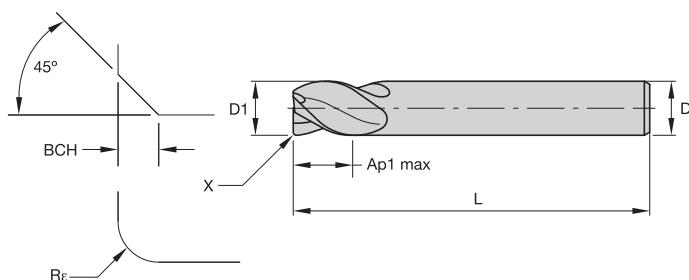
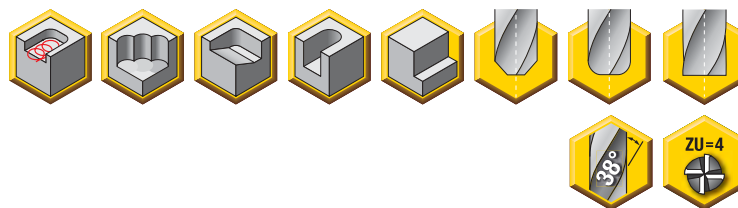
- Diameter range 1/8–1-1/4".
- Necked, corner radii, chamfer, and square-end offering.
- Extended-reach length.
- Ball nose with extended length of cut.

Designed for roughing and finishing
with one tool in almost all materials.



SAFE-LOCK®
by HAIMER®

- Kennametal standard dimensions.
- Center cutting.
- Unequal flute spacing minimizes chatter for smoother machining.
- Single tool for both roughing and finishing operations requiring fewer setups.

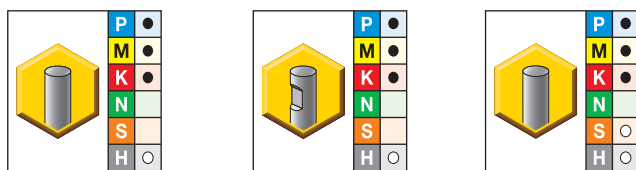


End Mill Tolerances

D1	tolerance	D	tolerance h6
All	+0.000/- .002"	≤1/8"	+0/-0.00024"
		>1/8-1/4"	+0/-0.00031"
		>1/4-3/8"	+0/-0.00035"
		>3/8-23/32"	+0/-0.00043"
		>23/32-1-3/16"	0/.00051"



■ HPHV • UADE • 4 Flute • Inch



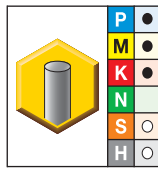
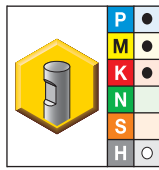
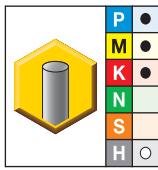
- first choice
- alternate choice

	KCPM15	KCPM15	KC643M	D1	D	Ap1 max	L	Re	BCH
HPHV125S4025CH	—	—	—	1/8	1/8	1/4	1 1/2	—	.015
HPHV125S4025	—	—	—	1/8	1/8	1/4	1 1/2	—	—
HPHV125S4025LR015	—	—	—	1/8	1/8	1/4	2 1/2	.015	—
HPHV125S4050R015	—	—	—	1/8	1/8	1/2	2	.015	—
HPHV125S4050CH	—	—	—	1/8	1/8	1/2	2	—	.015
HPHV125S4050	—	—	—	1/8	1/8	1/2	2	—	—
HPHV125S4050L	—	—	—	1/8	1/8	1/2	2 1/2	—	—
HPHV188S4031CH	—	—	—	3/16	3/16	5/16	1 1/2	—	.015
HPHV188S4031	—	—	—	3/16	3/16	5/16	1 1/2	—	—
HPHV188S4031LR015	—	—	—	3/16	3/16	5/16	2 1/2	.015	—
HPHV188S4031L	—	—	—	3/16	3/16	5/16	2 1/2	—	—
HPHV188S4063R015	—	—	—	3/16	3/16	5/8	2 1/4	.015	—
HPHV188S4063R030	—	—	—	3/16	3/16	5/8	2 1/4	.030	—
HPHV188S4063CH	—	—	—	3/16	3/16	5/8	2 1/4	—	.015
HPHV188S4063	—	—	—	3/16	3/16	5/8	2 1/4	—	—
HPHV188S4063LR015	—	—	—	3/16	3/16	5/8	2 1/2	.015	—
HPHV188S4063LR030	—	—	—	3/16	3/16	5/8	2 1/2	.030	—
HPHV188S4063L	—	—	—	3/16	3/16	5/8	2 1/2	—	—
HPHV250S4038R030	—	—	—	1/4	1/4	3/8	2	.030	—
HPHV250S4038CH	—	—	—	1/4	1/4	3/8	2	—	.015
HPHV250S4038	—	—	—	1/4	1/4	3/8	2	—	—
HPHV250S4038LR015	—	—	—	1/4	1/4	3/8	2 1/2	.015	—
HPHV250S4050R015	—	—	—	1/4	1/4	1/2	2 1/2	.015	—
HPHV250S4050R030	—	—	—	1/4	1/4	1/2	2 1/2	.030	—
HPHV250S4050R060	—	—	—	1/4	1/4	1/2	2 1/2	.060	—
HPHV250S4050	—	—	—	1/4	1/4	1/2	2 1/2	—	—
HPHV250S4075R015	—	—	UADE250J4ARA	1/4	1/4	3/4	2 1/2	.015	—
HPHV250S4075R030	—	—	—	1/4	1/4	3/4	2 1/2	.030	—

(continued)

High-Performance Solid Carbide End Mills

(HPHV • UADE • 4 Flute • Inch — continued)

