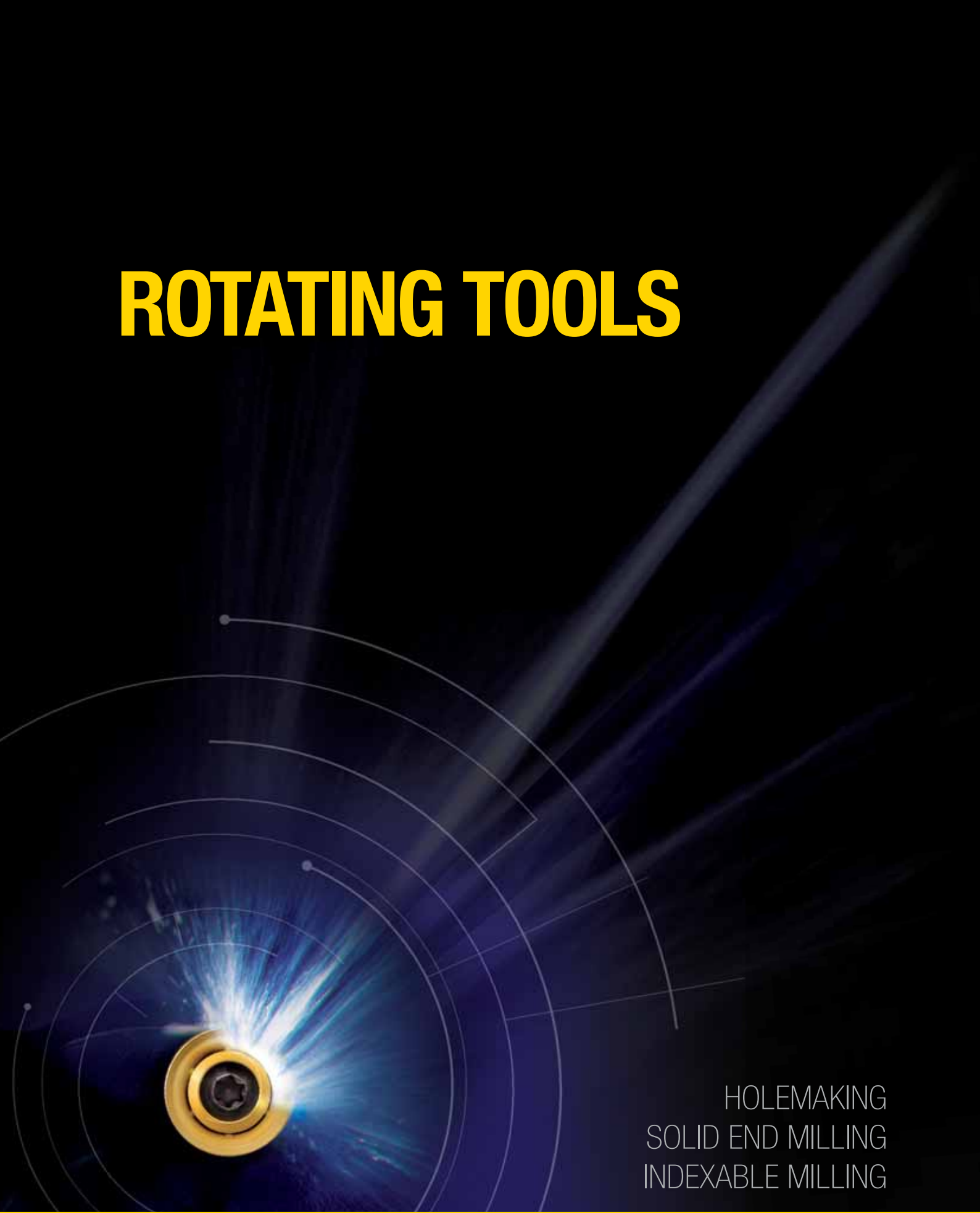


ROTATING TOOLS



HOLEMAKING
SOLID END MILLING
INDEXABLE MILLING

www.kennametal.com

 **KENNAMETAL®**

Holemaking Products

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



SOLID CARBIDE DRILLS

See Section G for more details.

GOdrill™

TF Drills

Beyond™ Drills

Y-TECH™ Drills

TX Drills

SPF Drills

Flat-Bottom Drills

Kenna Universal™ Drills

NC Spot Drills

MODULAR DRILLS

See Section H for more details.

