kennametal.com

KENNAMETAL®

FIRST CHOICE

KEEPS YOU RUNNING

2nd EDITION

Distributed By:

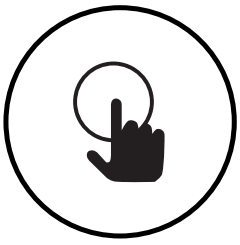
KENNAMETAL

FIRST CHOICE

First Choice Keeps You Running

Easy to select, easy to order, easy to apply, exceptional performance — that's First Choice! The most versatile high-performing products from Kennametal, covering 80% of the applications you machine on a daily basis.

You can count on us to keep your operations running!



Easy

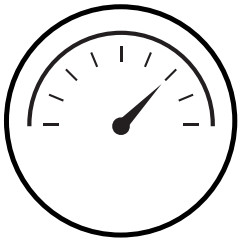
Easy to select, easy to order, easy to apply.

Whether you browse through the catalogue or online, with First Choice everything will be easy.

Application data and ordering information at your fingertips.

Premium Shipping

First Choice product availability ensures orders received by 6pm (CET) are shipped the same day.



Premium Performance

Do more with less.

First Choice delivers versatile, high-performing products resulting in optimum machine utilisation.

Premium Support

First Choice isn't just tooling; it's an experience.

Need assistance with tool selection and performance optimisation?

No problem, call our customer application support (CAS) today. See page ii, for your local (CAS) region number.

Digital

Easily identify First Choice products throughout your digital experience.

Kennametal Konnect — Order 24/7

NOVO™ — Selection made easy

Apps — Mobile Access

CAS — Customer Application Support

Get Fast and Reliable Answers to Your Toughest Problems

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

Region	Originating Country	Language	CAS Hotline	Email
Africa	**South Africa**	English	0800 981643	na.techsupport@kennametal.com
Europe	**Austria**	German	0800 202873	eu.techsupport@kennametal.com
	Belgium	English/French	0800 80850	eu.techsupport@kennametal.com
	Denmark	English	808 89298	na.techsupport@kennametal.com
	Finland	English	0800 919412	na.techsupport@kennametal.com
	France	French	080 5540 367	eu.techsupport@kennametal.com
	Germany	German	0800 0006651	eu.techsupport@kennametal.com
	Israel	English	1809 449889	na.techsupport@kennametal.com
	Italy	Italian	800 916561	eu.techsupport@kennametal.com
	Netherlands	English	0800 0201 130	eu.techsupport@kennametal.com
	Norway	English	800 10080	na.techsupport@kennametal.com
	Poland	Polish	0080 04411887	eu.techsupport@kennametal.com
	Russia (landline)	Russian	8800 5556394	eu.techsupport@kennametal.com
	Russia (cell phone)	Russian	+7 800 5556394	eu.techsupport@kennametal.com
	Sweden	English	0207 99246	na.techsupport@kennametal.com
	UK	English	0800 032 8339	na.techsupport@kennametal.com
	Ukraine	Russian	800 502664	eu.techsupport@kennametal.com

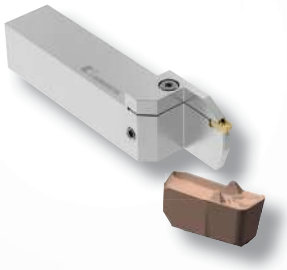
Numbers shown only serve the originating country listed.

Service & Sales Centres Around the World

Region	Country	Sales Hotline	Email
Africa	**Egypt**	+44 1384 408060	na.techsupport@kennametal.com
	South Africa	+27 11 748 9300	na.techsupport@kennametal.com
Europe	**Austria**	+43 2236 3798980	brunn.sales@kennametal.com
	Belgium	+32 0800 81 372	belgium.sales@kennametal.com
	Czech Republic	+420 800 900 840	k-prha.sales@kennametal.com
	France	+33 1 60 12 81 00	info.fr@kennametal.com
	Germany	+49 6003 8277 0	rosbach.sales@kennametal.com
	Great Britain	+44 1384 408060	kingswinford.service@kennametal.com
	Hungary	+36 96 618 150	gyoer.sales@kennametal.com
	Ireland	+44 1384 408060	na.techsupport@kennametal.com
	Italy	+39 02 895 961	milano.vendite@kennametal.com
	Luxemborg	+32 4 248 48 48	liege.sales@kennametal.com
	Netherlands	+31 0800 44 33 201	netherlands.sales@kennametal.com
	Poland	+48 61 6656501	poland.service@kennametal.com
	Portugal	+351 22 4119 400	porto.service@kennametal.com
	Russia	+7 495 4115386	moscow.information@kennametal.com
	Slovakia	+421 0800 044 053	k-eu-zilina.sales@kennametal.com
	Spain	+34 93 586 03 50	barcelona.service@kennametal.com
	Turkey	+90 216 574 4780	tr.information@kennametal.com

Visit kennametal.com to find local Authorised Kennametal Distributors.

ISO Turning, Grooving, Cut-Off, and Threading

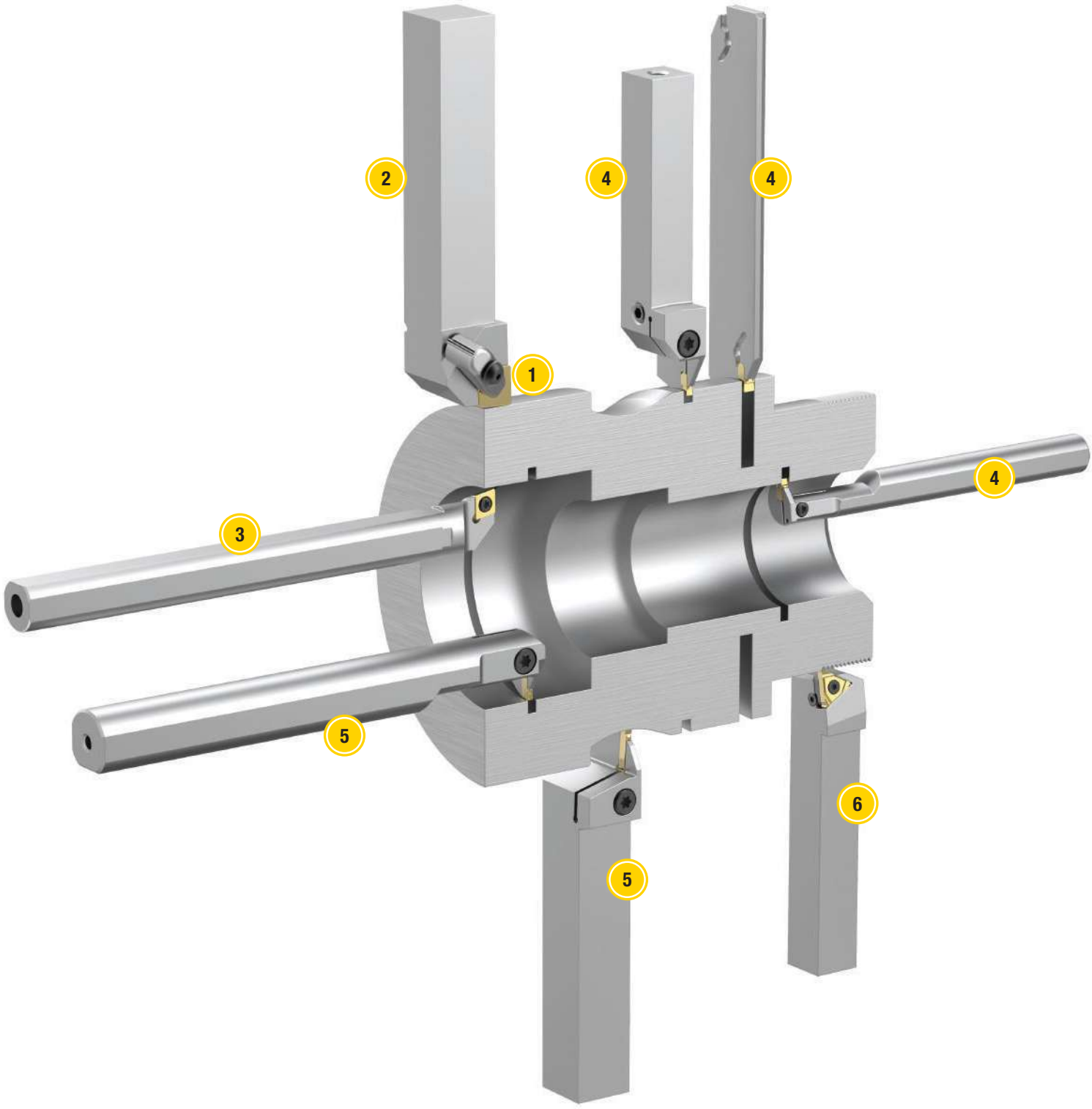


Indexable Milling and Solid End Milling

Holemaking and Tapping

Tooling Systems

Turning, Grooving, Cut-Off, and Threading



Turning

ISO Turning

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ISO Turning Inserts, Toolholders, and Boring Bars

Modern CNC machines and flexible production facilities require tools with application versatility. Kennametal high-performance inserts, toolholders, and boring bars are designed to handle any turning application. Whether you're cutting steel or titanium, or doing light finishing or heavy roughing, we have the tooling solution to meet your needs.

beyond™ beyond™ DRIVE™

Features and Benefits

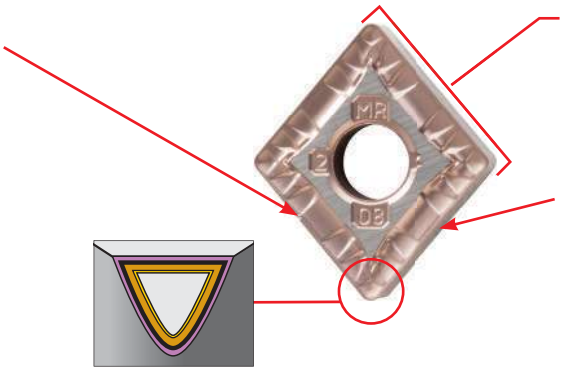
Beyond™ Drive™ Inserts • Technology Details

Post-Coat Grinding — Top and Bottom

- Provides secure seating surface.

Fine-Grained Alumina Layer

- Provides coating integrity at elevated speeds.
- Higher productivity and dependability at high-cutting temperatures.



TiN/MT-TiCN/TiCN/Al_2O_3/TiOCN

Post-Coat Treatment

- Improves edge toughness.
- Long predictable tool life.
- Reduces depth-of-cut notching.
- Wide range of applications.

Micro-Polished Edges

- Improves edge toughness.
- Provides smooth outer surface to reduce forces, friction, and workpiece sticking.

Beyond™ PVD Grades

KCU10™ Grade

- Superior wear resistance and faster cutting speeds at higher temperatures.
- Ideal for stainless steels and high-temp alloys.
- Improved depth-of-cut notch resistance.
- Use in finishing to medium applications.

KCU25™ Grade

- Superior edge toughness.
- Excellent wear resistance.
- Use in medium to roughing applications.

Quick and Easy Turning Insert Selection

- All information on one page.
- Inserts already pre-selected by material.
- All necessary technical data included.

All inserts are already pre-selected by the workpiece material group:

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

Not sure which group your material belongs to?
See page E8 for further details.

The headline guides you to the right geometry. Sequence within each material group is from roughing to finishing.

The cutting conditions guide you to the First Choice grade:

- Smooth cut, pre-turned surface.
- Varying depths of cut, casting or forging skin.
- Lightly interrupted cut.
- Heavily interrupted cut.

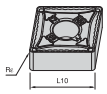
Turning Inserts • Carbide

Steel | Medium Machining

KENNAMETAL

MN

cutting conditions				
cutting speed (m/min) range	P0/P1	140 **395** 450	135 **275** 360	130 **210** 240
	P2	180 **265** 350	135 **195** 320	130 **150** 230
	P3	170 **190** 250	135 **155** 230	100 **120** 170
	P4	90 **145** 200	70 **105** 180	50 **95** 140
carbide grade		KCP10B	KCP25B	KCP40B



ISO catalogue number	KCP10B	KCP25B	KCP40B	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
CNMG090304MN	–	5694080	–	9,67	0,4	0,30	**0,80**	2,50	0,12	**0,20**	0,25
CNMG090308MN	5697917	5694081	–	9,67	0,8	0,50	**1,30**	3,50	0,15	**0,35**	0,50
CNMG120404MN	5697921	5694082	5591773	12,90	0,4	0,30	**0,80**	3,50	0,12	**0,20**	0,25
CNMG120408MN	5388036	5387662	5596457	12,90	0,8	0,50	**1,30**	4,50	0,15	**0,35**	0,50
CNMG120412MN	5388061	5387667	5591716	12,90	1,2	0,70	**2,00**	5,00	0,17	**0,40**	0,55
CNMG120416MN	5697929	5694085	–	12,90	1,6	0,90	**2,50**	5,00	0,30	**0,50**	0,60
CNMG160608MN	5697931	5694086	–	16,12	0,8	0,50	**1,30**	5,50	0,15	**0,35**	0,50
CNMG160612MN	5413178	5413179	–	16,12	1,2	0,70	**2,00**	6,00	0,17	**0,40**	0,60

Select preferred insert style, size, and corner radius.

Insert order code.

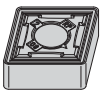
Material-specific surface speed.

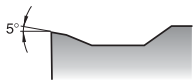
Insert specific depth of cut and feed rates.

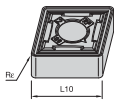
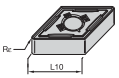
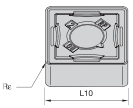
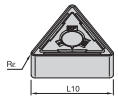
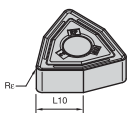
The table directly provides you with all the application-specific cutting data for the inserts you have selected. Bold numbers are starting values.

cutting conditions				
cutting speed (m/min) range	P0/P1	140 **395** 450	135 **275** 360	130 **210** 240
	P2	180 **265** 350	135 **195** 320	130 **150** 230
	P3	170 **190** 250	135 **155** 230	100 **120** 170
	P4	90 **145** 200	70 **105** 180	50 **95** 140
	P5	150 **215** 300	120 **195** 270	110 **135** 150
	P6	110 **180** 270	105 **150** 220	80 **105** 140
carbide grade		**KCP10B**	**KCP25B**	**KCP40B**

RP

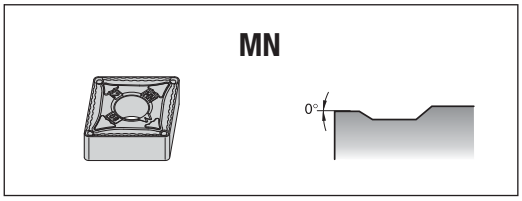


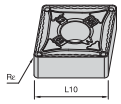
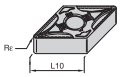
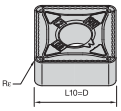
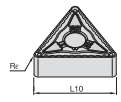


	ISO catalogue number	KCP10B	KCP25B	KCP40B	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CNMG120404RP**	–	**5694083**	–	12,90	0,4	0,60	**2,00**	3,50	0,18	**0,30**	0,40
	CNMG120408RP	**5388039**	**5387665**	–	12,90	0,8	1,00	**3,00**	4,50	0,20	**0,45**	0,60
	CNMG120412RP	**5413174**	**5413175**	**5886541**	12,90	1,2	1,20	**3,50**	5,00	0,22	**0,50**	0,65
	CNMG120416RP	**5413176**	**5413177**	–	12,90	1,6	1,40	**4,00**	5,00	0,25	**0,50**	0,70
	CNMG160608RP	–	**5694088**	–	16,12	0,8	1,00	**3,00**	7,00	0,20	**0,45**	0,60
	CNMG160612RP	**5413180**	**5413181**	**5886542**	16,12	1,2	1,20	**3,50**	7,00	0,22	**0,50**	0,65
	CNMG160616RP	**5413182**	**5413183**	–	16,12	1,6	1,40	**4,00**	8,00	0,25	**0,50**	0,70
	CNMG190612RP	**5697939**	**5694092**	**5591971**	19,34	1,2	1,20	**3,50**	9,00	0,22	**0,50**	0,70
	CNMG190616RP	–	**5694093**	–	19,34	1,6	1,40	**4,00**	9,00	0,25	**0,60**	0,80
	**DNMG110408RP**	–	**5694108**	–	11,63	0,8	1,00	**2,50**	4,00	0,20	**0,40**	0,50
	DNMG110412RP	–	**5694109**	–	11,63	1,2	1,20	**3,00**	4,00	0,22	**0,40**	0,55
	DNMG150408RP	**5697968**	**5694121**	–	15,50	0,8	1,00	**2,50**	5,00	0,20	**0,45**	0,60
	DNMG150412RP	**5413195**	**5413196**	–	15,50	1,2	1,20	**3,00**	5,00	0,22	**0,50**	0,65
	DNMG150608RP	**5413197**	**5413198**	–	15,50	0,8	1,00	**2,50**	5,00	0,20	**0,45**	0,60
	DNMG150612RP	**5413202**	**5387543**	–	15,50	1,2	1,20	**3,00**	5,00	0,22	**0,50**	0,65
	DNMG150616RP	**5387851**	**5387545**	–	15,50	1,6	1,40	**3,50**	5,00	0,25	**0,50**	0,70
	**SNMG120408RP**	–	**5631151**	–	12,70	0,8	1,00	**3,00**	6,00	0,20	**0,45**	0,60
	SNMG120412RP	**5387874**	**5387563**	–	12,70	1,2	1,20	**3,50**	6,00	0,22	**0,50**	0,65
	SNMG150612RP	**5387882**	**5387567**	–	15,88	1,2	1,20	**3,50**	7,00	0,22	**0,55**	0,75
	SNMG150616RP	**5697163**	–	–	15,88	1,6	1,40	**4,00**	7,00	0,25	**0,60**	0,80
	SNMG190612RP	–	**5698113**	**5886544**	19,05	1,2	1,20	**3,50**	9,00	0,22	**0,60**	0,85
	**TNMG160408RP**	**5697030**	**5698189**	–	16,50	0,8	1,00	**3,00**	6,00	0,20	**0,45**	0,60
	TNMG160412RP	**5387896**	**5387575**	–	16,50	1,2	1,20	**3,50**	6,00	0,22	**0,50**	0,65
	TNMG220408RP	**5697178**	**5698131**	**5886545**	22,00	0,8	1,00	**3,00**	7,50	0,20	**0,45**	0,65
	TNMG220412RP	–	**5698135**	–	22,00	1,2	1,20	**3,50**	7,50	0,22	**0,50**	0,70
	TNMG220416RP	–	**5387577**	–	22,00	1,6	1,40	**4,00**	7,50	0,25	**0,55**	0,75
	TNMG220432RP	**5387901**	**5698136**	–	22,00	3,2	2,40	**7,00**	7,50	0,30	**0,65**	0,90
	TNMG330924RP	–	–	**5591974**	33,00	2,4	2,00	**6,00**	13,00	0,30	**0,65**	0,90
	**WNMG060408RP**	**5697203**	–	–	6,52	0,8	1,00	**3,00**	4,00	0,20	**0,40**	0,50
	WNMG080408RP	**5387915**	**5413206**	**5591972**	8,69	0,8	1,00	**3,00**	5,00	0,20	**0,45**	0,60
	WNMG080412RP	**5387919**	**5413207**	–	8,69	1,2	1,20	**3,50**	5,00	0,22	**0,50**	0,65
	WNMG080416RP	–	**5413208**	–	8,69	1,6	1,40	**4,00**	5,00	0,25	**0,50**	0,70

		
A30	**A35**	**A48**

cutting conditions				
cutting speed (m/min) range	P0/P1	140 **395** 450	135 **275** 360	130 **210** 240
	P2	180 **265** 350	135 **195** 320	130 **150** 230
	P3	170 **190** 250	135 **155** 230	100 **120** 170
	P4	90 **145** 200	70 **105** 180	50 **95** 140
carbide grade		**KCP10B**	**KCP25B**	**KCP40B**



	ISO catalogue number	KCP10B	KCP25B	KCP40B	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CNMG090304MN**	–	**5694080**	–	9,67	0,4	0,30	**0,80**	2,50	0,12	**0,20**	0,25
	CNMG090308MN	**5697917**	**5694081**	–	9,67	0,8	0,50	**1,30**	3,50	0,15	**0,35**	0,50
	CNMG120404MN	**5697921**	**5694082**	**5591773**	12,90	0,4	0,30	**0,80**	3,50	0,12	**0,20**	0,25
	CNMG120408MN	**5388036**	**5387662**	**5596457**	12,90	0,8	0,50	**1,30**	4,50	0,15	**0,35**	0,50
	CNMG120412MN	**5388061**	**5387667**	**5591716**	12,90	1,2	0,70	**2,00**	5,00	0,17	**0,40**	0,55
	CNMG120416MN	**5697929**	**5694085**	–	12,90	1,6	0,90	**2,50**	5,00	0,30	**0,50**	0,60
	CNMG160608MN	**5697931**	**5694086**	–	16,12	0,8	0,50	**1,30**	5,50	0,15	**0,35**	0,50
	CNMG160612MN	**5413178**	**5413179**	–	16,12	1,2	0,70	**2,00**	6,00	0,17	**0,40**	0,60
	CNMG160616MN	**5697935**	–	–	16,12	1,6	0,90	**2,50**	6,00	0,30	**0,50**	0,60
	CNMG190608MN	–	**5694090**	–	19,34	0,8	0,50	**1,30**	7,50	0,15	**0,35**	0,50
	CNMG190612MN	–	**5387688**	–	19,34	1,2	0,70	**2,00**	8,00	0,17	**0,40**	0,60
	CNMG190616MN	**5430968**	**5425547**	–	19,34	1,6	0,90	**2,50**	8,00	0,30	**0,50**	0,60
	CNMG190624MN	–	**5696938**	–	19,34	2,4	1,20	**3,00**	9,00	0,60	**0,70**	0,65
	**DNMG110404MN**	**5697962**	**5694106**	–	11,63	0,4	0,30	**0,80**	2,50	0,12	**0,20**	0,25
	DNMG110408MN	**5697965**	**5694107**	–	11,63	0,8	0,50	**1,20**	3,50	0,15	**0,30**	0,40
	DNMG110412MN	–	**5413193**	–	11,63	1,2	0,70	**1,50**	4,00	0,17	**0,35**	0,50
	DNMG150404MN	**5430969**	**5694120**	–	15,50	0,4	0,30	**0,80**	3,50	0,12	**0,20**	0,25
	DNMG150408MN	**5388111**	**5387732**	–	15,50	0,8	0,50	**1,20**	4,50	0,15	**0,35**	0,50
	DNMG150412MN	**5431070**	**5425548**	**5591721**	15,50	1,2	0,70	**1,50**	5,00	0,17	**0,40**	0,55
	DNMG150604MN	**5697970**	**5694122**	–	15,50	0,4	0,30	**0,80**	3,50	0,12	**0,20**	0,25
	DNMG150608MN	**5388117**	**5387737**	–	15,50	0,8	0,50	**1,20**	4,50	0,15	**0,35**	0,50
	DNMG150612MN	**5413200**	**5387541**	**5591727**	15,50	1,2	0,70	**1,50**	5,00	0,17	**0,40**	0,55
	**SNMG090308MN**	**5425582**	**5425598**	–	9,53	0,8	0,50	**1,50**	3,50	0,15	**0,35**	0,50
	SNMG120404MN	**6055505**	**5698085**	–	12,70	0,4	0,30	**0,90**	3,50	0,12	**0,20**	0,25
	SNMG120408MN	**5697161**	**5698086**	**5591714**	12,70	0,8	0,50	**1,50**	4,50	0,15	**0,35**	0,50
	SNMG120412MN	**5425583**	**5425599**	–	12,70	1,2	0,70	**2,00**	5,00	0,17	**0,40**	0,55
	SNMG120416MN	–	**5698088**	–	12,70	1,6	0,90	**2,50**	5,00	0,30	**0,50**	0,60
	SNMG150612MN	**5425586**	**5425602**	–	15,88	1,2	0,70	**2,00**	6,00	0,17	**0,40**	0,60
	SNMG150616MN	–	**5698089**	–	15,88	1,6	0,90	**2,50**	6,00	0,30	**0,50**	0,65
	SNMG190612MN	–	**5698111**	–	19,05	1,2	0,70	**2,00**	8,00	0,17	**0,50**	0,70
	**TNMG160404MN**	**5697170**	**5698125**	–	16,50	0,4	0,30	**0,90**	3,50	0,12	**0,20**	0,25
	TNMG160408MN	**5413250**	**5413277**	–	16,50	0,8	0,50	**1,50**	4,50	0,15	**0,35**	0,50
	TNMG160412MN	**5425588**	**5425604**	–	16,50	1,2	0,70	**2,00**	5,00	0,17	**0,40**	0,55
	TNMG220404MN	–	**5698128**	–	22,00	0,4	0,30	**0,90**	4,50	0,12	**0,25**	0,30
	TNMG220408MN	**5697176**	**5698129**	–	22,00	0,8	0,50	**1,50**	6,00	0,15	**0,40**	0,55
	TNMG220412MN	**5514452**	**5698133**	**5591720**	22,00	1,2	0,70	**2,00**	7,00	0,17	**0,40**	0,60
	**VNMG160404MN**	**5697186**	**5696930**	–	16,61	0,4	0,30	**0,70**	2,50	0,12	**0,20**	0,25
	VNMG160408MN	**5425591**	**5425607**	–	16,61	0,8	0,50	**1,10**	3,50	0,15	**0,30**	0,40
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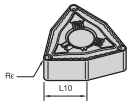
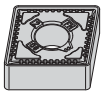
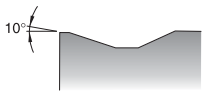
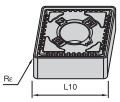
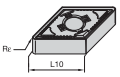
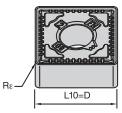
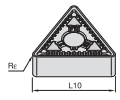
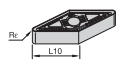
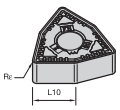
	**WNMG060408MN**	**5697202**	**5696935**	–	6,52	0,8	0,50	**1,50**	3,50	0,15	**0,30**	0,40
	WNMG080408MN	**5413260**	**5387611**	–	8,69	0,8	0,50	**1,50**	4,50	0,15	**0,35**	0,50
	WNMG080412MN	**5425593**	**5387614**	**5591718**	8,69	1,2	0,70	**2,00**	5,00	0,17	**0,40**	0,55
	WNMG080416MN	–	**5489410**	–	8,69	1,6	0,90	**2,50**	5,00	0,30	**0,50**	0,60

cutting conditions								
cutting speed (m/min) range	P0/P1	140	**395**	450	135	**275**	360
	P2	180	**265**	350	135	**195**	320
	P3	170	**190**	250	135	**155**	230
	P4	90	**145**	200	70	**105**	180
carbide grade		KCP10B			KCP25B		

FN





	ISO catalogue number	KCP10B	KCP25B	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CNMG090308FN**	**5523306**	**–**	9,67	0,8	0,40	**1,00**	2,00	0,10	**0,20**	0,30
	CNMG120404FN	**5531836**	**5531838**	12,90	0,4	0,20	**0,50**	2,00	0,08	**0,15**	0,25
	CNMG120408FN	**5531839**	**5531890**	12,90	0,8	0,40	**1,00**	2,50	0,10	**0,20**	0,30
	CNMG120412FN	**5531894**	**5531893**	12,90	1,2	0,50	**1,20**	3,00	0,12	**0,20**	0,30
	**DNMG110404FN**	**5531896**	**5698171**	11,63	0,4	0,20	**0,50**	1,50	0,08	**0,15**	0,25
	DNMG110408FN	**5697020**	**5531897**	11,63	0,8	0,40	**1,00**	2,00	0,10	**0,20**	0,30
	DNMG110412FN	**5544755**	**–**	11,63	1,2	0,50	**1,20**	2,50	0,12	**0,20**	0,30
	DNMG150404FN	**5697021**	**5531899**	15,50	0,4	0,20	**0,50**	2,00	0,08	**0,15**	0,25
	DNMG150408FN	**5531900**	**5698172**	15,50	0,8	0,40	**1,00**	2,50	0,10	**0,20**	0,30
	DNMG150412FN	**5697023**	**–**	15,50	1,2	0,50	**1,20**	3,00	0,12	**0,20**	0,30
	DNMG150604FN	**5531901**	**5531903**	15,50	0,4	0,20	**0,50**	2,00	0,08	**0,15**	0,25
	DNMG150608FN	**5388116**	**5531906**	15,50	0,8	0,40	**1,00**	2,50	0,10	**0,20**	0,30
	DNMG150612FN	**5531908**	**–**	15,50	1,2	0,50	**1,20**	3,00	0,12	**0,20**	0,30
	**SNMG120404FN**	**5531910**	**–**	12,70	0,4	0,20	**0,50**	2,00	0,08	**0,15**	0,25
	SNMG120408FN	**5697027**	**–**	12,70	0,8	0,40	**1,00**	2,50	0,10	**0,20**	0,30
	**TNMG160404FN**	**5697029**	**5698187**	16,50	0,4	0,20	**0,50**	2,50	0,08	**0,15**	0,25
	TNMG160408FN	**5413249**	**5698188**	16,50	0,8	0,40	**1,00**	3,00	0,10	**0,20**	0,30
	TNMG160412FN	**5413251**	**–**	16,50	1,2	0,50	**1,20**	3,50	0,12	**0,20**	0,30
	TNMG220408FN	**5507610**	**–**	22,00	0,8	0,40	**1,00**	3,50	0,10	**0,20**	0,30
	**VNMG160404FN**	**5697035**	**5698197**	16,61	0,4	0,20	**0,40**	2,00	0,08	**0,15**	0,25
	VNMG160408FN	**5615609**	**5615650**	16,61	0,8	0,30	**0,60**	2,50	0,10	**0,20**	0,30
	**WNMG080404FN**	**5697036**	**5698198**	8,69	0,4	0,20	**0,50**	2,00	0,08	**0,15**	0,25
	WNMG080408FN	**5697037**	**5698199**	8,69	0,8	0,40	**1,00**	2,50	0,10	**0,20**	0,30


A30


A35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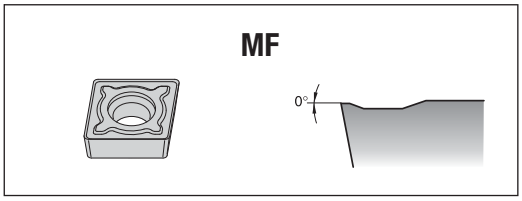
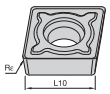
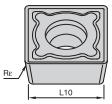
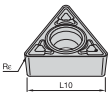


cutting conditions								
cutting speed (m/min) range	P0/P1	140	**395**	450	135	**275**	360
	P2	180	**265**	350	135	**195**	320
	P3	170	**190**	250	135	**155**	230
	P4	90	**145**	200	70	**105**	180
	P5	150	**215**	300	120	**195**	270
	P6	110	**180**	270	105	**150**	220
carbide grade		KCP10B			KCP25B		

	ISO catalogue number	KCP10B	KCP25B	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CCMT060204MF**	**5697910**	**5694055**	6,45	0,4	0,50	**1,20**	1,80	0,10	**0,20**	0,25
	CCMT09T304MF	**5697912**	**5694058**	9,67	0,4	0,50	**1,20**	2,00	0,12	**0,20**	0,30
	CCMT09T308MF	**5388033**	**5387629**	9,67	0,8	0,80	**2,00**	2,50	0,15	**0,25**	0,35
	CCMT09T312MF	**–**	**5413170**	9,67	1,2	1,00	**2,50**	3,00	0,20	**0,30**	0,40
	CCMT120408MF	**5388035**	**5387661**	12,90	0,8	0,80	**2,00**	3,50	0,15	**0,25**	0,35
	CCMT120412MF	**–**	**5694059**	12,90	1,2	1,00	**2,50**	4,00	0,20	**0,30**	0,40
	**DCMT11T304MF**	**5697956**	**5694103**	11,63	0,4	0,50	**1,10**	1,80	0,10	**0,15**	0,20
	DCMT11T308MF	**5413190**	**5413191**	11,63	0,8	0,80	**2,00**	2,30	0,12	**0,20**	0,25
	DCMT11T312MF	**5388097**	**5387729**	11,63	1,2	1,00	**2,00**	2,50	0,15	**0,25**	0,30
	**SCMT09T308MF**	**5387858**	**5387553**	9,53	0,8	0,80	**2,00**	2,50	0,15	**0,25**	0,35
	SCMT09T312MF	**–**	**5387555**	9,52	1,2	1,00	**2,50**	3,00	0,20	**0,30**	0,40
	SCMT120408MF	**–**	**5387557**	12,70	0,8	0,80	**2,00**	3,50	0,15	**0,25**	0,35
	SCMT120412MF	**–**	**5387559**	12,70	1,2	1,00	**2,50**	4,00	0,20	**0,30**	0,40
	**TCMT110208MF**	**–**	**5698119**	11,00	0,8	0,80	**2,00**	2,00	0,10	**0,20**	0,30
	TCMT16T308MF	**–**	**5698122**	16,50	0,8	0,80	**2,00**	3,00	0,15	**0,25**	0,30
	TCMT16T312MF	**–**	**5698123**	16,50	1,2	1,00	**2,50**	3,50	0,20	**0,30**	0,35

TURNING
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TOOLING SYSTEMS
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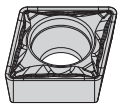
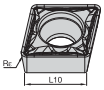
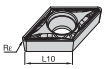
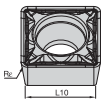
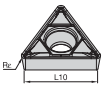
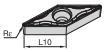
A39	A45	A48

cutting conditions								
							
cutting speed (m/min) range	P0/P1	140	**395**	450	135	**275**	360
	P2	180	**265**	350	135	**195**	320
	P3	170	**190**	250	135	**155**	230
	P4	90	**145**	200	70	**105**	180
	P5	150	**215**	300	120	**195**	270
	P6	110	**180**	270	105	**150**	220
carbide grade		KCP10B			KCP25B		

FP

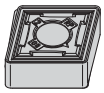


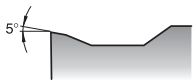
	ISO catalogue number	KCP10B	KCP25B	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CCMT060204FP**	**5537375**	**5537376**	6,45	0,4	0,20	**0,50**	1,60	0,06	**0,15**	0,20
	CCMT060208FP	**–**	**5537378**	6,45	0,8	0,40	**0,90**	2,00	0,10	**0,20**	0,25
	CCMT09T302FP	**–**	**5537379**	9,67	0,2	0,16	**0,40**	1,00	0,06	**0,10**	0,12
	CCMT09T304FP	**5537420**	**5537421**	9,67	0,4	0,20	**0,50**	1,60	0,06	**0,15**	0,20
	CCMT09T308FP	**5537422**	**5537423**	9,67	0,8	0,40	**0,90**	2,00	0,10	**0,20**	0,25
	CCMT120404FP	**5537425**	**5537426**	12,90	0,4	0,20	**0,50**	2,00	0,06	**0,15**	0,25
	CCMT120408FP	**–**	**5537427**	12,90	0,8	0,40	**0,90**	3,00	0,10	**0,20**	0,30
	**DCMT070202FP**	**–**	**5537436**	7,75	0,2	0,16	**0,40**	1,00	0,06	**0,10**	0,12
	DCMT070208FP	**–**	**5537437**	7,75	0,8	0,40	**0,90**	2,00	0,10	**0,20**	0,25
	DCMT11T302FP	**5537439**	**5537438**	11,63	0,2	0,16	**0,40**	1,00	0,06	**0,10**	0,12
	DCMT11T304FP	**5537442**	**5537443**	11,63	0,4	0,20	**0,50**	1,60	0,06	**0,15**	0,20
	DCMT11T308FP	**5538858**	**–**	11,63	0,8	0,40	**0,90**	2,00	0,10	**0,20**	0,25
	**SCMT09T308FP**	**–**	**5387551**	9,53	0,8	0,40	**1,00**	2,00	0,10	**0,20**	0,25
	SCMT120408FP	**–**	**5387556**	12,70	0,8	0,40	**1,00**	3,00	0,10	**0,20**	0,30
	**TCMT090204FP**	**–**	**5538891**	9,63	0,4	0,20	**0,50**	1,60	0,06	**0,10**	0,15
	TCMT110304FP	**5538894**	**–**	11,00	0,4	0,20	**0,50**	2,00	0,06	**0,15**	0,20
	**VBMT160404FP**	**5387907**	**5387584**	16,61	0,4	0,20	**0,40**	2,00	0,06	**0,15**	0,20
	VBMT160408FP	**5538903**	**5538904**	16,61	0,8	0,40	**0,80**	2,50	0,10	**0,20**	0,30
	VBMT160412FP	**5387910**	**5387588**	16,61	1,2	0,60	**1,20**	2,50	0,10	**0,20**	0,30

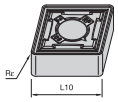
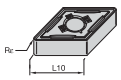
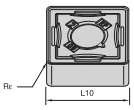
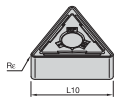
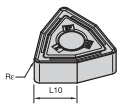
		
A39	**A45**	**A48**

cutting conditions								
cutting speed (m/min) range	M1	100	**180**	250	90	**150**	180
	M2	100	**165**	260	90	**140**	180
	M3	100	**150**	250	90	**120**	180
carbide grade		**KCM15B**			**KCM25B**		