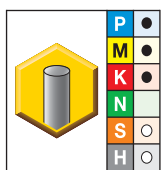
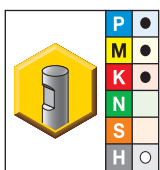
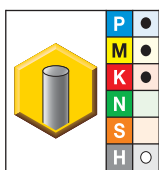

 ● first choice
 ○ alternate choice

KCPM15	KCPM15	KC643M	D1	D	Ap1 max	L	R _e	BCH
HPHV250S4075R060	—	UADE250J4ARC	1/4	1/4	3/4	2 1/2	.060	—
HPHV250S4075CH	—	—	1/4	1/4	3/4	2 1/2	—	.015
HPHV250S4075	—	—	1/4	1/4	3/4	2 1/2	—	—
HPHV250S4100R015	—	—	1/4	1/4	1	3	.015	—
HPHV250S4100	—	—	1/4	1/4	1	3	—	—
HPHV250S4125R030	—	—	1/4	1/4	1 1/4	3 1/4	.030	—
HPHV250S4125CH	—	—	1/4	1/4	1 1/4	3 1/4	—	.015
HPHV250S4125	—	—	1/4	1/4	1 1/4	3 1/4	—	—
HPHV250S4175R015	—	—	1/4	1/4	1 3/4	4	.015	—
HPHV250S4175R030	—	—	1/4	1/4	1 3/4	4	.030	—
HPHV312S4050R030	—	—	5/16	5/16	1/2	2	.030	—
HPHV312S4050CH	—	—	5/16	5/16	1/2	2	—	.015
HPHV312S4050	—	—	5/16	5/16	1/2	2	—	—
HPHV312S4050LR015	—	—	5/16	5/16	1/2	2 1/2	.015	—
HPHV312S4050L	—	—	5/16	5/16	1/2	2 1/2	—	—
HPHV312S4075R015	—	—	5/16	5/16	3/4	2 1/2	.015	—
HPHV312S4075R030	—	—	5/16	5/16	3/4	2 1/2	.030	—
HPHV312S4075R060	—	—	5/16	5/16	3/4	2 1/2	.060	—
HPHV312S4075CH	—	—	5/16	5/16	3/4	2 1/2	—	.015
HPHV312S4075	—	—	5/16	5/16	3/4	2 1/2	—	—
HPHV312S4125R030	—	—	5/16	5/16	1 1/4	3 1/4	.030	—
HPHV375S4050R030	—	—	3/8	3/8	1/2	2	.030	—
HPHV375S4050CH	—	—	3/8	3/8	1/2	2	—	.020
HPHV375S4050	—	—	3/8	3/8	1/2	2	—	—
HPHV375S4050LR015	—	—	3/8	3/8	1/2	2 1/2	.015	—
HPHV375S4050LR030	—	—	3/8	3/8	1/2	2 1/2	.030	—
HPHV375S4050L	—	—	3/8	3/8	1/2	2 1/2	—	—
HPHV375S4088R015	—	—	3/8	3/8	7/8	2 1/2	.015	—
HPHV375S4088R030	—	—	3/8	3/8	7/8	2 1/2	.030	—
HPHV375S4088R060	—	—	3/8	3/8	7/8	2 1/2	.060	—
HPHV375S4088R090	—	—	3/8	3/8	7/8	2 1/2	.090	—
HPHV375S4088CH	—	—	3/8	3/8	7/8	2 1/2	—	.020
HPHV375S4088	—	—	3/8	3/8	7/8	2 1/2	—	—
HPHV375S4088LR015	—	—	3/8	3/8	7/8	3	.015	—
HPHV375S4088LR030	—	—	3/8	3/8	7/8	3	.030	—
HPHV375S4088LR090	—	—	3/8	3/8	7/8	3	.090	—
HPHV375S4088L	—	—	3/8	3/8	7/8	3	—	—
HPHV375S4100R015	—	—	3/8	3/8	1	3	.015	—
HPHV375S4100R030	—	—	3/8	3/8	1	3	.030	—
HPHV375S4100R060	—	—	3/8	3/8	1	3	.060	—
HPHV375S4100	—	—	3/8	3/8	1	3	—	—
HPHV375S4125R015	—	—	3/8	3/8	1 1/4	3	.015	—
HPHV375S4125R030	—	—	3/8	3/8	1 1/4	3	.030	—
HPHV375S4125R060	—	—	3/8	3/8	1 1/4	3	.060	—
HPHV375S4125	—	—	3/8	3/8	1 1/4	3	—	—
HPHV375S4150R030	—	—	3/8	3/8	1 1/2	4	.030	—
HPHV375S4150R060	—	—	3/8	3/8	1 1/2	4	.060	—
HPHV375S4150	—	—	3/8	3/8	1 1/2	4	—	—
HPHV375S4250R030	—	—	3/8	3/8	2 1/2	4	.030	—
HPHV375S4250R060	—	—	3/8	3/8	2 1/2	4	.060	—
—	—	UADE375J4ARA	3/8	3/8	1/2	2	.015	—
—	—	UADE375J4ARB	3/8	3/8	1/2	2	.030	—

High-Performance Solid Carbide End Mills

(continued)

(HPHV • UADE • 4 Flute • Inch — continued)



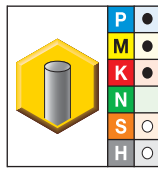
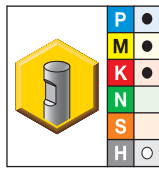
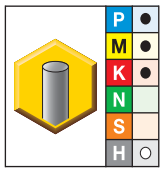
● first choice
○ alternate choice