KenTIP™

KSEM™

KSEM PLUS™

COMBINATION TOOLS

See Section I for more details.

BF Combination Drilling System

SEFAS™ Combination Drilling System



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



INDEXABLE DRILLS

See Section J for more details.

Drill Fix™

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

PCD Customised Tooling

Romicron™ Fine-Boring System

ModBORE™ Boring System

TAPS

See Section L for more details.

Beyond™ High-Performance Solid Carbide Taps

High-Performance HSS-E-PM Taps

High-Performance K Series 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.
- Standardised design platforms for special tools based on “proven solutions” for individual optimisations and combination tools.

Control of Total Tooling Costs

- High tool utilisation 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

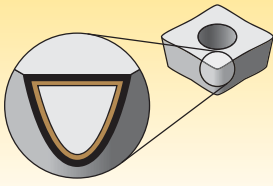
diameter		hourly rate			
		high to normal	normal (M/C)	normal to low	low (rough)
mm	inch	precision			
		IT8	IT9	IT10	IT11
1,0	.0393	Solid Carbide Drills 	Combination Tools 	Drill Fix™ DFR™ 	
3,0	.1181				
6,0	.2362	Modular Drills KenTIP™ & KSEM™ 	Drill Fix™ DFR™ 	HTS-C 	
9,0	.3543				
12,0	.4724	Modular Drills KSEM Plus™ 	Drill Fix™ DFT™ & DFS™ 	HTS-R 	
15,0	.5906				
18,0	.7087	HTS 			
21,0	.8268				
24,0	.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"				

Optimised 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	inch	precision				
		IT5	IT6	IT7	IT8	IT9
1,0	.0393					
3,0	.1181					
6,0	.2362					
9,0	.3543					
12,0	.4724					
15,0	.5906					
18,0	.7087					
21,0	.8268					
24,0	.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					



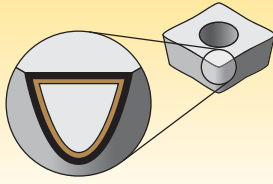
Coatings provide high-speed capability and are engineered for finishing to heavy roughing.

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

wear resistance ← → toughness

Grade

Coating	Grade Description	05	10	15	20	25	30	35	40	45
KF1	<ul style="list-style-type: none"> • Uncoated finest grain carbide. • Highly wear-resistant grade. • First choice for precision drilling of non-ferrous materials. • High cutting performance with excellent surface quality due to the excellent geometry of the TX drill. 									
		K	N							
KN15	<ul style="list-style-type: none"> • Uncoated carbide. • Highly wear-resistant grade. • Excellent surface quality for superior chip evacuation. • First choice for flat-bottom drilling of non-ferrous materials. 									
		N								
KN25	<ul style="list-style-type: none"> • Uncoated finest grain carbide. • Highly wear-resistant grade. • Excellent surface quality for superior chip flow. • Used in deep-hole drilling applications in non-ferrous materials. 									
		N								
K10	<ul style="list-style-type: none"> • Uncoated carbide grade with high degree of temperature resistance. • Suitable for cast iron material, non-ferrous materials, and titanium alloys. • High cutting performance, safe drilling process. • Dry machining also with cooling lubricants. 									
		K	N	S						
K605	<ul style="list-style-type: none"> • Uncoated finest grain carbide. • First choice for reaming under normal conditions. • High-precision carbide grade for free-machining non-ferrous alloys. 									
		K	N							
K715	<ul style="list-style-type: none"> • Uncoated carbide grade. • Enables very sharp cutting edges. • Primarily used for super-alloys and titanium. • Ideal for aerospace materials, including non-ferrous materials. 									
		N	S							



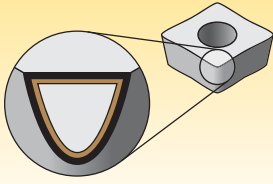
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Grade