RP





	ISO catalogue number	KCM15B	KCM25B	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CNMG120404RP**	–	**5591950**	12,90	0,4	0,60	**2,00**	3,50	0,18	**0,30**	0,40
	CNMG120408RP	**5640482**	**5596468**	12,90	0,8	1,00	**3,00**	4,50	0,20	**0,45**	0,60
	CNMG120412RP	**5640483**	**5596469**	12,90	1,2	1,20	**3,50**	5,00	0,22	**0,50**	0,65
	CNMG120416RP	–	**5591957**	12,90	1,6	1,40	**4,00**	5,00	0,25	**0,50**	0,70
	CNMG160612RP	**5640986**	**5591919**	16,12	1,2	1,20	**3,50**	7,00	0,22	**0,50**	0,65
	CNMG160616RP	–	**5591960**	16,12	1,6	1,40	**4,00**	8,00	0,25	**0,50**	0,70
	CNMG190612RP	–	**5591931**	19,34	1,2	1,20	**3,50**	9,00	0,22	**0,50**	0,70
	CNMG190616RP	–	**5591955**	19,34	1,6	1,40	**4,00**	9,00	0,25	**0,60**	0,80
	**DNMG150408RP**	–	**5591976**	15,50	0,8	1,00	**2,50**	5,00	0,20	**0,45**	0,60
	DNMG150608RP	–	**5591932**	15,50	0,8	1,00	**2,50**	5,00	0,20	**0,45**	0,60
	**SNMG120412RP**	–	**5591982**	12,70	1,2	1,20	**3,50**	6,00	0,22	**0,50**	0,65
	SNMG150616RP	**5641107**	**5591953**	15,88	1,6	1,40	**4,00**	7,00	0,25	**0,60**	0,80
	SNMG190612RP	–	**5591935**	19,05	1,2	1,20	**3,50**	9,00	0,22	**0,60**	0,85
	SNMG190616RP	–	**5591936**	19,05	1,6	1,40	**4,00**	9,00	0,25	**0,65**	0,90
	**TNMG220408RP**	–	**5591962**	22,00	0,8	1,00	**3,00**	7,50	0,20	**0,45**	0,65
	TNMG220412RP	–	**5591964**	22,00	1,2	1,20	**3,50**	7,50	0,22	**0,50**	0,70
	TNMG270612RP	–	**5591967**	27,50	1,2	1,20	**3,50**	9,00	0,22	**0,50**	0,70
	**WNMG080408RP**	**5641122**	**5591959**	8,69	0,8	1,00	**3,00**	5,00	0,20	**0,45**	0,60
	WNMG080412RP	–	**5591938**	8,69	1,2	1,20	**3,50**	5,00	0,22	**0,50**	0,65

TURNING
FIRST CHOICE
MILLING
FIRST CHOICE
HOLEMAKING
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TOOLING SYSTEMS
FIRST CHOICE


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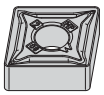
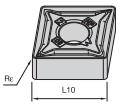
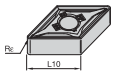
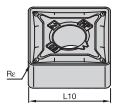
MP



cutting conditions				
cutting speed (m/min) range	M1	130 **215** 240	100 **180** 250	90 **150** 180
	M2	130 **200** 240	100 **165** 260	90 **140** 180
	M3	130 **185** 240	100 **150** 250	90 **120** 180
carbide grade		**KCU10**	**KCM15B**	**KCM25B**

	ISO catalogue number	KCU10	KCM15B	KCM25B	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CNMG090308MP**	–	**5640969**	–	9,67	0,8	0,80	**2,00**	3,50	0,15	**0,35**	0,50
	CNMG120404MP	**4050679**	**5640971**	**5591779**	12,90	0,4	0,60	**1,50**	3,50	0,12	**0,20**	0,25
	CNMG120408MP	**4050686**	**5640480**	**5596460**	12,90	0,8	0,80	**2,00**	4,50	0,15	**0,35**	0,50
	CNMG120412MP	**4050692**	**5640979**	**5591901**	12,90	1,2	1,00	**2,50**	5,00	0,17	**0,35**	0,55
	CNMG120416MP	–	**5640981**	–	12,90	1,6	1,20	**3,00**	5,00	0,20	**0,40**	0,60
	CNMG160608MP	**4050700**	**5640982**	–	16,12	0,8	0,80	**2,00**	5,50	0,15	**0,35**	0,55
	CNMG160612MP	**4050702**	**5640985**	**5591780**	16,12	1,2	1,00	**2,50**	6,00	0,17	**0,40**	0,60
	CNMG160616MP	–	–	**5591775**	16,12	1,6	1,20	**3,00**	6,00	0,20	**0,40**	0,60
	CNMG190608MP	–	**5640988**	**5591787**	19,34	0,8	0,80	**2,00**	7,50	0,15	**0,35**	0,55
	CNMG190612MP	–	–	**5591799**	19,34	1,2	1,00	**2,50**	8,00	0,17	**0,40**	0,60
	**DNMG110408MP**	–	–	**5591791**	11,63	0,8	0,60	**1,50**	2,50	0,12	**0,20**	0,25
	DNMG110412MP	–	–	**5591930**	11,63	1,2	0,80	**2,00**	3,50	0,15	**0,35**	0,50
	DNMG150404MP	**4053379**	**5641098**	**5591902**	15,50	0,4	0,60	**1,50**	3,50	0,12	**0,20**	0,25
	DNMG150408MP	**4053384**	**5641099**	**5591782**	15,50	0,8	0,80	**2,00**	4,50	0,15	**0,35**	0,50
	DNMG150412MP	**4053390**	–	–	15,50	1,2	1,00	**2,50**	5,00	0,17	**0,35**	0,55
	DNMG150604MP	**4053396**	**5641101**	**5591788**	15,50	0,4	0,60	**1,50**	3,50	0,12	**0,20**	0,25
	DNMG150608MP	**4053400**	**5641102**	**5591900**	15,50	0,8	0,80	**2,00**	4,50	0,15	**0,35**	0,50
	DNMG150612MP	–	–	**5591795**	15,50	1,2	1,00	**2,50**	5,00	0,17	**0,35**	0,55
	**SNMG120408MP**	**5062106**	**5641105**	**5591907**	12,70	0,8	0,60	**2,00**	3,50	0,12	**0,20**	0,25
	SNMG120412MP	–	–	**5591933**	12,70	1,2	0,80	**2,50**	4,50	0,15	**0,35**	0,50
	SNMG120416MP	–	–	**5591952**	12,70	1,6	1,00	**3,00**	5,00	0,17	**0,35**	0,55
	SNMG150608MP	–	–	**5591939**	15,88	0,8	0,60	**2,00**	5,00	0,12	**0,20**	0,30
	SNMG190612MP	–	–	**5591934**	19,05	1,2	0,80	**2,50**	7,00	0,15	**0,35**	0,55
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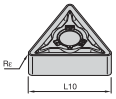
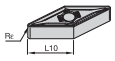
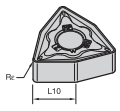
	**TNMG160404MP**	**5062131**	**5641110**	**5591785**	16,50	0,4	0,60	**2,00**	3,50	0,12	**0,20**	0,25
	TNMG160408MP	**5062135**	**5640490**	**5596461**	16,50	0,8	0,80	**2,50**	4,50	0,15	**0,35**	0,50
	TNMG160412MP	–	**5641111**	**5591956**	16,50	1,2	1,00	**3,00**	5,00	0,17	**0,35**	0,55
	TNMG220408MP	**5062140**	**5641113**	**5591910**	22,00	0,8	0,80	**2,50**	4,50	0,15	**0,35**	0,50
	TNMG220412MP	–	–	**5591796**	22,00	1,2	1,00	**3,00**	6,00	0,17	**0,35**	0,55
	**VNMG160404MP**	**4045150**	**5641115**	**5591789**	16,61	0,4	0,60	**1,50**	3,00	0,12	**0,20**	0,25
	VNMG160408MP	**4045164**	**5641116**	**5591781**	16,61	0,8	0,80	**2,00**	3,50	0,15	**0,30**	0,40
	VNMG160412MP	–	**5641117**	–	16,61	1,2	1,00	**2,00**	4,00	0,17	**0,30**	0,40
	**WNMG060404MP**	–	–	**5591937**	6,52	0,4	0,60	**2,00**	3,50	0,12	**0,20**	0,25
	WNMG060408MP	**4045177**	–	**5591912**	6,52	0,8	0,80	**2,50**	3,50	0,15	**0,30**	0,45
	WNMG080408MP	**4045182**	**5641120**	**5591774**	8,69	0,8	0,80	**2,50**	4,50	0,15	**0,35**	0,50
	WNMG080412MP	–	–	**5591790**	8,69	1,2	1,00	**3,00**	5,00	0,17	**0,35**	0,55


A30


A35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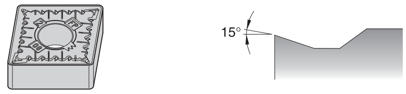
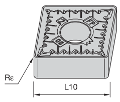
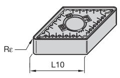
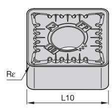
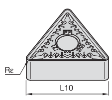
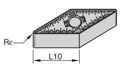
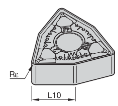
cutting conditions		KCU10			KCM15B		
cutting speed (m/min) range	M1	130	**215**	240	100	**180**	260
	M2	130	**200**	240	100	**165**	260
	M3	130	**185**	240	100	**150**	260
carbide grade		KCU10			KCM15B		

FP



	ISO catalogue number	KCU10	KCM15B	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CNMG120404FP**	**4171824**	**–**	12,90	0,4	0,20	**0,50**	2,00	0,08	**0,15**	0,25
	CNMG120408FP	**4050061**	**5640449**	12,90	0,8	0,40	**1,00**	2,50	0,10	**0,20**	0,30
	CNMG120412FP	**4050062**	**–**	12,90	1,2	0,50	**1,20**	2,50	0,12	**0,25**	0,35
	**DNMG110404FP**	**4171826**	**5640486**	11,63	0,4	0,20	**0,50**	2,00	0,08	**0,15**	0,25
	DNMG110408FP	**4050743**	**–**	11,63	0,8	0,40	**1,00**	2,50	0,10	**0,20**	0,30
	DNMG150404FP	**4171827**	**–**	15,50	0,4	0,20	**0,50**	2,50	0,08	**0,15**	0,25
	DNMG150408FP	**4171828**	**–**	15,50	0,8	0,40	**1,00**	3,00	0,10	**0,20**	0,30
	DNMG150412FP	**4171829**	**–**	15,50	1,2	0,50	**1,20**	3,50	0,12	**0,25**	0,35
	DNMG150604FP	**4171830**	**–**	15,50	0,4	0,20	**0,50**	2,50	0,08	**0,15**	0,25
	DNMG150608FP	**4171831**	**–**	15,50	0,8	0,40	**1,00**	3,00	0,10	**0,20**	0,30
	DNMG150612FP	**–**	**5640487**	15,50	1,2	0,50	**1,20**	3,50	0,12	**0,25**	0,35
	**SNMG120404FP**	**4171835**	**–**	12,70	0,4	0,20	**0,50**	2,00	0,08	**0,15**	0,25
	SNMG120408FP	**4171836**	**–**	12,70	0,8	0,40	**1,00**	2,50	0,10	**0,20**	0,30
	**TNMG160404FP**	**4171838**	**–**	16,50	0,4	0,20	**0,50**	2,50	0,08	**0,15**	0,25
	TNMG160408FP	**4171839**	**–**	16,50	0,8	0,40	**1,00**	3,00	0,10	**0,20**	0,30
	TNMG160412FP	**4171840**	**–**	16,50	1,2	0,50	**1,20**	3,50	0,12	**0,25**	0,35
	TNMG220404FP	**4171841**	**–**	22,00	0,4	0,20	**0,50**	3,00	0,08	**0,15**	0,25
	TNMG220408FP	**4171842**	**–**	22,00	0,8	0,40	**1,00**	5,00	0,10	**0,20**	0,30
	**VNMG160404FP**	**4171843**	**–**	16,61	0,4	0,20	**0,40**	2,00	0,08	**0,15**	0,25
	VNMG160408FP	**4171844**	**–**	16,61	0,8	0,30	**0,60**	2,50	0,10	**0,20**	0,30
	**WNMG060404FP**	**4050746**	**–**	6,52	0,4	0,20	**0,50**	2,00	0,08	**0,15**	0,25
	WNMG080404FP	**4171849**	**–**	8,69	0,4	0,20	**0,50**	2,00	0,08	**0,15**	0,25
	WNMG080408FP	**4171851**	**5640494**	8,69	0,8	0,40	**1,00**	2,50	0,10	**0,20**	0,30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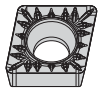
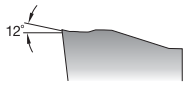
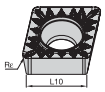
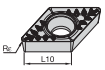
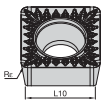
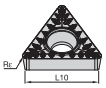
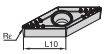
TURNING
FIRST CHOICE
MILLING
FIRST CHOICE
HOLEMAKING
FIRST CHOICE
TOOLING SYSTEMS
FIRST CHOICE

cutting conditions								
cutting speed (m/min) range	M1	100	**180**	250	90	**150**	180
	M2	100	**165**	260	90	**140**	180
	M3	100	**150**	250	90	**120**	180
carbide grade		**KCM15B**			**KCM25B**		

MP





	ISO catalogue number	KCM15B	KCM25B	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CCMT060204MP**	**5640906**	**5591914**	6,45	0,4	0,40	**1,00**	2,00	0,12	**0,15**	0,20
	CCMT09T304MP	**5640960**	**5591792**	9,67	0,4	0,40	**1,00**	2,30	0,12	**0,20**	0,25
	CCMT09T308MP	**5640964**	**5591783**	9,67	0,8	0,60	**1,50**	3,00	0,15	**0,25**	0,30
	CCMT120408MP	**–**	**5591777**	12,90	0,8	0,60	**1,50**	4,00	0,15	**0,25**	0,35
	CCMT120412MP	**–**	**5591793**	12,90	1,2	0,80	**2,00**	4,00	0,17	**0,30**	0,40
	**DCMT11T308MP**	**–**	**5591784**	11,63	0,8	0,60	**1,50**	2,30	0,12	**0,20**	0,25
	**SCMT09T308MP**	**–**	**5591776**	9,53	0,8	0,60	**2,00**	3,00	0,15	**0,25**	0,30
	SCMT120408MP	**–**	**5591794**	12,70	0,8	0,60	**2,00**	3,50	0,15	**0,25**	0,35
	**TCMT16T304MP**	**–**	**5591904**	16,50	0,4	0,40	**1,00**	3,00	0,12	**0,20**	0,25
	TCMT16T308MP	**–**	**5591906**	16,50	0,8	0,60	**1,50**	3,50	0,15	**0,25**	0,35
	**VBMT160404MP**	**–**	**5591786**	16,61	0,4	0,20	**0,50**	1,50	0,10	**0,15**	0,20
	VBMT160408MP	**–**	**5591778**	16,61	0,8	0,40	**0,90**	1,50	0,15	**0,20**	0,25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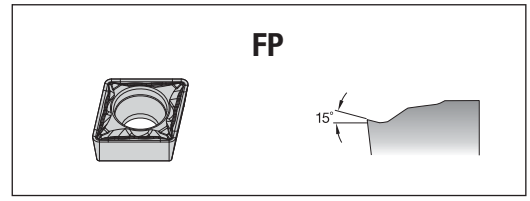
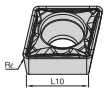
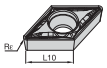
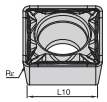
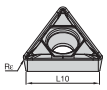
cutting conditions				
cutting speed (m/min) range	M1	130	**215**	240
	M2	130	**200**	240
	M3	130	**185**	240
carbide grade			KCU10	



	ISO catalogue number	KCU10	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	CCMT060202FP	3769290	6,45	0,2	0,16	**0,40**	1,00	0,06	**0,10**	0,12
	CCMT060204FP	3769291	6,45	0,4	0,20	**0,50**	1,60	0,06	**0,15**	0,20
	CCMT060208FP	3769292	6,45	0,8	0,40	**0,90**	2,00	0,10	**0,20**	0,25
	CCMT09T302FP	3769343	9,67	0,2	0,16	**0,40**	1,00	0,06	**0,10**	0,12
	CCMT09T304FP	3769344	9,67	0,4	0,20	**0,50**	1,60	0,06	**0,15**	0,20
	CCMT09T308FP	3482532	9,67	0,8	0,40	**0,90**	2,00	0,10	**0,20**	0,25
	CCMT120404FP	3769345	12,90	0,4	0,20	**0,50**	2,00	0,06	**0,15**	0,25
	CCMT120408FP	3769346	12,90	0,8	0,40	**0,90**	3,00	0,10	**0,20**	0,30
	DCMT070202FP	3769355	7,75	0,2	0,16	**0,40**	1,00	0,06	**0,10**	0,12
	DCMT070204FP	3769356	7,75	0,4	0,20	**0,50**	1,60	0,06	**0,15**	0,20
	DCMT070208FP	3769357	7,75	0,8	0,40	**0,90**	2,00	0,10	**0,20**	0,25
	DCMT11T302FP	3769358	11,63	0,2	0,16	**0,40**	1,00	0,06	**0,10**	0,12
	DCMT11T304FP	3769359	11,63	0,4	0,20	**0,50**	1,60	0,06	**0,15**	0,20
	DCMT11T308FP	3769360	11,63	0,8	0,40	**0,90**	2,00	0,10	**0,20**	0,25
	SCMT09T304FP	3769370	9,53	0,4	0,20	**0,50**	1,60	0,06	**0,15**	0,20
	SCMT09T308FP	3769371	9,53	0,8	0,40	**1,00**	2,00	0,10	**0,20**	0,25
	SCMT120404FP	3769372	12,70	0,4	0,20	**0,50**	2,00	0,06	**0,15**	0,25
	SCMT120408FP	3769373	12,70	0,8	0,40	**1,00**	3,00	0,10	**0,20**	0,30
	TCMT090204FP	3769377	9,63	0,4	0,20	**0,50**	1,60	0,06	**0,10**	0,15
	TCMT090208FP	3769378	9,63	0,8	0,40	**1,00**	2,00	0,10	**0,15**	0,20
	TCMT110204FP	3769380	11,00	0,4	0,20	**0,50**	2,00	0,06	**0,15**	0,20
	TCMT110208FP	3769381	11,00	0,8	0,40	**1,00**	3,00	0,10	**0,20**	0,25
	TCMT110304FP	3769382	11,00	0,4	0,20	**0,50**	2,00	0,06	**0,15**	0,20
	TCMT110308FP	3769383	11,00	0,8	0,40	**1,00**	3,00	0,10	**0,20**	0,25
	TCMT110312FP	3769384	11,00	1,2	0,60	**1,50**	3,00	0,10	**0,20**	0,25
	TCMT16T304FP	3769386	16,50	0,4	0,20	**0,50**	2,00	0,06	**0,15**	0,25
	TCMT16T308FP	3769387	16,50	0,8	0,40	**1,00**	3,00	0,10	**0,20**	0,30
	TCMT16T312FP	3769388	16,50	1,2	0,60	**1,50**	3,00	0,10	**0,20**	0,30
	VBMT110302FP	3769401	11,07	0,2	0,16	**0,40**	1,00	0,06	**0,10**	0,12
	VBMT110304FP	3769402	11,07	0,4	0,20	**0,40**	1,60	0,06	**0,15**	0,20
	VBMT110308FP	3769403	11,07	0,8	0,40	**0,80**	2,00	0,10	**0,20**	0,25
	VBMT160402FP	3769404	16,61	0,2	0,16	**0,40**	1,50	0,06	**0,10**	0,12
	VBMT160404FP	3769405	16,61	0,4	0,20	**0,40**	2,00	0,06	**0,15**	0,20
	VBMT160408FP	3769406	16,61	0,8	0,40	**0,80**	2,50	0,10	**0,20**	0,30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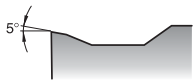
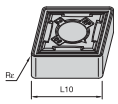
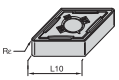
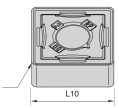
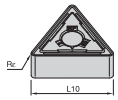
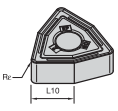
cutting conditions									
cutting speed (m/min) range	K1	280	**450**	600	240	**360**	550
	K2	230	**360**	550	150	**270**	450
	K3	150	**240**	500	140	**215**	410
carbide grade		**KCK05**			**KCK15**		

RP



	ISO catalogue number	KCK05	KCK15	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CNMG120408RP**	**3751862**	**3752176**	12,90	0,8	1,00	**3,00**	4,50	0,20	**0,45**	0,60
	CNMG120412RP	**3752114**	**3752050**	12,90	1,2	1,20	**3,50**	5,00	0,22	**0,50**	0,65
	CNMG160612RP	–	**3752052**	16,12	1,2	1,20	**3,50**	7,00	0,22	**0,50**	0,65
	CNMG190612RP	–	**3752053**	19,34	1,2	1,20	**3,50**	9,00	0,22	**0,50**	0,70
	**DNMG150612RP**	–	**3752057**	15,50	1,2	1,20	**3,00**	5,00	0,22	**0,50**	0,65
	**SNMG120412RP**	–	**3752061**	12,70	1,2	1,20	**3,50**	6,00	0,22	**0,50**	0,65
	**TNMG160408RP**	**3752122**	–	16,50	0,8	1,00	**3,00**	6,00	0,20	**0,45**	0,60
	TNMG220412RP	–	**3752065**	22,00	1,2	1,20	**3,50**	7,50	0,22	**0,50**	0,70
	**VNMG160408RP**	–	**3752067**	16,61	0,8	1,00	**2,00**	3,50	0,20	**0,40**	0,50
	**WNMG080408RP**	**3752124**	–	8,69	0,8	1,00	**3,00**	5,00	0,20	**0,45**	0,60
	WNMG080412RP	**3752125**	**3752070**	8,69	1,2	1,20	**3,50**	5,00	0,22	**0,50**	0,65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cutting conditions				
cutting speed (m/min) range	K1	240	**360**	550
	K2	150	**270**	450
	K3	140	**215**	410
carbide grade			**KCK15**	

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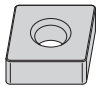
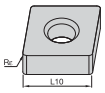
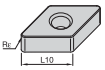
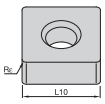
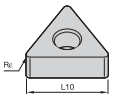
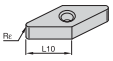
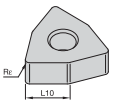



	ISO catalogue number	KCK15	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CNMA120408**	**3752128**	12,90	0,8	1,00	**3,00**	6,00	0,30	**0,45**	0,60
	CNMA120412	**3752129**	12,90	1,2	1,50	**4,50**	6,00	0,35	**0,50**	0,65
	CNMA120416	**3752130**	12,90	1,6	1,40	**4,00**	6,00	0,35	**0,55**	0,70
	CNMA160608	**3752131**	16,12	0,8	1,00	**3,00**	7,00	0,30	**0,45**	0,60
	CNMA160612	**3752132**	16,12	1,2	1,20	**3,50**	7,00	0,32	**0,50**	0,65
	CNMA160616	**3752143**	16,12	1,6	1,40	**4,00**	8,00	0,35	**0,55**	0,70
	CNMA190612	**3752144**	19,34	1,2	1,20	**3,50**	9,00	0,32	**0,50**	0,70
	**DNMA150408**	**3752145**	15,50	0,8	1,00	**3,00**	6,00	0,32	**0,45**	0,60
	DNMA150412	**3752146**	15,50	1,2	1,20	**3,50**	6,00	0,35	**0,50**	0,65
	DNMA150608	**3752147**	15,50	0,8	1,00	**3,00**	6,00	0,32	**0,45**	0,60
	**SNMA120412**	**3752152**	12,70	1,2	1,20	**3,50**	6,00	0,32	**0,50**	0,65
	**TNMA160408**	**3752157**	16,50	0,8	1,00	**2,50**	6,00	0,30	**0,45**	0,60
	TNMA160412	**3752158**	16,50	1,2	1,20	**3,00**	6,00	0,32	**0,50**	0,65
	TNMA160416	**3752159**	16,50	1,6	1,80	**4,50**	6,00	0,32	**0,50**	0,65
	**VNMA160408**	**3752164**	16,61	0,8	0,60	**1,50**	4,00	0,25	**0,40**	0,50
	**WNMA060408**	**3752165**	6,52	0,8	1,00	**2,50**	4,00	0,30	**0,40**	0,50
	WNMA080408	**3752167**	8,69	0,8	1,00	**2,50**	5,00	0,30	**0,45**	0,60
	WNMA080412	**3752168**	8,69	1,2	1,20	**3,00**	5,00	0,32	**0,50**	0,65

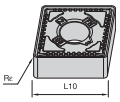
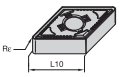
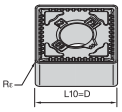
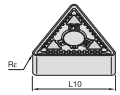
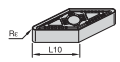
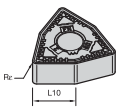
TURNING
FIRST CHOICE
MILLING
FIRST CHOICE
HOLEMAKING
FIRST CHOICE
TOOLING SYSTEMS
FIRST CHOICE



A30	A35	A48

cutting conditions				
cutting speed (m/min) range	K1	280	**450**	600
	K2	230	**240**	550
	K3	150	**240**	500
carbide grade			**KCK05**	

FN

	ISO catalogue number	KCK05	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CNMG090308FN**	**3751944**	9,67	0,8	0,40	**1,00**	2,00	0,10	**0,20**	0,30
	CNMG120404FN	**3751945**	12,90	0,4	0,20	**0,50**	2,00	0,08	**0,15**	0,25
	CNMG120408FN	**3751946**	12,90	0,8	0,40	**1,00**	2,50	0,10	**0,20**	0,30
	**DNMG110404FN**	**3751950**	11,63	0,4	0,20	**0,50**	1,50	0,08	**0,15**	0,25
	DNMG110408FN	**3751952**	11,63	0,8	0,40	**1,00**	2,00	0,10	**0,20**	0,30
	DNMG150404FN	**3751955**	15,50	0,4	0,20	**0,50**	2,00	0,08	**0,15**	0,25
	DNMG150408FN	**3751956**	15,50	0,8	0,40	**1,00**	2,50	0,10	**0,20**	0,30
	DNMG150412FN	**3751958**	15,50	1,2	0,50	**1,20**	3,00	0,12	**0,20**	0,30
	DNMG150604FN	**3751959**	15,50	0,4	0,20	**0,50**	2,00	0,08	**0,15**	0,25
	DNMG150608FN	**3751960**	15,50	0,8	0,40	**1,00**	2,50	0,10	**0,20**	0,30
	DNMG150612FN	**3751961**	15,50	1,2	0,50	**1,20**	3,00	0,12	**0,20**	0,30
	**SNMG090308FN**	**3751963**	9,53	0,8	0,40	**1,00**	2,00	0,10	**0,20**	0,30
	SNMG120404FN	**3751964**	12,70	0,4	0,20	**0,50**	2,00	0,08	**0,15**	0,25
	**TNMG160404FN**	**3751970**	16,50	0,4	0,20	**0,50**	2,50	0,08	**0,15**	0,25
	TNMG160408FN	**3751971**	16,50	0,8	0,40	**1,00**	3,00	0,10	**0,20**	0,30
	TNMG160412FN	**3751972**	16,50	1,2	0,50	**1,20**	3,50	0,12	**0,20**	0,30
	**VNMG160404FN**	**3751974**	16,61	0,4	0,20	**0,40**	2,00	0,08	**0,15**	0,25
	VNMG160408FN	**3751975**	16,61	0,8	0,30	**0,60**	2,50	0,10	**0,20**	0,30
	**WNMG060404FN**	**3751976**	6,52	0,4	0,20	**0,50**	1,50	0,08	**0,15**	0,25
	WNMG080404FN	**3751978**	8,69	0,4	0,20	**0,50**	2,00	0,08	**0,15**	0,25
	WNMG080408FN	**3751979**	8,69	0,8	0,40	**1,00**	2,50	0,10	**0,20**	0,30

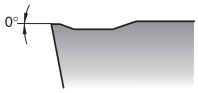

A30

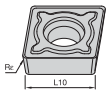
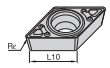
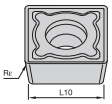
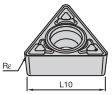

A35


A48

cutting conditions				
cutting speed (m/min) range	K1	230	**300**	550
	K2	150	**240**	420
	K3	150	**210**	350
carbide grade			**KCK20**	

MF



	ISO catalogue number	KCK20	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CCMT060204MF**	**3755531**	6,45	0,4	0,50	**1,20**	1,80	0,10	**0,20**	0,25
	CCMT09T304MF	**3755532**	9,67	0,4	0,50	**1,20**	2,00	0,12	**0,20**	0,30
	CCMT09T308MF	**3758173**	9,67	0,8	0,80	**2,00**	2,50	0,15	**0,25**	0,35
	CCMT09T312MF	**3755533**	9,67	1,2	1,00	**2,50**	3,00	0,20	**0,30**	0,40
	CCMT120408MF	**3758174**	12,90	0,8	0,80	**2,00**	3,50	0,15	**0,25**	0,35
	CCMT120412MF	**3755534**	12,90	1,2	1,00	**2,50**	4,00	0,20	**0,30**	0,40
	**DCMT11T304MF**	**3755538**	11,63	0,4	0,50	**1,10**	1,80	0,10	**0,15**	0,20
	DCMT11T308MF	**3755539**	11,63	0,8	0,80	**2,00**	2,30	0,12	**0,20**	0,25
	DCMT11T312MF	**3755540**	11,63	1,2	1,00	**2,00**	2,50	0,15	**0,25**	0,30
	**SCMT09T308MF**	**3755542**	9,53	0,8	0,80	**2,00**	2,50	0,15	**0,25**	0,35
	SCMT120408MF	**3755543**	12,70	0,8	0,80	**2,00**	3,50	0,15	**0,25**	0,35
	SCMT120412MF	**3755544**	12,70	1,2	1,00	**2,50**	4,00	0,20	**0,30**	0,40
	**TCMT110208MF**	**3755547**	11,00	0,8	0,80	**2,00**	2,00	0,10	**0,20**	0,30
	TCMT16T308MF	**3755548**	16,50	0,8	0,80	**2,00**	3,00	0,15	**0,25**	0,30
	TCMT16T312MF	**3755549**	16,50	1,2	1,00	**2,50**	3,50	0,20	**0,30**	0,35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A45


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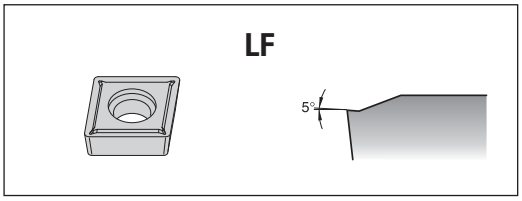
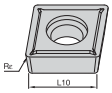
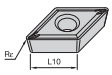
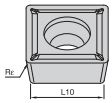
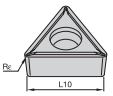
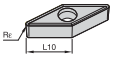
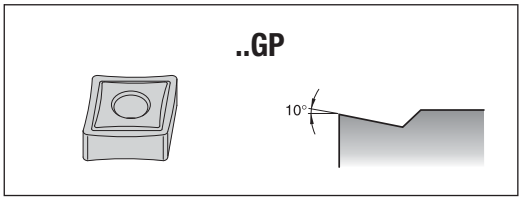
cutting conditions				
cutting speed (m/min) range	K1	230	**300**	550
	K2	150	**240**	420
	K3	150	**210**	350
carbide grade			KCK20	

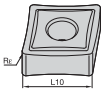
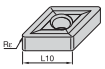
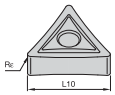
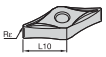


	ISO catalogue number	KCK20	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CCMT060204LF**	**3758167**	6,45	0,4	0,40	**0,80**	2,00	0,08	**0,15**	0,20
	CCMT09T304LF	**3758168**	9,67	0,4	0,40	**0,80**	2,00	0,08	**0,20**	0,30
	CCMT09T308LF	**3758169**	9,67	0,8	0,80	**1,50**	2,30	0,10	**0,20**	0,30
	CCMT120404LF	**3758170**	12,90	0,4	0,40	**0,80**	2,50	0,08	**0,20**	0,30
	CCMT120408LF	**3755481**	12,90	0,8	0,80	**1,50**	3,00	0,10	**0,25**	0,40
	**DCMT070204LF**	**3755486**	7,75	0,4	0,40	**0,90**	2,00	0,08	**0,15**	0,20
	DCMT11T304LF	**3758172**	11,63	0,4	0,40	**0,90**	2,00	0,08	**0,20**	0,30
	DCMT11T308LF	**3755487**	11,63	0,8	0,80	**2,00**	2,30	0,10	**0,20**	0,30
	**SCMT09T304LF**	**3755504**	9,53	0,4	0,40	**1,00**	2,00	0,08	**0,20**	0,30
	SCMT09T308LF	**3755505**	9,53	0,8	0,80	**2,00**	2,30	0,10	**0,20**	0,30
	SCMT120408LF	**3755507**	12,70	0,8	0,80	**2,00**	3,00	0,10	**0,25**	0,40
	SCMT120412LF	**3755508**	12,70	1,2	1,00	**2,50**	3,00	0,10	**0,25**	0,40
	**TCMT110204LF**	**3755511**	11,00	0,4	0,40	**1,00**	2,00	0,08	**0,20**	0,30
	TCMT16T308LF	**3755514**	16,50	0,8	0,80	**2,00**	2,30	0,10	**0,25**	0,35
	TCMT16T312LF	**3755515**	16,50	1,2	1,20	**3,00**	2,30	0,10	**0,25**	0,40
	**VBMT160408LF**	**3755526**	16,61	0,8	0,60	**1,20**	2,00	0,08	**0,15**	0,25
	VBMT160412LF	**3755527**	16,61	1,2	0,80	**1,50**	2,30	0,10	**0,20**	0,30

		
A39	A45	A48



cutting conditions				
cutting speed (m/min) range	N1–N2	125	**550**	1000
	N4	125	**275**	750
	N5	125	**170**	1200
	N6	100	**200**	500
	N8	100	**215**	500
carbide grade			**KC5410**	

	ISO catalogue number	KC5410	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CNGP120401**	**1785715**	12,90	0,1	0,10	**0,30**	1,00	0,05	**0,10**	0,12
	CNGP120402	**1785716**	12,90	0,2	0,20	**0,50**	1,80	0,10	**0,15**	0,20
	CNGP120404	**1785717**	12,90	0,4	0,30	**0,80**	2,80	0,28	**0,35**	0,45
	CNGP120408	**1785718**	12,90	0,8	0,50	**1,20**	3,20	0,30	**0,40**	0,50
	CNGP120412	**1785719**	12,90	1,2	0,80	**2,00**	3,50	0,30	**0,45**	0,55
	**DNGP150402**	**1560717**	15,50	0,2	0,20	**0,50**	1,80	0,10	**0,15**	0,20
	DNGP150404	**1785733**	15,50	0,4	0,30	**0,80**	2,80	0,28	**0,35**	0,45
	DNGP150408	**1785734**	15,50	0,8	0,50	**1,20**	3,20	0,30	**0,40**	0,50
	DNGP150604	**1785735**	15,50	0,4	0,30	**0,80**	2,80	0,28	**0,35**	0,45
	**TNGP160404**	**1785740**	16,50	0,4	0,30	**0,80**	2,80	0,28	**0,35**	0,45
	TNGP160408	**1785741**	16,50	0,8	0,50	**1,20**	3,20	0,30	**0,40**	0,50
	**VNGP160401**	**1785746**	16,61	0,1	0,10	**0,30**	1,00	0,05	**0,10**	0,10
	VNGP160402	**1785747**	16,61	0,2	0,20	**0,50**	1,80	0,10	**0,15**	0,20

cutting conditions				
cutting speed (m/min) range	N1–N2	125	**550**	1000
	N4	125	**275**	750
	N5	125	**170**	1200
	N6	100	**200**	500
	N8	100	**215**	500
carbide grade			KC5410	

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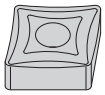
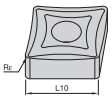
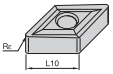
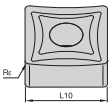
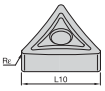
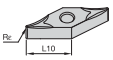


	ISO catalogue number	KC5410	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CNMS120408**	**1560797**	12,90	0,8	0,60	**1,50**	2,30	0,15	**0,30**	0,40
	CNMS160608	**1560799**	16,12	0,8	0,60	**1,50**	3,00	0,15	**0,30**	0,40
	CNMS190608	**1560801**	19,34	0,8	0,60	**1,50**	5,00	0,15	**0,30**	0,45
	**DNMS150408**	**1560803**	15,50	0,8	0,60	**1,50**	2,30	0,15	**0,30**	0,40
	**SNMS190612**	**1560808**	19,05	1,2	1,00	**2,50**	5,00	0,15	**0,30**	0,45
	**TNMS220408**	**1560829**	22,00	0,8	0,60	**1,50**	5,00	0,15	**0,30**	0,45
	**VNMS160404**	**1560833**	16,61	0,4	0,20	**0,50**	2,00	0,13	**0,25**	0,35
	VNMS160408	**1560834**	16,61	0,8	0,60	**1,50**	2,30	0,15	**0,30**	0,40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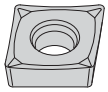
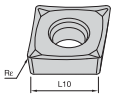
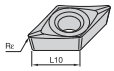
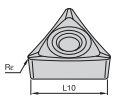
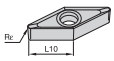
cutting conditions				
cutting speed (m/min) range	N1–N2	125	**550**	1000
	N4	125	**275**	750
	N5	125	**170**	1200
	N6	100	**200**	500
	N8	100	**215**	500
carbide grade			**KC5410**	