KCPM15	KCPM15	KC643M	D1	D	Ap1 max	L	Re	BCH
—	—	UADE375J4ARC	3/8	3/8	1/2	2	.060	—
—	—	UADE375J4BRA	3/8	3/8	7/8	2 1/2	.015	—
—	—	UADE375J4BRB	3/8	3/8	7/8	2 1/2	.030	—
HPHV438S4063CH	—	—	7/16	7/16	5/8	2 1/2	—	.020
HPHV438S4088CH	—	—	7/16	7/16	7/8	2 1/2	—	.020
HPHV438S4113R015	—	—	7/16	7/16	1 1/8	3 1/2	.015	—
—	HPHV500S4063R030	—	1/2	1/2	5/8	2 1/2	.030	—
—	HPHV500S4063R060	—	1/2	1/2	5/8	2 1/2	.060	—
—	HPHV500S4063CH	—	1/2	1/2	5/8	2 1/2	—	.020
—	HPHV500S4063	—	1/2	1/2	5/8	2 1/2	—	—
—	HPHV500S4063LR015	—	1/2	1/2	5/8	3	.015	—
—	HPHV500S4063LR030	—	1/2	1/2	5/8	3	.030	—
—	HPHV500S4063LR060	—	1/2	1/2	5/8	3	.060	—
—	HPHV500S4063L	—	1/2	1/2	5/8	3	—	—
—	—	UADE500J4ARA	1/2	1/2	5/8	2 1/2	.015	—
—	—	UADE500J4ARB	1/2	1/2	5/8	2 1/2	.030	—
—	—	UADE500J4ARC	1/2	1/2	5/8	2 1/2	.060	—
—	—	UADE500J4ARE	1/2	1/2	5/8	2 1/2	.120	—
—	HPHV500S4100R030	—	1/2	1/2	1	3	.030	—
—	HPHV500S4100R060	—	1/2	1/2	1	3	.060	—
—	HPHV500S4100CH	—	1/2	1/2	1	3	—	.020
—	HPHV500S4100	—	1/2	1/2	1	3	—	—
—	HPHV500S4125R015	UADE500J4BRA	1/2	1/2	1 1/4	3	.015	—
—	HPHV500S4125R030	UADE500J4BRB	1/2	1/2	1 1/4	3	.030	—
—	HPHV500S4125R060	UADE500J4BRC	1/2	1/2	1 1/4	3	.060	—
—	HPHV500S4125R090	UADE500J4BRD	1/2	1/2	1 1/4	3	.090	—
—	HPHV500S4125R120	UADE500J4BRE	1/2	1/2	1 1/4	3	.120	—
—	HPHV500S4125CH	—	1/2	1/2	1 1/4	3	—	.020
—	HPHV500S4125	—	1/2	1/2	1 1/4	3	—	—
—	—	UADE500J4CRA	1/2	1/2	1 1/2	4	.015	—
—	HPHV500S4150R030	UADE500J4CRB	1/2	1/2	1 1/2	4	.030	—
—	HPHV500S4150R060	UADE500J4CRC	1/2	1/2	1 1/2	4	.060	—
—	—	UADE500J4CRD	1/2	1/2	1 1/2	4	.090	—
—	—	UADE500J4CRE	1/2	1/2	1 1/2	4	.120	—
—	HPHV500S4150CH	—	1/2	1/2	1 1/2	4	—	.020
—	HPHV500S4150	—	1/2	1/2	1 1/2	4	—	—
—	HPHV500S4163R030	—	1/2	1/2	1 5/8	4	.030	—
—	HPHV500S4163R060	—	1/2	1/2	1 5/8	4	.060	—
—	HPHV500S4163R120	—	1/2	1/2	1 5/8	4	.120	—
—	HPHV500S4163	—	1/2	1/2	1 5/8	4	—	—
—	HPHV500S4200R030	—	1/2	1/2	2	4	.030	—
—	HPHV500S4200CH	—	1/2	1/2	2	4	—	.020
—	HPHV500S4200	—	1/2	1/2	2	4	—	—
—	HPHV500S4250R030	—	1/2	1/2	2 1/2	4 1/2	.030	—
—	HPHV500S4300R030	—	1/2	1/2	3	5	.030	—
—	HPHV500S4300R060	—	1/2	1/2	3	5	.060	—
—	HPHV625S4075R060	—	5/8	5/8	3/4	3	.060	—
—	HPHV625S4075CH	—	5/8	5/8	3/4	3	—	.020
—	HPHV625S4075	—	5/8	5/8	3/4	3	—	—
—	HPHV625S4075LR015	—	5/8	5/8	3/4	3 1/2	.015	—
—	HPHV625S4075LR030	—	5/8	5/8	3/4	3 1/2	.030	—
—	HPHV625S4075LR060	—	5/8	5/8	3/4	3 1/2	.060	—

(continued)

High-Performance Solid Carbide End Mills

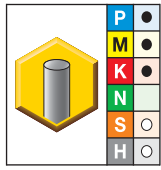
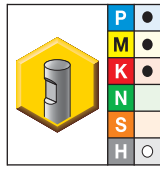
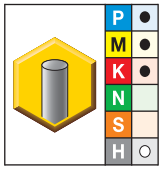
(HPHV • UADE • 4 Flute • Inch — continued)