Coating	Grade Description	05	10	15	20	25	30	35	40	45
KCPK15	<ul style="list-style-type: none"> Multilayer TiAlN-PVD-coated universal fine-grain grade. Highest level of wear resistance for higher cutting speeds. Excellent surface quality for superior chip evacuation even when MQL is applied. More efficient than TiN-PVD grades. First choice for alloyed and high-alloy steel as well as cast iron. 	P								
		K								
KCM15	<ul style="list-style-type: none"> Nanolayer TiAlN-TiN-PVD coated fine-grain carbide. High wear resistance and low adhesion to stainless steel materials. Excellent surface quality for superior chip evacuation even when low-pressure coolant is applied. 	M								
		S								
KCK10	<ul style="list-style-type: none"> Multilayer AlCr-PVD-coated fine-grain carbide. Newly developed unique coating. Excellent surface quality for superior chip evacuation even when MQL is applied. Extraordinary wear resistance in drilling of cast iron materials. High-temperature hardness allows for elevated speeds. 	K								
KCP15	<ul style="list-style-type: none"> Nanolayer AlTiN-PVD-coated over fine-grain carbide. Nanostructured coating with improved bonding process for longer tool life. Increased Al content for better thermal and chemical stability (oxidation resistance) and higher toughness and hardness. 	P								
		K								
KCPK10	<p>Composition: Advanced TiCN-Al₂O₃-CVD coating combined with a cobalt-enriched carbide substrate, this grade offers a balanced combination of deformation resistance and edge toughness.</p> <p>Application: KCPK10 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	<p>Composition: Advanced TiCN-Al₂O₃-CVD coating, together with a newly engineered tough carbide substrate, provides 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 is a high productivity grade with high speeds and feeds, and the first choice for productive process with very good reliability in steels, stainless steels, and cast irons.</p>	P								
		M								
		K								



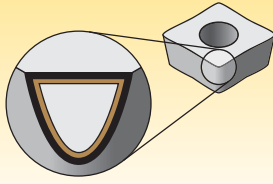
Coatings provide high-speed capability and are engineered for finishing to heavy roughing.

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wear resistance ← → toughness

Grade

Coating	Grade Description	05	10	15	20	25	30	35	40	45
KCU40 	<p>Composition: Multilayered TiN-TiAlN-PVD coating and a tough substrate, that withstands interruptions and provides high wear resistance for long tool life.</p> <p>Application: KCU40 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. KCU40 covers steel, stainless steel, cast iron, and high-temperature alloys for high toughness applications under certain conditions.</p>	P								
		M								
KC5410 	<ul style="list-style-type: none"> • TiB₂-PVD coating over a very deformation-resistant unalloyed substrate. • Designed for roughing, semifinishing, and finishing of free machining (hypoeutectic <12,2% Si) aluminium, aluminium alloys, and magnesium alloys. • High hardness and extremely smooth surface, resulting in reduced surface friction, speedy chip flow, and outstanding wear resistance. • Prevents built-up edge because of a very low affinity for aluminium. 									
		N								
KC6005 	<ul style="list-style-type: none"> • TiN-PVD-coated carbide. • Highly wear-resistant substrate. • Reaming grade with universal applications in high-precision carbide cutting. 	P								
		M								
KC6105 	<ul style="list-style-type: none"> • TiCN-PVD-coated carbide. • Reaming grade with highly wear-resistant substrate for steel and stainless steel. • Particularly high level of wear resistance for stainless steel with high-precision carbide cutting values. 	P								
		M								
KC6305 	<ul style="list-style-type: none"> • TiAlN-PVD-coated carbide. • Reaming grade with highly wear-resistant substrate. • Particularly suitable for cast iron and steel. • For exceptionally high-precision finishing. • High-precision carbide cutting values. 	P								
		K								
KC7135 	<ul style="list-style-type: none"> • TiCN-TiN-PVD-coated carbide. • Highly wear-resistant grade. • For universal application in steel, stainless steel, and irons. • Specifically used for KSEM PCM precentring inserts. 	P								
		M								



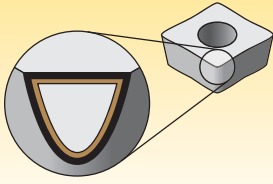
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wear resistance ← → toughness