HP



	ISO catalogue number	KC5410	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CCGT060202HP**	**1560600**	6,45	0,2	0,20	**0,40**	1,00	0,05	**0,10**	0,15
	CCGT060204HP	**1560389**	6,45	0,4	0,40	**0,80**	1,80	0,08	**0,15**	0,30
	CCGT060208HP	**1623193**	6,45	0,8	0,60	**1,10**	2,00	0,10	**0,25**	0,40
	CCGT09T302HP	**1560390**	9,67	0,2	0,20	**0,40**	1,50	0,05	**0,10**	0,15
	CCGT09T304HP	**1560651**	9,67	0,4	0,40	**0,80**	2,00	0,08	**0,15**	0,30
	CCGT09T308HP	**1623194**	9,67	0,8	0,60	**1,10**	2,30	0,10	**0,25**	0,40
	CCGT120404HP	**1560653**	12,90	0,4	0,40	**0,80**	3,50	0,08	**0,15**	0,30
	CCGT120408HP	**1560655**	12,90	0,8	0,60	**1,10**	4,00	0,10	**0,25**	0,40
	**DCGT070202HP**	**1623200**	7,75	0,2	0,20	**0,40**	1,00	0,05	**0,10**	0,15
	DCGT070204HP	**1623271**	7,75	0,4	0,40	**0,80**	1,80	0,08	**0,15**	0,30
	DCGT070208HP	**1785753**	7,75	0,8	0,60	**1,10**	2,00	0,10	**0,25**	0,40
	DCGT11T302HP	**1560699**	11,63	0,2	0,20	**0,40**	1,50	0,05	**0,10**	0,15
	DCGT11T304HP	**1560714**	11,63	0,4	0,40	**0,80**	2,00	0,08	**0,15**	0,30
	DCGT11T308HP	**1560715**	11,63	0,8	0,60	**1,10**	2,30	0,10	**0,25**	0,40
	**TCGT110202HP**	**1623272**	11,00	0,2	0,20	**0,40**	1,00	0,05	**0,10**	0,15
	TCGT110204HP	**1623273**	11,00	0,4	0,40	**0,70**	1,80	0,08	**0,15**	0,30
	TCGT16T304HP	**1623274**	16,50	0,4	0,40	**0,70**	3,50	0,08	**0,15**	0,30
	TCGT16T308HP	**1623275**	16,50	0,8	0,60	**1,00**	4,00	0,10	**0,25**	0,40
	**VBGT110302HP**	**1910043**	11,07	0,2	0,20	**0,40**	1,00	0,05	**0,10**	0,15
	VBGT110304HP	**1910044**	11,07	0,4	0,40	**0,70**	1,80	0,08	**0,15**	0,30
	VBGT160404HP	**1623278**	16,61	0,4	0,40	**0,70**	3,50	0,08	**0,15**	0,30
	VBGT160408HP	**1623279**	16,61	0,8	0,60	**1,00**	4,00	0,10	**0,25**	0,40

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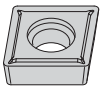
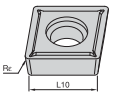
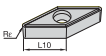
cutting conditions				
cutting speed (m/min) range	N1–N2	125	**550**	1000
	N4	125	**275**	750
	N5	125	**170**	1200
	N6	100	**200**	500
	N8	100	**215**	500
carbide grade			KC5410	

LF



	ISO catalogue number	KC5410	L10	Rε	ap min	starting value depth of cut (mm) ap	ap max	f/rev min	starting value feed rate (mm/rev) f/rev	f/rev max
	**CCGT09T304LF**	**1807220**	9,67	0,4	0,30	**0,60**	2,00	0,08	**0,20**	0,30
	**VBGT110301LF**	**1866757**	11,07	0,1	0,05	**0,15**	1,00	0,04	**0,05**	0,08
	VBGT160402LF	**1866761**	16,61	0,2	0,10	**0,20**	1,50	0,06	**0,10**	0,12
	VBGT160404LF	**1866762**	16,61	0,4	0,30	**0,60**	2,00	0,08	**0,15**	0,20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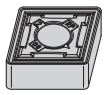
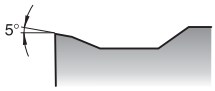
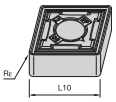
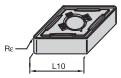
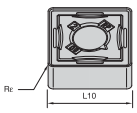
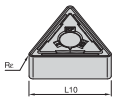
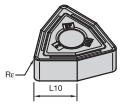
cutting conditions								
							
cutting speed (m/min) range	S1	15	**55**	140	10	**40**	60
	S2	15	**60**	140	10	**30**	75
	S3	15	**70**	140	15	**40**	75
	S4	15	**70**	170	15	**55**	105
carbide grade		**KCU10**			**KCU25**		

RP





	ISO catalogue number	KCU10	KCU25	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CNMG120404RP**	**4050682**	**4050453**	12,90	0,4	0,60	**2,00**	3,50	0,18	**0,30**	0,40
	CNMG120408RP	**4050689**	**4050057**	12,90	0,8	1,00	**3,00**	4,50	0,20	**0,45**	0,60
	CNMG120412RP	**4050695**	**4050456**	12,90	1,2	1,20	**3,50**	5,00	0,22	**0,50**	0,65
	CNMG120416RP	**4050699**	**4050459**	12,90	1,6	1,40	**4,00**	5,00	0,25	**0,50**	0,70
	CNMG160608RP	**4050701**	**4050461**	16,12	0,8	1,00	**3,00**	7,00	0,20	**0,45**	0,60
	CNMG160612RP	**4050704**	**4050463**	16,12	1,2	1,20	**3,50**	7,00	0,22	**0,50**	0,65
	CNMG160616RP	**–**	**4050465**	16,12	1,6	1,40	**4,00**	8,00	0,25	**0,50**	0,70
	CNMG190612RP	**4050712**	**4050468**	19,34	1,2	1,20	**3,50**	9,00	0,22	**0,50**	0,70
	CNMG190616RP	**4050714**	**4050470**	19,34	1,6	1,40	**4,00**	9,00	0,25	**0,60**	0,80
	**DNMG110408RP**	**4053374**	**4050478**	11,63	0,8	1,00	**2,50**	4,00	0,20	**0,40**	0,50
	DNMG150408RP	**4053387**	**4050482**	15,50	0,8	1,00	**2,50**	5,00	0,20	**0,45**	0,60
	DNMG150412RP	**4053391**	**4050485**	15,50	1,2	1,20	**3,00**	5,00	0,22	**0,50**	0,65
	DNMG150416RP	**4053393**	**–**	15,50	1,6	1,40	**3,50**	5,00	0,25	**0,50**	0,70
	DNMG150608RP	**4053403**	**4050488**	15,50	0,8	1,00	**2,50**	5,00	0,20	**0,45**	0,60
	DNMG150612RP	**4053407**	**4050490**	15,50	1,2	1,20	**3,00**	5,00	0,22	**0,50**	0,65
	DNMG150616RP	**–**	**4050491**	15,50	1,6	1,40	**3,50**	5,00	0,25	**0,50**	0,70
	**SNMG120408RP**	**5062108**	**4121684**	12,70	0,8	1,00	**3,00**	6,00	0,20	**0,45**	0,60
	SNMG120412RP	**5062111**	**4050518**	12,70	1,2	1,20	**3,50**	6,00	0,22	**0,50**	0,65
	SNMG120416RP	**5090763**	**–**	12,70	1,6	1,40	**4,00**	6,00	0,25	**0,50**	0,70
	SNMG150612RP	**5062113**	**4050519**	15,88	1,2	1,20	**3,50**	7,00	0,22	**0,55**	0,75
	SNMG150616RP	**–**	**4121688**	15,88	1,6	1,40	**4,00**	7,00	0,25	**0,60**	0,80
	SNMG190612RP	**5062117**	**4050520**	19,05	1,2	1,20	**3,50**	9,00	0,22	**0,60**	0,85
	SNMG190616RP	**5062120**	**4121690**	19,05	1,6	1,40	**4,00**	9,00	0,25	**0,65**	0,90
	**TNMG160408RP**	**5062137**	**4121698**	16,50	0,8	1,00	**3,00**	6,00	0,20	**0,45**	0,60
	TNMG160412RP	**–**	**4121699**	16,50	1,2	1,20	**3,50**	6,00	0,22	**0,50**	0,65
	TNMG220408RP	**5062142**	**4121702**	22,00	0,8	1,00	**3,00**	7,50	0,20	**0,45**	0,65
	TNMG220412RP	**5062145**	**4121704**	22,00	1,2	1,20	**3,50**	7,50	0,22	**0,50**	0,70
	TNMG220416RP	**–**	**4121705**	22,00	1,6	1,40	**4,00**	7,50	0,25	**0,55**	0,75
	TNMG270612RP	**5062147**	**–**	27,50	1,2	1,20	**3,50**	9,00	0,22	**0,50**	0,70
	TNMG270616RP	**6353749**	**–**	27,50	1,6	1,40	**4,00**	9,00	0,25	**0,55**	0,75
	TNMG330924RP	**5062148**	**–**	33,00	2,4	2,00	**6,00**	13,00	0,30	**0,65**	0,90
	**VNMG160408RP**	**4045167**	**4121716**	16,61	0,8	1,00	**2,00**	3,50	0,20	**0,40**	0,50
	VNMG160412RP	**5090857**	**4121717**	16,61	1,2	1,20	**2,50**	3,50	0,22	**0,40**	0,50
	**WNMG060408RP**	**4045178**	**4121721**	6,52	0,8	1,00	**3,00**	4,00	0,20	**0,40**	0,50
	WNMG080408RP	**4045185**	**4121725**	8,69	0,8	1,00	**3,00**	5,00	0,20	**0,45**	0,60
	WNMG080412RP	**4045188**	**4121726**	8,69	1,2	1,20	**3,50**	5,00	0,22	**0,50**	0,65
	WNMG080416RP	**–**	**4121727**	8,69	1,6	1,40	**4,00**	5,00	0,25	**0,50**	0,70

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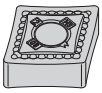
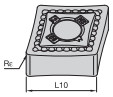
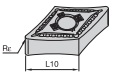
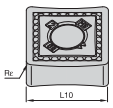
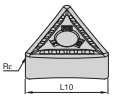
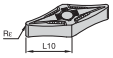
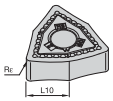
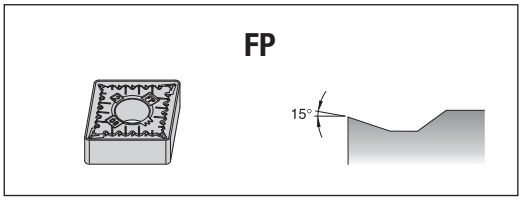
cutting conditions							
cutting speed (m/min) range	S1	15	**55**	140	10	**40**	60
	S2	15	**60**	140	10	**30**	75
	S3	15	**70**	140	15	**40**	75
	S4	15	**70**	170	15	**55**	105
carbide grade		**KCU10**			**KCU25**		

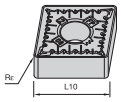
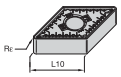
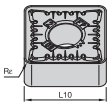
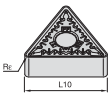
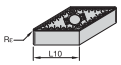
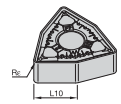
MS



	ISO catalogue number	KCU10	KCU25	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CNMG120401MS**	**5090495**	**–**	12,90	0,1	0,15	**0,30**	1,00	0,05	**0,10**	0,12
	CNMG120402MS	**5090494**	**4050399**	12,90	0,2	0,30	**0,60**	1,50	0,08	**0,15**	0,20
	CNMG120404MS	**5090496**	**4050402**	12,90	0,4	0,40	**0,80**	3,00	0,10	**0,20**	0,30
	CNMG120408MS	**5090497**	**4050454**	12,90	0,8	0,60	**1,20**	4,00	0,12	**0,25**	0,35
	CNMG120412MS	**5090498**	**4050455**	12,90	1,2	1,00	**2,00**	5,00	0,12	**0,25**	0,40
	CNMG120416MS	**5090499**	**4050458**	12,90	1,6	1,20	**2,50**	5,00	0,14	**0,25**	0,40
	CNMG160608MS	**5090680**	**4050460**	16,12	0,8	0,60	**1,20**	7,00	0,12	**0,30**	0,45
	CNMG160612MS	**5090681**	**4050462**	16,12	1,2	1,00	**2,00**	7,00	0,14	**0,30**	0,45
	CNMG190608MS	**5090682**	**4050466**	19,34	0,8	1,00	**2,00**	9,00	0,12	**0,30**	0,45
	CNMG190612MS	**5531238**	**5062149**	19,34	1,2	1,20	**2,50**	9,00	0,12	**0,30**	0,50
	CNMG190616MS	**5090684**	**4050469**	19,34	1,6	1,40	**2,50**	9,00	0,14	**0,30**	0,50
	**DNMG110408MS**	**5090685**	**4050477**	11,63	0,8	0,60	**1,20**	3,50	0,12	**0,25**	0,35
	DNMG150401MS	**5090687**	**–**	15,50	0,1	0,15	**0,30**	1,00	0,05	**0,10**	0,12
	DNMG150402MS	**5090686**	**4050479**	15,50	0,2	0,30	**0,60**	2,00	0,08	**0,15**	0,20
	DNMG150404MS	**5090688**	**4050480**	15,50	0,4	0,40	**0,80**	3,00	0,10	**0,20**	0,30
	DNMG150408MS	**5090689**	**4050481**	15,50	0,8	0,60	**1,20**	4,00	0,12	**0,25**	0,35
	DNMG150412MS	**5090740**	**4050484**	15,50	1,2	1,00	**2,00**	5,00	0,12	**0,25**	0,40
	DNMG150604MS	**5090741**	**4050486**	15,50	0,4	0,40	**0,80**	3,00	0,10	**0,20**	0,30
	DNMG150608MS	**5090742**	**4050487**	15,50	0,8	0,80	**1,50**	4,00	0,12	**0,25**	0,35
	DNMG150612MS	**5090743**	**4050489**	15,50	1,2	1,00	**2,00**	5,00	0,12	**0,25**	0,40
	**SNMG120408MS**	**5090760**	**4121683**	12,70	0,8	0,80	**2,50**	4,00	0,12	**0,25**	0,35
	SNMG120412MS	**5090761**	**4121685**	12,70	1,2	1,00	**3,00**	5,00	0,12	**0,25**	0,40
	SNMG150608MS	**–**	**4121686**	15,88	0,8	1,00	**3,00**	7,00	0,12	**0,30**	0,45
	SNMG150612MS	**–**	**4121687**	15,88	1,2	1,20	**3,50**	7,00	0,14	**0,30**	0,45
	SNMG190612MS	**–**	**4121689**	19,05	1,2	1,10	**3,00**	9,00	0,12	**0,30**	0,50
	**TNMG160402MS**	**5090767**	**4121695**	16,50	0,2	0,30	**0,90**	2,00	0,08	**0,15**	0,20
	TNMG160404MS	**5090768**	**4121696**	16,50	0,4	0,40	**1,20**	3,00	0,10	**0,20**	0,30
	TNMG160408MS	**5090769**	**4121697**	16,50	0,8	0,80	**2,50**	4,00	0,12	**0,25**	0,35
	TNMG220404MS	**5090810**	**4121700**	22,00	0,4	0,40	**1,20**	8,00	0,10	**0,25**	0,40
	TNMG220408MS	**5090811**	**4121701**	22,00	0,8	0,80	**2,50**	9,00	0,12	**0,30**	0,45
	TNMG220412MS	**5090812**	**4121703**	22,00	1,2	1,00	**3,00**	9,00	0,12	**0,30**	0,50
	TNMG270608MS	**–**	**4121706**	27,50	0,8	0,80	**2,50**	11,00	0,12	**0,30**	0,50
	**VNMG160401MS**	**5090852**	**4121713**	16,61	0,1	0,15	**0,40**	1,00	0,05	**0,10**	0,12
	VNMG160402MS	**5090851**	**4121712**	16,61	0,2	0,30	**0,70**	2,00	0,08	**0,15**	0,20
	VNMG160404MS	**5090853**	**4121714**	16,61	0,4	0,40	**0,90**	3,00	0,10	**0,20**	0,30
	VNMG160408MS	**5090854**	**4121715**	16,61	0,8	0,80	**2,00**	4,00	0,12	**0,25**	0,35
	VNMG220404MS	**5090855**	**4121718**	22,14	0,4	0,40	**0,90**	8,00	0,10	**0,25**	0,40
	VNMG220408MS	**5090856**	**4121719**	22,14	0,8	0,80	**2,00**	9,00	0,12	**0,30**	0,45
	**WNMG060408MS**	**5090890**	**4121720**	6,52	0,8	0,80	**2,50**	3,00	0,12	**0,20**	0,30
	WNMG080401MS	**5090892**	**–**	8,69	0,1	0,15	**0,50**	1,00	0,05	**0,10**	0,12
	WNMG080402MS	**5090891**	**4121722**	8,69	0,2	0,30	**0,90**	2,00	0,08	**0,15**	0,20
	WNMG080404MS	**5090893**	**4121723**	8,69	0,4	0,40	**1,20**	3,00	0,10	**0,20**	0,30
	WNMG080408MS	**5090894**	**4121724**	8,69	0,8	0,80	**2,50**	4,00	0,12	**0,25**	0,35

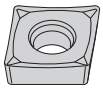


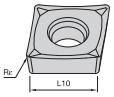
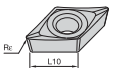
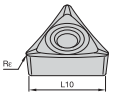
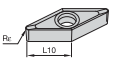
cutting conditions				
cutting speed (m/min) range	S1	15	**55**	140
	S2	15	**60**	140
	S3	15	**70**	140
	S4	15	**70**	170
carbide grade			**KCU10**	

	ISO catalogue number	KCU10	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CNMG120404FP**	**4171824**	12,90	0,4	0,20	**0,50**	2,00	0,08	**0,15**	0,25
	CNMG120408FP	**4050061**	12,90	0,8	0,40	**1,00**	2,50	0,10	**0,20**	0,30
	CNMG120412FP	**4050062**	12,90	1,2	0,50	**1,20**	2,50	0,12	**0,25**	0,35
	**DNMG110404FP**	**4171826**	11,63	0,4	0,20	**0,50**	2,00	0,08	**0,15**	0,25
	DNMG110408FP	**4050743**	11,63	0,8	0,40	**1,00**	2,50	0,10	**0,20**	0,30
	DNMG150404FP	**4171827**	15,50	0,4	0,20	**0,50**	2,50	0,08	**0,15**	0,25
	DNMG150408FP	**4171828**	15,50	0,8	0,40	**1,00**	3,00	0,10	**0,20**	0,30
	DNMG150412FP	**4171829**	15,50	1,2	0,50	**1,20**	3,50	0,12	**0,25**	0,35
	DNMG150604FP	**4171830**	15,50	0,4	0,20	**0,50**	2,50	0,08	**0,15**	0,25
	DNMG150608FP	**4171831**	15,50	0,8	0,40	**1,00**	3,00	0,10	**0,20**	0,30
	**SNMG120404FP**	**4171835**	12,70	0,4	0,20	**0,50**	2,00	0,08	**0,15**	0,25
	SNMG120408FP	**4171836**	12,70	0,8	0,40	**1,00**	2,50	0,10	**0,20**	0,30
	**TNMG160404FP**	**4171838**	16,50	0,4	0,20	**0,50**	2,50	0,08	**0,15**	0,25
	TNMG160408FP	**4171839**	16,50	0,8	0,40	**1,00**	3,00	0,10	**0,20**	0,30
	TNMG160412FP	**4171840**	16,50	1,2	0,50	**1,20**	3,50	0,12	**0,25**	0,35
	TNMG220404FP	**4171841**	22,00	0,4	0,20	**0,50**	3,00	0,08	**0,15**	0,25
	TNMG220408FP	**4171842**	22,00	0,8	0,40	**1,00**	5,00	0,10	**0,20**	0,30
	**VNMG160404FP**	**4171843**	16,61	0,4	0,20	**0,40**	2,00	0,08	**0,15**	0,25
	VNMG160408FP	**4171844**	16,61	0,8	0,30	**0,60**	2,50	0,10	**0,20**	0,30
	**WNMG060404FP**	**4050746**	6,52	0,4	0,20	**0,50**	2,00	0,08	**0,15**	0,25
	WNMG080404FP	**4171849**	8,69	0,4	0,20	**0,50**	2,00	0,08	**0,15**	0,25
	WNMG080408FP	**4171851**	8,69	0,8	0,40	**1,00**	2,50	0,10	**0,20**	0,30

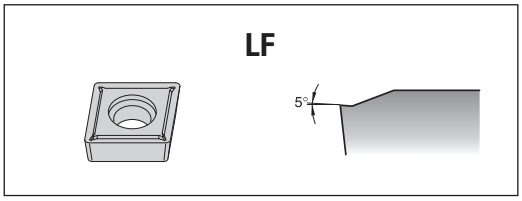
cutting conditions								
							
cutting speed (m/min) range	S1	15	**55**	140	10	**40**	60
	S2	15	**60**	140	10	**30**	75
	S3	15	**70**	140	15	**40**	75
	S4	15	**70**	170	15	**55**	105
carbide grade		KCU10			KCU25		

HP

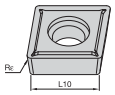
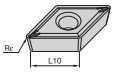
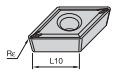
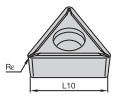
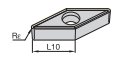


	ISO catalogue number	KCU10	KCU25	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CCGT060202HP**	**4045134**	**4050372**	6,45	0,2	0,20	**0,40**	1,00	0,05	**0,10**	0,15
	CCGT060204HP	**4045137**	**4050403**	6,45	0,4	0,40	**0,80**	1,80	0,08	**0,15**	0,30
	CCGT060208HP	**–**	**4050404**	6,45	0,8	0,60	**1,10**	2,00	0,10	**0,25**	0,40
	CCGT09T302HP	**4045141**	**4050405**	9,67	0,2	0,20	**0,40**	1,50	0,05	**0,10**	0,15
	CCGT09T304HP	**4045194**	**4050406**	9,67	0,4	0,40	**0,80**	2,00	0,08	**0,15**	0,30
	CCGT09T308HP	**4045196**	**4050407**	9,67	0,8	0,60	**1,10**	2,30	0,10	**0,25**	0,40
	CCGT120402HP	**4045198**	**4050408**	12,90	0,2	0,20	**0,40**	2,00	0,05	**0,10**	0,15
	CCGT120404HP	**4045199**	**–**	12,90	0,4	0,40	**0,80**	3,50	0,08	**0,15**	0,30
	CCGT120408HP	**4045200**	**–**	12,90	0,8	0,60	**1,10**	4,00	0,10	**0,25**	0,40
	**DCGT070202HP**	**4045237**	**4050421**	7,75	0,2	0,20	**0,40**	1,00	0,05	**0,10**	0,15
	DCGT070204HP	**4045239**	**4050422**	7,75	0,4	0,40	**0,80**	1,80	0,08	**0,15**	0,30
	DCGT070208HP	**4045240**	**–**	7,75	0,8	0,60	**1,10**	2,00	0,10	**0,25**	0,40
	DCGT11T302HP	**4045241**	**4050424**	11,63	0,2	0,20	**0,40**	1,50	0,05	**0,10**	0,15
	DCGT11T304HP	**4045263**	**4050425**	11,63	0,4	0,40	**0,80**	2,00	0,08	**0,15**	0,30
	DCGT11T308HP	**4045264**	**4050426**	11,63	0,8	0,60	**1,10**	2,30	0,10	**0,25**	0,40
	**TCGT110202HP**	**–**	**4050434**	11,00	0,2	0,20	**0,40**	1,00	0,05	**0,10**	0,15
	TCGT110204HP	**–**	**4050435**	11,00	0,4	0,40	**0,70**	1,80	0,08	**0,15**	0,30
	TCGT16T302HP	**–**	**4050437**	16,50	0,2	0,20	**0,40**	2,00	0,05	**0,10**	0,15
	TCGT16T304HP	**4045316**	**–**	16,50	0,4	0,40	**0,70**	3,50	0,08	**0,15**	0,30
	TCGT16T308HP	**4045318**	**–**	16,50	0,8	0,60	**1,00**	4,00	0,10	**0,25**	0,40
	**VBGT110302HP**	**4045335**	**–**	11,07	0,2	0,20	**0,40**	1,00	0,05	**0,10**	0,15
	VBGT110304HP	**4045338**	**4050447**	11,07	0,4	0,40	**0,70**	1,80	0,08	**0,15**	0,30
	VBGT160404HP	**4045342**	**4050448**	16,61	0,4	0,40	**0,70**	3,50	0,08	**0,15**	0,30
	VBGT160408HP	**4045344**	**4050449**	16,61	0,8	0,60	**1,00**	4,00	0,10	**0,25**	0,40

		
A39	A45	A48



cutting conditions				
cutting speed (m/min) range	S1	15	**55**	140
	S2	15	**60**	140
	S3	15	**70**	140
	S4	15	**70**	170
carbide grade			**KCU10**	

	ISO catalogue number	KCU10	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CCGT060201LF**	**4045136**	6,45	0,1	0,05	**0,15**	1,00	0,04	**0,05**	0,08
	CCGT060202LF	**4045135**	6,45	0,2	0,10	**0,20**	1,50	0,06	**0,10**	0,12
	CCGT060204LF	**4045138**	6,45	0,4	0,30	**0,60**	2,00	0,08	**0,15**	0,20
	CCGT060208LF	**4045140**	6,45	0,8	0,60	**1,10**	2,30	0,10	**0,20**	0,30
	CCGT09T301LF	**4045193**	9,67	0,1	0,08	**0,20**	1,00	0,04	**0,05**	0,08
	CCGT09T302LF	**4045142**	9,67	0,2	0,18	**0,40**	1,50	0,06	**0,10**	0,12
	CCGT09T304LF	**4045195**	9,67	0,4	0,30	**0,60**	2,00	0,08	**0,20**	0,30
	CCGT09T308LF	**4045197**	9,67	0,8	0,60	**1,10**	2,30	0,10	**0,25**	0,40
	**DCGT070201LF**	**4045238**	7,75	0,1	0,05	**0,10**	1,00	0,04	**0,05**	0,08
	DCGT11T301LF	**4045242**	11,63	0,1	0,05	**0,10**	1,00	0,04	**0,05**	0,08
	**DCMT11T308LF**	**4045269**	11,63	0,8	0,80	**2,00**	2,30	0,10	**0,20**	0,30
	**TCGT110204LF**	**4044822**	11,00	0,4	0,30	**0,60**	2,00	0,08	**0,20**	0,30
	TCGT16T304LF	**4045317**	16,50	0,4	0,30	**0,60**	2,00	0,08	**0,20**	0,30
	TCGT16T308LF	**4045319**	16,50	0,8	0,60	**1,10**	2,30	0,10	**0,25**	0,40
	**VBGT110301LF**	**4045337**	11,07	0,1	0,05	**0,15**	1,00	0,04	**0,05**	0,08
	VBGT110302LF	**4045336**	11,07	0,2	0,10	**0,20**	1,50	0,06	**0,10**	0,12
	VBGT110304LF	**4045339**	11,07	0,4	0,30	**0,60**	2,00	0,08	**0,15**	0,20
	VBGT160401LF	**4045341**	16,61	0,1	0,05	**0,15**	1,00	0,04	**0,05**	0,08
	VBGT160402LF	**4045340**	16,61	0,2	0,10	**0,20**	1,50	0,06	**0,10**	0,12
	VBGT160404LF	**4045343**	16,61	0,4	0,30	**0,60**	2,00	0,08	**0,15**	0,20

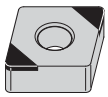
TURNING
FIRST CHOICE
MILLING
FIRST CHOICE
HOLEMAKING
FIRST CHOICE
TOOLING SYSTEMS
FIRST CHOICE


A39


A45


A48

cutting conditions				
cutting speed (m/min) range	H1	120	**180**	260
	H2	120	**180**	260
	H3	80	**120**	180
	H4	80	**120**	180
PcBN grade			KBH20	

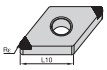
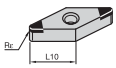


Edge Preparation Details:

..S01015/..S0415:
Light machining and finishing, smooth cuts only

..S01225/..S0525: Medium machining:
From smooth cut to light interrupted cutting conditions

..FW..: Wiper Geometry

	ISO catalogue number	KBH20	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CNGA120408S01225MT**	**5330699**	12,90	0,8	0,10	**0,30**	0,50	0,10	**0,15**	0,20
	CNGA120412S01225MT	**5330833**	12,90	1,2	0,12	**0,30**	0,40	0,10	**0,15**	0,24
	**CNGA120408S01015FWMT**	**5330832**	12,90	0,8	0,10	**0,20**	0,50	0,10	**0,15**	0,20
	CNGA120412S01015FWMT	**5330836**	12,90	1,2	0,10	**0,20**	0,50	0,10	**0,15**	0,20
	**DNGA150608S01225MT**	**5330850**	15,50	0,8	0,12	**0,30**	0,40	0,10	**0,15**	0,20
	DNGA150612S01015MT	**5330854**	15,50	1,2	0,10	**0,30**	0,40	0,10	**0,15**	0,20
	**VNGA160412S01225MT**	**5330873**	16,61	1,2	0,10	**0,30**	0,40	0,10	**0,15**	0,20


A30


A35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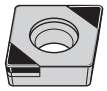
cutting conditions				
cutting speed (m/min) range	H1	120	**180**	260
	H2	120	**180**	260
	H3	80	**120**	180
	H4	80	**120**	180
PcBN grade			**KBH20**	

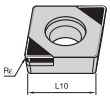
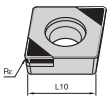


Edge Preparation Details:

..S01015/..S0415:
Light machining and finishing, smooth cuts only

..S01225/..S0525: Medium machining:
From smooth cut to light interrupted cutting conditions

..FW..: Wiper Geometry

	ISO catalogue number	KBH20	L10	Rε	ap min	starting value depth of cut (mm)	ap max	f/rev min	starting value feed rate (mm/rev)	f/rev max
	**CCGW09T304S01015FWMT**	**5330136**	9,67	0,4	0,08	**0,20**	0,25	0,08	**0,10**	0,15
	CCGW09T308S01015FWMT	**5330139**	9,67	0,8	0,10	**0,20**	0,30	0,08	**0,15**	0,20
	**CCGW09T308S01015MT**	**5330138**	9,67	0,8	0,10	**0,20**	0,30	0,08	**0,15**	0,18
	CCGW09T308S01225MT	**5330137**	9,67	0,8	0,12	**0,30**	0,40	0,08	**0,15**	0,20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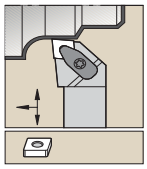
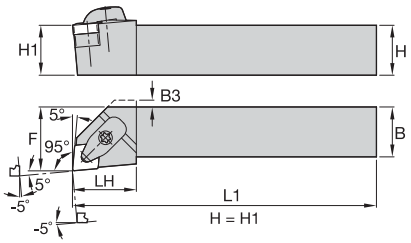
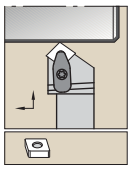
A48

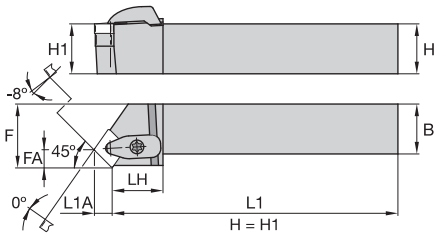




DCLN-KC 95°

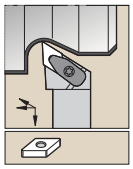
order number	catalogue number	H	B	F	L1	LH	B3	gage insert	shim	shim screw	Torx Plus	clamp assembly	Torx Plus	slotted pin	optional lock pin
right hand															
1875199	**DCLNR2020K12KC04**	20	20	25,0	125	32,0	4,0	CN..120408	**ICSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM4615IP**
1875193	**DCLNR2525M12KC04**	25	25	32,0	150	32,0	—	CN..120408	**ICSN443**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM46L15IP**
1875212	**DCLNR2525M16KC06**	25	25	32,0	150	33,0	—	CN..160612	**ICSN543**	**KMSP515IP**	15 IP	**CM209R ASSY**	15 IP	**SSP025016M**	**KLM58L15IP**
1875223	**DCLNR3225P12KC04**	32	25	32,0	170	32,0	—	CN..120408	**ICSN443**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM46L15IP**
1875224	**DCLNR3232P16KC06**	32	32	40,0	170	33,0	—	CN..160612	**ICSN543**	**KMSP515IP**	15 IP	**CM209R ASSY**	15 IP	**SSP025016M**	**KLM58L15IP**
2273091	**DCLNR3232P19KC06**	32	32	40,0	170	40,0	—	CN..190612	**ICSN643**	**KMSP625IP**	25 IP	**CM210R ASSY**	25 IP	**SSP025016M**	**KLM68L25IP**
left hand															
1875194	**DCLNL2020K12KC04**	20	20	25,0	125	32,0	4,0	CN..120408	**ICSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM4615IP**
1875196	**DCLNL2525M12KC04**	25	25	32,0	150	32,0	—	CN..120408	**ICSN443**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM46L15IP**
1875205	**DCLNL2525M16KC06**	25	25	32,0	150	33,0	—	CN..160612	**ICSN543**	**KMSP515IP**	15 IP	**CM209R ASSY**	15 IP	**SSP025016M**	**KLM58L15IP**
1875231	**DCLNL3225P12KC04**	32	25	32,0	170	32,0	—	CN..120408	**ICSN443**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM46L15IP**
1875230	**DCLNL3225P16KC06**	32	25	32,0	170	33,0	—	CN..160612	**ICSN543**	**KMSP515IP**	15 IP	**CM209R ASSY**	15 IP	**SSP025016M**	**KLM58L15IP**
1875225	**DCLNL3232P16KC06**	32	32	40,0	170	33,0	—	CN..160612	**ICSN543**	**KMSP515IP**	15 IP	**CM209R ASSY**	15 IP	**SSP025016M**	**KLM58L15IP**
2273093	**DCLNL3232P19KC06**	32	32	40,0	170	40,0	—	CN..190612	**ICSN643**	**KMSP625IP**	25 IP	**CM210R ASSY**	25 IP	**SSP025016M**	**KLM68L25IP**

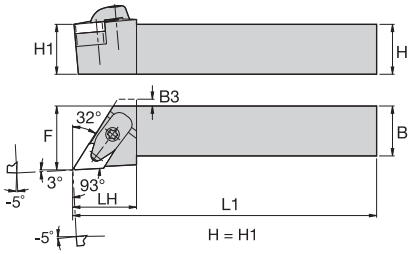


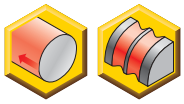


DCSN-KC 45°

order number	catalogue number	H	B	F	L1	LH	FA	L1A	gage insert	shim	shim screw	Torx Plus	clamp assembly	Torx Plus	slotted pin	optional lock pin
right hand																
2273102	**DCSNR2525M12KC04**	25	25	32,0	150	35,0	8,2	8,5	CN..120408	**ICSN443**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM46L15IP**

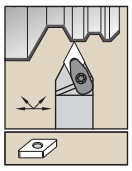


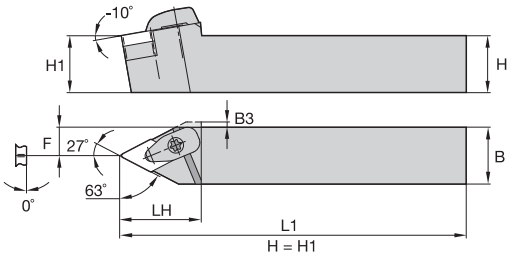


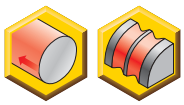


DDJN-KC 93°

order number	catalogue number	H	B	F	L1	LH	B3	gage insert	shim	shim screw	Torx Plus	clamp assembly	Torx Plus	slotted pin	optional lock pin
right hand															
2273105	**DDJNR2020K11KC04**	20	20	25,0	125	30,0	2,0	DN..110408	**IDSN322**	**KMSP315IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM34L9IP**
1875197	**DDJNR2020K15KC06**	20	20	25,0	125	32,0	4,0	DN..150608	**IDSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM46L15IP**
2273106	**DDJNR2525M11KC04**	25	25	32,0	150	30,0	—	DN..110408	**IDSN322**	**KMSP315IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM34L9IP**
1875191	**DDJNR2525M15KC06**	25	25	32,0	150	32,0	—	DN..150608	**IDSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM46L15IP**
1875208	**DDJNR3225P15KC06**	32	25	32,0	170	32,0	—	DN..150608	**IDSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM46L15IP**
1875227	**DDJNR3232P15KC06**	32	32	40,0	170	32,0	—	DN..150608	**IDSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM46L15IP**
left hand															
2273107	**DDJNL2020K11KC04**	20	20	25,0	125	30,0	2,0	DN..110408	**IDSN322**	**KMSP315IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM34L9IP**
1875198	**DDJNL2020K15KC06**	20	20	25,0	125	32,0	4,0	DN..150608	**IDSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM46L15IP**
2273108	**DDJNL2525M11KC04**	25	25	32,0	150	30,0	—	DN..110408	**IDSN322**	**KMSP315IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM34L9IP**
1875192	**DDJNL2525M15KC06**	25	25	32,0	150	32,0	—	DN..150608	**IDSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM46L15IP**
1875207	**DDJNL3225P15KC06**	32	25	32,0	170	32,0	—	DN..150608	**IDSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM46L15IP**
1875209	**DDJNL3232P15KC06**	32	32	40,0	171	32,0	—	DN..150608	**IDSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM46L15IP**

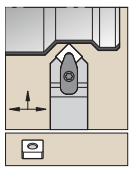


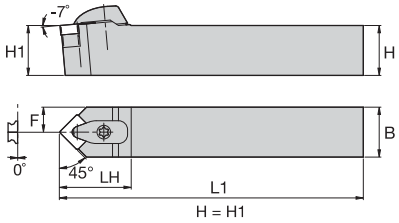


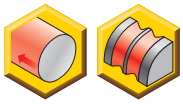


DDNN-KC 63°

order number	catalogue number	H	B	F	L1	LH	B3	gage insert	shim	shim screw	Torx Plus	clamp assembly	Torx Plus	slotted pin	optional lock pin
right hand															
2273111	**DDNNR2020K15KC06**	20	20	10,0	125	40,0	2,5	DN..150608	**IDSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM46L15IP**
2273112	**DDNNR2525M15KC06**	25	25	13,0	150	40,0	—	DN..150608	**IDSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM46L15IP**