 ● first choice
 ○ alternate choice

KCPM15	KCPM15	KC643M	D1	D	Ap1 max	L	Re	BCH
—	HPHV625S4075L	—	5/8	5/8	3/4	3 1/2	—	—
—	HPHV625S4125R030	—	5/8	5/8	1 1/4	3 1/2	.030	—
—	HPHV625S4125R060	—	5/8	5/8	1 1/4	3 1/2	.060	—
—	HPHV625S4125R090	—	5/8	5/8	1 1/4	3 1/2	.090	—
—	HPHV625S4125CH	—	5/8	5/8	1 1/4	3 1/2	—	.020
—	HPHV625S4125	—	5/8	5/8	1 1/4	3 1/2	—	—
—	HPHV625S4163R030	—	5/8	5/8	1 5/8	3 1/2	.030	—
—	HPHV625S4163R060	—	5/8	5/8	1 5/8	3 1/2	.060	—
—	HPHV625S4163R120	—	5/8	5/8	1 5/8	3 1/2	.120	—
—	HPHV625S4163	—	5/8	5/8	1 5/8	3 1/2	—	—
—	HPHV625S4213R030	—	5/8	5/8	2 1/8	4	.030	—
—	HPHV625S4213R120	—	5/8	5/8	2 1/8	4	.120	—
—	HPHV625S4213	—	5/8	5/8	2 1/8	4	—	—
—	HPHV625S4225R060	—	5/8	5/8	2 1/4	5	.060	—
—	—	UADE625J4ARB	5/8	5/8	3/4	3	.030	—
—	—	UADE625J4ARC	5/8	5/8	3/4	3	.060	—
—	HPHV750S4088CH	—	3/4	3/4	7/8	3 1/2	—	.020
—	HPHV750S4088	—	3/4	3/4	7/8	3 1/2	—	—
—	HPHV750S4088LR030	—	3/4	3/4	7/8	4	.030	—
—	HPHV750S4088L	—	3/4	3/4	7/8	4	—	—
—	—	UADE750J4ARB	3/4	3/4	7/8	3 1/2	.030	—
—	—	UADE750J4ARE	3/4	3/4	7/8	3 1/2	.120	—
—	HPHV750S4150R015	UADE750J4BRA	3/4	3/4	1 1/2	4	.015	—
—	HPHV750S4150R030	UADE750J4BRB	3/4	3/4	1 1/2	4	.030	—
—	HPHV750S4150R060	UADE750J4BRC	3/4	3/4	1 1/2	4	.060	—
—	HPHV750S4150R090	—	3/4	3/4	1 1/2	4	.090	—
—	HPHV750S4150R120	UADE750J4BRE	3/4	3/4	1 1/2	4	.120	—
—	HPHV750S4150CH	—	3/4	3/4	1 1/2	4	—	.020
—	HPHV750S4150	—	3/4	3/4	1 1/2	4	—	—
—	HPHV750S4163R030	—	3/4	3/4	1 5/8	4	.030	—
—	HPHV750S4163R060	—	3/4	3/4	1 5/8	4	.060	—
—	HPHV750S4163R120	—	3/4	3/4	1 5/8	4	.120	—
—	HPHV750S4163CH	—	3/4	3/4	1 5/8	4	—	.020
—	HPHV750S4225R030	—	3/4	3/4	2 1/4	5	.030	—
—	HPHV750S4225R060	—	3/4	3/4	2 1/4	5	.060	—
—	HPHV750S4225CH	—	3/4	3/4	2 1/4	5	—	.020
—	HPHV750S4225	—	3/4	3/4	2 1/4	5	—	—
—	HPHV750S4300CH	—	3/4	3/4	3	6	—	.020
—	HPHV750S4300	—	3/4	3/4	3	6	—	—
—	HPHV750S4400R030	—	3/4	3/4	4	6 1/4	.030	—
—	HPHV750S4400R060	—	3/4	3/4	4	6 1/4	.060	—
—	—	UADE1000J4ARA	1	1	1 1/2	4	.015	—
—	HPHV1000S4150R030	UADE1000J4ARB	1	1	1 1/2	4	.030	—
—	—	UADE1000J4ARC	1	1	1 1/2	4	.060	—
—	—	UADE1000J4ARD	1	1	1 1/2	4	.090	—
—	HPHV1000S4150R120	—	1	1	1 1/2	4	.120	—
—	HPHV1000S4150R250	UADE1000J4ARF	1	1	1 1/2	4	.250	—
—	HPHV1000S4150	—	1	1	1 1/2	4	—	—
—	HPHV1000S4150CH	—	1	1	1 1/2	4	—	.020
—	HPHV1000S4200R030	—	1	1	2	4	.030	—
—	HPHV1000S4200R060	—	1	1	2	4	.060	—
—	HPHV1000S4200R120	—	1	1	2	4	.120	—

(continued)

(HPHV • UADE • 4 Flute • Inch — continued)

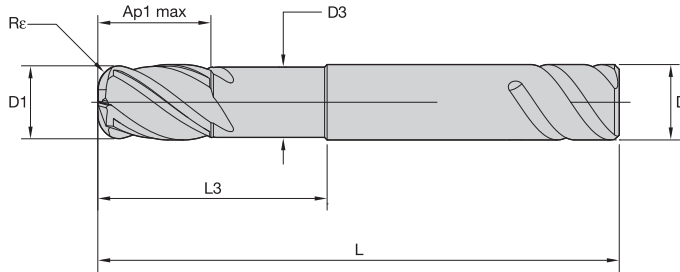
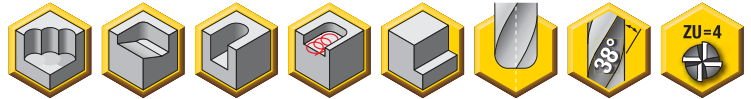