Grade

Coating	Grade Description	05	10	15	20	25	30	35	40	45
KC7140	<ul style="list-style-type: none"> TiCN-TiN-PVD-coated alloyed carbide. Tough substrate containing 11% cobalt. Ideal for general machining of alloy steel, low- and medium-carbon steel, tool steels, and 400 series stainless steels. 	P								
		K								
KC720	<ul style="list-style-type: none"> TiN-PVD-coated carbide. Particularly high-impact strength grade. For all steels, stainless steels, super-alloys, and titanium. First choice for difficult conditions such as interrupted cutting, unstable clamping, etc. 	P								
		M								
		S								
KC7210	<ul style="list-style-type: none"> TiAlN-PVD-coated carbide. Excellent heat resistance with a good level of toughness. First choice for high-speed cutting of cast iron materials when dry machining with TF drill and under cooling lubricants with indexable inserts. 	K								
KC7215	<ul style="list-style-type: none"> TiAlN-PVD-coated universal fine-grain grade. Highest level of wear resistance resulting in higher cutting speeds. More wear resistant than TiN-PVD grades. Particularly suitable for alloyed steel and cast iron. 	P								
		K								
KC7225	<ul style="list-style-type: none"> TiAlN-PVD-coated fine-grain carbide. High level of wear resistance and tough structure. Highest level of process safety for stainless steel, cast iron materials, non-ferrous materials, super-alloys and titanium. 	M								
		K								
		N								
		S								
KC7235	<ul style="list-style-type: none"> TiAlN-PVD-coated fine-grain carbide. Tough substrate. Highly wear-resistant coating. Suitable for machining steel, even in difficult conditions. 	P								



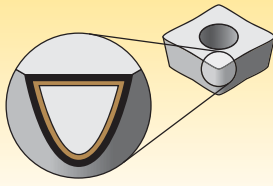
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wear resistance ← → toughness

Grade

Coating	Grade Description	05	10	15	20	25	30	35	40	45
KC7315 	<ul style="list-style-type: none"> Multilayer TiAlN-PVD-coated universal fine-grain grade. Highest level of wear resistance for higher cutting speeds. More efficient than TiN-PVD grades. First choice for alloyed and high-alloy steel and cast iron. 	P								
		K								
KC7320 	<ul style="list-style-type: none"> AlTiN-PVD-coated universal fine-grain grade. Increased aluminium content for better thermal and chemical stability (oxidation resistance), and higher toughness and hardness. High level of wear resistance. Used for modular drilling of austenitic stainless steel. 	M								
		S								
KC7325 	<ul style="list-style-type: none"> Multilayer TiAlN-PVD-coated universal fine-grain grade. Highest level of wear resistance for higher cutting speeds. TiN top layer serves as wear indicator. First choice for alloyed and high-alloy steel and cast iron. 	P								
		M								
KC7410 	<ul style="list-style-type: none"> Multilayer AlCr-PVD-coated fine-grain carbide. Newly developed unique coating. Extraordinary wear resistance in drilling of cast iron materials. High hot hardness allows for elevated speeds. 	K								
KC7425 	<ul style="list-style-type: none"> Multilayer AlCrN-PVD-coated ultra-fine-grain carbide. Very hard coating for excellent wear resistance. Excellent surface quality for superior chip flow. Used in deep-hole drilling applications in low carbon, carbon, alloyed steels, and grey cast irons. 	P								
		K								
KC7935 	<ul style="list-style-type: none"> TiCN-Al₂O₃-CVD-coated carbide with a very tough substrate. For normal to stable conditions. High cutting values. For cutting steel and cast iron materials. Can also be used in dry machining. 	P								
		K								



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wear resistance ← → toughness

Grade

Coating	Grade Description	05	10	15	20	25	30	35	40	45
KDF400 	<ul style="list-style-type: none"> CVD-diamond-coated carbide. Excellent abrasive wear resistance. Sharp cutting edges. First choice for delamination free drilling of CFRP and composite materials. 									
KD1415 	<ul style="list-style-type: none"> Polycrystalline diamond cutting material. Mean grain size of 25 μm, cobalt binder. Excellent for aluminium with high silicon content, abrasive non-ferrous materials, and fibre-reinforced plastics at very high cutting speeds. Provides excellent surface quality. 									
KD1425 	<p>KD1425 is a PCD-brazed tip, varied-grain grade that provides outstanding cutting performance and tool life for machining aluminium, non-ferrous, heavy metals, CFRP, and plastics. This grade's sharp cutting edges ensure best cutting capability and good surface finish. Suitable for wet and dry machining.</p>									
KB1610 	<ul style="list-style-type: none"> Ceramic binder and low PCBN content. Finishing of hardened steel up to 65 HRC. For higher cutting speeds. For operations requiring high dimensional consistency. 									
KT325 	<ul style="list-style-type: none"> Uncoated cermet. High level of productivity at higher speed. Excellent wear properties, finishing operations. Steel. High dimensional consistency especially in dry machining. 									
KT6215 	<ul style="list-style-type: none"> TiAlN-PVD-coated cermet. Reaming grade with excellent wear resistance. Required level of toughness for HPC cutting. High cutting speeds in steel and cast iron fine machining. 									