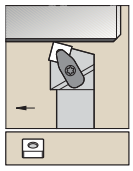


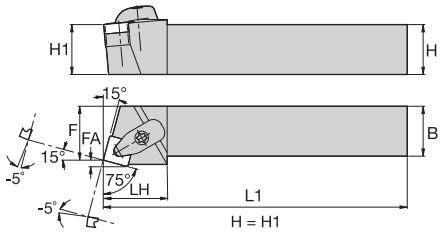




DSDN-KC 45°

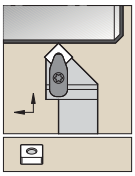
order number	catalogue number	H	B	F	L1	LH	gage insert	shim	shim screw	Torx Plus	clamp assembly	Torx Plus	slotted pin	optional lock pin
1875211	**DSDNN2525M12KC04**	25	25	12,0	150	36,0	SN..120408	**ISSN443**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM46L15IP**
1875216	**DSDNN2525M15KC06**	25	25	12,0	150	42,0	SN..150612	**ISSN543**	**KMSP515IP**	15 IP	**CM209R ASSY**	15 IP	**SSP025016M**	**KLM58L15IP**
2273139	**DSDNN3232P19KC06**	32	32	15,5	170	44,0	SN..190612	**ISSN643**	**KMSP625IP**	25 IP	**CM210R ASSY**	25 IP	**SSP025016M**	**KLM68L25IP**

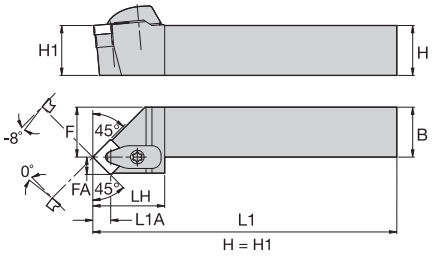




DSRN-KC 75°

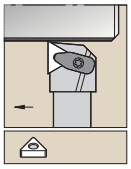
order number	catalogue number	H	B	F	L1	LH	FA	gage insert	shim	shim screw	Torx Plus	clamp assembly	Torx Plus	slotted pin	optional lock pin
right hand															
1875228	**DSRNR2525M12KC04**	25	25	27,0	150	32,0	3,3	SN..120408	**ISSN443**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM46L15IP**

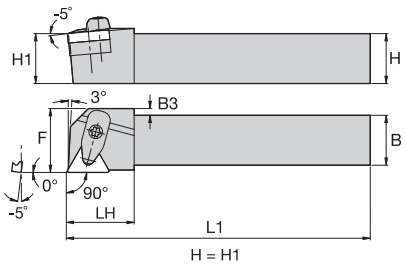




DSSN-KC 45°

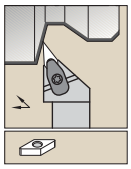
order number	catalogue number	H	B	F	L1	LH	FA	L1A	gage insert	shim	shim screw	Torx Plus	clamp assembly	Torx Plus	slotted pin	optional lock pin
right hand																
1875195	**DSSNR2525M12KC04**	25	25	32,0	150	36,0	8,4	9,6	SN..120408	**ISSN443**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM46L15IP**
left hand																
1875203	**DSSNL2525M12KC04**	25	25	32,0	150	36,0	8,4	8,7	SN..120408	**ISSN443**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM46L15IP**

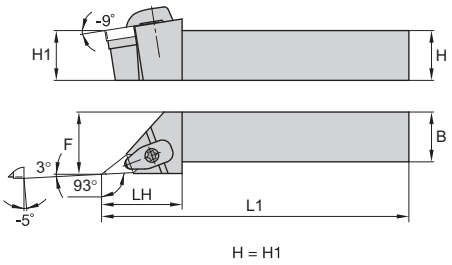


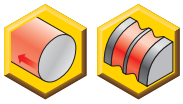


DTGN-KC 90°

order number	catalogue number	H	B	F	L1	LH	B3	gage insert	shim	shim screw	Torx Plus	clamp assembly	Torx Plus	slotted pin	optional lock pin
right hand															
2273441	**DTGNR2525M16KC04**	25	25	32,0	150	25,0	–	TN..160408	**ITSN323**	**KMSP315IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM34L9IP**
left hand															
1875234	**DTGNL2525M22KC04**	25	25	32,0	150	32,0	3,0	TN..220408	**ITSN443**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM46L15IP**





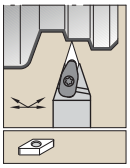


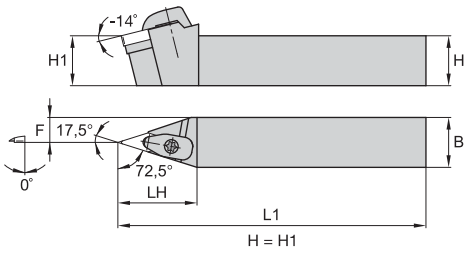
DVJN-KC 93°





order number	catalogue number	H	B	F	L1	LH	gage insert	shim	shim screw	Torx Plus	clamp assembly	Torx Plus	slotted pin	optional lock pin
right hand														
2439399	**DVJNR2020K16KC04**	20	20	25,0	125	46,0	VN..160408	**IVSN322**	**KMSP315IP**	15 IP	**CM215R ASSY**	15 IP	**SSP025016M**	**KLM34L9IP**
2439401	**DVJNR2525M16KC04**	25	25	32,0	150	46,0	VN..160408	**IVSN322**	**KMSP315IP**	15 IP	**CM215R ASSY**	15 IP	**SSP025016M**	**KLM34L9IP**
2439443	**DVJNR3225P16KC04**	32	25	32,0	170	46,0	VN..160408	**IVSN322**	**KMSP315IP**	15 IP	**CM215R ASSY**	15 IP	**SSP025016M**	**KLM34L9IP**
left hand														
2439400	**DVJNL2020K16KC04**	20	20	25,0	125	46,0	VN..160408	**IVSN322**	**KMSP315IP**	15 IP	**CM215R ASSY**	15 IP	**SSP025016M**	**KLM34L9IP**
2439402	**DVJNL2525M16KC04**	25	25	32,0	150	46,0	VN..160408	**IVSN322**	**KMSP315IP**	15 IP	**CM215R ASSY**	15 IP	**SSP025016M**	**KLM34L9IP**
2439444	**DVJNL3225P16KC04**	32	25	32,0	170	46,0	VN..160408	**IVSN322**	**KMSP315IP**	15 IP	**CM215R ASSY**	15 IP	**SSP025016M**	**KLM34L9IP**



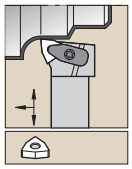


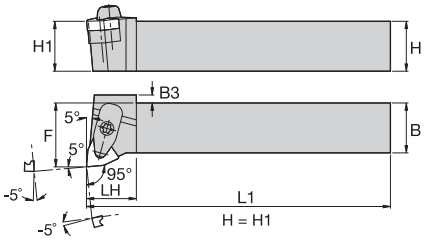
DVVN-KC 72,5°





order number	catalogue number	H	B	F	L1	LH	gage insert	shim	shim screw	Torx Plus	clamp assembly	Torx Plus	slotted pin	optional lock pin
2439455	**DVVNN2020K16KC04**	20	20	10,0	150	48,0	VN..160408	**IVSN322**	**KMSP315IP**	15 IP	**CM215R ASSY**	15 IP	**SSP025016M**	**KLM34L9IP**
2439456	**DVVNN2525M16KC04**	25	25	12,0	150	48,0	VN..160408	**IVSN322**	**KMSP315IP**	15 IP	**CM215R ASSY**	15 IP	**SSP025016M**	**KLM34L9IP**

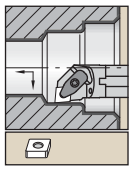




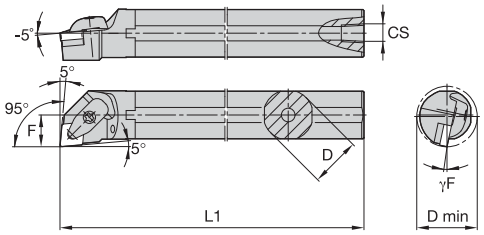
DWLN-KC 95°

order number	catalogue number	H	B	F	L1	LH	B3	gage insert	shim	shim screw	Torx Plus	clamp assembly	Torx Plus	slotted pin	optional lock pin
right hand															
2439476	**DWLNR2020K06KC04**	20	20	25,0	125	31,0	—	WN..060408	**IWSN322**	**KMSP315IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM34L9IP**
2439471	**DWLNR2020K08KC04**	20	20	25,0	125	33,0	—	WN..080408	**IWSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM4615IP**
2273451	**DWLNR2525M06KC04**	25	25	32,0	150	25,0	—	WN..060408	**IWSN322**	**KMSP315IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM34L9IP**
1908860	**DWLNR2525M08KC04**	25	25	32,0	150	25,0	4,0	WN..080408	**IWSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM4615IP**
1908862	**DWLNR3232P08KC04**	32	32	40,0	170	25,0	—	WN..080408	**IWSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM4615IP**
left hand															
2439472	**DWLNL2020K08KC04**	20	20	25,0	125	33,0	—	WN..080408	**IWSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM4615IP**
2273455	**DWLNL2525M06KC04**	25	25	32,0	150	25,0	—	WN..060408	**IWSN322**	**KMSP315IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM34L9IP**
1908861	**DWLNL2525M08KC04**	25	25	32,0	150	25,0	4,0	WN..080408	**IWSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	15 IP	**SSP025016M**	**KLM4615IP**

Boring Bars for Negative Inserts

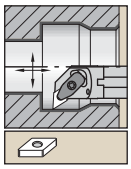


Steel shank with through coolant.

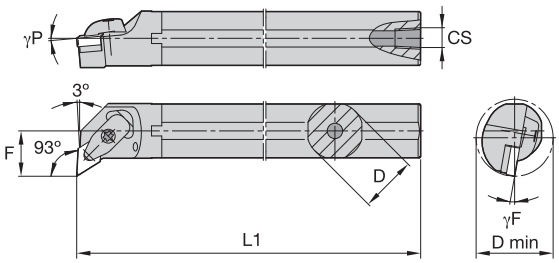


A-DCLN-KC 95°

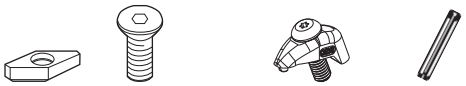
order number	catalogue number	D	D min	F	L1	CS	γF°	gage insert	shim	shim screw	Torx Plus	clamp assembly	slotted pin	Torx Plus
right hand														
2441867	**A25RDCLNR12KC04**	25	32,0	17,0	200	1/4-18 NPT	-12.0	CN.120408	—	—	15 IP	**CM234R ASSY**	**SSP025016M**	15 IP
2441931	**A32SDCLNR12KC04**	32	40,0	22,0	250	1/4-18 NPT	-12.0	CN.120408	**ICSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	**SSP025016M**	15 IP
2441933	**A40TDCLNR12KC04**	40	50,0	27,0	300	1/4-18 NPT	-9.0	CN..120408	**ICSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	**SSP025016M**	15 IP
left hand														
2441930	**A25RDCLNL12KC04**	25	32,0	17,0	200	1/4-18 NPT	-12.0	CN.120408	—	—	15 IP	**CM234R ASSY**	**SSP025016M**	15 IP
2441932	**A32SDCLNL12KC04**	32	40,0	22,0	250	1/4-18 NPT	-12.0	CN.120408	**ICSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	**SSP025016M**	15 IP
2441934	**A40TDCLNL12KC04**	40	50,0	27,0	300	1/4-18 NPT	-9.0	CN.120408	**ICSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	**SSP025016M**	15 IP



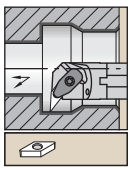
Steel shank with through coolant.



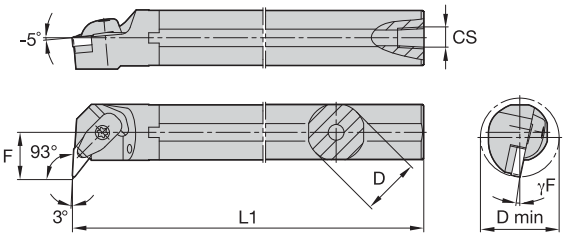
A-DDUN-KC 93°



order number	catalogue number	D	D min	F	L1	CS	γF°	γP°	gage insert	shim	shim screw	Torx Plus	clamp assembly	slotted pin	Torx Plus
right hand															
2441939	**A25RDDUNR11KC04**	25	32,0	17,0	200	1/4-18 NPT	-12.0	-5.0	DN..110408	–	–	–	**CM234R ASSY**	**SSP025016M**	15 IP
2441941	**A32SDDUNR11KC04**	32	40,0	22,0	250	1/4-18 NPT	-12.0	-5.0	DN..110408	**IDSN322**	**KMSP315IP**	15 IP	**CM234R ASSY**	**SSP025016M**	15 IP
2441945	**A32SDDUNR15KC06**	32	40,0	22,0	250	1/4-18 NPT	-12.0	-6.0	DN..150608	**IDSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	**SSP025016M**	15 IP
2441947	**A40TDDUNR15KC06**	40	50,0	27,0	300	1/4-18 NPT	-9.0	-5.0	DN..150608	**IDSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	**SSP025016M**	15 IP
left hand															
2441940	**A25RDDUNL11KC04**	25	32,0	17,0	200	1/4-18 NPT	-12.0	-5.0	DN..110408	–	–	–	**CM234R ASSY**	**SSP025016M**	15 IP
2441946	**A32SDDUNL15KC06**	32	40,0	22,0	250	1/4-18 NPT	-12.0	-6.0	DN..150608	**IDSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	**SSP025016M**	15 IP
2441948	**A40TDDUNL15KC06**	40	50,0	27,0	300	1/4-18 NPT	-9.0	-5.0	DN..150608	**IDSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	**SSP025016M**	15 IP

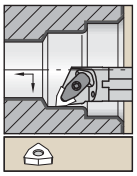


Steel shank with through coolant.

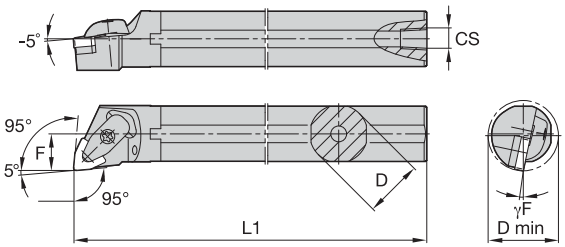


A-DVUN-KC 93°

order number	catalogue number	D	D min	F	L1	CS	γF°	gage insert	shim	shim screw	Torx Plus	clamp assembly	slotted pin	Torx Plus
right hand														
2441916	**A32SDVUNR16KC04**	32	40,0	22,0	250	1/4-18 NPT	-10.5	VN..160408	**IVSN322**	**KMSP315IP**	15 IP	**CM234R ASSY**	**SSP025016M**	15 IP
2441918	**A40TDVUNR16KC04**	40	50,0	27,0	300	1/4-18 NPT	-10.0	VN..160408	**IVSN322**	**KMSP315IP**	15 IP	**CM215R ASSY**	**SSP025016M**	15 IP
left hand														
2441917	**A32SDVUNL16KC04**	32	40,0	22,0	250	1/4-18 NPT	-10.5	VN..160408	**IVSN322**	**KMSP315IP**	15 IP	**CM234R ASSY**	**SSP025016M**	15 IP
2441919	**A40TDVUNL16KC04**	40	50,0	27,0	300	1/4-18 NPT	-10.0	VN..160408	**IVSN322**	**KMSP315IP**	15 IP	**CM215R ASSY**	**SSP025016M**	15 IP

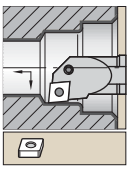


Steel shank with through coolant.

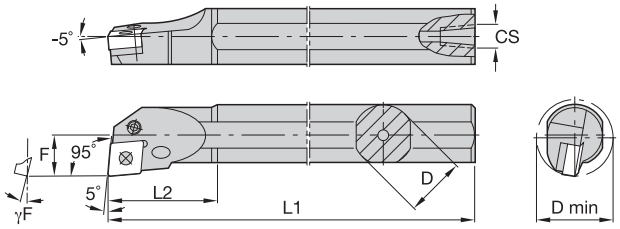


A-DWLN-KC 95°

order number	catalogue number	D	D min	F	L1	CS	γF°	gage insert	shim	shim screw	Torx Plus	clamp assembly	slotted pin	Torx Plus
right hand														
2441921	**A25RDWLNR06KC04**	25	32,0	17,0	200	1/4-18 NPT	-14.0	WN..060408	–	–	–	**CM234R ASSY**	**SSP025016M**	15 IP
2441923	**A25RDWLNR08KC04**	25	32,0	17,0	200	1/4-18 NPT	-12.0	WN..080408	–	–	–	**CM234R ASSY**	**SSP025016M**	15 IP
2441925	**A32SDWLNR08KC04**	32	40,0	22,0	250	1/4-18 NPT	-14.0	WN..080408	**IWSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	**SSP025016M**	15 IP
2441927	**A40TDWLNR08KC04**	40	50,0	27,0	300	1/4-18 NPT	-14.0	WN..080408	**IWSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	**SSP025016M**	15 IP
left hand														
2441924	**A25RDWLNL08KC04**	25	32,0	17,0	200	1/4-18 NPT	-12.0	WN..080408	–	–	–	**CM234R ASSY**	**SSP025016M**	15 IP
2441926	**A32SDWLNL08KC04**	32	40,0	22,0	250	1/4-18 NPT	-14.0	WN..080408	**IWSN433**	**KMSP415IP**	15 IP	**CM234R ASSY**	**SSP025016M**	15 IP

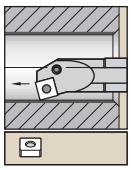


Steel shank with through coolant.

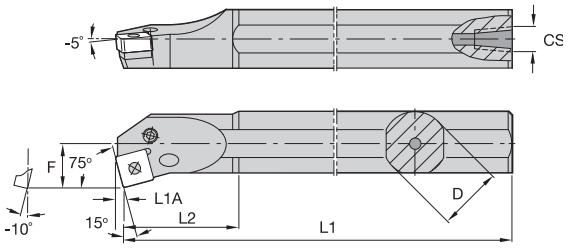


A-PCLN 95°

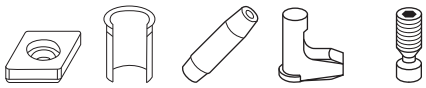
order number	catalogue number	D	D min	F	L1	L2	CS	γF°	gage insert	shim	shim pin	punch pin	toggle lever	lever screw	Torx Plus
right hand															
2447150	**A25TPCLNR12**	25	32,0	17,0	300	40	1/4-18 NPT	-12.0	CN..120408	–	–	–	**511.022**	**514.122**	10 IP
2447152	**A32UPCLNR12**	32	40,0	22,0	350	50	1/4-18 NPT	-10.0	CN..120408	**512.112**	**513.023**	**515.018**	**511.023**	**514.123**	15 IP
2447476	**A32UPCLNR16**	32	50,0	22,0	350	50	1/4-18 NPT	-10.0	CN..160612	**512.117**	**513.025**	**515.022**	**511.025**	**514.125**	15 IP
2447533	**A40VPCLNR12**	40	50,0	27,0	400	55	1/4-18 NPT	-10.0	CN..120408	**512.112**	**513.023**	**515.018**	**511.023**	**514.123**	15 IP
2447478	**A40VPCLNR16**	40	50,0	27,0	400	55	1/4-18 NPT	-11.0	CN..160612	**512.117**	**513.025**	**515.022**	**511.025**	**514.125**	15 IP
left hand															
2447151	**A25TPCLNL12**	25	32,0	17,0	300	40	1/4-18 NPT	-12.0	CN..120408	–	–	–	**511.022**	**514.122**	10 IP
2447473	**A32UPCLNL12**	32	40,0	22,0	350	50	1/4-18 NPT	-10.0	CN..120408	**512.112**	**513.023**	**515.018**	**511.023**	**514.123**	15 IP
2447534	**A40VPCLNL12**	40	50,0	27,0	400	55	1/4-18 NPT	-10.0	CN..120408	**512.112**	**513.023**	**515.018**	**511.023**	**514.123**	15 IP



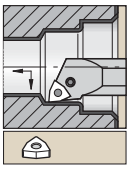
Steel shank with through coolant.



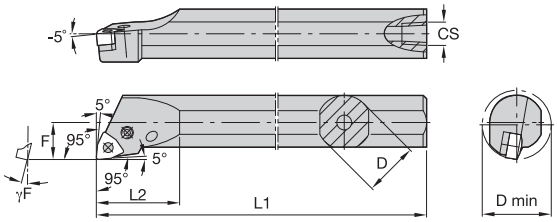
A-PSKN 75°



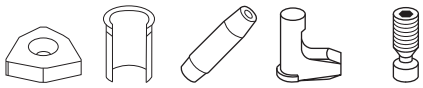
order number	catalogue number	D	D min	F	L1	L2	L1A	CS	gage insert	shim	shim pin	punch pin	toggle lever	lever screw	Torx Plus
right hand															
2447482	**A32UPSKNR12**	32	40,0	22,0	350	52	3,0	1/4-18 NPT	SN..120408	**512.063**	**513.023**	**515.018**	**511.023**	**514.124**	15 IP



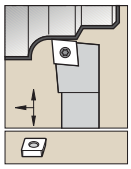
Steel shank with through coolant.

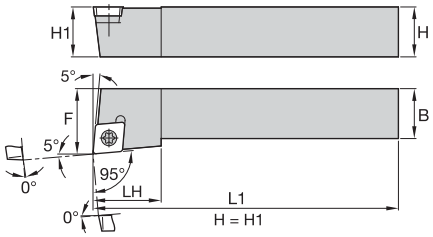


A-PWLN 95°



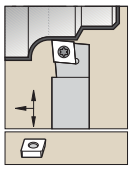
order number	catalogue number	D	D min	F	L1	L2	CS	γF°	gage insert	shim	shim pin	punch pin	toggle lever	lever screw	Torx Plus
right hand															
1244113	**A16RPWLNR06**	16	27,0	11,0	200	32	1/8-27 NPT	-12.0	WN..060404	**–**	**–**	**–**	**511.030**	**514.112**	8 IP
1244115	**A20SPWLNR06**	20	25,0	13,0	250	–	1/8-27 NPT	-14.0	WN..060408	**–**	**–**	**–**	**511.030**	**514.112**	8 IP
1194440	**A25RPWLNR08**	25	32,0	17,0	200	–	1/4-18 NPT	-12.0	WN..080408	**512.135**	**513.023**	**515.018**	**511.023**	**514.123**	15 IP
1244118	**A32SPWLNR08**	32	40,0	22,0	250	50	1/4-18 NPT	-10.0	WN..080408	**512.135**	**513.023**	**515.018**	**511.023**	**514.123**	15 IP
1244120	**A40TPWLNR08**	40	50,0	27,0	300	54	1/4-18 NPT	-8.0	WN..080408	**512.135**	**513.023**	**515.018**	**511.023**	**514.123**	15 IP
left hand															
1191396	**A16RPWLNL06**	16	27,0	11,0	200	32	1/8-27 NPT	-12.0	WN..060404	**–**	**–**	**–**	**511.030**	**514.112**	8 IP
1244114	**A20SPWLNL06**	20	25,0	13,0	250	–	1/8-27 NPT	-14.0	WN..060408	**–**	**–**	**–**	**511.030**	**514.112**	8 IP
1244116	**A25RPWLNL08**	25	32,0	17,0	200	–	1/4-18 NPT	-12.0	WN..080408	**512.135**	**513.023**	**515.018**	**511.023**	**514.123**	15 IP
1244117	**A32SPWLNL08**	32	40,0	22,0	250	50	1/4-18 NPT	-10.0	WN..080408	**512.135**	**513.023**	**515.018**	**511.023**	**514.123**	15 IP
1244119	**A40TPWLNL08**	40	50,0	27,0	300	54	1/4-18 NPT	-8.0	WN..080408	**512.135**	**513.023**	**515.018**	**511.023**	**514.123**	15 IP

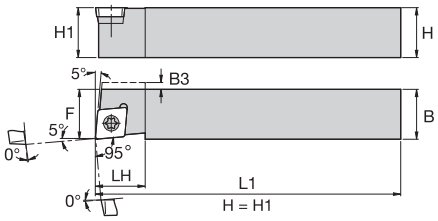




SCLC 95°

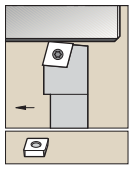
order number	catalogue number	H	B	F	L1	LH	gage insert	shim	shim screw	hex	insert screw	Torx
right hand												
1097816	**SCLCR1010M06**	10	10	12,0	150	12,0	CC..060204	–	–	–	**MS1153**	T7
1097818	**SCLCR1212N09**	12	12	16,0	160	16,0	CC..09T308	–	–	–	**MS1155**	T15
1097819	**SCLCR1616H09**	16	16	20,0	100	15,8	CC..09T308	**SKCP343**	**SRS3**	3.5 mm	**MS1156**	T15
1097821	**SCLCR2020K09**	20	20	25,0	125	15,8	CC..09T308	**SKCP343**	**SRS3**	3.5 mm	**MS1156**	T15
1097820	**SCLCR2020K12**	20	20	25,0	125	19,8	CC..120408	**SKCP453**	**SRS4**	4 mm	**MS1158**	T15
left hand												
1097963	**SCLCL1212N09**	12	12	16,0	160	16,0	CC..09T308	–	–	–	**MS1155**	T15
1097964	**SCLCL1616H09**	16	16	20,0	100	15,8	CC..09T308	**SKCP343**	**SRS3**	3.5 mm	**MS1156**	T15
1097966	**SCLCL2020K09**	20	20	25,0	125	15,8	CC..09T308	**SKCP343**	**SRS3**	3.5 mm	**MS1156**	T15

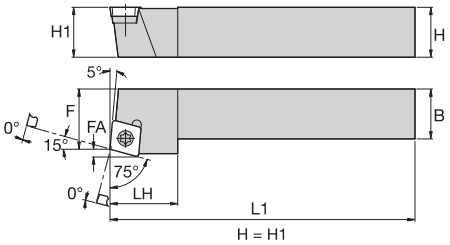




SCLC-F 95°

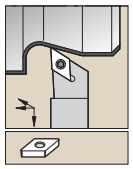
order number	catalogue number	H	B	F	L1	LH	gage insert	shim	shim screw	hex	insert screw	Torx
right hand												
1097812	**SCLCRF1010M06Q**	10	10	10,0	150	11,0	CC..060204	–	–	–	**MS1153**	T7
1097813	**SCLCRF1212M06Q**	12	12	12,0	150	11,0	CC..060204	–	–	–	**MS1153**	T7
1097817	**SCLCRF1616K09Q**	16	16	16,0	125	16,0	CC..09T308	**SKCP343**	**SRS3**	3.5 mm	**MS1156**	T15

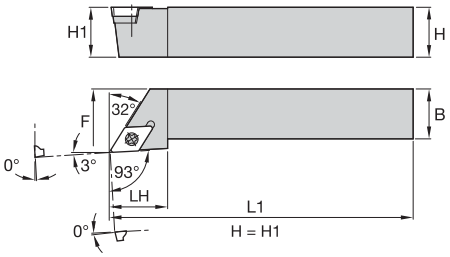




SCRC 75°

order number	catalogue number	H	B	F	L1	LH	FA	gage insert	insert screw	Torx
right hand										
1097828	**SCRCR1212N09**	12	12	13,0	160	14,0	2,3	CC..09T308	**MS1155**	T15

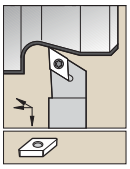


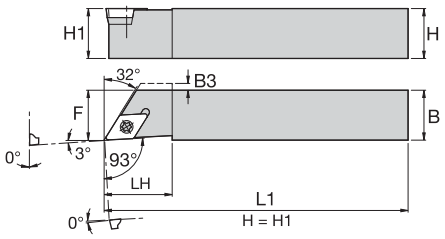


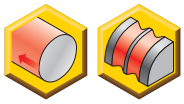
SDJC 93°



order number	catalogue number	H	B	F	L1	LH	gage insert	shim	shim screw	hex	insert screw	Torx
right hand												
1097848	**SDJCR1010M07**	10	10	12,0	150	16,0	DC..070204	–	–	–	**MS1153**	T7
1097849	**SDJCR1212N07**	12	12	16,0	160	16,0	DC..070204	–	–	–	**MS1153**	T7
1097850	**SDJCR1212N11**	12	12	16,0	160	22,0	DC..11T308	–	–	–	**MS1155**	T15
1244972	**SDJCR1616H07**	16	16	20,0	100	16,0	DC..070204	–	–	–	**MS1153**	T7
1097851	**SDJCR1616H11**	16	16	20,0	100	22,0	DC..11T308	**SKDP343**	**SRS3**	3.5 mm	**MS1156**	T15
1244974	**SDJCR2020K07**	20	20	25,0	125	16,0	DC..070204	–	–	–	**MS1153**	T7
1097853	**SDJCR2020K11**	20	20	25,0	125	22,0	DC..11T308	**SKDP343**	**SRS3**	3.5 mm	**MS1156**	T15
1097854	**SDJCR2525M11**	25	25	32,0	150	22,0	DC..11T308	**SKDP343**	**SRS3**	3.5 mm	**MS1156**	T15
1097855	**SDJCR2525M15**	25	25	32,0	150	32,0	DC..150408	**SKDP453**	**SRS4**	4 mm	**MS1158**	T15
left hand												
1098000	**SDJCL1212N11**	12	12	16,0	160	22,0	DC..11T308	–	–	–	**MS1155**	T15
1098001	**SDJCL1616H11**	16	16	20,0	100	22,0	DC..11T308	**SKDP343**	**SRS3**	3.5 mm	**MS1156**	T15
1244968	**SDJCL2020K07**	20	20	25,0	125	16,0	DC..070204	–	–	–	**MS1153**	T7
1098003	**SDJCL2020K11**	20	20	25,0	125	22,0	DC..11T308	**SKDP343**	**SRS3**	3.5 mm	**MS1156**	T15
1192473	**SDJCL2525M11**	25	25	32,0	150	22,0	DC..11T308	**SKDP343**	**SRS3**	3.5 mm	**MS1156**	T15
1098004	**SDJCL2525M15**	25	25	32,0	150	32,0	DC..150408	**SKDP453**	**SRS4**	4 mm	**MS1158**	T15

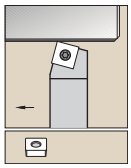


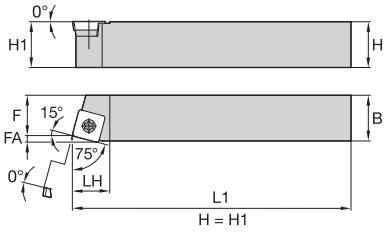




SDJC-F 93°

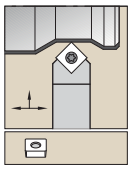
order number	catalogue number	H	B	F	L1	LH	gage insert	shim	shim screw	hex	insert screw	Torx
right hand												
1097844	**SDJCRF1010M07Q**	10	10	10,0	150	16,0	DC..070204	–	–	–	**MS1153**	T7
1097845	**SDJCRF1212M07Q**	12	12	12,0	150	16,0	DC..070204	–	–	–	**MS1153**	T7
1097846	**SDJCRF1616K11Q**	16	16	16,0	125	22,0	DC..11T308	**SKDP343**	**SRS3**	3.5 mm	**MS1156**	T15

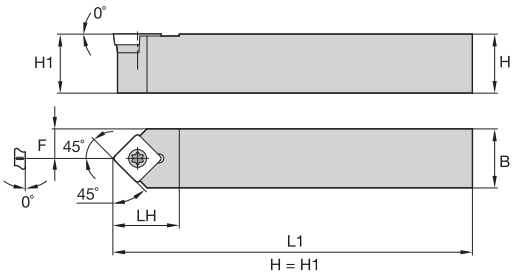


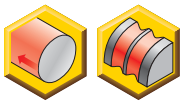


SSBC 75°

order number	catalogue number	H	B	F	L1	LH	FA	gage insert	shim	shim screw	hex	insert screw	Torx
right hand													
1097867	**SSBCR2525M12**	25	25	22,0	150	21,0	3,1	SC..120408	**SKSP453**	**SRS4**	4 mm	**MS1158**	T15

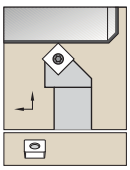


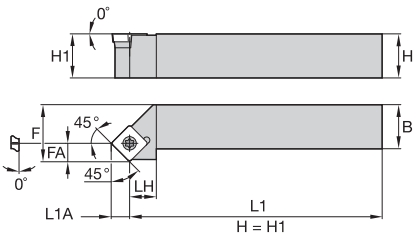


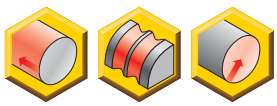


SSDC 45°

order number	catalogue number	H	B	F	L1	LH	gage insert	shim	shim screw	hex	insert screw	Torx
1098005	**SSDCN1212N09**	12	12	6,0	160	18,0	SC..09T308	–	–	–	**MS1155**	T15
1098006	**SSDCN1616H09**	16	16	8,0	100	18,0	SC..09T308	**SKSP343**	**SRS3**	3.5 mm	**MS1156**	T15
1098007	**SSDCN2020K09**	20	20	10,0	125	18,0	SC..09T308	**SKSP343**	**SRS3**	3.5 mm	**MS1156**	T15

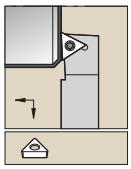


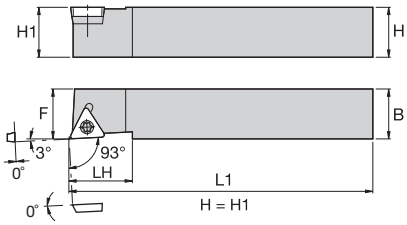


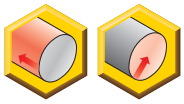


SSSC 45°

order number	catalogue number	H	B	F	L1	LH	FA	L1A	gage insert	shim	shim screw	hex	insert screw	Torx
right hand														
1097808	**SSSCR1212N09**	12	12	16,0	160	18,0	5,8	6,1	SC..09T308	–	–	–	**MS1155**	T15
1097809	**SSSCR1616H09**	16	16	20,0	100	18,0	6,1	6,1	SC..09T308	**SKSP343**	**SRS3**	3.5 mm	**MS1156**	T15
1097810	**SSSCR2020K12**	20	20	25,0	125	25,0	8,1	8,3	SC..120408	**SKSP453**	**SRS4**	4 mm	**MS1158**	T15

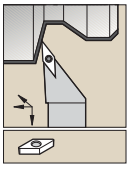


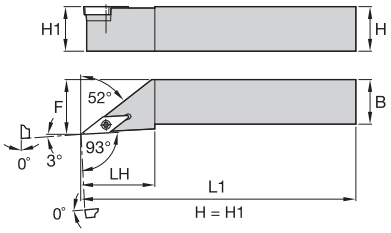


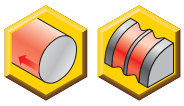


STJC-F 93°

order number	catalogue number	H	B	F	L1	LH	gage insert	insert screw	Torx
right hand									
1772197	STJCRF1212M11Q	12	12	12,0	150	16,0	TC..110204	MS1153	T7



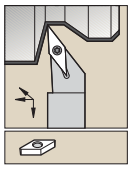


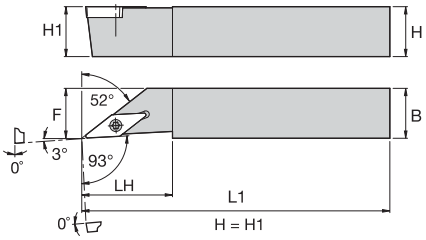


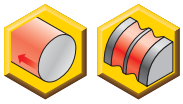
SVJB 93°



order number	catalogue number	H	B	F	L1	LH	gage insert	shim	shim screw	hex	insert screw	Torx
right hand												
1097800	SVJBR1212N11	12	12	16,0	160	22,0	VB..110304	–	–	–	MS1153	T7
1097801	SVJBR1616H11	16	16	20,0	100	22,0	VB..110304	–	–	–	MS1153	T7
1244959	SVJBR1616H16	16	16	20,0	100	35,0	VB..160408	SKVN343	SRS3	3.5 mm	MS1156	T15
1252235	SVJBR2020K11	20	20	25,0	125	26,0	VB..110304	–	–	–	MS1153	T7
1097802	SVJBR2020K16	20	20	25,0	125	35,0	VB..160408	SKVN343	SRS3	3.5 mm	MS1156	T15
1097803	SVJBR2525M16	25	25	32,0	150	35,0	VB..160408	SKVN343	SRS3	3.5 mm	MS1156	T15
1244992	SVJBR3225P16	32	25	32,0	170	35,0	VB..160408	SKVN343	SRS3	3.5 mm	MS1156	T15
left hand												
1097945	SVJBL1212N11	12	12	16,0	160	22,0	VB..110304	–	–	–	MS1153	T7
1097946	SVJBL1616H11	16	16	20,0	100	22,0	VB..110304	–	–	–	MS1153	T7
1244957	SVJBL1616H16	16	16	20,0	100	35,0	VB..160408	SKVN343	SRS3	3.5 mm	MS1156	T15
1252234	SVJBL2020K11	20	20	25,0	125	26,0	VB..110304	–	–	–	MS1153	T7
1097947	SVJBL2020K16	20	20	25,0	125	35,0	VB..160408	SKVN343	SRS3	3.5 mm	MS1156	T15
1097948	SVJBL2525M16	25	25	32,0	150	35,0	VB..160408	SKVN343	SRS3	3.5 mm	MS1156	T15
1192560	SVJBL3225P16	32	25	32,0	170	35,0	VB..160408	SKVN343	SRS3	3.5 mm	MS1156	T15

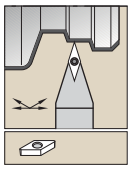


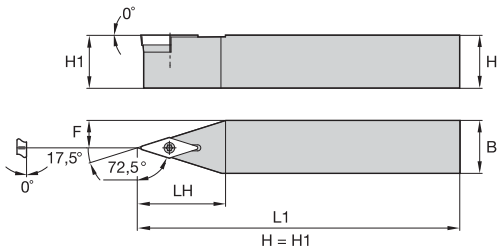


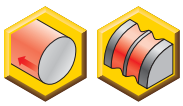


SVJB-F 93°

order number	catalogue number	H	B	F	L1	LH	gage insert	insert screw	Torx
right hand									
1097797	**SVJBRF1010M11Q**	10	10	10,0	150	23,0	VB..110304	**MS1153**	T7
1097798	**SVJBRF1212M11Q**	12	12	12,0	150	23,0	VB..110304	**MS1153**	T7
1097799	**SVJBRF1616K16Q**	16	16	16,0	125	31,0	VB..160408	**MS1155**	T15

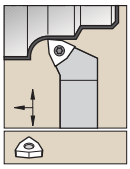


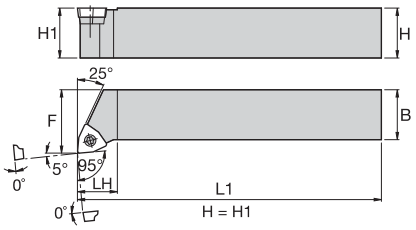




SVVB 72,5°

order number	catalogue number	H	B	F	L1	LH	gage insert	shim	shim screw	hex	insert screw	Torx
1097990	**SVVBN1212N11**	12	12	6,0	160	26,0	VB..110304	**–**	**–**	–	**MS1153**	T7
1244961	**SVVBN1616H16**	16	16	8,0	100	33,0	VB..160408	**SKVN343**	**SRS3**	3.5 mm	**MS1156**	T15
1244962	**SVVBN2020K11**	20	20	10,0	125	26,0	VB..110304	**–**	**–**	–	**MS1153**	T7
1097992	**SVVBN2020K16**	20	20	10,0	125	33,0	VB..160408	**SKVN343**	**SRS3**	3.5 mm	**MS1156**	T15

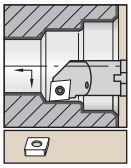




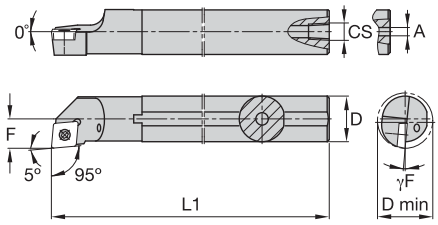
SWLC 95°

order number	catalogue number	H	B	F	L1	LH	gage insert	shim	shim screw	hex	insert screw	Torx
right hand												
1097732	**SWLCR2020K06**	20	20	25,0	125	16,0	WC..06T308	**SKWP343**	**SRS3**	3.5 mm	**MS1156**	T15

Boring Bars for Positive Inserts

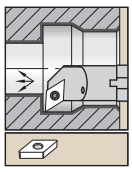


Steel shank with through coolant.