● first choice
○ alternate choice

KCPM15	KCPM15	KC643M	D1	D	Ap1 max	L	R _ε	BCH
—	HPHV1000S4200	—	1	1	2	4	—	—
—	HPHV1000S4225R030	—	1	1	2 1/4	5	.030	—
—	HPHV1000S4225R060	—	1	1	2 1/4	5	.060	—
—	HPHV1000S4225CH	—	1	1	2 1/4	5	—	.020
—	HPHV1000S4225	—	1	1	2 1/4	5	—	—
—	HPHV1000S4263R030	—	1	1	2 5/8	5	.030	—
—	HPHV1000S4263CH	—	1	1	2 5/8	5	—	.020
—	HPHV1000S4263	—	1	1	2 5/8	5	—	—
—	HPHV1000S4300R030	—	1	1	3	6	.030	—
—	HPHV1000S4300R060	—	1	1	3	6	.060	—
—	HPHV1000S4300CH	—	1	1	3	6	—	.020
—	HPHV1000S4400R030	—	1	1	4	7	.030	—
—	HPHV1000S4400R060	—	1	1	4	7	.060	—
—	HPHV1000S4400CH	—	1	1	4	7	—	.020
—	HPHV1250S4225R030	—	1 1/4	1 1/4	2 1/4	5	.030	—
—	HPHV1250S4225CH	—	1 1/4	1 1/4	2 1/4	5	—	.020

NOTE: For application data, see page P25.

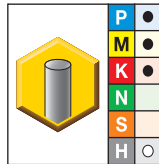
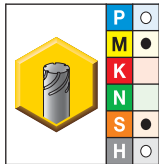
- Kennametal standard dimensions.
- Center cutting.
- Unequal flute spacing minimizes chatter for smoother machining.
- Single tool for both roughing and finishing operations requiring fewer setups.



D1	tolerance	D	tolerance h6 +/-
All	+.000/- .002"	≤1/8"	+0/- .00024"
		>1/8-1/4"	+0/- .00031"
		>1/4-3/8"	+0/- .00035"
		>3/8-23/32"	+0/- .00043"
		>23/32-1-3/16"	+0/- .00051"



■ UADE • UBDE • 4 Flute with Neck • Inch



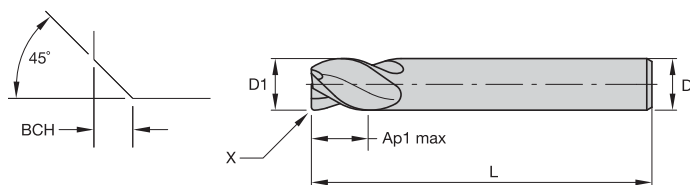
- first choice
- alternate choice

KCSM15	KCPM15	D1	D	D3	Ap1 max	L3	L	Re
—	UADE0250J4AQA	1/4	1/4	.235	3/8	1 1/4	4	.015
—	UADE0250J4AQB	1/4	1/4	.235	3/8	1 1/4	4	.030
—	UADE0375J4AQA	3/8	3/8	.345	1/2	2	4	.015
—	UADE0375J4AQB	3/8	3/8	.345	1/2	2	4	.030
UBDE0500N4AQA *	—	1/2	3/4	.470	5/8	2 1/4	4	.015
—	UADE0500J4AQB	1/2	1/2	.470	5/8	2 1/4	4	.030
UBDE0500N4AQB *	—	1/2	3/4	.470	5/8	2 1/4	4	.030
UBDE0625N4AQB *	UADE0625J4AQB	5/8	5/8	.587	3/4	2 1/4	4	.030
UBDE0625N4AQC *	—	5/8	5/8	.587	3/4	2 1/4	4	.060
UBDE0750N4AQB *	UADE0750J4AQB	3/4	3/4	.700	1	2 1/4	4 1/2	.030
UBDE0750N4AQC *	—	3/4	3/4	.700	1	2 1/4	4 1/2	.060
UBDE0750N4AQD *	—	3/4	3/4	.700	1	2 1/4	4 1/2	.090
UBDE0750N4AQE *	—	3/4	3/4	.700	1	2 1/4	4 1/2	.120
UBDE0750N4BQB *	UADE0750J4BQB	3/4	3/4	.700	1	3 1/4	5 1/2	.030
UBDE0750N4BQC *	—	3/4	3/4	.700	1	3 1/4	5 1/2	.060
UBDE0750N4BQD *	—	3/4	3/4	.700	1	3 1/4	5 1/2	.090
UBDE0750N4BQE *	—	3/4	3/4	.700	1	3 1/4	5 1/2	.120
UBDE1000N4BQB *	UADE1000J4BQB *	1	1	.939	1 1/8	3 1/4	5 1/2	.030
UBDE1000N4BQC *	—	1	1	.939	1 1/8	3 1/4	5 1/2	.060
UBDE1000N4BQE *	—	1	1	.939	1 1/8	3 1/4	5 1/2	.120

NOTE: For application data, see page P25.

*Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

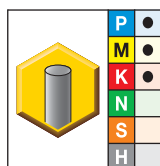
- Kennametal standard dimensions.
- Center cutting.
- Unequal flute spacing minimizes chatter for smoother machining.
- Single tool for both roughing and finishing operations requiring fewer setups.



End Mill Tolerances			
D1	tolerance	D	tolerance h6
All	+0.000/- .002"	≤1/8"	+0/- .00024"
		>1/8-1/4"	+0/- .00031"
		>1/4-3/8"	+0/- .00035"
		>3/8-23/32"	+0/- .00043"
		>23/32-1-3/16"	+0/- .00051"



■ HPRSHV • 4 Flute with Extended Reach • Inch

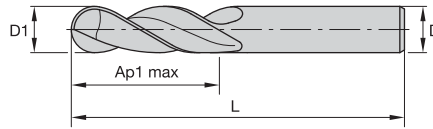


- first choice
- alternate choice

KCPM15	D1	D	Ap1 max	L	BCH
HPRSHV500S4600CH	1/2	1/2	5/8	6	.020
HPRSHV500S4600	1/2	1/2	5/8	6	—
HPRSHV625S4600CH	5/8	5/8	3/4	6	.020
HPRSHV625S4600	5/8	5/8	3/4	6	—
HPRSHV750S4500CH	3/4	3/4	1	5	.020
HPRSHV750S4600CH	3/4	3/4	1	6	.020
HPRSHV750S4600	3/4	3/4	1	6	—
HPRSHV1000S4700CH	1	1	1 1/8	7	.020

NOTE: For application data, see page P26.