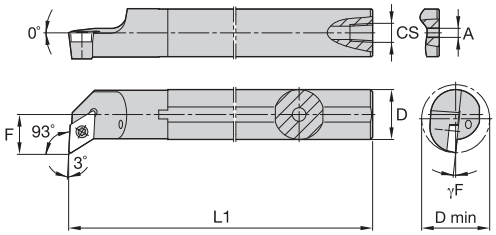


A-SCLC 95°

order number	catalogue number	D	D min	F	L1	A	CS	γF°	gage insert	insert screw	Torx
right hand											
1098168	**A10KSCLCR06**	10	13,0	7,0	125	3,2	–	-7.0	CC..060204	**MS1153**	T7
1098178	**A12MSCLCR06**	12	16,0	9,0	150	4,0	1/16-27 NPT	-6.0	CC..060204	**MS1153**	T7
1098225	**A16RSCLCR09**	16	20,0	11,0	200	4,0	1/8-27 NPT	-7.0	CC..09T308	**MS1155**	T15
1098239	**A20SSCLCR09**	20	25,0	13,0	250	4,0	1/8-27 NPT	-5.0	CC..09T308	**MS1155**	T15
left hand											
1098173	**A10KSCLCL06**	10	13,0	7,0	125	3,2	–	-7.0	CC..060204	**MS1153**	T7
1098183	**A12MSCLCL06**	12	16,0	9,0	150	4,0	1/16-27 NPT	-6.0	CC..060204	**MS1153**	T7
1098231	**A16RSCLCL09**	16	20,0	11,0	200	4,0	1/8-27 NPT	-7.0	CC..09T308	**MS1155**	T15
1098244	**A20SSCLCL09**	20	25,0	13,0	250	4,0	1/8-27 NPT	-5.0	CC..09T308	**MS1155**	T15

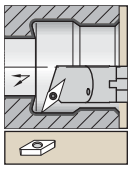


Steel shank with through coolant.

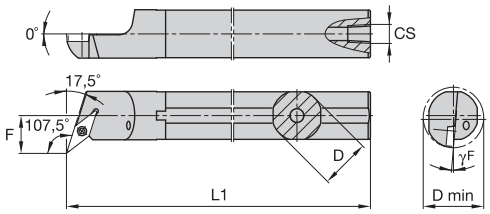


A-SDUC 93°

order number	catalogue number	D	D min	F	L1	A	CS	γF°	gage insert	insert screw	Torx
right hand											
1886506	**A10KSDUCR07**	10	13,0	7,0	125	3,2	–	-7.0	DC..070204	**MS1153**	T7
1098187	**A12MSDUCR07**	12	16,0	9,0	150	–	1/16-27 NPT	-4.0	DC..070204	**MS1153**	T7
1098197	**A16RSDUCR07**	16	20,0	11,0	200	–	1/8-27 NPT	-4.0	DC..070204	**MS1153**	T7
1886508	**A16RSDUCR11**	16	20,0	11,0	200	–	1/8-27 NPT	-6.0	DC..11T308	**MS1155**	T15
1098146	**A20SSDUCR11**	20	25,0	13,0	250	–	1/8-27 NPT	-5.0	DC..11T308	**MS1155**	T15
left hand											
1886505	**A10KSDUCL07**	10	13,0	7,0	125	3,2	–	-7.0	DC..070204	**MS1153**	T7
1098192	**A12MSDUCL07**	12	16,0	9,0	150	–	1/16-27 NPT	-4.0	DC..070204	**MS1153**	T7
1098202	**A16RSDUCL07**	16	20,0	11,0	200	–	1/8-27 NPT	-4.0	DC..070204	**MS1153**	T7
1886507	**A16RSDUCL11**	16	20,0	11,0	200	–	1/8-27 NPT	-6.0	DC..11T308	**MS1155**	T15
1098148	**A20SSDUCL11**	20	25,0	13,0	250	–	1/8-27 NPT	-5.0	DC..11T308	**MS1155**	T15

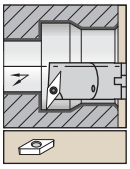


Steel shank with through coolant.

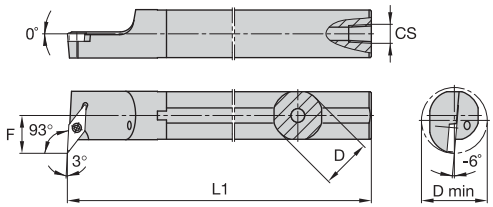


A-SVQB 107,5°

order number	catalogue number	D	D min	F	L1	CS	γF°	gage insert	insert screw	Torx
right hand										
1098232	**A16RSVQBR11**	16	20,0	11,0	200	1/8-27 NPT	-7.0	VB..110304	**MS1153**	T7
left hand										
1098233	**A16RSVQBL11**	16	20,0	11,0	200	1/8-27 NPT	-7.0	VB..110304	**MS1153**	T7

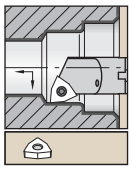


Steel shank with through coolant.

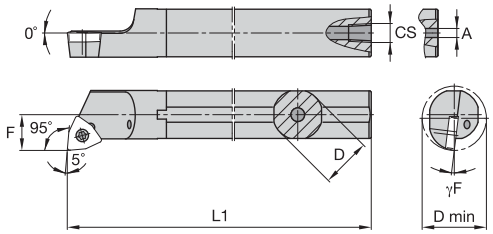


A-SVUB 93°

order number	catalogue number	D	D min	F	L1	CS	gage insert	insert screw	Torx
right hand									
1098249	**A20SSVUBR11**	20	25,0	13,0	250	1/8-27 NPT	VB..110304	**MS1153**	T7
1098275	**A25TSVUBR16**	25	32,0	17,0	300	1/4-18 NPT	VB..160408	**MS1155**	T15
left hand									
1098254	**A20SSVUBL11**	20	25,0	13,0	250	1/8-27 NPT	VB..110304	**MS1153**	T7
1098278	**A25TSVUBL16**	25	32,0	17,0	300	1/4-18 NPT	VB..160408	**MS1155**	T15

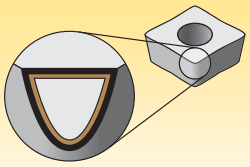


Steel shank with through coolant.



A-SWLC 95°

order number	catalogue number	D	D min	F	L1	A	CS	γF°	gage insert	insert screw	Torx
right hand											
1098062	**A10KSWLCR04**	10	13,0	7,0	125	3,0	–	-7.0	WC..040204	**MS1153**	T7
1098063	**A12MSWLCR04**	12	16,0	9,0	150	–	1/16-27 NPT	-6.0	WC..040204	**MS1153**	T7
1098064	**A16RSWLCR06**	16	20,0	11,0	200	4,0	1/8-27 NPT	-7.0	WC..06T308	**MS1155**	T15
1098065	**A20SSWLCR06**	20	25,0	13,0	250	4,0	1/8-27 NPT	-5.0	WC..06T308	**MS1155**	T15

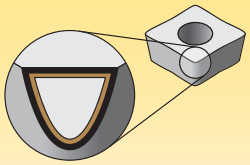


Coatings provide high-speed capability and are engineered for finishing to light roughing.

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

wear resistance ← → toughness

Coating		Grade Description	05	10	15	20	25	30	35	40	45
PVD-Coated Carbide Grades											
KCU10	–	**Composition:** An advanced multilayer PVD coating over a very deformation-resistant unalloyed carbide substrate. The new and improved coating improves edge stability with wide range speed and feed capabilities. **Application:** The KCU10™ grade is ideal for finishing to general machining of most workpiece materials at a wide range of speed and feed capabilities. Excellent for machining most steels, stainless steels, cast irons, non-ferrous materials, and high-temp alloys with improved edge toughness, notch resistance, and higher cutting speed/feed capability. beyond	P, M, K, N, S, H								
KCU25	–	**Composition:** An advanced PVD grade with hard AlTiN coating and fine-grain unalloyed substrate. The new and improved coating improves edge stability with wide range speed and feed capabilities. **Application:** The KCU25™ grade is ideal for general machining of most steels, stainless steels, high-temp alloys, titanium, irons, and non-ferrous materials in a wide range of speeds and feeds with improved edge toughness for interrupted cuts and high feed rates. beyond	P, M, K, N, S								
KC5410	–	**Composition:** A PVD TiB_2 coating over a very deformation-resistant unalloyed substrate. **Application:** Designed for roughing, semi-finishing, and finishing of free machining (hypoeutectic <12.2% Si) aluminium, aluminium alloys, and magnesium alloys. The TiB_2 coating is harder than TiN and TiAlN coatings and has an extremely smooth surface, resulting in reduced surface friction, speedy chip flow, and outstanding wear resistance. Built-up edge is prevented because this coating has a very low affinity for aluminium. The substrate is unalloyed and fine grained and offers sharp edges, smooth surfaces, and excellent thermal deformation resistance and edge integrity. Inserts with a ground periphery are polished before coating and have a sharp edge. Moulded inserts have a light hone.	N								
CVD-Coated Carbide Grades											
KCP10B	–	**Composition:** A specially engineered cobalt-enriched carbide grade with thick MTCVD TiCN-Al_2O_3-TiOCN coating for maximum wear resistance. **Application:** An excellent finishing to medium machining grade for a variety of workpiece materials, including most steels, ferritic, martensitic, and PH stainless steels, and cast irons. The cobalt-enriched substrate offers a balanced combination of deformation resistance and edge toughness, while the thick coating layers offer outstanding abrasion resistance and crater wear resistance for high-speed machining. Smooth coating provides resistance to edge build-up and microchipping and produces excellent surface finishes. beyond DRIVE™	P, K								
KCP25B	–	**Composition:** A tough cobalt-enriched carbide grade with a multilayer MTCVD TiCN-Al_2O_3-TiOCN coating with superior interlayer adhesion. **Application:** Best general-purpose turning grade for most steels and ferritic and martensitic stainless steels. The substrate design ensures adequate deformation resistance with excellent insert edge strength. Coating layers offer good wear resistance over a wide range of machining conditions and the post-coat treatment minimises microchipping and improves coating adhesion to substrate leading to long tool life and improved workpiece finishes. beyond DRIVE™	P, K								
KCP40B	–	**Composition:** A tough carbide grade with a thin MTCVD TiCN-Al_2O_3-TiOCN coating. **Application:** For heavy roughing of carbon, alloy, and stainless steels. The substrate-coating combination provides unbelievable toughness and operational security allowing high metal removal rates even in most demanding interrupted cuts. beyond DRIVE™	P, M								



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

	Coating	Grade Description	05	10	15	20	25	30	35	40	45
CVD-Coated Carbide Grades	KCK05	**Composition:** A multilayered coating with moderately thick MTCVD TiCN-Al_2O_3 layers over a highly deformation-resistant carbide substrate. **Application:** Designed for high-speed machining of grey and ductile irons. The substrate and coating architecture together with post-coat treatment ensure a tremendous tool life advantage, especially when cutting higher tensile strength ductile and grey irons where workpiece size consistency and reliability of tool life are critical. Excellent both in continuous cuts and varied depths of cut. beyond	P								
	KCK15	**Composition:** A multilayered coating with thick MTCVD TiCN-Al_2O_3 layers applied over a carbide substrate specifically engineered for cast irons. **Application:** Delivers consistent performance in high-speed machining of grey and ductile irons. The substrate design permits the insert to stay in the cut for a long time at high speeds with minimum deformation. The thick CVD coating and post-coat treatment provide superior wear resistance ensuring long and consistent tool life. Can be applied both in continuous and lightly interrupted cuts. beyond	P								
	KCK20	**Composition:** A specially toughened MTCVD TICN-Al_2O_3 coating over a wear-resistant substrate. **Application:** Specifically engineered to maximise coating adhesion and edge strength making this grade ideal in wet interrupted cutting of grey and ductile irons. It can be used in a wide range of applications from finishing to roughing to maximise productivity wherever strength and reliability are needed. beyond	P								
	KCM15B	**Composition:** A multilayer MTCVD TiCN-Al_2O_3 coated carbide grade. **Application:** An excellent finishing to medium machining grade for austenitic stainless steels at higher speeds and covers a broad range of steel applications in the P20–P25 range. KCM15B grade in combination with unique geometries have been designed to resist depth-of-cut notching and minimise bur formation. The post-coat treatment reduces coating stresses, improves coating adhesion, minimises microchipping and edge build-up, and improves workpiece finish. beyond DRIVE	P								
	KCM25B	**Composition:** A multilayer MTCVD TiCN-Al_2O_3-TiOCN coated carbide grade. **Application:** This CVD-coated grade is designed for general-purpose machining of austenitic stainless steels at moderate speeds and feeds. This grade offers an extraordinary combination of toughness, built-up edge resistance, and wear resistance in stainless steel applications. beyond DRIVE	P								
PcBN – Polycrystalline Cubic Boron Nitride Grades	KBH20	**Composition:** A low content PcBN grade with a PVD TiN/AlTiN coating for added wear resistance. **Application:** KBH20™ is the ideal PcBN hard turning grade for continuous to lightly interrupted cutting applications. The structure, as well as the different edge preparations, enable repeatable workpiece tolerances, excellent surface finishes, and surface integrity. Typical applications are case-hardened steel components such as gears, shafts, and other drive-train components.	H								

Getting started made **EASY**

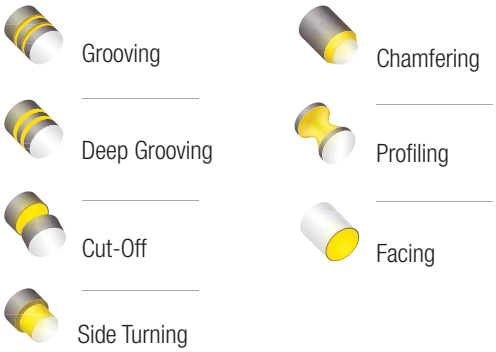
beyond™ EVOLUTION™

Your day made **EASY**

Choosing the right tooling can be complicated and time-consuming. Built on simplicity, we have engineered a new tool that makes every machine operator's life EASY.

Unwilling to sacrifice performance or applications, Kennametal introduces Beyond™ Evolution™.

Beyond™ Evolution™ is the new single-side grooving and cut-off tool that also performs multi-directional turning.

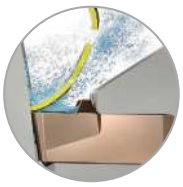


Productivity made **EASY**

Active Coolant Control

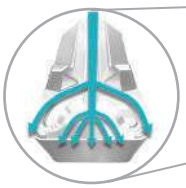
If your coolant delivery is typical to the market, you may be applying more heat to the cutting edge than you think. This reduces tool life and increases cycle time.

With Beyond™ Evolution™, you won't have to change your existing equipment. Whether you are using a high-pressure or low-pressure coolant supply, Beyond™ Evolution™, featuring Active Coolant Control, delivers more tool life and higher Metal Removal Rates (MRR).



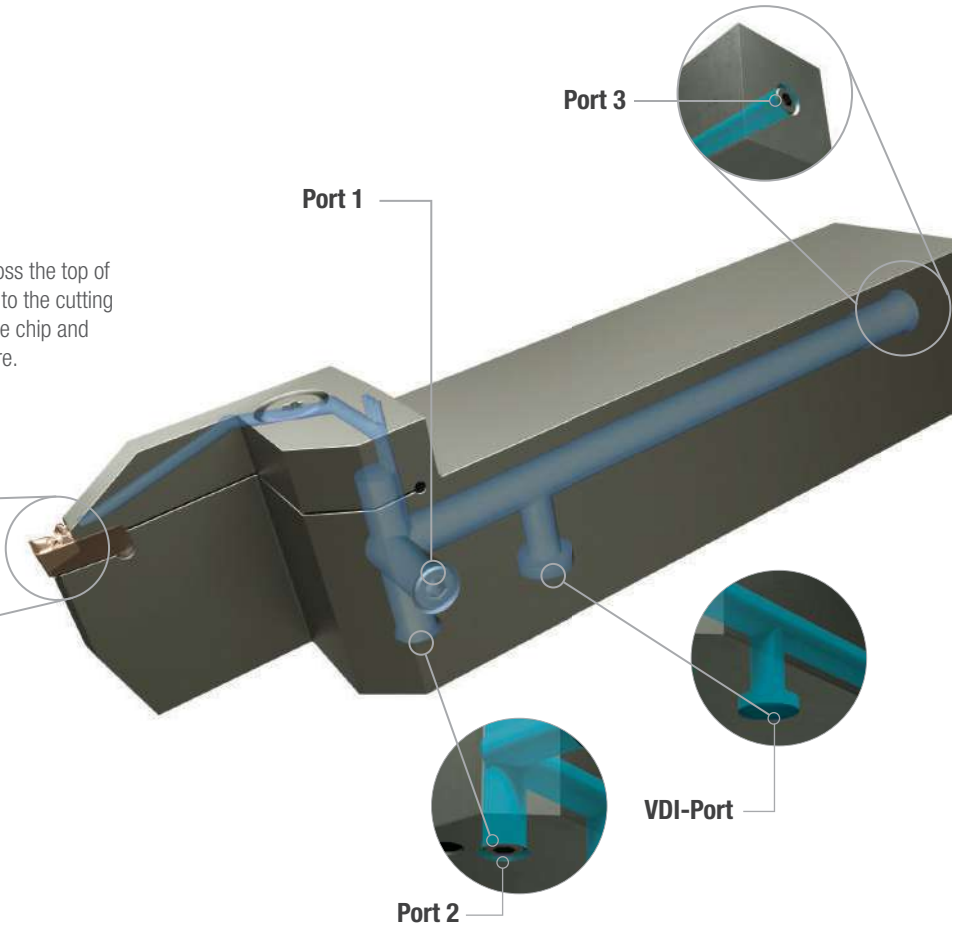
Fan Effect

Directs coolant across the top of the insert precisely to the cutting zone underneath the chip and controls temperature.



Chipbreaking Effect

Improve chip control in all grooving, cut-off, and multi-directional turning applications.



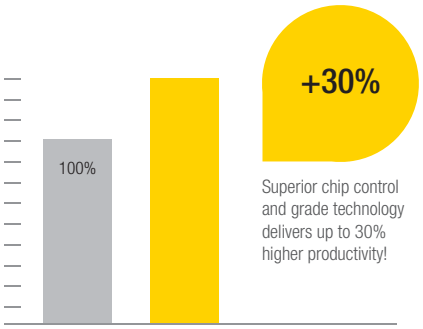
Smooth surface finish made **EASY**

Triple-V Seating

Problem: Traditional single-sided grooving and cut-off systems cannot deliver smooth surface finish due to lack of stability.

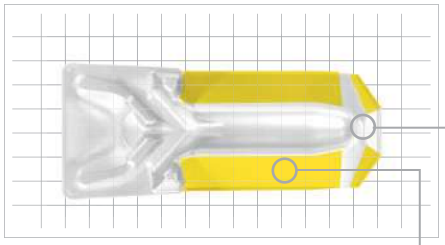
Solution: The Beyond™ Evolution™ proprietary new Triple-V Seating feature provides functional stability and minimises vibration.

Three contact surfaces provide unmatched stability: When combined with GUP and CF chipbreakers, Triple-V Seating provides excellent surface finish.



Saving money made **EASY**

Beyond™ Evolution™, featuring Active Coolant Control, Triple-V Seating, and Beyond™ Drive™ grades with Wear Detection Technology, provides longer tool life, maximum stability, and higher Metal Removal Rates (MRR), resulting in up to 30% higher productivity.



V-Back Design
Unsurpassed grooving, cut-off, and multi-directional turning load stability.

Top and Bottom-V
Precise and secure insert positioning for increased rigidity and dimensional accuracy

NOVO™

You can also use our NOVO app to guide you to the correct choice!

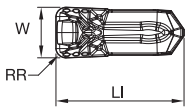
For more information, please visit kennametal.com/novo.

NOVO: The Digital Source for Delivering Smart Machining Solutions

- Positive chipbreaker lowers cutting forces.
- Engineered geometry for chip control in side turning.
- High performance in all materials.

● first choice
○ alternate choice

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



GUP Precision Moulded • Metric

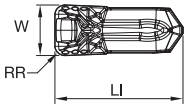
ISO catalogue number	SSC	W	W tol ±	RR	LI	KCU10	KCU25
EG0212M02U02GUP	2	2,125	0,050	0,20	8,97	6013031	5532930
EG0251M02U02GUP	2	2,511	0,050	0,20	8,97	6013032	5532931
EG0312M03U02GUP	3	3,125	0,075	0,20	9,60	6013033	5941056
EG0312M03U04GUP	3	3,125	0,075	0,40	9,60	6013034	5941057
EG0412M04U04GUP	4	4,125	0,075	0,40	10,19	6012944	5941071
EG0412M04U08GUP	4	4,125	0,075	0,80	10,19	–	5941083
EG0512M05U04GUP	5	5,125	0,075	0,40	12,25	6012946	5533212
EG0512M05U08GUP	5	5,125	0,075	0,80	12,25	6012947	5533214
EG0612M06U04GUP	6	6,125	0,075	0,40	14,60	6012948	5533120
EG0612M06U08GUP	6	6,125	0,075	0,80	14,60	6012949	5533124
EG0812M08U08GUP	8	8,125	0,075	0,80	17,47	6012961	5532941
EG1012M10U12GUP	10	10,125	0,075	1,20	20,80	6012963	5533220

SSC = To correspond with the SSC on the toolholder.

- Positive chipbreaker lowers cutting forces.
- Engineered geometry for chip control in side turning.
- High performance in all materials.
- More precise widths and better repeatability.

● first choice
○ alternate choice

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



GUP Precision Ground • Metric

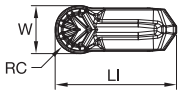
ISO catalogue number	SSC	W	W tol ±	RR	LI	KCU10	KCU25
EG0200M02P02GUP	2	2,000	0,025	0,20	8,80	6012687	5988771
EG0300M03P02GUP	3	3,000	0,025	0,20	9,40	6012688	5941101
EG0300M03P04GUP	3	3,000	0,025	0,40	9,60	6012689	5941102
EG0400M04P04GUP	4	4,000	0,025	0,40	10,10	6012690	5941103
EG0400M04P08GUP	4	4,000	0,025	0,80	10,10	6012701	5941104
EG0500M05P04GUP	5	5,000	0,025	0,40	12,20	6012702	5988774
EG0500M05P08GUP	5	5,000	0,025	0,80	12,20	6012703	5988775
EG0600M06P04GUP	6	6,000	0,025	0,40	14,50	6012704	5988772
EG0600M06P08GUP	6	6,000	0,025	0,80	14,50	6012705	5988773
EG0700M06P08GUP	6	7,000	0,025	0,80	14,50	6012707	–
EG0800M08P08GUP	8	8,000	0,025	0,80	17,40	6012708	5988777
EG0800M08P12GUP	8	8,000	0,025	1,20	17,40	–	5988778
EG1000M10P12GUP	10	10,000	0,025	1,20	20,70	6012711	–

SSC = To correspond with the SSC on the toolholder.

- First choice in profiling.
- >180° cutting edge.
- High performance in all materials.

● first choice
○ alternate choice

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



GUP Full Radius Precision Moulded • Metric

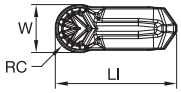
ISO catalogue number	SSC	W	W tol ±	RC	LI	KCU10	KCU25
ER0212M02U00GUP	2	2,120	0,050	1,060	8,97	**6231902**	**6231905**
ER0312M03U00GUP	3	3,125	0,075	1,560	9,60	**6013037**	**5534274**
ER0412M04U00GUP	4	4,125	0,075	2,060	10,20	**6012970**	**–**
ER0512M05U00GUP	5	5,125	0,075	2,560	12,20	**–**	**5534278**
ER0612M06U00GUP	6	6,125	0,075	3,060	14,60	**–**	**5534290**
ER0812M08U00GUP	8	8,125	0,075	4,060	17,50	**6012973**	**5534292**

SSC = To correspond with the SSC on the toolholder.

- First choice in profiling.
- >180° cutting edge.
- High performance in all materials.
- More precise widths and better repeatability.

● first choice
○ alternate choice

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



GUP Full Radius Precision Ground • Metric

ISO catalogue number	SSC	W	W tol ±	RC	LI	KCU10	KCU25
ER0200M02P00GUP	2	2,000	0,025	1,000	8,91	**6231903**	**6231906**
ER0300M03P00GUP	3	3,000	0,025	1,500	9,50	**6012720**	**5988780**
ER0400M04P00GUP	4	4,000	0,025	2,000	10,10	**6012721**	**5988781**
ER0500M05P00GUP	5	5,000	0,025	2,500	12,20	**6012722**	**5988782**
ER0600M06P00GUP	6	6,000	0,025	3,000	14,50	**6012723**	**5988783**
ER0800M08P00GUP	8	8,000	0,025	4,000	17,40	**6012724**	**5988785**

SSC = To correspond with the SSC on the toolholder.

- Positive chipbreaker lowers cutting forces.
- First choice for steel.
- Excellent surface finish.

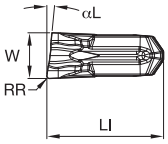
● first choice
○ alternate choice

P		●
M		○
K		○
N		○
S		○
H		

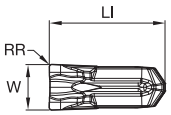

Left Hand


Neutral

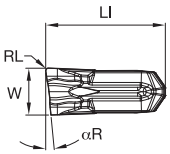

Right Hand



Left Hand



Neutral



Right Hand

CF Precision Moulded • Metric

ISO catalogue number	SSC	W	W tol ±	LI	αR	αL	RR	RL	KCU25
EC014M1BL06CF01	1B	1,404	0,050	9,00	–	6	0,15	–	**5533516**
EC014M1BN00CF01	1B	1,400	0,050	9,00	–	–	0,15	0,15	**5533081**
EC014M1BR06CF01	1B	1,404	0,050	9,00	6	–	–	0,15	**5533517**
EC020M02L06CF02	2	2,000	0,050	8,97	–	6	0,20	–	**5533150**
EC020M02N00CF02	2	2,000	0,050	8,97	–	–	0,20	0,20	**5533082**
EC020M02R06CF02	2	2,000	0,050	8,97	6	–	–	0,20	**5533151**
EC030M03L06CF02	3	3,000	0,075	9,60	–	6	0,20	–	**5941074**
EC030M03N00CF02	3	3,000	0,075	9,60	–	–	0,20	0,20	**5941073**
EC030M03R06CF02	3	3,000	0,075	9,60	6	–	–	0,20	**5941075**
EC040M04L06CF02	4	4,000	0,075	10,19	–	6	0,20	–	**5941077**
EC040M04N00CF02	4	4,000	0,075	10,19	–	–	0,20	0,20	**5941076**
EC040M04R06CF02	4	4,000	0,075	10,19	6	–	–	0,20	**5941078**
EC050M05N00CF03	5	5,000	0,075	12,20	–	–	0,30	0,30	**5533518**

SSC = To correspond with the SSC on the toolholder.

- Positive chipbreaker lowers cutting forces.
- First choice for stainless steel and difficult to cut materials.
- Sharp corners and increased lead angles.
- Increased chip control.

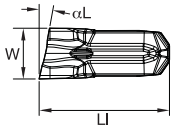
● first choice
○ alternate choice

P		●
M		●
K		○
N		○
S		●
H		

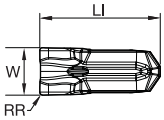

Left Hand


Neutral


Right Hand



Left Hand



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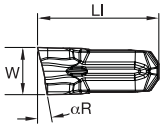


Right Hand

CF Precision Ground • Metric

catalogue number	SSC	W	W tol ±	LI	αR	αL	RR	KCU25
EC014M1BPL06CF00	1B	1,400	0,025	9,00	–	6	–	**6442340**
EC014M1BPL12CF00	1B	1,400	0,025	9,00	–	12	–	**6442339**
EC014M1BPN00CF00	1B	1,400	0,025	9,00	–	–	–	**6442471**
EC014M1BPR06CF00	1B	1,400	0,025	9,00	6	–	–	**6442472**
EC014M1BPR12CF00	1B	1,400	0,025	9,00	12	–	–	**6442473**
EC020M02PL06CF00	2	2,000	0,025	8,95	–	6	–	**6442475**
EC020M02PL12CF00	2	2,000	0,025	8,95	–	12	–	**6442474**
EC020M02PN00CF00	2	2,000	0,025	8,94	–	–	–	**6442476**
EC020M02PN00CF02	2	2,000	0,025	9,04	–	–	0,20	**6442488**
EC020M02PR06CF00	2	2,000	0,025	8,94	6	–	–	**6442477**
EC020M02PR12CF00	2	2,000	0,025	8,95	12	–	–	**6442479**
EC030M03PL06CF00	3	3,000	0,025	9,48	–	6	–	**6442480**
EC030M03PL12CF00	3	3,000	0,025	9,48	–	12	–	**6442337**
EC030M03PN00CF00	3	3,000	0,025	9,48	–	–	–	**6442481**
EC030M03PN00CF02	3	3,000	0,025	9,63	–	–	0,20	**6442336**
EC030M03PR06CF00	3	3,000	0,025	9,48	6	–	–	**6442482**
EC030M03PR12CF00	3	3,000	0,025	9,48	12	–	–	**6442338**
EC040M04PL06CF00	4	4,000	0,025	10,01	–	6	–	**6442483**
EC040M04PN00CF00	4	4,000	0,025	10,01	–	–	–	**6442484**
EC040M04PN00CF02	4	4,000	0,025	10,16	–	–	0,20	**6442489**
EC040M04PR06CF00	4	4,000	0,025	10,01	6	–	–	**6442485**
EC050M05PN00CF03	5	5,000	0,020	12,22	–	–	0,30	**6442502**

SSC = To correspond with the SSC on the toolholder.

- Ultimate solution in edge stability.
- Leverage for interrupted cuts or hardened skin.
- First choice for cast iron.

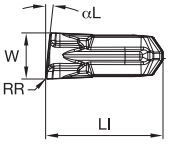
● first choice
○ alternate choice

P		○
M		○
K		●
N		○
S		○
H		

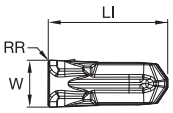

Left Hand


Neutral

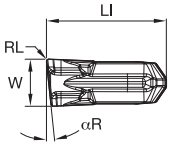

Right Hand



Left Hand



Neutral



Right Hand

CM Precision Moulded • Metric

ISO catalogue number	SSC	W	W tol ±	LI	αR	αL	RR	RL	KCU25
EC014M1BL06CM02	1B	1,400	0,050	9,00	–	6	0,20	0,20	**5533519**
EC014M1BN00CM01	1B	1,400	0,050	9,00	–	–	0,15	0,15	**5533089**
EC014M1BR06CM02	1B	1,400	0,050	9,02	6	–	–	0,20	**5533520**
EC020M02N00CM02	2	2,000	0,050	8,98	–	–	0,20	0,20	**5533090**
EC020M02R06CM02	2	2,000	0,050	9,00	6	–	–	0,20	**5533522**
EC030M03L06CM02	3	3,000	0,075	9,60	–	6	0,20	–	**5941085**
EC030M03N00CM02	3	3,000	0,075	9,60	–	–	0,20	0,20	**5941079**
EC030M03R06CM02	3	3,000	0,075	9,60	6	–	–	0,20	**5941086**
EC040M04L06CM02	4	4,000	0,075	10,20	–	6	0,20	–	**5941087**
EC040M04N00CM02	4	4,000	0,075	10,20	–	–	0,20	0,20	**5941080**
EC040M04R06CM02	4	4,000	0,075	10,20	6	–	–	0,20	**5941088**
EC050M05N00CM03	5	5,000	0,075	12,20	–	–	0,30	0,30	**5533523**
EC060M06N00CM03	6	6,000	0,075	14,59	–	–	0,30	0,30	**5533093**
EC080M08N00CM04	8	8,000	0,075	17,50	–	–	0,40	0,40	**5533525**

SSC = To correspond with the SSC on the toolholder.

- Strong chip control due to concave edge.
- First choice in steel when additional stability is required.
- Can apply most aggressive feed rates.

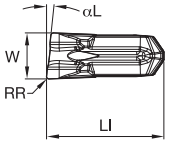
P		●
M		●
K		○
N		○
S		●
H		

● first choice
○ alternate choice

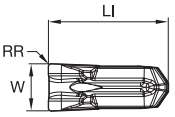

Left Hand


Neutral

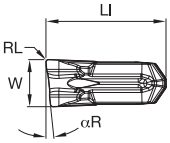

Right Hand



Left Hand



Neutral



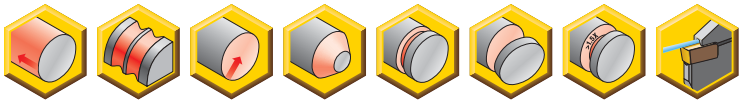
Right Hand

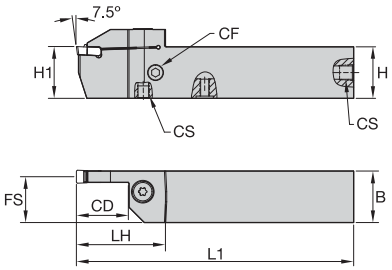
CR Precision Moulded • Metric

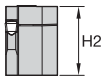
ISO catalogue number	SSC	W	W tol ±	LI	αR	αL	RR	RL	KCU25
EC020M02L06CR02	2	2,000	0,050	9,00	–	6	0,20	–	**5533528**
EC020M02N00CR02	2	2,000	0,050	8,98	–	–	0,20	0,20	**5533156**
EC020M02R06CR02	2	2,000	0,050	9,00	6	–	–	0,20	**5533529**
EC030M03L06CR02	3	3,000	0,075	9,60	–	6	0,20	–	**5941089**
EC030M03N00CR02	3	3,000	0,075	9,60	–	–	0,20	0,20	**5941081**
EC030M03R06CR02	3	3,000	0,075	9,60	6	–	–	0,20	**5941090**
EC040M04L06CR02	4	4,000	0,075	10,20	–	6	0,20	–	**5941091**
EC040M04N00CR02	4	4,000	0,075	10,20	–	–	0,20	0,20	**5941082**
EC040M04R06CR02	4	4,000	0,075	10,20	6	–	–	0,20	**5941092**
EC050M05N00CR03	5	5,000	0,075	12,25	–	–	0,30	0,30	**5533526**
EC060M06N00CR03	6	6,000	0,075	14,59	–	–	0,30	0,30	**5533096**
EC070M06N00CR04	6	7,000	0,075	14,60	–	–	0,40	0,40	**5533527**

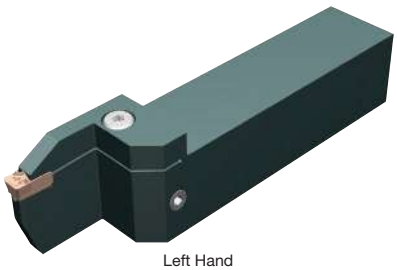
SSC = To correspond with the SSC on the toolholder.

- Offers the greatest stability.
- Straight clearance for unlimited workpiece diameters.
- Through the pocket coolant capable.








Left Hand

Integral Straight • Metric

order number	catalogue number	SSC	CD	H1	H	B	H2	L1	FS	LH	CF	CS	Torx clamp screw	Torx clamp screw	Torx
right hand															
5953960	EVSMR2020K0216	2	16	20	20	20	27	125	19	31	–	–	–	MS1160	T20
5953958	EVSMR2525M0216	2	16	25	25	25	32	150	24	31	–	–	–	MS1160	T20
5953959	EVSMR2020K0222	2	22	20	20	20	29	125	19	38	–	–	MS2091	–	25 IP
5953957	EVSMR2525M0226	2	26	25	25	25	34	150	24	42	–	–	MS2091	–	25 IP
5939452	EVSMR2020K0316C	3	16	20	20	20	29	125	19	37	M8X1	M8X1	MS1595	–	T30
5939448	EVSMR2525M0316C	3	16	25	25	25	34	150	24	37	G1/8-28	G1/8-28	MS1595	–	T30
5939451	EVSMR2020K0322C	3	22	20	20	20	30	125	19	43	M8X1	M8X1	MS1595	–	T30
5939447	EVSMR2525M0326C	3	26	25	25	25	35	150	24	47	G1/8	G1/8	MS1595	–	T30
5939450	EVSMR2020K0416C	4	16	20	20	20	29	125	18	37	M8X1	M8X1	MS1595	–	T30
5939446	EVSMR2525M0416C	4	16	25	25	25	34	150	23	37	G1/8	G1/8	MS1595	–	T30
5939449	EVSMR2020K0422C	4	22	20	20	20	30	125	18	43	M8X1	M8X1	MS1595	–	T30
5939445	EVSMR2525M0426C	4	26	25	25	25	35	150	23	47	G1/8	G1/8	MS1595	–	T30
5939444	EVSMR3232P0426C	4	26	32	32	32	42	170	30	47	G1/8	G1/8	MS1970	–	T30
5939443	EVSMR3232P0432C	4	32	32	32	32	42	170	30	53	G1/8	G1/8	MS1970	–	T30
5954258	EVSMR2020K0516C	5	16	20	20	20	29	125	18	37	M8X1	M8X1	MS1595	–	T30
5954254	EVSMR2525M0516C	5	16	25	25	25	34	150	23	37	G1/8-28	G1/8-28	MS1970	–	T30
5954253	EVSMR2525M0526C	5	26	25	25	25	35	150	23	47	G1/8-28	G1/8-28	MS1970	–	T30
5954249	EVSMR3232P0526C	5	26	32	32	32	42	170	30	47	G1/8-28	G1/8-28	MS1970	–	T30
5954248	EVSMR3232P0532C	5	32	32	32	32	42	170	30	53	G1/8-28	G1/8-28	MS1970	–	T30
5954256	EVSMR2020K0616C	6	16	20	20	20	29	125	17	37	M8X1	M8X1	MS1595	–	T30
5954252	EVSMR2525M0616C	6	16	25	25	25	34	150	25	37	G1/8-28	G1/8-28	MS1970	–	T30
5954251	EVSMR2525M0626C	6	26	25	25	25	34	150	25	47	G1/8-28	G1/8-28	MS1970	–	T30
5954247	EVSMR3232P0626C	6	26	32	32	32	42	170	32	47	G1/8-28	G1/8-28	MS1970	–	T30
5954246	EVSMR3232P0632C	6	32	32	32	32	43	170	29	55	G1/8-28	G1/8-28	MS1490	–	T45
5954250	EVSMR2525M0826C	8	26	25	25	25	35	150	21	49	G1/8-28	G1/8-28	MS1490	–	T45
5954244	EVSMR3232P0832C	8	32	32	32	32	43	170	28	55	G1/8-28	G1/8-28	MS1490	–	T45

(continued)

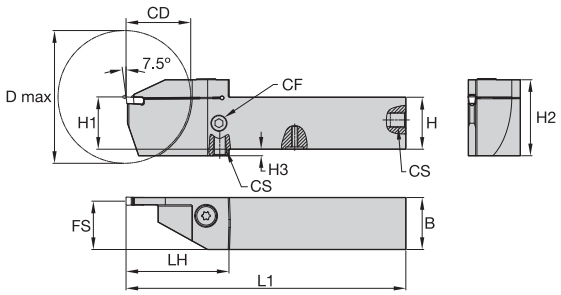
(Integral Straight • Metric — continued)

order number	catalogue number	SSC	CD	H1	H	B	H2	L1	FS	LH	CF	CS	 Torx clamp screw	 Torx clamp screw	Torx
left hand															
5953956	**EVSML2020K0216**	2	16	20	20	20	27	125	19	31	–	–	**–**	**MS1160**	T20
5953954	**EVSML2525M0216**	2	16	25	25	25	32	150	24	31	–	–	**–**	**MS1160**	T20
5953955	**EVSML2020K0222**	2	22	20	20	20	29	125	19	38	–	–	**MS2091**	**–**	25 IP
5953953	**EVSML2525M0226**	2	26	25	25	25	34	150	24	42	–	–	**MS2091**	**–**	25 IP
5939442	**EVSML2020K0316C**	3	16	20	20	20	29	125	19	37	M8X1	M8X1	**MS1595**	**–**	T30
5939438	**EVSML2525M0316C**	3	16	25	25	25	34	150	24	37	G1/8-28	G1/8-28	**MS1595**	**–**	T30
5939441	**EVSML2020K0322C**	3	22	20	20	20	30	125	19	43	M8X1	M8X1	**MS1595**	**–**	T30
5939437	**EVSML2525M0326C**	3	26	25	25	25	35	150	24	47	G1/8-28	G1/8-28	**MS1595**	**–**	T30
5939440	**EVSML2020K0416C**	4	16	20	20	20	29	125	18	37	M8X1	M8X1	**MS1595**	**–**	T30
5939436	**EVSML2525M0416C**	4	16	25	25	25	34	150	23	37	G1/8	G1/8	**MS1595**	**–**	T30
5939439	**EVSML2020K0422C**	4	22	20	20	20	30	125	18	43	M8X1	M8X1	**MS1595**	**–**	T30
5939435	**EVSML2525M0426C**	4	26	25	25	25	35	150	23	47	G1/8	G1/8	**MS1595**	**–**	T30
5939433	**EVSML3232P0426C**	4	26	32	32	32	42	170	30	47	G1/8	G1/8	**MS1970**	**–**	T30
5939432	**EVSML3232P0432C**	4	32	32	32	32	42	170	30	53	G1/8	G1/8	**MS1970**	**–**	T30
5954235	**EVSML2525M0516C**	5	16	25	25	25	34	150	23	37	G1/8-28	G1/8-28	**MS1970**	**–**	T30
5954234	**EVSML2525M0526C**	5	26	25	25	25	35	150	23	47	G1/8-28	G1/8-28	**MS1970**	**–**	T30
5954220	**EVSML3232P0526C**	5	26	32	32	32	42	170	30	47	G1/8-28	G1/8-28	**MS1970**	**–**	T30
5954219	**EVSML3232P0532C**	5	32	32	32	32	42	170	30	53	G1/8-28	G1/8-28	**MS1970**	**–**	T30
5954218	**EVSML3232P0626C**	6	26	32	32	32	42	170	29	47	G1/8-28	G1/8-28	**MS1970**	**–**	T30
5954217	**EVSML3232P0632C**	6	32	32	32	32	43	170	29	55	G1/8-28	G1/8-28	**MS1490**	**–**	T45
5954231	**EVSML2525M0826C**	8	26	25	25	25	35	150	21	49	G1/8-28	G1/8-28	**MS1490**	**–**	T45
5954214	**EVSML3232P1032C**	10	32	32	32	32	43	170	28	55	G1/8-28	G1/8-28	**MS1490**	**–**	T45

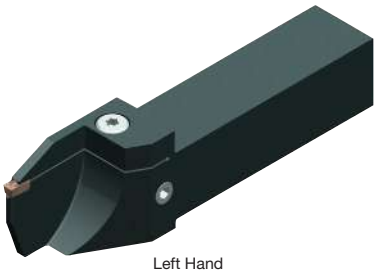
SSC = To correspond with the SSC on the insert.

screw catalogue number	screw order number	torque Nm	torque in. lbs.	thread	socket	wrench catalogue number	wrench order number
MS1160	**1099645**	7	62	M5	T20	**KT20**	**1022703**
MS1162	**1127019**	9	80	M6	T25	**KT25**	**1022725**
MS1163	**1124104**	18	159	M8	T30	**KT30L**	**3782185**
MS1273	**1020977**	4	35	M4	T15	**KT15**	**1022701**
MS1490	**2263299**	17	151	M8	T45	**KT45**	**1018227**
MS1595	**1094300**	12	106	M6	T30	**KT30**	**1099676**
MS1970	**1106668**	12	106	M6	T30	**KT30**	**1099676**
MS2002	**1621087**	9	80	M6	T25	**KT25**	**1022725**
MS2091	**1931147**	9	80	M5	25IP	**K25IP**	**2050113**
191.916	**1132523**	5	44	M4	T15	**KT15**	**1022701**
MS1944	**1732924**	4	35	M4	T25	**KT25**	**1022725**

- Through the pocket coolant capable.
- Reinforced for added support in specific workpiece diameters.



CD = Maximum cut-off depth for solid bars.
D max = Maximum bar diameter for deep grooving or cut-off of tubes.



Left Hand

Integral Reinforced Straight Top Clamp • Metric

order number	catalogue number	SSC	CD	D max	H1	H	B	H2	H3	L1	FS	LH	CF	CS	 Torx clamp screw	 Torx clamp screw	Torx
right hand																	
6179757	**EVSCTR1212K1B16**	1B	16	42	12	12	12	23	4	125	11	31	–	–	**–**	**MS1160**	T20
6179759	**EVSCTR1212K0216**	2	16	42	12	12	12	23	4	125	11	31	–	–	**–**	**MS1160**	T20
5980139	**EVSCTR1616K0216**	2	16	42	16	16	16	23	–	125	15	31	–	–	**–**	**MS1160**	T20
5980762	**EVSCTR2020K0216**	2	16	42	20	20	20	27	–	125	19	31	–	–	**–**	**MS1160**	T20
5980767	**EVSCTR2525M0216**	2	16	42	25	25	25	32	–	150	24	31	–	–	**–**	**MS1160**	T20
5980768	**EVSCTR2525M0226**	2	26	62	25	25	25	34	–	150	24	42	–	–	**MS2091**	**–**	25 IP
6179755	**EVSCTR1212K0316C**	3	16	52	12	12	12	23	4	125	11	33	M8X1	M8X1	**MS1944**	**–**	T25
5980140	**EVSCTR1616K0316C**	3	16	52	16	16	16	24	–	125	15	35	M8X1	M8X1	**MS2091**	**–**	25 IP
5980763	**EVSCTR2020K0316C**	3	16	52	20	20	20	29	–	125	19	37	M8X1	M8X1	**MS1595**	**–**	T30
5980138	**EVSCTR2525M0316C**	3	16	62	25	25	25	34	–	150	24	37	G1/8-28	G1/8-28	**MS1595**	**–**	T30
5980764	**EVSCTR2020K0326C**	3	26	62	20	20	20	34	4	125	19	47	M8X1	M8X1	**MS1595**	**–**	T30
5980769	**EVSCTR2525M0326C**	3	26	62	25	25	25	35	–	150	24	47	G1/8-28	G1/8-28	**MS1595**	**–**	T30
5980761	**EVSCTR1616K0416C**	4	16	52	16	16	16	24	–	125	14	35	M8X1	M8X1	**MS2091**	**–**	25 IP
5980765	**EVSCTR2020K0416C**	4	16	52	20	20	20	29	–	125	18	37	M8X1	M8X1	**MS1595**	**–**	T30
5980766	**EVSCTR2020K0426C**	4	26	62	20	20	20	34	4	125	18	47	M8X1	M8X1	**MS1595**	**–**	T30
5980770	**EVSCTR2525M0426C**	4	26	62	25	25	25	35	–	150	23	47	G1/8-28	G1/8-28	**MS1595**	**–**	T30
5980771	**EVSCTR2525M0432C**	4	32	64	25	25	25	39	4	150	23	53	G1/8-28	G1/8-28	**MS1595**	**–**	T30
5980772	**EVSCTR2525M0526C**	5	26	62	25	25	25	35	–	150	23	47	G1/8-28	G1/8-28	**MS1970**	**–**	T30
5980775	**EVSCTR3232P0540C**	5	40	82	32	32	32	47	4	170	30	63	G1/8-28	G1/8-28	**MS1490**	**–**	T45

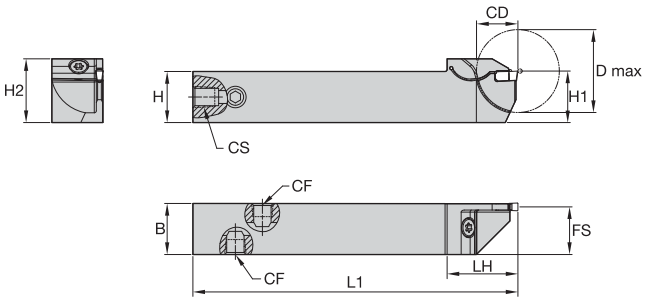
(continued)

(Integral Reinforced Straight Top Clamp • Metric — continued)

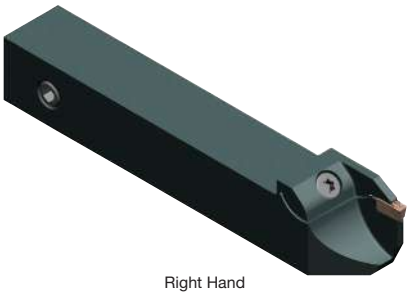
order number	catalogue number	SSC	CD	D max	H1	H	B	H2	H3	L1	FS	LH	CF	CS	 Torx clamp screw	 Torx clamp screw	Torx
left hand																	
6179760	**EVSCTL1212K1B16**	1B	16	42	12	12	12	23	4	125	11	31	–	–	**–**	**MS1160**	T20
6179762	**EVSCTL1212K0216**	2	16	42	12	12	12	23	4	125	11	31	–	–	**–**	**MS1160**	T20
5980777	**EVSCTL1616K0216**	2	16	42	16	16	16	23	–	125	15	31	–	–	**–**	**MS1160**	T20
5980780	**EVSCTL2020K0216**	2	16	42	20	20	20	27	–	125	19	31	–	–	**–**	**MS1160**	T20
5980806	**EVSCTL2525M0226**	2	26	62	25	25	25	34	–	150	24	42	–	–	**MS2091**	**–**	25 IP
6179756	**EVSCTL1212K0316C**	3	16	52	12	12	12	23	4	125	11	33	M8X1	M8X1	**MS1944**	**–**	T25
5980778	**EVSCTL1616K0316C**	3	16	52	16	16	16	24	–	125	15	35	M8X1	M8X1	**MS2091**	**–**	25 IP
5980801	**EVSCTL2020K0316C**	3	16	52	20	20	20	29	–	125	19	37	M8X1	M8X1	**MS1595**	**–**	T30
5980776	**EVSCTL2525M0316C**	3	16	62	25	25	25	34	–	150	24	37	G1/8-28	G1/8-28	**MS1595**	**–**	T30
5980802	**EVSCTL2020K0326C**	3	26	62	20	20	20	34	4	125	19	47	M8X1	M8X1	**MS1595**	**–**	T30
5980807	**EVSCTL2525M0326C**	3	26	62	25	25	25	35	–	150	24	47	G1/8-28	G1/8-28	**MS1595**	**–**	T30
5980803	**EVSCTL2020K0416C**	4	16	52	20	20	20	29	–	125	18	37	M8X1	M8X1	**MS1595**	**–**	T30
5980804	**EVSCTL2020K0426C**	4	26	62	20	20	20	34	4	125	18	47	M8X1	M8X1	**MS1595**	**–**	T30
5980808	**EVSCTL2525M0426C**	4	26	62	25	25	25	35	–	150	23	47	G1/8-28	G1/8-28	**MS1595**	**–**	T30
5980809	**EVSCTL2525M0432C**	4	32	64	25	25	25	39	4	150	23	53	G1/8-28	G1/8-28	**MS1595**	**–**	T30
5980810	**EVSCTL2525M0526C**	5	26	62	25	25	25	35	–	150	23	47	G1/8-28	G1/8-28	**MS1970**	**–**	T30

NOTE: Through the pocket coolant available in seat sizes 3 and higher.
SSC = To correspond with the SSC on the insert.

screw catalogue number	screw order number	torque Nm	torque in. lbs.	thread	socket	wrench catalogue number	wrench order number
MS1160	**1099645**	7	62	M5	T20	**KT20**	**1022703**
MS1162	**1127019**	9	80	M6	T25	**KT25**	**1022725**
MS1163	**1124104**	18	159	M8	T30	**KT30L**	**3782185**
MS1273	**1020977**	4	35	M4	T15	**KT15**	**1022701**
MS1490	**2263299**	17	151	M8	T45	**KT45**	**1018227**
MS1595	**1094300**	12	106	M6	T30	**KT30**	**1099676**
MS1970	**1106668**	12	106	M6	T30	**KT30**	**1099676**
MS2002	**1621087**	9	80	M6	T25	**KT25**	**1022725**
MS2091	**1931147**	9	80	M5	25IP	**K25IP**	**2050113**
191.916	**1132523**	5	44	M4	T15	**KT15**	**1022701**
MS1944	**1732924**	4	35	M4	T25	**KT25**	**1022725**



CD = Maximum cut-off depth for solid bars.
D max = Maximum bar diameter for deep grooving or cut-off of tubes.



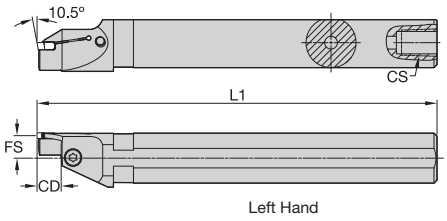
Right Hand

Integral Reinforced Front Clamp • Metric

order number	catalogue number	SSC	CD	D max	H1	H	B	H2	L1	FS	LH	CF	CS	Torx clamp screw	Torx
right hand															
6179766	**EVSCFR1212K1B10**	1B	10	20	12	12	12	16	125	11	21	—	—	**191.916**	T15
6179767	**EVSCFR1212K1B13**	1B	13	26	12	12	12	16	125	11	24	—	—	**191.916**	T15
6179774	**EVSCFR1616K1B16**	1B	16	32	16	16	16	21	125	15	27	—	—	**MS1160**	T20
6179778	**EVSCFR2020K1B16**	1B	16	32	20	20	20	25	125	19	27	—	—	**MS1160**	T20
6179770	**EVSCFR1212K0210**	2	10	20	12	12	12	16	125	11	21	—	—	**191.916**	T15
6179771	**EVSCFR1212K0216**	2	16	32	12	12	12	16	125	11	27	—	—	**191.916**	T15
6179776	**EVSCFR1616K0216**	2	16	32	16	16	16	21	125	15	27	—	—	**MS1160**	T20
6179780	**EVSCFR2020K0216**	2	16	32	20	20	20	25	125	19	27	—	—	**MS1160**	T20
6179772	**EVSCFR1212K0310C**	3	10	20	12	12	12	17	125	11	22	M8X1	M8X1	**191.916**	T15
6179773	**EVSCFR1212K0316C**	3	16	32	12	12	12	17	125	11	28	M8X1	M8X1	**191.916**	T15
6179777	**EVSCFR1616K0316C**	3	16	32	16	16	16	21	125	15	28	M8X1	M8X1	**MS1160**	T20
6179781	**EVSCFR2020K0316C**	3	16	32	20	20	20	25	125	19	28	M8X1	M8X1	**MS1160**	T20
left hand															
6179922	**EVSCFL1212K1B10**	1B	10	20	12	12	12	16	125	11	21	—	—	**191.916**	T15
6179926	**EVSCFL1212K0210**	2	10	20	12	12	12	16	125	11	21	—	—	**191.916**	T15
6179927	**EVSCFL1212K0216**	2	16	32	12	12	12	16	125	11	27	—	—	**191.916**	T15
6179932	**EVSCFL1616K0216**	2	16	32	16	16	16	21	125	15	27	—	—	**MS1160**	T20
6179936	**EVSCFL2020K0216**	2	16	32	20	20	20	25	125	19	27	—	—	**MS1160**	T20
6179928	**EVSCFL1212K0310C**	3	10	20	12	12	12	17	125	11	22	M8X1	M8X1	**191.916**	T15
6179933	**EVSCFL1616K0316C**	3	16	32	16	16	16	21	125	15	28	M8X1	M8X1	**MS1160**	T20

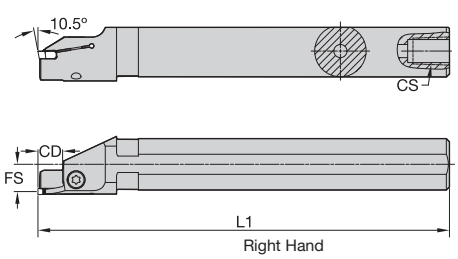
NOTE: Through the pocket coolant available in seat sizes 3 and higher.
SSC = To correspond with the SSC on the insert.

screw catalogue number	screw order number	torque Nm	torque in. lbs.	thread	socket	wrench catalogue number	wrench order number
MS1160	**1099645**	7	62	M5	T20	**KT20**	**1022703**
MS1162	**1127019**	9	80	M6	T25	**KT25**	**1022725**
MS1163	**1124104**	18	159	M8	T30	**KT30L**	**3782185**
MS1273	**1020977**	4	35	M4	T15	**KT15**	**1022701**
MS1490	**2263299**	17	151	M8	T45	**KT45**	**1018227**
MS1595	**1094300**	12	106	M6	T30	**KT30**	**1099676**
MS1970	**1106668**	12	106	M6	T30	**KT30**	**1099676**
MS2002	**1621087**	9	80	M6	T25	**KT25**	**1022725**
MS2091	**1931147**	9	80	M5	25IP	**K25IP**	**2050113**
191.916	**1132523**	5	44	M4	T15	**KT15**	**1022701**
MS1944	**1732924**	4	35	M4	T25	**KT25**	**1022725**



Left Hand


Left Hand



Right Hand


Right Hand

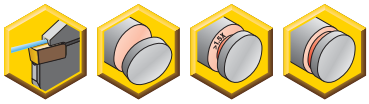
Steel Face Grooving Boring Bar • Metric

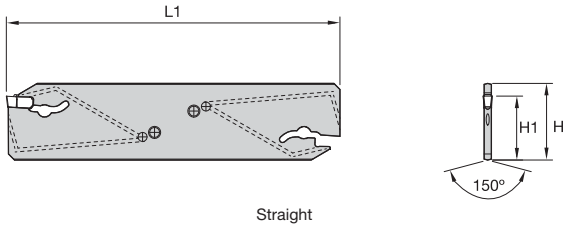
order number	catalogue number	SSC	CD	D	D min	D max	L1	FS	CS	Torx clamp screw	Torx
right hand											
6116521	**A25REVSAR0212M026030**	2	12,00	25	26	30	200	12	1/4-18 NPT	**MS1160**	T20
6116522	**A25REVSAR0312M030035**	3	12,00	25	30	35	200	11	1/4-18 NPT	**MS1162**	T25
left hand											
6116528	**A25REVSAL0312M030035**	3	12,00	25	30	35	200	11	1/4-18 NPT	**MS1162**	T25

SSC = To correspond with the SSC on the insert.

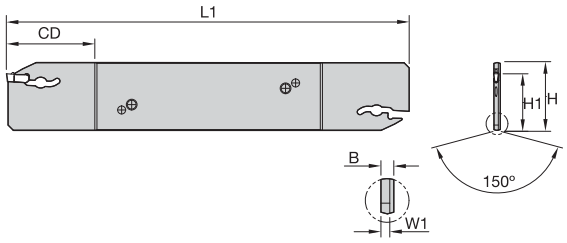
screw catalogue number	screw order number	torque Nm	torque in. lbs.	thread	socket	wrench catalogue number	wrench order number
MS1160	**1099645**	7	62	M5	T20	**KT20**	**1022703**
MS1162	**1127019**	9	80	M6	T25	**KT25**	**1022725**
MS1163	**1124104**	18	159	M8	T30	**KT30L**	**3782185**
MS1273	**1020977**	4	35	M4	T15	**KT15**	**1022701**
MS1490	**2263299**	17	151	M8	T45	**KT45**	**1018227**
MS1595	**1094300**	12	106	M6	T30	**KT30**	**1099676**
MS1970	**1106668**	12	106	M6	T30	**KT30**	**1099676**
MS2002	**1621087**	9	80	M6	T25	**KT25**	**1022725**
MS2091	**1931147**	9	80	M5	25IP	**K25IP**	**2050113**
191.916	**1132523**	5	44	M4	T15	**KT15**	**1022701**
MS1944	**1732924**	4	35	M4	T25	**KT25**	**1022725**

- Universal pocket for holding all insert geometries.
- Through coolant active control technology.
- For even higher productivity in cut-off and deep-grooving applications.
- Assembly wrench supplied with blade.





Straight



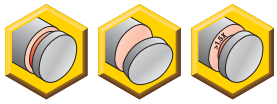
Reinforced

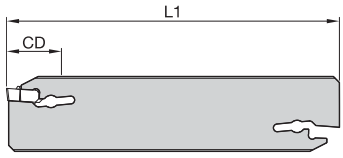
Beyond Evolution • Cut-Off Blade • Double Ended • Through Coolant

order number	catalogue number	SSC	H	W1	H1	L1	B	CD	assembly wrench
neutral hand									
6513449	**EVBSN26M0233C**	2	26	1,65	21,5	150	2	33	**SCW5E**
6513450	**EVBSN32M0233C**	2	32	1,65	25,1	150	2	33	**SCW5E**
6513521	**EVBSN26J0340C**	3	26	–	21,5	110	2	40	**SCW5E**
6513522	**EVBSN26M0340C**	3	26	–	21,5	150	2	40	**SCW5E**
6513523	**EVBSN32M0350C**	3	32	–	25,1	150	2	50	**SCW5E**
6513524	**EVBSN26J0440C**	4	26	–	21,5	110	3	40	**SCW5E**
6513525	**EVBSN26M0440C**	4	26	–	21,5	150	3	40	**SCW5E**
6513526	**EVBSN32M0450C**	4	32	–	25,1	150	3	50	**SCW5E**
6513527	**EVBSN32M0560C**	5	32	–	25,1	150	4	60	**SCW5E**
6513529	**EVBSN32M0660C**	6	32	–	25,1	150	5	60	**SCW8E**

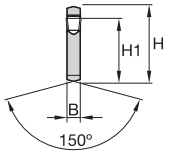
SSC = To correspond with the SSC on the insert.

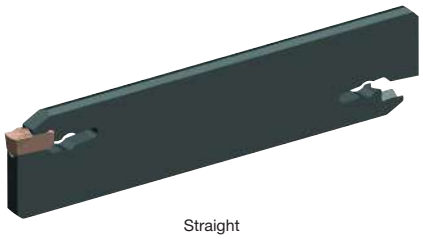
- For deep groove and cut-off applications.
- Universal pocket for holding all insert geometries.
- Assembly wrench supplied with blade.



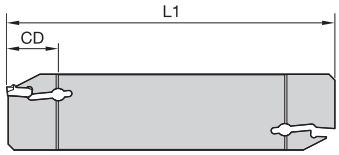


Straight

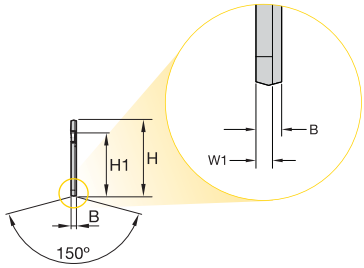


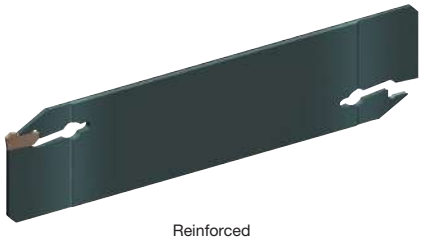


Straight



Reinforced





Reinforced

Double-Ended Cut-Off Blade

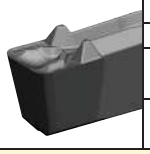
order number	catalogue number	SSC	H	W1	H1	L1	B	CD	assembly wrench
neutral hand									
5941706	**EVBSN19G1B14**	1B	19	1,15	15,5	90	2	14	**SCW5E**
5941708	**EVBSN26J1B15**	1B	26	1,15	21,5	110	2	15	**SCW5E**
5955392	**EVBSN26J1F17**	1F	26	1,30	21,5	110	2	17	**SCW5E**
5941707	**EVBSN19G0220**	2	19	–	15,5	90	2	–	**SCW5E**
5941709	**EVBSN26J0230**	2	26	–	21,5	110	2	–	**SCW5E**
5941710	**EVBSN26M0230**	2	26	–	21,5	150	2	–	**SCW5E**
5941724	**EVBSN32M0250**	2	32	–	25,1	150	2	–	**SCW5E**
5941721	**EVBSN26J0340**	3	26	–	21,5	110	2	–	**SCW5E**
5941722	**EVBSN26M0340**	3	26	–	21,5	150	2	–	**SCW5E**
5941725	**EVBSN32M0350**	3	32	–	25,1	150	2	–	**SCW5E**
5941723	**EVBSN26J0440**	4	26	–	21,5	110	3	–	**SCW5E**
5941726	**EVBSN32M0450**	4	32	–	25,1	150	3	–	**SCW5E**
5977635	**EVBSN26J0540**	5	26	–	21,5	110	4	–	**SCW5E**
5977637	**EVBSN32M0560**	5	32	–	25,1	150	4	–	**SCW5E**
5977638	**EVBSN32M0660**	6	32	–	25,1	150	5	–	**SCW8E**
5977640	**EVBSN52X06120**	6	53	–	45,3	260	5	–	**SCW8E**
5977639	**EVBSN32M0860**	8	32	–	25,1	150	7	–	**SCW8E**
5977721	**EVBSN52X08120**	8	53	–	45,3	260	7	–	**SCW8E**

SSC = To correspond with the SSC on the insert.

Select the geometry

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

● first choice
○ alternate choice

Chip Control	Description	Insert Geometry	Seat Size (SSC)	Corner Radius in (mm)	Starting Conditions in (mm)	Plunge Feed Rates inch/rev (mm/rev) .0020 (0,05)	.0040 (0,10)	.0060 (0,15)	.0080 (0,20)	.0100 (0,25)	.0120 (0,30)
-GUP	Positive rake angle for lower cutting forces.		1F	.008 (0,2)	.0024 (0,06)						
			2	.008 (0,2)	.0031 (0,08)						
			3	.008 (0,2)	.0035 (0,09)						
				.016 (0,4)	.0043 (0,11)						
			4	.016 (0,4)	.0047 (0,12)						
				.031 (0,8)	.0059 (0,15)						

Recommended Starting Feed Rate

Pictorial View of Insert

Corner Radius

Plunge Feed Rates

Seat Size

Recommended Feed Rate Range

Primary Workpiece Material Group

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

● first choice
○ alternate choice

Chip Control Geometry Designation

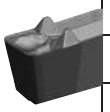
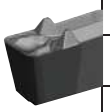
Maximum Feed Rate Values

	Material Group	Feed Factor
Data above is for P and K material groups. **Maximum** feed rates should be adjusted by multiplying max feed rate values by following factors for shown material groups.	M	.8
	N	1.2
	S	.8
	H	.5

Plunge feed rates

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

● first choice
○ alternate choice

Chip Control	Description	Insert Geometry	Seat Size (SSC)	Corner Radius mm	Starting Conditions mm	Plunge Feed Rates mm/rev 0,05 0,10 0,15 0,20 0,25 0,30 0,35
-GUP	Positive rake angle for lower cutting forces.		1F	0,2	0,06	
			2	0,2	0,08	
			3	0,2	0,09	
				0,4	0,11	
			4	0,4	0,12	
				0,8	0,15	
			5	0,4	0,15	
				0,8	0,16	
			6	0,4	0,16	
				0,8	0,18	
				1,2	0,20	
			8	0,8	0,20	
				1,2	0,22	
			10	1,2	0,24	
-GUN	Stable negative cutting edge allowing for more aggressive applications.		1F	0,2	0,06	
			2	0,2	0,08	
			3	0,2	0,09	
				0,4	0,11	
			4	0,4	0,12	
				0,8	0,15	
			5	0,4	0,15	
				0,8	0,16	
			6	0,4	0,16	
				0,8	0,18	
				1,2	0,20	
			8	0,8	0,20	
				1,2	0,22	
			10	1,2	0,24	

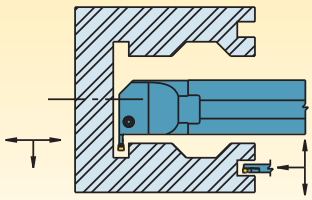
Maximum Feed Rate Values

Data above is for P and K material groups. **Maximum** feed rates should be adjusted by multiplying max feed rate values by following factors for shown material groups.

Material Group	Feed Factor
M	.8
N	1.2
S	.8
H	.5

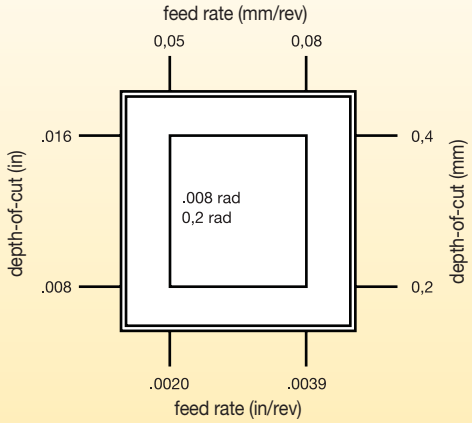
I.D. and Face Grooving

For I.D. and face grooving applications, reduce feed rate by 20%.

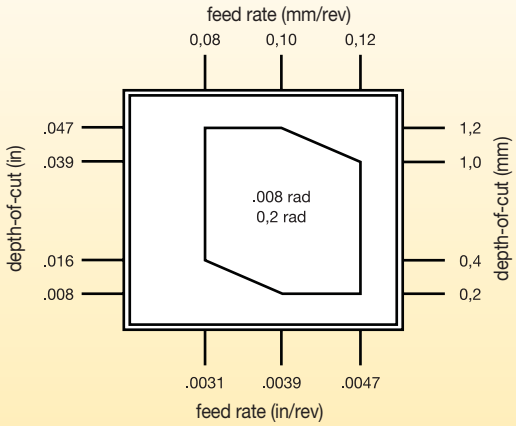


Turn and profile feed rates

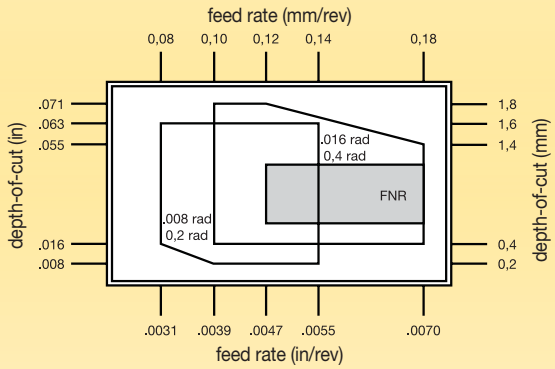
Seat Size 1F



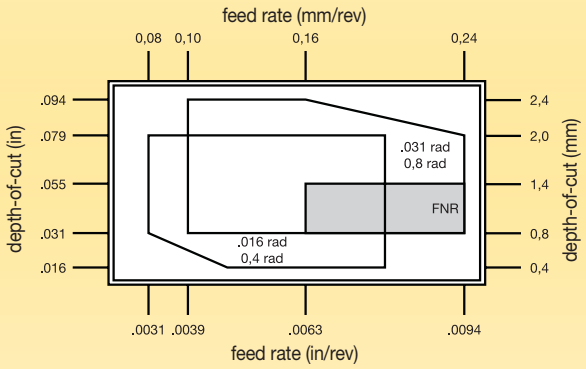
Seat Size 2



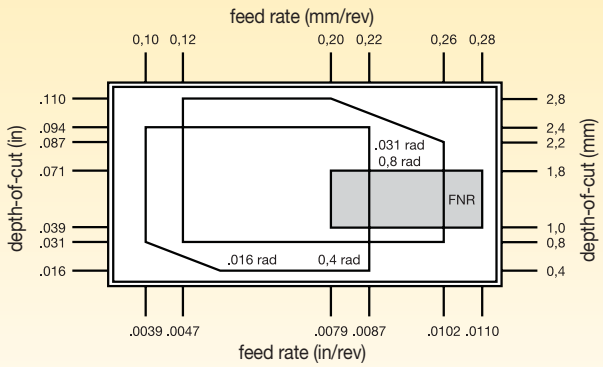
Seat Size 3



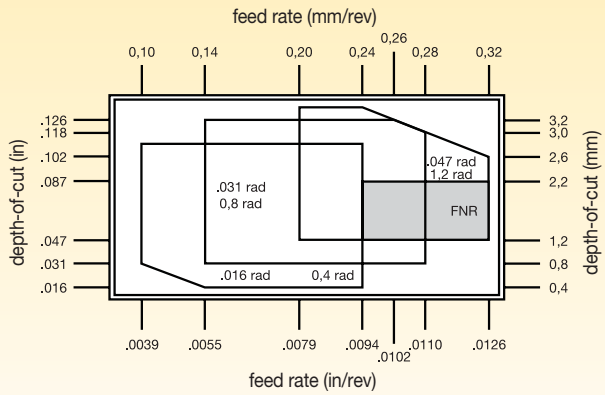
Seat Size 4



Seat Size 5



Seat Size 6

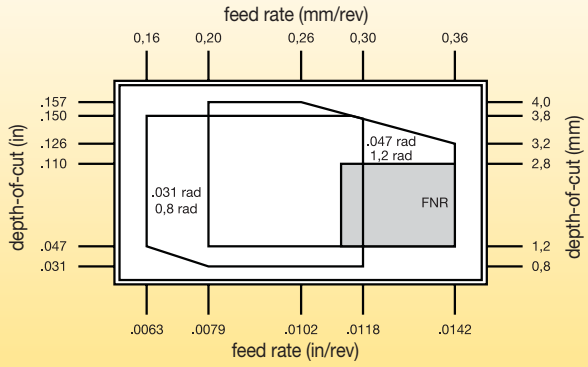


* FNR = Full Nose Radius

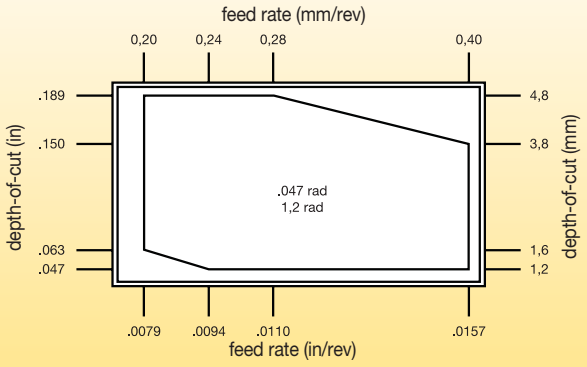
(continued)

(Turn and profile feed rates — continued)

Seat Size 8



Seat Size 10

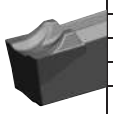
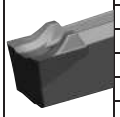
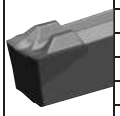
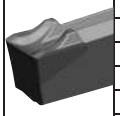


Cut-Off Feed Rates

Plunge feed rates

● first choice
○ alternate choice

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

Geometry	Description	Insert Geometry	Seat Size (SSC)	Starting Conditions mm	Cut-Off Feed Rates mm/rev 0,05 0,10 0,15 0,20 0,25 0,30 0,35 0,40
-CL	Aggressive geometry for hard to break chips.		1B	0,06	
			2	0,07	
			3	0,08	
			4	0,09	
-CF	Positive geometry for reduced cutting forces.		1B	0,06	
			2	0,07	
			3	0,09	
			4	0,11	
			5	0,13	
-CM	Stable cutting edge for aggressive feed rates. Primarily in cast iron.		1B	0,06	
			2	0,07	
			3	0,09	
			4	0,11	
			5	0,14	
			6	0,16	
			8	0,14	
-CR	Most stable cutting edge for steel.		2	0,10	
			3	0,14	
			4	0,16	
			5	0,19	
			6	0,21	
			8	0,23	

NOTE: For cut-off inserts with a lead angle, maximum feed rate should be reduced by up to 40%.