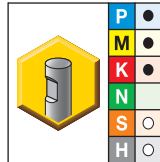
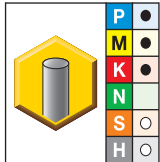
- Kennametal standard dimensions.
- Center cutting.
- Unequal flute spacing minimizes chatter for smoother machining.
- Single tool for both roughing and finishing operations requiring fewer setups.



End Mill Tolerances			
D1	tolerance	D	tolerance h6
All	+0.000/- .002"	≤1/8"	+0/-0.00024"
		>1/8-1/4"	+0/-0.00031"
		>1/4-3/8"	+0/-0.00035"
		>3/8-23/32"	+0/-0.00043"
		>23/32-1 3/16"	+0/-0.00051"



■ HPHVBN • 4 Flute with Extended Length-of-Cut • Ball Nose • Inch



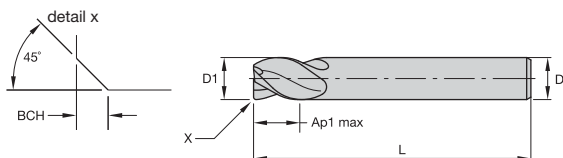
- first choice
- alternate choice

KCPM15	KCPM15	D1	D	Ap1 max	L
HPHVBN125S4050	—	1/8	1/8	1/2	2
HPHVBN188S4063	—	3/16	3/16	5/8	2 1/4
HPHVBN250S4075	—	1/4	1/4	3/4	2 1/2
HPHVBN312S4075	—	5/16	5/16	3/4	2 1/2
HPHVBN375S4088	—	3/8	3/8	7/8	2 1/2
HPHVBN438S4088	—	7/16	7/16	7/8	2 1/2
—	HPHVBN500S4100	1/2	1/2	1	3
—	HPHVBN500S4125	1/2	1/2	1 1/4	3
—	HPHVBN625S4125	5/8	5/8	1 1/4	3 1/2
—	HPHVBN750S4150	3/4	3/4	1 1/2	4
—	HPHVBN1000S4150	1	1	1 1/2	4

NOTE: For application data, see page P26.



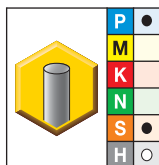
- Kennametal standard dimensions.
- Center cutting.
- Unequal flute spacing minimizes chatter for smoother machining.
- Single tool for both roughing and finishing operations requiring fewer setups.
- Optimized geometry for titanium machining.



End Mill Tolerances

D1	tolerance	D	tolerance h6
All	+0.000/- .002"	≤1/8"	+0/-0.00024"
		>1/8-1/4"	+0/-0.00031"
		>1/4-3/8"	+0/-0.00035"
		>3/8-23/32"	+0/-0.00043"
		>23/32-1 3/16"	+0/-0.00051"

■ HPHVT • 4 Flute • Inch



- first choice
- alternate choice

KC643M	D1	D	Ap1 max	L	BCH
HPHVT500S4063CH	1/2	1/2	5/8	2 1/2	.020
HPHVT500S4063	1/2	1/2	5/8	2 1/2	—
HPHVT500S4125CH	1/2	1/2	1 1/4	3	.020
HPHVT500S4125	1/2	1/2	1 1/4	3	—
HPHVT625S4075CH	5/8	5/8	3/4	3	.020
HPHVT625S4075	5/8	5/8	3/4	3	—
HPHVT625S4125CH	5/8	5/8	1 1/4	3 1/2	.020
HPHVT625S4125	5/8	5/8	1 1/4	3 1/2	—
HPHVT750S4088CH	3/4	3/4	7/8	3 1/2	.020
HPHVT750S4088	3/4	3/4	7/8	3 1/2	—
HPHVT750S4150CH	3/4	3/4	1 1/2	4	.020
HPHVT750S4150	3/4	3/4	1 1/2	4	—
HPHVT1000S4150CH *	1	1	1 1/2	4	.020
HPHVT1000S4150 *	1	1	1 1/2	4	—

NOTE: For application data, see page P27.

*Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

■ HARVI I • HPHV • UADE • Unequal Flute Spacing

Material Group																						
	Side Milling (A) and Slotting (B)				KC643M		KCPM15		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.													
	A		B		Cutting Speed – vc SFM				D1 – Diameter													
	ap	ae	ap		min	max	min	max	frac.	1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	1	1 1/4		
P	0	Ap max	0.5 x D	1 x D	490	660	490	660	IPT	.0009	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044	.0049	.0049		
	1	Ap max	0.5 x D	1 x D	490	660	490	660	IPT	.0009	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044	.0049	.0049		
	2	Ap max	0.5 x D	1 x D	460	620	460	620	IPT	.0009	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044	.0049	.0049		
	3	Ap max	0.5 x D	1 x D	390	520	390	520	IPT	.0007	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039	.0045	.0048		
	4	Ap max	0.5 x D	0.75 x D	300	490	300	490	IPT	.0007	.0010	.0014	.0017	.0020	.0023	.0026	.0030	.0034	.0039	.0040		
	5	Ap max	0.5 x D	1 x D	200	330	200	330	IPT	.0006	.0009	.0012	.0016	.0018	.0021	.0023	.0027	.0031	.0036	.0039		
M	1	Ap max	0.5 x D	1 x D	300	380	300	380	IPT	.0007	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039	.0045	.0048		
	2	Ap max	0.5 x D	1 x D	200	260	200	260	IPT	.0006	.0009	.0012	.0016	.0018	.0021	.0023	.0027	.0031	.0036	.0039		
	3	Ap max	0.5 x D	1 x D	200	230	200	230	IPT	.0005	.0008	.0010	.0013	.0015	.0017	.0019	.0022	.0025	.0028	.0029		
K	1	Ap max	0.5 x D	1 x D	390	490	390	490	IPT	.0009	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044	.0049	.0049		
	2	Ap max	0.5 x D	1 x D	360	460	360	460	IPT	.0007	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039	.0045	.0048		
	3	Ap max	0.5 x D	1 x D	360	430	360	430	IPT	.0006	.0009	.0012	.0016	.0018	.0021	.0023	.0027	.0031	.0036	.0039		
S	1	Ap max	0.3 x D	0.3 x D	160	300	-	-	IPT	.0007	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039	.0045	.0048		
	2	Ap max	0.3 x D	0.3 x D	80	130	-	-	IPT	.0004	.0006	.0008	.0010	.0012	.0014	.0015	.0018	.0021	.0024	.0026		
	3	Ap max	0.3 x D	0.3 x D	80	130	-	-	IPT	.0004	.0006	.0008	.0010	.0012	.0014	.0015	.0018	.0021	.0024	.0026		
	4	Ap max	0.5 x D	1 x D	160	200	-	-	IPT	.0005	.0008	.0011	.0014	.0017	.0019	.0021	.0025	.0028	.0033	.0036		
H	1	Ap max	0.5 x D	0.75 x D	260	460	260	460	IPT	.0007	.0010	.0014	.0017	.0020	.0023	.0026	.0030	.0034	.0039	.0040		

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
 Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
 Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.
 For tools 2 x D <LOC (Ap1 max) =<3 x D Ae = 0.25 x D, for tools with LOC (Ap1 max) longer than 3 x D, Ae = 0, Ae = 0.1 x D and no slot.

■ HARVI I • UADE • UBDE • Unequal Flute Spacing • With Neck

Material Group																			
	Side Milling (A) and Slotting (B)				KCSM15		KCPM15		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.										
	A		B		Cutting Speed – vc SFM				D1 – Diameter										
	ap	ae	ap		min	max	max	max	frac.	1/4	3/8	1/2	5/8	3/4	1				
P	0	0.75 x D	0.5 x D	0.75 x D	490	660	490	660	IPT	.0018	.0027	.0034	.0039	.0044	.0049				
	1	0.75 x D	0.5 x D	0.75 x D	490	660	490	660	IPT	.0018	.0027	.0034	.0039	.0044	.0049				
	2	0.75 x D	0.5 x D	0.75 x D	460	620	460	620	IPT	.0018	.0027	.0034	.0039	.0044	.0049				
	3	0.75 x D	0.5 x D	0.75 x D	390	520	390	520	IPT	.0015	.0023	.0029	.0034	.0039	.0045				
	4	0.75 x D	0.5 x D	0.5 x D	300	490	300	490	IPT	.0014	.0020	.0026	.0030	.0034	.0039				
	5	0.75 x D	0.5 x D	0.75 x D	200	330	200	330	IPT	.0012	.0018	.0023	.0027	.0031	.0036				
M	1	0.75 x D	0.5 x D	0.75 x D	300	380	300	380	IPT	.0015	.0023	.0029	.0034	.0039	.0045				
	2	0.75 x D	0.5 x D	0.75 x D	200	260	200	260	IPT	.0012	.0018	.0023	.0027	.0031	.0036				
	3	0.75 x D	0.5 x D	0.75 x D	200	230	200	230	IPT	.0010	.0015	.0019	.0022	.0025	.0028				
K	1	0.75 x D	0.5 x D	0.75 x D	-	-	390	490	IPT	.0018	.0027	.0034	.0039	.0044	.0049				
	2	0.75 x D	0.5 x D	0.75 x D	-	-	360	460	IPT	.0015	.0023	.0029	.0034	.0039	.0045				
	3	0.75 x D	0.5 x D	0.75 x D	-	-	360	430	IPT	.0012	.0018	.0023	.0027	.0031	.0036				
S	1	0.75 x D	0.3 x D	0.3 x D	160	300	-	-	IPT	.0015	.0023	.0029	.0034	.0039	.0045				
	2	0.75 x D	0.3 x D	0.3 x D	80	130	-	-	IPT	.0008	.0012	.0015	.0018	.0021	.0024				
	3	0.75 x D	0.3 x D	0.3 x D	80	130	-	-	IPT	.0008	.0012	.0015	.0018	.0021	.0024				
	4	0.75 x D	0.5 x D	0.75 x D	160	200	-	-	IPT	.0011	.0017	.0021	.0025	.0028	.0033				
H	1	0.75 x D	0.5 x D	0.5 x D	260	460	260	460	IPT	.0014	.0020	.0026	.0030	.0034	.0039				

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
 Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
 Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.
 Side milling applications – for longest reach (L3) tools, reduce ae by 30%.
 Slot milling applications – for longest reach (L3) tools, reduce ap by 30%.