Maximum Feed Rate Values

	Material Group	Feed Factor
Data above is for P and K material groups. **Maximum** feed rates should be adjusted by multiplying max feed rate values by following factors for shown material groups.	M	.8
	N	1.2
	S	.8
	H	.5

Recommended Starting Speeds [m/min]

Material Group		K313			KCU10			KCU25			KCM35B			KCP10B			KCP25B			KCK20B		
P	0–1	–	–	–	140	**280**	350	110	**225**	270	90	**180**	213	185	**400**	450	145	**290**	365	200	**440**	490
	2	–	–	–	140	**200**	300	110	**160**	260	90	**130**	155	185	**270**	350	145	**200**	305	200	**300**	380
	3	–	–	–	140	**155**	245	110	**125**	235	90	**100**	155	170	**190**	260	140	**155**	245	600	**200**	280
	4	–	–	–	75	**110**	170	60	**90**	160	50	**70**	110	90	**145**	200	75	**110**	180	100	**160**	220
	5	–	–	–	120	**200**	260	100	**160**	210	80	**130**	165	150	**220**	305	120	**200**	270	165	**240**	330
	6	–	–	–	110	**150**	230	85	**120**	185	70	**100**	145	120	**180**	275	110	**150**	230	130	**190**	300
M	1	60	**90**	120	140	**210**	280	90	**170**	245	75	**120**	135	–	–	–	–	–	–	–	–	–
	2	45	**75**	110	120	**200**	245	90	**150**	245	75	**110**	135	–	–	–	–	–	–	–	–	–
	3	35	**65**	100	120	**180**	245	90	**140**	210	75	**90**	135	–	–	–	–	–	–	–	–	–
K	1	30	**75**	120	120	**180**	245	100	**145**	225	–	–	–	170	**245**	440	140	**200**	360	210	**305**	550
	2	25	**70**	110	90	**150**	240	70	**120**	170	–	–	–	120	**195**	340	100	**160**	280	150	**245**	430
	3	20	**60**	90	60	**110**	150	50	**85**	120	–	–	–	120	**170**	270	100	**140**	220	150	**210**	335
N	1–2	150	**370**	610	150	**550**	975	120	**440**	780	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	4	120	**275**	430	120	**365**	700	100	**290**	490	–	–	–	–	–	–	–	–	–	–	–	–
	5	45	**90**	150	90	**170**	245	70	**135**	195	–	–	–	–	–	–	–	–	–	–	–	–
	6	40	**75**	150	120	**210**	305	100	**170**	245	–	–	–	–	–	–	–	–	–	–	–	–
S	1	8	**30**	75	15	**55**	135	8	**40**	60	8	**35**	60	–	–	–	–	–	–	–	–	–
	2	8	**35**	75	15	**60**	135	8	**30**	75	8	**30**	60	–	–	–	–	–	–	–	–	–
	3	8	**40**	75	15	**70**	150	15	**40**	75	15	**35**	60	–	–	–	–	–	–	–	–	–
	4	8	**45**	75	15	**70**	170	8	**50**	110	15	**45**	90	–	–	–	–	–	–	–	–	–
H	1	–	–	–	30	**45**	60	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	15	**30**	45	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Mobile Apps

The Kennametal mobile app provides easy access to product information and calculators on both iPhone® and Android™ devices. We've highlighted a few of the key features...

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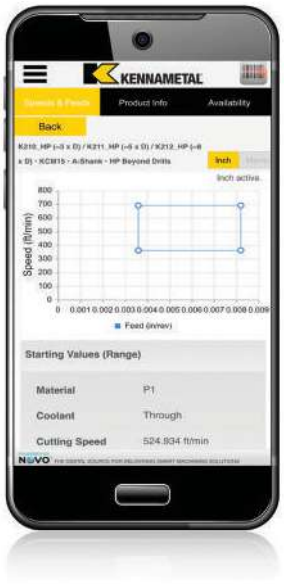

NOTE: The app is currently only available in the English-language version. We have plans to translate the app in different languages with future releases.

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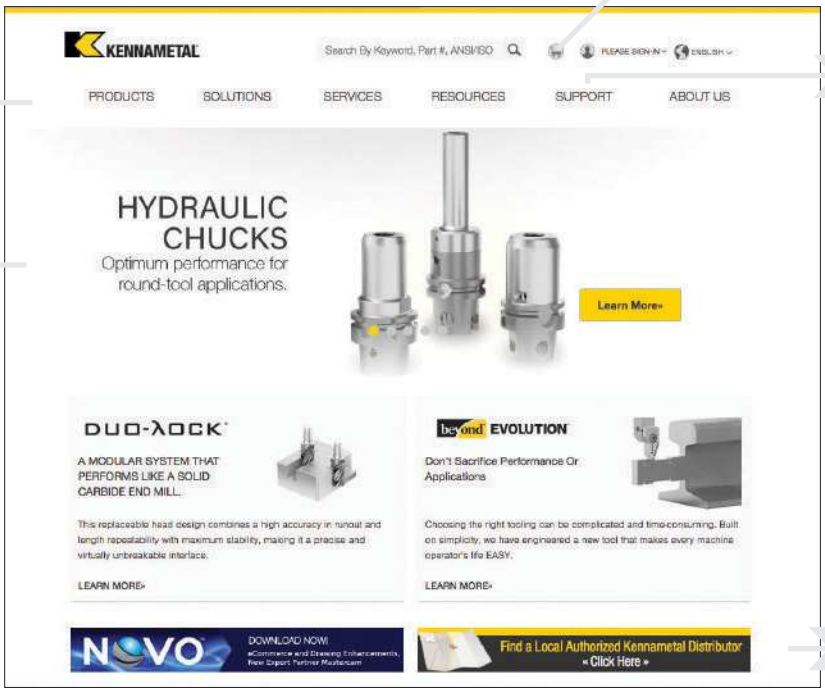

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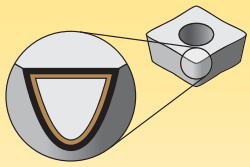
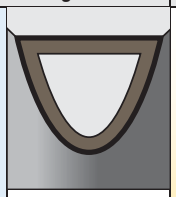
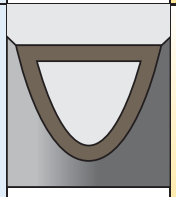
Kennametal offers world-class products and services globally. Our distributors know us, and more importantly, they know you. They know better than anyone in the industry how to put the global power of Kennametal to work for you — in your industry, in your region, and for your business.



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

Grades

Coating	Grade Description	wear resistance ⟷ toughness	05	10	15	20	25	30	35	40	45
KCU10  —	**Composition:** An advanced multilayer PVD coating over a very deformation-resistant unalloyed carbide substrate. The new and improved coating improves edge stability with wide range speed and feed capabilities. **Application:** The KCU10™ grade is ideal for finishing to general machining of most workpiece materials at a wide range of speed and feed capabilities. Excellent for machining most steels, stainless steels, cast irons, non-ferrous materials, and super alloys with improved edge toughness and higher cutting speed/feed capability.	P									
		M									
		K									
		N									
		S									
		H									
		beyond									
KCU25  —	**Composition:** An advanced PVD grade with hard AlTiN coating and fine-grain unalloyed substrate. The new and improved coating improves edge stability with wide range speed and feed capabilities. **Application:** The KCU25™ grade is ideal for general machining of most steels, stainless steels, high-temp alloys, titanium, irons, and non-ferrous materials in a wide range of speeds and feeds with improved edge toughness for interrupted cuts and high feed rates.	P									
		M									
		K									
		N									
		S									
		beyond									

Catalogue App

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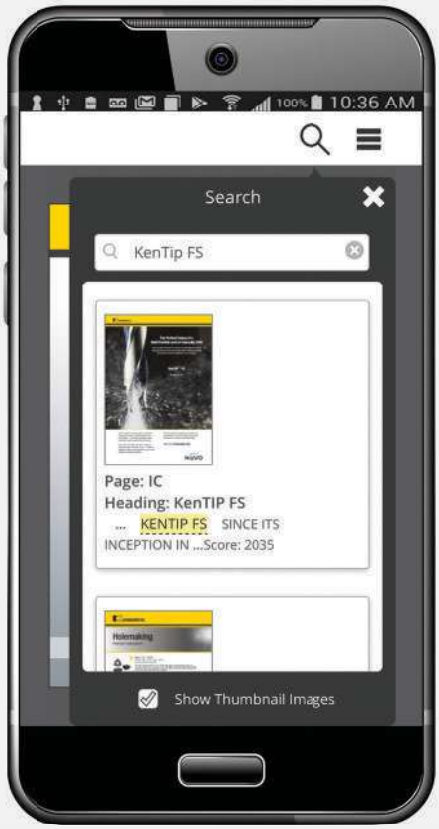

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A4™ Tooling and Beyond™ Inserts

For All Your O.D. and I.D. Applications

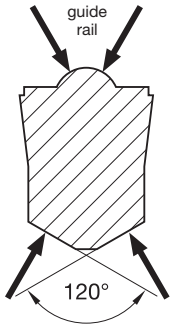
Primary Application

Choose A4 tooling for turning, facing, grooving, face grooving, and cut-off applications across a broad range of workpiece materials. The unique clamping system and versatile insert geometry delivers a very high metal removal rate.

Features and Benefits

A4 Grooving and Turning System

- One tool for turning, facing, grooving, face-grooving, and cut-off in O.D. and I.D. applications means exceptionally fast cycle times, no turret indexes!
- Extra-long clamping area, ground 120° bottom prism seating surface, and an exclusive top guide rail combine to deliver unsurpassed grooving and side-turning stability!
- Precise insert positioning is ensured for accurate cuts!
- Rigid clamping securely locks insert in place through the toughest cuts.
- Versatile design enables one system to handle O.D. and I.D. grooving, face grooving, back turning, undercutting, and even threading operations.
- Chip control inserts provide excellent chip evacuation in grooving, and offer better chip control in multidirectional turning.



A4 Chipbreakers

GMN Chipbreaker

GMP Chipbreaker

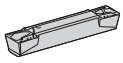
GMN Chipbreaker

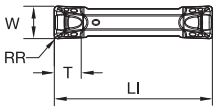
GMP Chipbreaker

GUP Chipbreaker

The A4™ System Increases Productivity

- Covers multiple applications.
- Reduces tool cost.
- Minimises machining time.





A4G-U-GUP

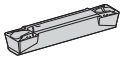
● first choice
○ alternate choice

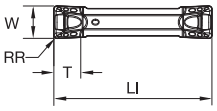
P		●	●
M		●	●
K		○	○
N		●	○
S		●	●
H		○	

GUP Precision Moulded

ISO catalogue number	SSC	W	RR	LI	T	KCU10	KCU25
A4G0205M02U02GUP	2	2,05	0,2	20	2,0	**3791263**	**3791279**
A4G0305M03U02GUP	3	3,05	0,2	20	3,0	**–**	**3791280**
A4G0305M03U04GUP	3	3,05	0,4	20	3,0	**3791266**	**3791281**
A4G0405M04U04GUP	4	4,05	0,4	20	3,4	**3791267**	**3774691**
A4G0505M05U04GUP	5	5,05	0,4	25	4,2	**–**	**3791282**
A4G0505M05U08GUP	5	5,05	0,8	25	4,2	**3791270**	**3774723**
A4G0605M06U04GUP	6	6,05	0,4	30	4,5	**–**	**3791283**
A4G0605M06U08GUP	6	6,05	0,8	30	4,5	**–**	**3791284**
A4G0605M06U12GUP	6	6,05	1,2	30	4,5	**–**	**3791285**
A4G0805M08U08GUP	8	8,05	0,8	30	6,0	**–**	**3791286**
A4G1005M10U08GUP	10	10,05	0,8	30	6,0	**–**	**3791287**

SSC = To correspond with the SSC on the toolholder.



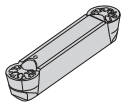


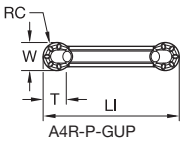
A4G-P-GUP

GUP Precision Ground

ISO catalogue number	SSC	W	RR	LI	T	KCU10	KCU25
A4G0200M02P02GUP	2	2,00	0,2	20	1,9	**3781192**	**3781252**
A4G0300M03P02GUP	3	3,00	0,2	20	2,9	**3781278**	**3781253**
A4G0300M03P04GUP	3	3,00	0,4	20	2,9	**3781279**	**3781254**
A4G0400M04P02GUP	4	4,00	0,2	20	3,3	**3781280**	**3781255**
A4G0400M04P04GUP	4	4,00	0,4	20	3,3	**3781281**	**3781256**
A4G0400M04P08GUP	4	4,00	0,8	20	3,3	**3781282**	**3781257**
A4G0500M05P04GUP	5	5,00	0,4	25	4,1	**3781283**	**–**
A4G0500M05P08GUP	5	5,00	0,8	25	4,1	**–**	**3781259**
A4G0600M06P04GUP	6	6,00	0,4	30	4,5	**–**	**3781260**
A4G0600M06P08GUP	6	6,00	0,8	30	4,5	**3781286**	**3781261**
A4G0800M08P08GUP	8	8,00	0,8	30	6,0	**3781287**	**–**

SSC = To correspond with the SSC on the toolholder.





A4R-P-GUP

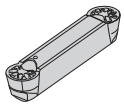
● first choice
○ alternate choice

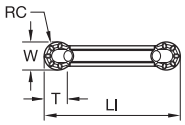
P		●	●
M		●	●
K		○	○
N		●	○
S		●	●
H		○	

GUP Full Radius Precision Moulded

ISO catalogue number	SSC	W	RC	LI	T	KCU10	KCU25
A4R0305M03U00GUP	3	3,05	1,5	20	–	**–**	**5146918**
A4R0405M04U00GUP	4	4,05	2,0	20	–	**–**	**5136359**
A4R0505M05U00GUP	5	5,05	2,5	25	–	**5327663**	**5146919**
A4R0805M08U00GUP	8	8,05	4,0	30	6,5	**–**	**5136423**

SSC = To correspond with the SSC on the toolholder.



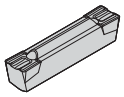


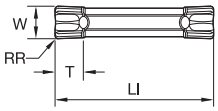
A4R-P-GUP

GUP Full Radius Precision Ground

ISO catalogue number	SSC	W	RC	LI	T	KCU10	KCU25
A4R0300M03P00GUP	3	3,00	1,5	20	–	**–**	**5147211**
A4R0400M04P00GUP	4	4,00	2,0	20	–	**–**	**5147212**
A4R0500M05P00GUP	5	5,00	2,5	25	–	**–**	**5147213**

SSC = To correspond with the SSC on the toolholder.





A4G-U-GMP

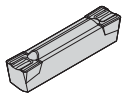
● first choice
○ alternate choice

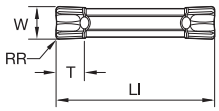
P	●	●	○	○	
M	●	●	●	○	
K	○	○	○	○	
N	●	○	●	○	
S	●	●	○	○	
H	○		○		

GMP Precision Moulded

ISO catalogue number	SSC	W	RR	LI	T	KCU10	KCU25	KC5010	KC5025
A4G0205M02U02GMP	2	2,05	0,2	20	2,0	–	4114297	2983982	2984013
A4G0305M03U02GMP	3	3,05	0,2	20	3,5	–	4114303	–	1952744
A4G0305M03U04GMP	3	3,05	0,4	20	3,5	4034776	–	1952746	1952747
A4G0405M04U04GMP	4	4,05	0,4	20	3,4	–	–	1952749	1952750
A4G0505M05U04GMP	5	5,05	0,4	25	4,2	–	–	1952755	1923838
A4G0505M05U08GMP	5	5,05	0,8	25	4,2	–	–	1952758	–
A4G0605M06U04GMP	6	6,05	0,4	30	4,9	–	–	–	2263387

SSC = To correspond with the SSC on the toolholder.



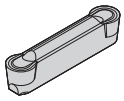


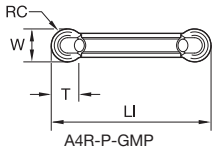
A4G-P-GMP

GMP Precision Ground

ISO catalogue number	SSC	W	RR	LI	T	KCU10	KCU25	KC5010	KC5025
A4G0200M02P02GMP	2	2,00	0,2	20	2,0	–	4114295	2984015	2984016
A4G0300M03P02GMP	3	3,00	0,2	20	3,5	–	4114299	1952760	1923833
A4G0300M03P04GMP	3	3,00	0,4	20	3,5	–	–	1952762	1952763
A4G0400M04P02GMP	4	4,00	0,2	20	–	4034777	–	–	1952765
A4G0400M04P04GMP	4	4,00	0,4	20	3,5	–	–	1952766	1952767
A4G0400M04P08GMP	4	4,00	0,8	20	3,5	–	–	1952768	–
A4G0500M05P04GMP	5	5,00	0,4	25	–	–	–	1923835	–
A4G0500M05P08GMP	5	5,00	0,8	25	–	–	–	1923840	1952773
A4G0600M06P04GMP	6	6,00	0,4	30	4,9	–	–	2263414	–
A4G0600M06P08GMP	6	6,00	0,8	30	4,9	–	–	2263415	–

SSC = To correspond with the SSC on the toolholder.





A4R-P-GMP

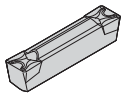
● first choice
○ alternate choice

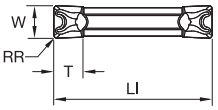
		KCU10	KCU25	KC5010	KC5025
P		●	●	○	○
M		●	●	●	○
K		○	○	○	○
N		●	○	●	○
S		●	●	○	○
H		○		○	

GMP Full Radius Precision Ground

ISO catalogue number	SSC	W	RC	LI	T	KCU10	KCU25	KC5010	KC5025
A4R0200M02P00GMP	2	2,00	1,0	20	1,7	**4034813**	**4114343**	**2984026**	**2984027**
A4R0300M03P00GMP	3	3,00	1,5	20	2,5	**4034815**	**4114345**	**2234826**	**2234825**
A4R0400M04P00GMP	4	4,00	2,0	20	—	**4034817**	**4114347**	**1952778**	**1952779**
A4R0500M05P00GMP	5	5,00	2,5	25	4,1	**4034819**	**–**	**1952780**	**–**
A4R0600M06P00GMP	6	6,00	3,0	30	4,8	**–**	**–**	**2263403**	**–**

SSC = To correspond with the SSC on the toolholder.



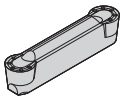


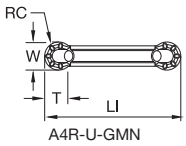
A4G-U-GMN

GMN Precision Moulded

ISO catalogue number	SSC	W	RR	LI	T	KCU10	KCU25	KC5010	KC5025
A4G0205M02U02GMN	2	2,05	0,2	20	2,0	**4034718**	**4114296**	**2983980**	**2983981**
A4G0305M03U02GMN	3	3,05	0,2	20	3,5	**–**	**4114302**	**1952700**	**1952701**
A4G0305M03U04GMN	3	3,05	0,4	20	3,5	**–**	**4114304**	**1952702**	**1952733**
A4G0405M04U04GMN	4	4,05	0,4	20	3,4	**4034780**	**4114309**	**1952734**	**1952735**
A4G0405M04U08GMN	4	4,05	0,8	20	3,4	**4034782**	**4114311**	**1952736**	**1952737**
A4G0505M05U04GMN	5	5,05	0,4	25	4,2	**4034786**	**4114316**	**1952738**	**1923836**
A4G0505M05U08GMN	5	5,05	0,8	25	4,2	**4034788**	**4114318**	**1952740**	**1923837**
A4G0605M06U04GMN	6	6,05	0,4	30	4,9	**4034792**	**–**	**2263361**	**2263362**
A4G0605M06U08GMN	6	6,05	0,8	30	4,9	**–**	**–**	**–**	**2263375**
A4G0805M08U08GMN	8	8,05	0,8	30	6,4	**–**	**–**	**2263378**	**–**

SSC = To correspond with the SSC on the toolholder.





A4R-U-GMN

● first choice
○ alternate choice

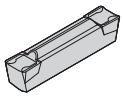
P	●	●	○	○
M	●	●	●	○
K	○	○	○	○
N	●	○	●	○
S	●	●	○	○
H	○		○	

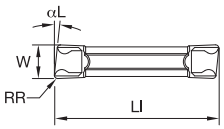
GMN Full Radius Precision Moulded

ISO catalogue number	SSC	W	RC	LI	T	KCU10	KCU25	KC5010	KC5025
A4R0205M02U00GMN	2	2,05	1,1	20	1,8	**–**	**4114344**	**–**	**–**
A4R0305M03U00GMN	3	3,05	1,5	20	2,6	**–**	**4114346**	**2234824**	**2234823**
A4R0405M04U00GMN	4	4,05	2,0	20	3,5	**4034818**	**–**	**1952774**	**1952775**
A4R0505M05U00GMN	5	5,05	2,5	25	4,2	**–**	**4114350**	**1952776**	**1952777**
A4R0605M06U00GMN	6	6,05	3,0	30	4,9	**–**	**–**	**2263397**	**–**
A4R0805M08U00GMN	8	8,05	4,0	30	6,5	**4034824**	**–**	**2263399**	**2263400**

SSC = To correspond with the SSC on the toolholder.

A4 Cut-Off Inserts





A4C-L-CF

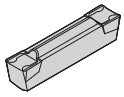
● first choice
○ alternate choice

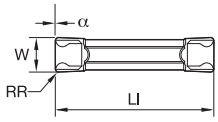
P	○
M	○
K	○
N	○
S	○
H	

CF Precision Moulded • Left Hand

ISO catalogue number	SSC	W	RR	LI	αL	KC5025
A4C0205L10CF02	2	1,99	0,2	20	10.0	**2979110**
A4C0305L06CF02	3	3,05	0,2	20	6.0	**1952849**

SSC = To correspond with the SSC on the toolholder.





A4C-N-CF

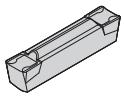
● first choice
○ alternate choice

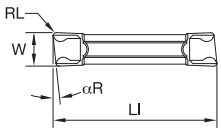
P		●	○
M		●	○
K		○	○
N		○	○
S		●	○
H			

CF Precision Moulded • Neutral

ISO catalogue number	SSC	W	RR	LI	α	KCU25	KC5025
A4C0155N00CF01	1	1,50	0,2	16	–	4113708	2972258
A4C0205N00CF02	2	2,05	0,2	20	–	4113711	2979111
A4C0255N00CF02	2B	2,50	0,2	20	–	4114284	2979216
A4C0305N00CF02	3	3,05	0,2	20	–	4114287	1952847
A4C0405N00CF02	4	4,05	0,2	20	–	–	2234816

SSC = To correspond with the SSC on the toolholder.





A4C-R-CF

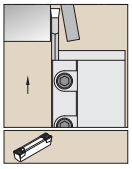
● first choice
○ alternate choice

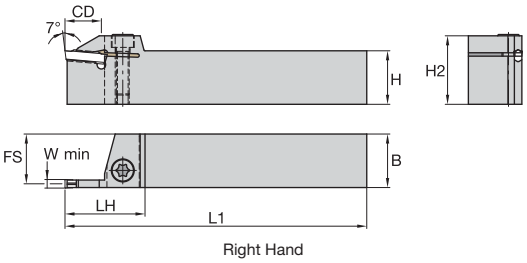
P		●	○
M		●	○
K		○	○
N		○	○
S		●	○
H			

CF Precision Moulded • Right Hand

ISO catalogue number	SSC	W	RL	LI	αR	KCU25	KC5025
A4C0155R06CF01	1	1,50	0,2	16	6.0	–	2972262
A4C0155R10CF01	1	1,50	0,2	16	10.0	4113709	–
A4C0155R16CF01	1	1,50	0,2	16	16.0	–	2973094
A4C0205R06CF02	2	1,99	0,2	20	6.0	4113712	2979112
A4C0205R10CF02	2	1,99	0,2	20	10.0	4114283	–
A4C0255R06CF02	2B	2,49	0,2	20	6.0	–	2979217
A4C0305R06CF02	3	3,05	0,2	20	6.0	4114288	1952848
A4C0305R10CF02	3	3,05	0,2	20	10.0	4114289	2234819

SSC = To correspond with the SSC on the toolholder.





Right Hand

Integral Straight • Metric

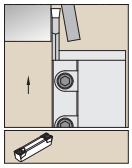
order number	catalogue number	SSC	CD	W min	H	B	H2	L1	FS	LH	clamp screw	clamp screw	Torx
right hand													
3017341	**A4SMR2020K0214**	2	14	–	20	20	25	125	19	30	**–**	**MS1160**	T20
3017342	**A4SMR1616K0214**	2	14	2	16	16	25	125	15	30	**–**	**MS1160**	T20
2974425	**A4SMR2020K0217**	2	17	2	20	20	31	125	19	34	**MS1944**	**–**	T25
3017340	**A4SMR2525M0214**	2	14	2	25	25	30	150	24	30	**–**	**MS1160**	T20
3017339	**A4SMR2525M0217**	2	17	2	25	25	31	150	24	34	**MS1944**	**–**	T25
1949633	**A4SMR1616K0314**	3	14	3	16	16	27	125	15	35	**MS2091**	**–**	T25
1949635	**A4SMR2020K0314**	3	14	3	20	20	27	125	19	35	**MS1595**	**–**	T30
2503551	**A4SMR2020K0317**	3	17	3	20	20	32	125	19	37	**MS1970**	**–**	T30
1949637	**A4SMR2525M0317**	3	17	3	25	25	32	150	24	37	**MS1970**	**–**	T30
2503559	**A4SMR2016K0417**	4	17	4	20	16	32	125	14	37	**MS1970**	**–**	T30
1949639	**A4SMR2020K0414**	4	14	4	20	20	27	125	18	35	**MS1595**	**–**	T30
2503553	**A4SMR2020K0417**	4	17	4	20	20	32	125	18	37	**MS1970**	**–**	T30
1949641	**A4SMR2525M0417**	4	17	4	25	25	32	150	23	37	**MS1970**	**–**	T30
1949643	**A4SMR3225P0417**	4	17	4	32	25	40	170	23	37	**MS1970**	**–**	T30
1949645	**A4SMR2020K0519**	5	19	5	20	20	28	125	18	40	**MS1595**	**–**	T30
1949647	**A4SMR2525M0520**	5	20	5	25	25	33	150	23	40	**MS1970**	**–**	T30
1949649	**A4SMR3225P0522**	5	22	5	32	25	40	170	23	42	**MS1970**	**–**	T30
2503555	**A4SMR2020K0620**	6	20	6	20	20	33	125	17	40	**MS1970**	**–**	T30
2245484	**A4SMR2525M0620**	6	20	6	25	25	33	150	22	40	**MS1970**	**–**	T30
2263089	**A4SMR3225P0626**	6	26	6	32	25	40	170	22	45	**MS1970**	**–**	T30
2245485	**A4SMR2525M0820**	8	20	8	25	25	34	150	21	43	**MS1490**	**–**	T45
2263091	**A4SMR3225P0826**	8	26	8	32	25	41	170	21	47	**MS1490**	**–**	T45

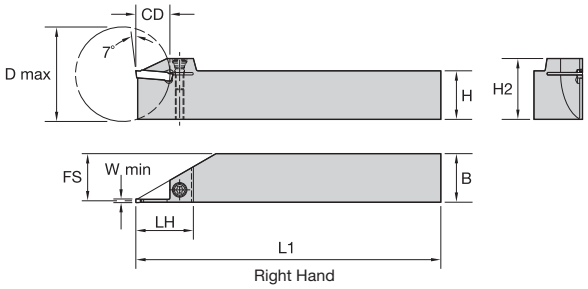
(continued)

(Integral Straight • Metric — continued)

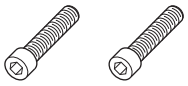

order number	catalogue number	SSC	CD	W min	H	B	H2	L1	FS	LH	clamp screw	clamp screw	Torx
left hand													
3017336	**A4SML2020K0214**	2	14	—	20	20	25	125	19	30	**—**	**MS1160**	T20
3017338	**A4SML1616K0214**	2	14	2	16	16	25	125	15	30	**—**	**MS1160**	T20
3017337	**A4SML2020K0217**	2	17	2	20	20	31	125	19	34	**MS1944**	**—**	T25
3017335	**A4SML2525M0214**	2	14	2	25	25	30	150	24	30	**—**	**MS1160**	T20
3017334	**A4SML2525M0217**	2	17	2	25	25	31	150	24	34	**MS1944**	**—**	T25
1949634	**A4SML1616K0314**	3	14	3	16	16	27	125	15	35	**MS2091**	**—**	T25
1949636	**A4SML2020K0314**	3	14	3	20	20	27	125	19	35	**MS1595**	**—**	T30
2503550	**A4SML2020K0317**	3	17	3	20	20	32	125	19	37	**MS1970**	**—**	T30
1949638	**A4SML2525M0317**	3	17	3	25	25	32	150	24	37	**MS1970**	**—**	T30
1949640	**A4SML2020K0414**	4	14	4	20	20	27	125	18	35	**MS1595**	**—**	T30
2503552	**A4SML2020K0417**	4	17	4	20	20	32	125	18	37	**MS1970**	**—**	T30
1949642	**A4SML2525M0417**	4	17	4	25	25	32	150	23	37	**MS1970**	**—**	T30
1949644	**A4SML3225P0417**	4	17	4	32	25	40	170	23	37	**MS1970**	**—**	T30
1949646	**A4SML2020K0519**	5	19	5	20	20	28	125	18	40	**MS1595**	**—**	T30
1949648	**A4SML2525M0520**	5	20	5	25	25	33	150	23	40	**MS1970**	**—**	T30
1949650	**A4SML3225P0522**	5	22	5	32	25	40	170	23	42	**MS1970**	**—**	T30
2503554	**A4SML2020K0620**	6	20	6	20	20	33	125	17	40	**MS1970**	**—**	T30
2245486	**A4SML2525M0620**	6	20	6	25	25	33	150	22	40	**MS1970**	**—**	T30
2263090	**A4SML3225P0626**	6	26	6	32	25	40	170	22	45	**MS1970**	**—**	T30
2245487	**A4SML2525M0820**	8	20	8	25	25	34	150	21	43	**MS1490**	**—**	T45
2263092	**A4SML3225P0826**	8	26	8	32	25	41	170	21	47	**MS1490**	**—**	T45
2263174	**A4SML3225P1026**	10	26	10	32	25	41	170	21	47	**MS1490**	**—**	T45

SSC = To correspond with the SSC on the insert.



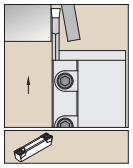


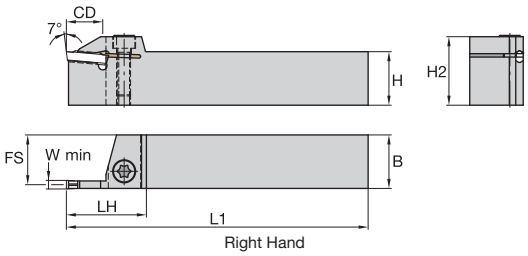
Integral Straight Top Clamp • Metric



order number	catalogue number	SSC	D max	CD	W min	H	B	H2	L1	FS	LH	clamp screw	clamp screw	wrench size clamp screw
right hand														
4169745	**A4SCR1212K0214**	2	28	14,000	2,00	12	12	21	125	11,17	28	**MS1160**	–	T20
4169746	**A4SCR1616K0217**	2	34	17,000	2,00	16	16	26	125	15,20	31	–	**MS1944**	T25
4169747	**A4SCR1212K0314**	3	28	14,000	3,00	12	12	23	125	10,72	30	–	**MS2091**	25 IP
4169748	**A4SCR1616K0317**	3	34	17,000	3,00	16	16	27	125	14,72	33	–	**MS2091**	25 IP
left hand														
4169749	**A4SCL1212K0214**	2	28	14,000	2,00	12	12	21	125	11,17	28	**MS1160**	–	T20
4169750	**A4SCL1616K0217**	2	34	17,000	2,00	16	16	26	125	15,20	31	–	**MS1944**	T25
4169752	**A4SCL1616K0317**	3	34	17,000	3,00	16	16	27	125	14,72	33	–	**MS2091**	25 IP

SSC = To correspond with the SSC on the insert.

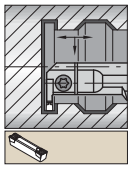




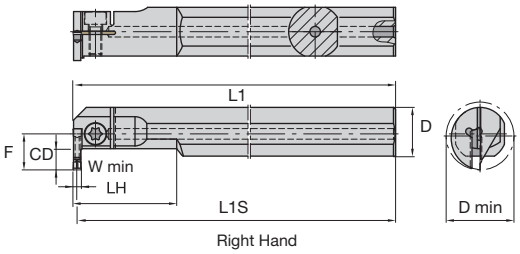
Integral Straight • Short Projection Toolholders • Metric

order number	catalogue number	SSC	CD	W min	H	B	H2	L1	FS	LH	clamp screw	clamp screw	Torx
right hand													
3854265	**A4SMR2020K0208**	2	8	2	20	20	24	125	19	26	–	**MS1160**	T20
3854267	**A4SMR2020K0308**	3	8	3	20	20	27	125	19	28	**MS1595**	–	T30
3854269	**A4SMR2020K0408**	4	8	4	20	20	27	125	18	28	**MS1595**	–	T30
3854271	**A4SMR2525M0510**	5	10	5	25	25	33	150	23	32	**MS1970**	–	T30
3854273	**A4SMR2525M0610**	6	10	6	25	25	33	150	22	37	**MS1970**	–	T30
left hand													
3854266	**A4SML2020K0208**	2	8	2	20	20	24	125	19	26	–	**MS1160**	T20
3854268	**A4SML2020K0308**	3	8	3	20	20	27	125	19	28	**MS1595**	–	T30
3854272	**A4SML2525M0510**	5	10	5	25	25	33	150	23	32	**MS1970**	–	T30
3854274	**A4SML2525M0610**	6	10	6	25	25	33	150	22	37	**MS1970**	–	T30

SSC = To correspond with the SSC on the insert.



Steel shank with through coolant.