■ HARVI I • HPRSHV • Unequal Flute Spacing • Extended Reach

Material Group					Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.						
	Side Milling (A) and Slotting (B)			KCPM15		D1 – Diameter					
	A		B	Cutting Speed – vc SFM		frac.	1/2	5/8	3/4	1	
	ap	ae	ap	min	max	dec.	.500	.625	.750	1.000	
P	1	0.75 x D	0.5 x D	0.75 x D	500	650	IPT	.0035	.0039	.0043	.0050
	2	0.75 x D	0.5 x D	0.75 x D	450	625	IPT	.0035	.0039	.0043	.0050
	3	0.75 x D	0.5 x D	0.75 x D	400	525	IPT	.0029	.0034	.0038	.0046
	4	0.75 x D	0.5 x D	0.5 x D	300	475	IPT	.0026	.0030	.0033	.0039
	5	1.5 x D	0.5 x D	0.75 x D	200	325	IPT	.0023	.0027	.0030	.0036
	6	0.75 x D	0.5 x D	0.5 x D	150	225	IPT	.0019	.0022	.0024	.0028
M	1	0.75 x D	0.5 x D	0.75 x D	260	330	IPT	.0029	.0034	.0038	.0046
	2	0.75 x D	0.5 x D	0.75 x D	200	260	IPT	.0023	.0027	.0030	.0036
	3	0.75 x D	0.5 x D	0.75 x D	200	260	IPT	.0019	.0022	.0024	.0028
K	1	0.75 x D	0.5 x D	0.75 x D	390	520	IPT	.0035	.0039	.0043	.0050
	2	0.75 x D	0.5 x D	0.75 x D	360	460	IPT	.0029	.0034	.0038	.0046
	3	0.75 x D	0.5 x D	0.75 x D	330	430	IPT	.0023	.0027	.0030	.0036

NOTE: Those guidelines may require variations to achieve optimum results.
 For tools with reach > 3 x D, reduce fz by 20%.
 For tools with reach > 5 x D, reduce fz by 30%.
 For tools with reach > 10 x D, reduce vc and fz by 30%.

■ HARVI I • HPHVBN • 4 Flute with Extended Length-of-Cut • Ball Nose

Material Group					Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.												
	Side Milling (A) and Slotting (B)			KCPM15		D1 – Diameter											
	A		B	Cutting Speed – vc SFM		frac.	1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	1	
	ap	ae	ap	min	max	dec.	.125	.188	.250	.313	.375	.438	.500	.625	.750	1.000	
P	0	1.25 x D	0.5 x D	1 x D	490	660	IPT	.0009	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044	.0049
	1	1.25 x D	0.5 x D	1 x D	490	660	IPT	.0009	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044	.0049
	2	1.25 x D	0.5 x D	1 x D	460	620	IPT	.0009	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044	.0049
	3	1.25 x D	0.5 x D	1 x D	390	520	IPT	.0007	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039	.0045
	4	1.25 x D	0.5 x D	0.75 x D	300	490	IPT	.0007	.0010	.0014	.0017	.0020	.0023	.0026	.0030	.0034	.0039
	5	1.25 x D	0.5 x D	1 x D	200	330	IPT	.0006	.0009	.0012	.0016	.0018	.0021	.0023	.0027	.0031	.0036
M	1	1.25 x D	0.5 x D	1 x D	300	380	IPT	.0007	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039	.0045
	2	1.25 x D	0.5 x D	1 x D	200	260	IPT	.0006	.0009	.0012	.0016	.0018	.0021	.0023	.0027	.0031	.0036
	3	1.25 x D	0.5 x D	1 x D	200	230	IPT	.0005	.0008	.0010	.0013	.0015	.0017	.0019	.0022	.0025	.0028
K	1	1.25 x D	0.5 x D	1 x D	390	490	IPT	.0009	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044	.0049
	2	1.25 x D	0.5 x D	1 x D	360	460	IPT	.0007	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039	.0045
	3	1.25 x D	0.5 x D	1 x D	360	430	IPT	.0006	.0009	.0012	.0016	.0018	.0021	.0023	.0027	.0031	.0036
S	1	1 x D	0.3 x D	0.3 x D	160	300	IPT	.0007	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039	.0045
	2	1 x D	0.3 x D	0.3 x D	80	130	IPT	.0004	.0006	.0008	.0010	.0012	.0014	.0015	.0018	.0021	.0024
	3	1.25 x D	0.3 x D	0.3 x D	80	130	IPT	.0004	.0006	.0008	.0010	.0012	.0014	.0015	.0018	.0021	.0024
	4	1.25 x D	0.5 x D	1 x D	160	200	IPT	.0005	.0008	.0011	.0014	.0017	.0019	.0021	.0025	.0028	.0033
H	1	1.25 x D	0.5 x D	0.75 x D	260	460	IPT	.0007	.0010	.0014	.0017	.0020	.0023	.0026	.0030	.0034	.0039

NOTE: These guidelines may require variations to achieve optimum results.
 Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
 Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
 Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.

■ HARVI I • HPHVT • Unequal Flute Spacing

Material Group					KC643M		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.				
	Side Milling (A) and Slotting (B)				Cutting Speed – vc SFM		D1 – Diameter				
	A		B				frac.	1/2	5/8	3/4	1
	ap	ae	ap		min	max	dec.	.500	.625	.750	1.000
P	5	1.5 x D	0.5 x D	1 x D	200	330	IPT	.0023	.0027	.0031	.0036
	6	1.5 x D	0.5 x D	0.75 x D	160	250	IPT	.0019	.0022	.0025	.0028
S	1	1.5 x D	0.3 x D	0.3 x D	160	300	IPT	.0029	.0034	.0039	.0045
	2	1.5 x D	0.3 x D	0.3 x D	80	130	IPT	.0015	.0018	.0021	.0024
	3	1.5 x D	0.3 x D	0.3 x D	80	130	IPT	.0015	.0018	.0021	.0024
	4	1.5 x D	0.5 x D	1 x D	160	200	IPT	.0021	.0025	.0028	.0033
H	1	1.5 x D	0.5 x D	0.75 x D	260	460	IPT	.0026	.0030	.0034	.0039

NOTE: These guidelines may require variations to achieve optimum results.

Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.