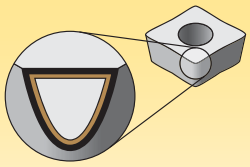


Right Hand

Steel Boring Bar • Metric

order number	catalogue number	SSC	CD	W min	D	D min	L1	LH	F	L1S	clamp screw	wrench size clamp screw
right hand												
2979223	**A20RA4EMR0207M**	2	7,00	2,00	20	25	200	40	13	199,0	**MS2089**	25 IP
2979225	**A25RA4EMR0210M**	2	10,00	2,00	25	32	200	50	17	199,0	**MS2089**	25 IP
1949655	**A20RA4EMR0307M**	3	7,00	3,00	20	25	200	40	13	198,5	**MS2089**	25 IP
1949657	**A25RA4EMR0310M**	3	10,00	3,00	25	32	200	50	17	198,5	**MS1595**	T30
1949659	**A32SA4EMR0312M**	3	12,00	3,00	32	40	250	64	22	248,5	**MS1595**	T30
1949661	**A20RA4EMR0407M**	4	7,00	4,00	20	25	200	40	13	198,0	**MS2089**	25 IP
1949663	**A25RA4EMR0410M**	4	10,00	4,00	25	32	200	50	17	198,0	**MS1595**	T30
1949665	**A32SA4EMR0412M**	4	12,00	4,00	32	40	250	64	22	248,0	**MS1595**	T30
1949667	**A40TA4EMR0416M**	4	16,00	4,00	40	52	300	80	30	298,0	**MS1970**	T30
1949669	**A32SA4EMR0516M**	5	16,00	5,00	32	44	250	64	26	247,5	**MS1595**	T30
1949671	**A40TA4EMR0516M**	5	16,00	5,00	40	52	300	80	30	297,5	**MS1970**	T30
2263197	**A40TA4EMR0616M**	6	16,00	6,00	40	52	300	80	30	297,0	**MS1970**	T30
left hand												
2979192	**A20RA4EML0207M**	2	7,00	2,00	20	25	200	40	13	199,0	**MS2089**	25 IP
2979224	**A25RA4EML0210M**	2	10,00	2,00	25	32	200	50	17	199,0	**MS2089**	25 IP
1949656	**A20RA4EML0307M**	3	7,00	3,00	20	25	200	40	13	198,5	**MS2089**	25 IP
1949658	**A25RA4EML0310M**	3	10,00	3,00	25	32	200	50	17	198,5	**MS1595**	T30
1949660	**A32SA4EML0312M**	3	12,00	3,00	32	40	250	64	22	248,5	**MS1595**	T30
1949662	**A20RA4EML0407M**	4	7,00	4,00	20	25	200	40	13	198,0	**MS2089**	25 IP
1949664	**A25RA4EML0410M**	4	10,00	4,00	25	32	200	50	17	198,0	**MS1595**	T30
1949666	**A32SA4EML0412M**	4	12,00	4,00	32	40	250	64	22	248,0	**MS1595**	T30
1949668	**A40TA4EML0416M**	4	16,00	4,00	40	52	300	80	30	298,0	**MS1970**	T30
1949670	**A32SA4EML0516M**	5	16,00	5,00	32	44	250	64	26	247,5	**MS1595**	T30
1949672	**A40TA4EML0516M**	5	16,00	5,00	40	52	300	80	30	297,5	**MS1970**	T30
2263198	**A40TA4EML0616M**	6	16,00	6,00	40	52	300	80	30	297,0	**MS1970**	T30

SSC = To correspond with the SSC on the insert.



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

Grades

Coating	Grade Description	05	10	15	20	25	30	35	40	45
KCU10 –	**Composition:** An advanced multilayer PVD coating over a very deformation-resistant unalloyed carbide substrate. The new and improved coating improves edge stability with wide range speed and feed capabilities. **Application:** The KCU10™ grade is ideal for finishing to general machining of most workpiece materials at a wide range of speed and feed capabilities. Excellent for machining most steels, stainless steels, cast irons, non-ferrous materials, and high-temp alloys with improved edge toughness, notch resistance, and higher cutting speed/feed capability.									
KCU25 –	**Composition:** An advanced PVD grade with hard AlTiN coating and fine-grain unalloyed substrate. The new and improved coating improves edge stability with wide range speed and feed capabilities. **Application:** The KCU25™ grade is ideal for general machining of most steels, stainless steels, high-temp alloys, titanium, irons, and non-ferrous materials in a wide range of speeds and feeds with improved edge toughness for interrupted cuts and high feed rates.									
KC5010 –	**Composition:** An advanced PVD AlTiN coating over a very deformation-resistant unalloyed carbide substrate. **Application:** The KC5010™ grade is ideal for finishing to general machining of most workpiece materials at higher speeds. Excellent for machining most steels, stainless steels, cast irons, non-ferrous materials, and high-temp alloys under stable conditions. It also performs well machining hardened and short chipping materials.									
KC5025 –	**Composition:** An advanced PVD-AlTiN-coated grade with a tough, ultra-fine-grain unalloyed substrate. **Application:** For general-purpose machining of most steels, stainless steels, high-temp alloys, titanium, irons, and non-ferrous materials. Speeds may vary from low to medium and will handle interruptions and high feed rates.									

Select the geometry

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

● first choice
○ alternate choice

Chip Control	Description	Insert Geometry	Seat Size (SSC)	Corner Radius mm	Starting Conditions mm	Plunge Feed Rates mm/rev 0,05 0,10 0,15 0,20 0,25 0,30 0,35
-GUP	Groove and turn inserts in new Beyond™ grades.		2	0,2	0,08	
			3	0,2	0,09	
				0,4	0,11	
			4	0,4	0,12	
				0,8	0,15	

Recommended Starting Feed Rate

Pictorial View of Insert

Corner Radius

Plunge Feed Rates

Seat Size

Recommended Feed Rate Range

Primary Workpiece Material Group

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

● first choice
○ alternate choice

Chip Control Geometry Designation

Maximum Feed Rate Values

	Material Group	Feed Factor
Data above is for P and K material groups. **Maximum** feed rates should be adjusted by multiplying max feed rate values by following factors for shown material groups.	M	.8
	N	1.2
	S	.8
	H	.5

Plunge Feed Rates

● first choice
○ alternate choice

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

Chip Control	Description	Insert Geometry	Seat Size (SSC)	Corner Radius mm	Starting Conditions mm	Plunge Feed Rates mm/rev 0,05 0,10 0,15 0,20 0,25 0,30 0,35
-GUP	• Groove and turn inserts in new Beyond™ grades. • Available in moulded and precision-ground styles. • Positive rake angle with enhanced chip control. • Available in metric widths only.		2	0,2	0,08	
			3	0,2	0,09	
				0,4	0,11	
			4	0,4	0,12	
				0,8	0,15	
			5	0,4	0,15	
				0,8	0,16	
			6	0,4	0,16	
				0,8	0,18	
				1,2	0,20	
			8	0,4	0,17	
				0,8	0,20	
				1,2	0,22	
			10	0,4	0,18	
				0,8	0,22	
				1,2	0,24	
-GMP	• Groove and turn inserts. • Available in moulded and precision-ground styles. • Positive rake angle. • Available in metric widths only.		2	0,2	0,08	
			3	0,2	0,09	
				0,4	0,11	
			4	0,4	0,12	
				0,8	0,15	
			5	0,4	0,15	
				0,8	0,16	
			6	0,4	0,16	
				0,8	0,18	
				1,2	0,20	
			8	0,4	0,17	
				0,8	0,20	
				1,2	0,22	
			10	0,4	0,18	
				0,8	0,22	
				1,2	0,24	
-GMN	• Groove and turn moulded and precision ground inserts. • Stable cutting edge. • Available in metric and inch widths.		2	0,2	0,08	
			3	0,2	0,09	
				0,4	0,11	
			4	0,4	0,12	
				0,8	0,15	
			5	0,4	0,15	
				0,8	0,16	
			6	0,4	0,16	
				0,8	0,18	
				1,2	0,20	
			8	0,4	0,17	
				0,8	0,20	
				1,2	0,22	
			10	0,4	0,18	
				0,8	0,22	
				1,2	0,24	

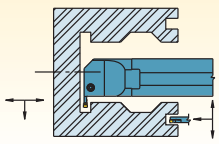
Maximum Feed Rate Values

Data above is for P and K material groups. **Maximum** feed rates should be adjusted by multiplying max feed rate values by following factors for shown material groups.

Material Group	Feed Factor
M	.8
N	.8
S	.5
H	1.2

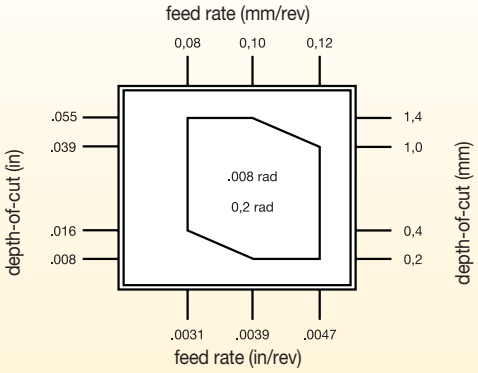
I.D. and Face Grooving

For I.D. and face grooving applications, reduce feed rate by 20%.

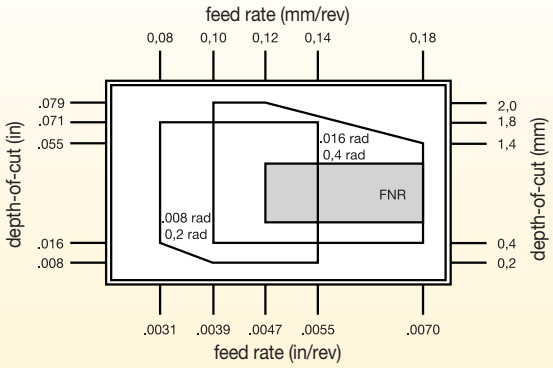


Turn and profile feed rates • GUP/GMP Geometries

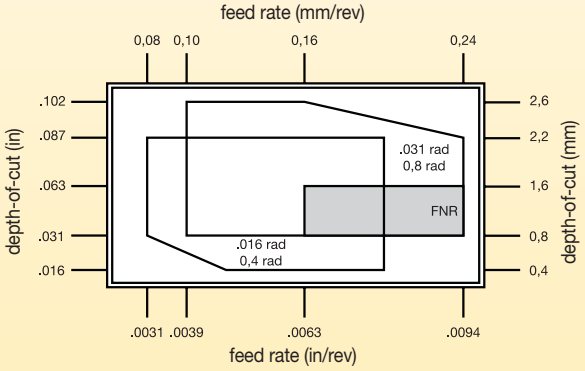
Seat Size 2



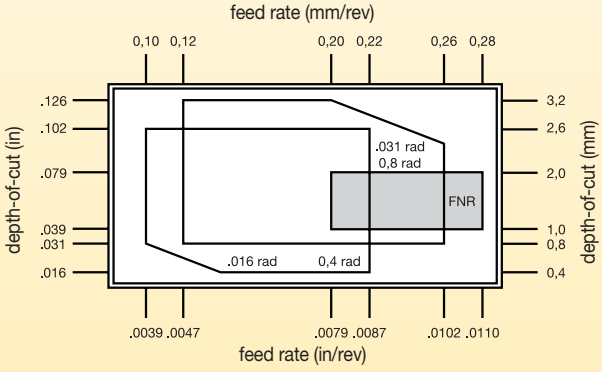
Seat Size 3



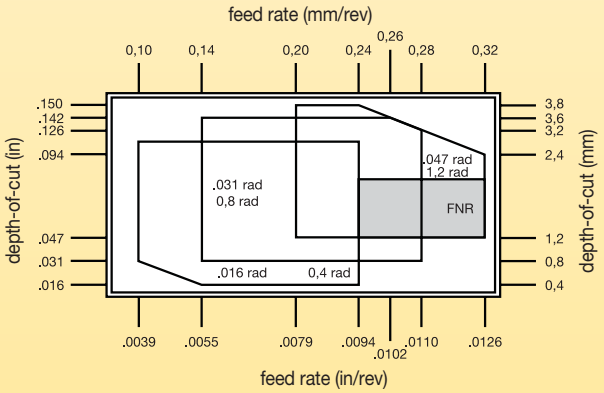
Seat Size 4



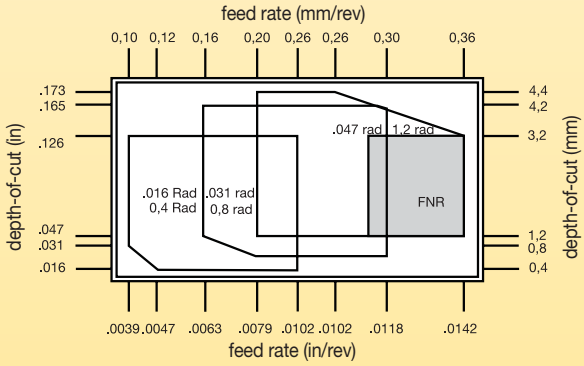
Seat Size 5



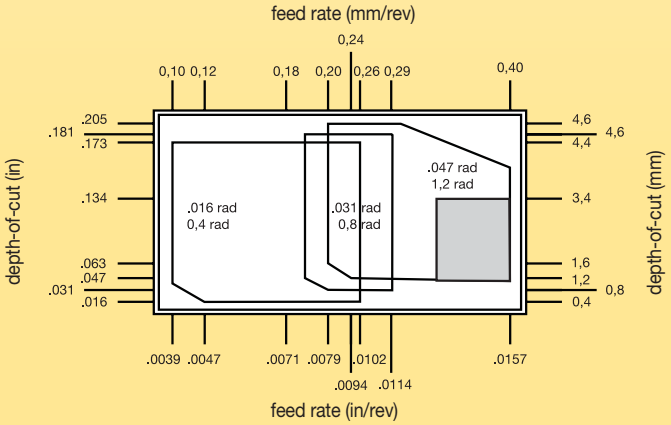
Seat Size 6



Seat Size 8

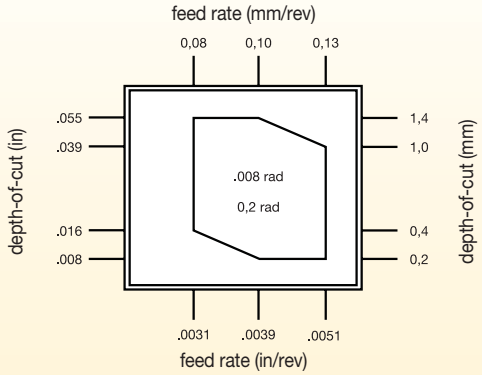


Seat Size 10

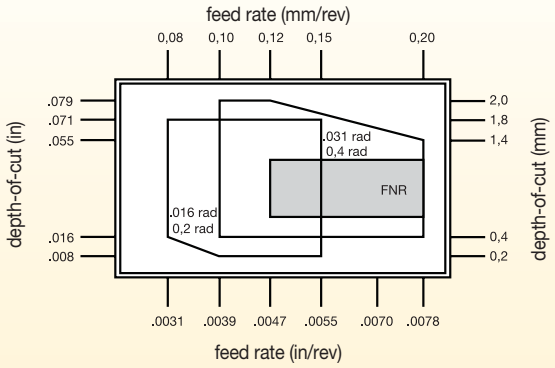


Turn and profile feed rates • GMN Geometries

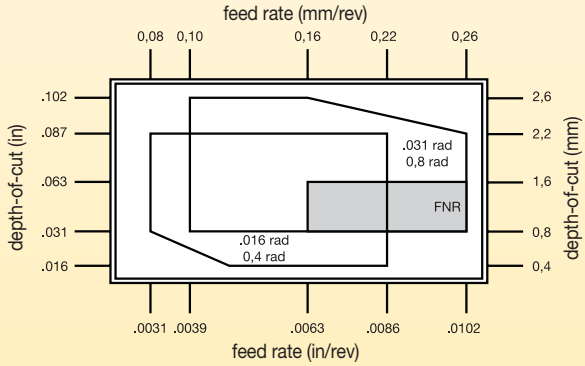
Seat Size 2



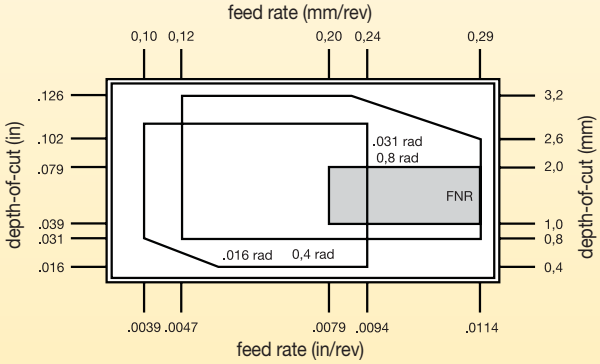
Seat Size 3



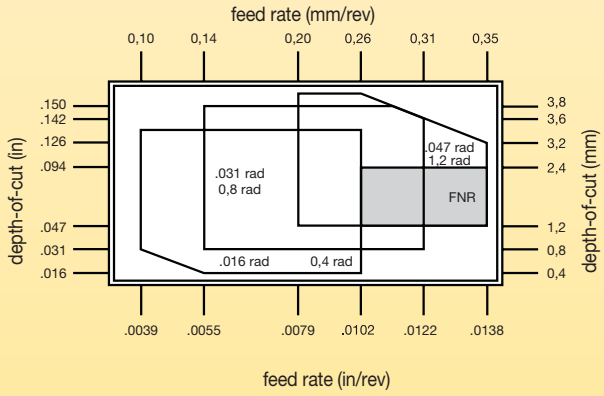
Seat Size 4



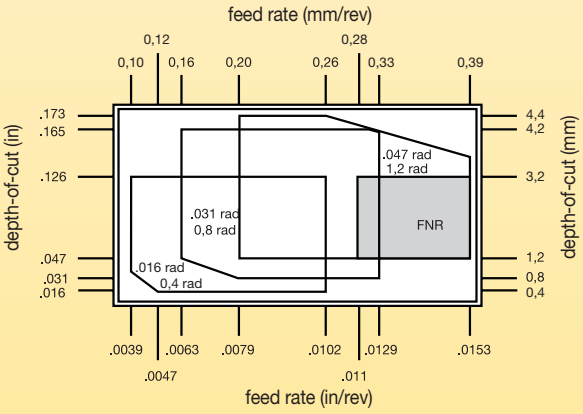
Seat Size 5



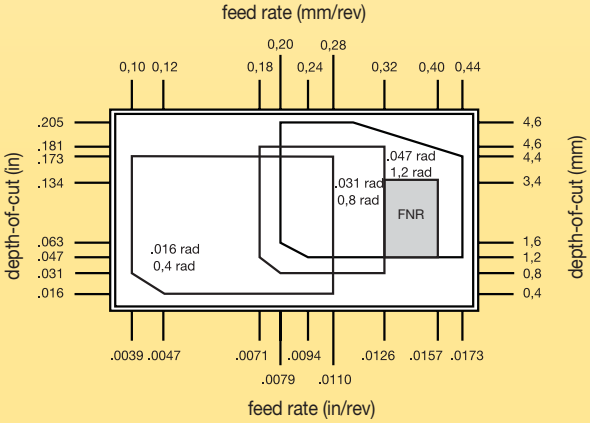
Seat Size 6



Seat Size 8



Seat Size 10



Cut-Off Feed Rates

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

● first choice
○ alternate choice

Chip Control	Description	Insert Geometry	Seat Size (SSC)	Starting Conditions mm	Cut-Off Feed Rates mm/rev 0,05 0,10 0,15 0,20
-A4C-CF	• High positive rake angle. • Sharp cutting edge. • Available in neutral lead angle in 6° and 10° right- and left-hand styles.		1	0,06	
			2/2B	0,07	
			3	0,09	
			4	0,11	

Maximum Feed Rate Values

	Material Group	Feed Factor
Data above is for P and K material groups. **Maximum** feed rates should be adjusted by multiplying max feed rate values by following factors for shown material groups.	M	.8
	N	.8
	S	.5
	H	1.2

Mobile Apps

The Kennametal mobile app provides easy access to product information and calculators on both iPhone® and Android™ devices. We've highlighted a few of the key features...

There's an app for that.

SPEEDS & FEEDS

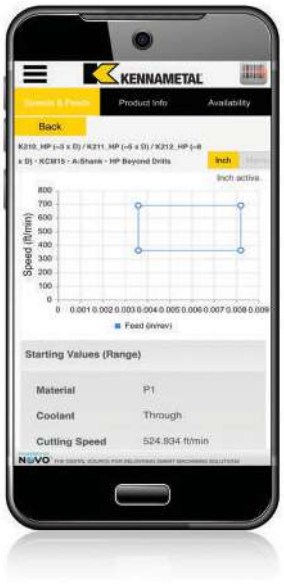
View speeds and feeds information for metalworking products.

PRODUCT AVAILABILITY

Check global availability of products. View available quantities by providing your Konnect login credentials.

CALCULATORS

Utilise our machining calculators for milling and drilling applications.



By just scanning the bar code on the insert packet, you can find the most productive cutting conditions for tool life, process time, and chip control.

NOTE: The app is currently only available in the English-language version. We have plans to translate the app in different languages with future releases.

Google play
Available on the App Store

Recommended Starting Speeds [m/min]

Material Group		K313			KCU10/KC5010			KCU25/KC5025			KCP10			KCP25			KCK20B			KY3500		
P	0–1	–	–	–	140	**280**	335	110	**225**	270	185	**400**	450	145	**290**	365	200	**440**	490	–	–	–
	2	–	–	–	140	**200**	245	110	**160**	195	185	**270**	350	145	**200**	305	200	**300**	380	–	–	–
	3	–	–	–	140	**155**	245	110	**125**	195	170	**190**	260	140	**155**	245	600	**200**	280	–	–	–
	4	–	–	–	75	**110**	170	60	**90**	135	90	**145**	200	75	**110**	180	100	**160**	220	–	–	–
	5	–	–	–	120	**200**	260	100	**160**	210	150	**220**	305	120	**200**	270	165	**240**	330	–	–	–
	6	–	–	–	110	**150**	230	85	**120**	185	120	**180**	275	110	**150**	230	130	**190**	300	–	–	–
M	1	60	**90**	120	140	**210**	260	90	**170**	245	–	–	–	–	–	–	–	–	–	–	–	–
	2	45	**75**	110	120	**200**	245	90	**150**	245	–	–	–	–	–	–	–	–	–	–	–	–
	3	35	**65**	100	120	**180**	245	90	**140**	210	–	–	–	–	–	–	–	–	–	–	–	–
K	1	30	**75**	120	120	**180**	245	100	**145**	195	170	**245**	440	140	**200**	360	210	**305**	550	180	**760**	1040
	2	25	**70**	110	90	**150**	210	70	**120**	170	120	**195**	340	100	**160**	280	150	**245**	430	275	**365**	500
	3	20	**60**	90	60	**110**	150	50	**85**	120	120	**170**	270	100	**140**	220	150	**210**	335	–	–	–
N	1–2	150	**370**	610	150	**550**	975	120	**440**	780	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	4	120	**275**	430	120	**365**	610	100	**290**	490	–	–	–	–	–	–	–	–	–	–	–	–
	5	45	**90**	150	90	**170**	245	70	**135**	195	–	–	–	–	–	–	–	–	–	–	–	–
	6	40	**75**	150	120	**210**	305	100	**170**	245	–	–	–	–	–	–	–	–	–	–	–	–
S	1	8	**30**	75	15	**55**	135	8	**40**	60	–	–	–	–	–	–	–	–	–	–	–	–
	2	8	**35**	75	15	**60**	135	8	**30**	75	–	–	–	–	–	–	–	–	–	–	–	–
	3	8	**40**	75	15	**70**	135	15	**40**	75	–	–	–	–	–	–	–	–	–	–	–	–
	4	8	**45**	75	15	**70**	170	8	**50**	110	–	–	–	–	–	–	–	–	–	–	–	–
H	1	–	–	–	30	**45**	60	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	15	**30**	45	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Material Group		KT315			KB5625			KB1630			KD1405		
P	0–1	180	**440**	475	–	–	–	–	–	–	–	–	–
	2	195	**270**	400	–	–	–	–	–	–	–	–	–
	3	180	**210**	275	–	–	–	–	–	–	–	–	–
	4	75	**160**	210	–	–	–	–	–	–	–	–	–
	5	150	**250**	310	–	–	–	–	–	–	–	–	–
	6	140	**200**	300	–	–	–	–	–	–	–	–	–
M	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
K	1	60	**275**	550	–	–	–	180	**760**	1040	–	–	–
	2	135	**275**	360	–	–	–	–	–	–	–	–	–
	3	180	**230**	360	–	–	–	–	–	–	–	–	–
N	1–2	–	–	–	–	–	–	–	–	–	365	**610**	1040
	3	–	–	–	–	–	–	–	–	–	275	**480**	800
	4	–	–	–	–	–	–	–	–	–	300	**550**	920
	5	–	–	–	–	–	–	–	–	–	275	**610**	1070
	6	–	–	–	–	–	–	–	–	–	150	**460**	760
S	1	–	–	–	–	–	–	120	**200**	275	–	–	–
	2	–	–	–	–	–	–	120	**215**	275	–	–	–
	3	–	–	–	–	–	–	120	**250**	275	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–
H	1	–	–	–	45	**150**	230	45	**120**	170	–	–	–
	2	–	–	–	45	**140**	230	45	**110**	170	–	–	–
	3	–	–	–	45	**130**	230	45	**100**	170	–	–	–
	4	–	–	–	45	**120**	230	45	**90**	170	–	–	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

LT • Laydown Triangle Threading

Primary Application

Laydown triangle (LT) threading is the system of choice for fine-pitch threads, high-helix/multistart threads, and single-point threading in small-diameter bores. With a wide selection of CB-style chip control inserts, you will receive superior chip management for excellent surface finishes and minimal operator intervention. The low-profile design enables unrestricted chip flow — ideal for I.D. threads. Variable shim angles enable proper cutting geometry for high-helix angle and reverse helix angle threading, maximising tool life and improving thread quality.

Features and Benefits

Precision-Ground Thread Form on LT and LT-CB

- Minimises built-up edge.
- Precisely cuts most common materials.
- Reduces cutting forces.
- Ensures accurate, high-quality threads.

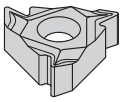
KC5025™ Premium PVD TiAlN-Coated Grades

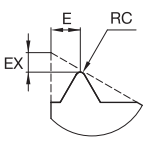
- Increase tool life at existing machining conditions.
- Increase productivity by outperforming conventional PVD grades with up to a 30% advantage in cutting speeds.

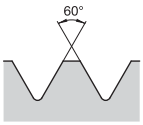
Superior Chip Control

- Eliminates long, troublesome coils.
- Excellent for internal threading operations.
- Available in both partial and full profile inserts for all common thread forms.

style		thread profile	standard	tolerance class	cresting	application	thread type	page(s)
CB	thread profile							
 LT-60CB	 LT-60	Partial profile 60°	–	–	N	General use for 60° thread forms, such as ISO and UN, where non-cresting inserts are desired to cut a variety of pitches.	external	**A96**
							internal	**A97**
 LT-ISOCB	 LT-ISO	Metric ISO	ISO R262, DIN 13	6g/6H	Y	Widely used metric 60° V-form for all industries.	external	**A98**
							internal	**A99**
 LT-WCB	 LT-W	Whitworth, BSW, BSF, BSP	BS 84:1956, ISO 228/1:1985, DIN 259	Medium Class A	Y	Widely used 55° form for gas and water connections.	external	**A100**
							internal	**A101**







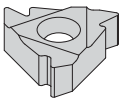
Partial Profile 60° External

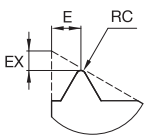
● first choice
○ alternate choice

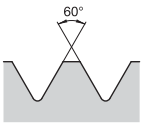
P		●
M		●
K		●
N		○
S		●
H		

LT-ER-60CB

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5025
right hand							
LT16ERAG60CB	16	0,08	0,9	1,50	0,50-3,0	8-48	**1679780**







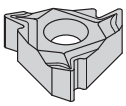
Partial Profile 60° External

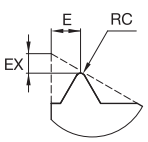
● first choice
○ alternate choice

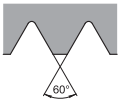
P		●
M		●
K		●
N		○
S		●
H		

LT-ER/L-60

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5025
right hand							
LT16ERA60	16	0,05	0,8	0,89	0,50-1,50	16-48	**1743744**
LT16ERG60	16	0,28	1,2	1,70	1,75-3,0	8-14	**1743746**







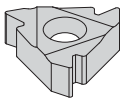
Partial Profile 60° Internal

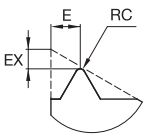
● first choice
○ alternate choice

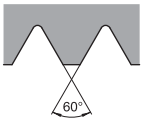
P		●
M		●
K		●
N		○
S		●
H		

LT-NR-60CB

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5025
right hand							
LT16NRAG60CB	16	0,05	0,9	1,50	0,50-3,0	8-48	**1698208**
LT16NRG60CB	16	0,16	1,0	1,50	1,75-3,0	8-14	**1698209**







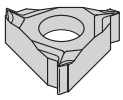
Partial Profile 60° Internal

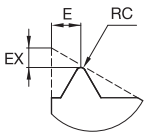
● first choice
○ alternate choice

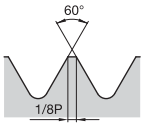
P		●
M		●
K		●
N		○
S		●
H		

LT-NR/L-60

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5025
left hand							
LT16NLA60	16	0,05	0,8	0,89	0,50-1,50	16-48	**1743830**
LT16NLAG60	16	0,05	1,2	1,70	0,50-3,0	8-48	**1743831**
right hand							
LT16NRA60	16	0,05	0,8	0,89	0,50-1,50	16-48	**1743928**
LT16NRAG60	16	0,05	1,2	1,70	0,50-3,0	8-48	**1743929**
left hand							
LT16NLG60	16	0,15	1,2	1,70	1,75-3,0	8-14	**1743832**
right hand							
LT16NRG60	16	0,15	1,2	1,70	1,75-3,0	8-14	**1743930**







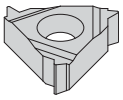
ISO Metric-External

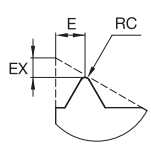
● first choice
○ alternate choice

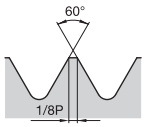
P		●
M		●
K		●
N		○
S		●
H		

LT-ER-ISOCB

catalogue number	insert size	RC	EX	E	thread pitch mm	KC5025
right hand						
LT16ER05ISOCB	16	–	1,2	0,50	0,50	**1690872**
LT16ER075ISOCB	16	–	1,2	0,61	0,75	**1690874**
LT16ER10ISOCB	16	–	0,7	0,79	1,0	**1690876**
LT16ER125ISOCB	16	–	0,7	0,79	1,25	**1690878**
LT16ER15ISOCB	16	–	0,7	0,79	1,5	**1690880**
LT16ER175ISOCB	16	–	1,2	1,50	1,75	**1692102**
LT16ER20ISOCB	16	–	1,2	1,50	2,0	**1692109**
LT16ER25ISOCB	16	–	1,2	1,50	2,5	**1698205**
LT16ER30ISOCB	16	–	1,3	1,50	3,0	**1698207**







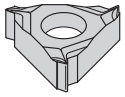
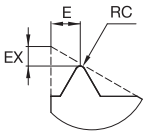
ISO Metric-External

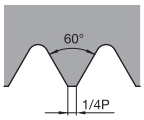
● first choice
○ alternate choice

P		●
M		●
K		●
N		○
S		●
H		

LT-ER/L-ISO

catalogue number	insert size	RC	EX	E	thread pitch mm	KC5025
right hand						
LT16ER05ISO	16	–	0,6	0,40	0,50	**1724524**
LT16ER075ISO	16	–	0,6	0,61	0,75	**1724527**
LT16ER10ISO	16	–	0,7	0,69	1,0	**1725108**
LT16ER125ISO	16	–	0,8	0,89	1,25	**1725109**
LT16ER15ISO	16	–	0,8	0,99	1,5	**1725110**
LT16ER175ISO	16	–	0,9	1,19	1,75	**1725221**
LT16ER20ISO	16	–	1,0	1,30	2,0	**1725222**
LT16ER25ISO	16	–	1,1	1,50	2,5	**1725223**
LT16ER30ISO	16	–	1,2	1,60	3,0	**1725224**

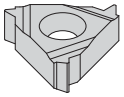
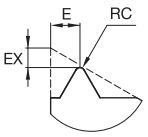
ISO Metric-Internal

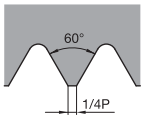
● first choice
○ alternate choice

P		●
M		●
K		●
N		○
S		●
H		

LT-NR-ISOCB

catalogue number	insert size	RC	EX	E	thread pitch mm	KC5025
right hand						
LT16NR10ISOCB	16	–	0,7	0,79	1,0	**1698210**
LT16NR15ISOCB	16	–	0,7	0,79	1,5	**1712552**
LT16NR20ISOCB	16	–	1,1	1,50	2,0	**1712554**
LT16NR25ISOCB	16	–	1,1	1,50	2,5	**1712555**

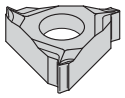
ISO Metric-Internal

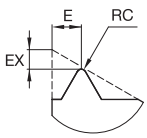
● first choice
○ alternate choice

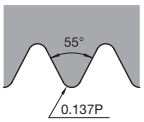
P		●
M		●
K		●
N		○
S		●
H		

LT-NR/L-ISO

catalogue number	insert size	RC	EX	E	thread pitch mm	KC5025
left hand						
LT16NL10ISO	16	–	0,6	0,69	1,0	**1724494**
LT16NL15ISO	16	–	0,8	0,99	1,5	**1724497**
LT16NL20ISO	16	–	1,0	1,30	2,0	**1724499**
LT16NL25ISO	16	–	1,1	1,50	2,5	**1724525**
LT16NL30ISO	16	–	1,1	1,50	3,0	**1724526**
right hand						
LT16NR05ISO	16	–	0,6	0,40	0,50	**1725472**
LT16NR075ISO	16	–	0,6	0,61	0,75	**1725474**
LT16NR10ISO	16	–	0,6	0,69	1,0	**1725475**
LT16NR125ISO	16	–	0,8	0,89	1,25	**1725476**
LT16NR15ISO	16	–	0,8	0,99	1,5	**1725477**
LT16NR175ISO	16	–	0,9	1,19	1,75	**1725478**
LT16NR20ISO	16	–	1,0	1,30	2,0	**1725511**
LT16NR25ISO	16	–	1,1	1,50	2,5	**1725512**
LT16NR30ISO	16	–	1,1	1,50	3,0	**1725513**
LT16NR35ISO	–	0,03	0,8	0,35	0,35	**6733754**







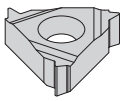
Whitworth BSW,
BSF, BSP-External

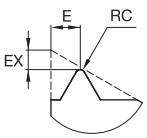
● first choice
○ alternate choice

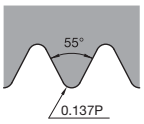
P		●
M		●
K		●
N		○
S		●
H		

LT-ER-WCB

catalogue number	insert size	RC	EX	E	TPI	KC5025
right hand						
LT16ER11WCB	16	–	1,3	1,50	11	**1712614**
LT16ER14WCB	16	–	1,3	1,50	14	**1712616**







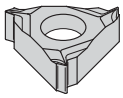
Whitworth BSW,
BSF, BSP-External

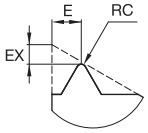
● first choice
○ alternate choice

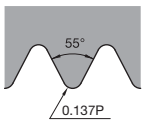
P		●
M		●
K		●
N		○
S		●
H		

LT-ER/L-W

catalogue number	insert size	RC	EX	E	TPI	KC5025
right hand						
LT16ER11W	16	–	1,1	1,50	11	**1743760**
LT16ER14W	16	–	1,0	1,19	14	**1743758**
LT16ER19W	16	–	0,8	0,99	19	**1743755**
LT16ER28W	16	–	0,6	0,69	28	**1743752**







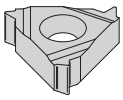
Whitworth BSW,
BSF, BSP-Internal

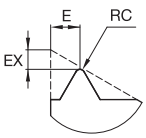
● first choice
○ alternate choice

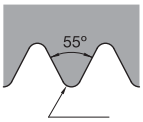
P		●
M		●
K		●
N		○
S		●
H		

LT-NR-WCB

catalogue number	insert size	RC	EX	E	TPI	KC5025
right hand						
LT16NR11WCB	16	–	1,3	1,50	11	**1712669**
LT16NR14WCB	16	–	1,3	1,50	14	**1712670**







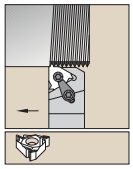
Whitworth BSW,
BSF, BSP-Internal

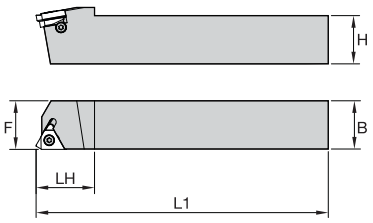
● first choice
○ alternate choice

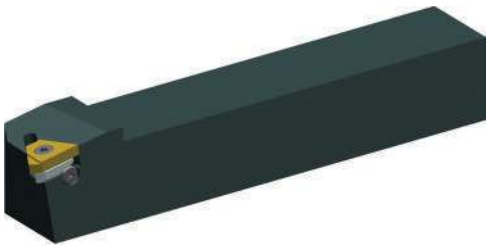
P		●
M		●
K		●
N		○
S		●
H		

LT-NR/L-W

catalogue number	insert size	RC	EX	E	TPI	KC5025
left hand						
LT16NL11W	16	–	1,1	1,50	11	**1743847**
right hand						
LT16NR11W	16	–	1,1	1,50	11	**1743945**
LT16NR14W	16	–	1,0	1,19	14	**1743943**
LT16NR19W	16	–	0,8	0,99	19	**1743940**







LSA

order number	catalogue number	H	B	F	L1	LH	gage insert	shim	shim screw	Torx	Torx	insert screw	Torx
right hand													
1136984	**LSASR1616H16**	16	16	16	100	25	LT16ER	**SMYE3**	**SSY3T**	T10	T15	**SSA3T**	T10
1136992	**LSASR2020K16**	20	20	20	125	30	LT16ER	**SMYE3**	**SSY3T**	T10	T15	**SSA3T**	T10
1137000	**LSASR2525M16**	25	25	25	150	30	LT16ER	**SMYE3**	**SSY3T**	T10	T15	**SSA3T**	T10

NOTE: Clamp assembly to be ordered separately for increased productivity in heavy applications.

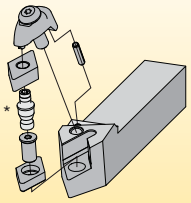
Recommended Starting Speeds [m/min]

Material Group		KC5025		
P	0–1	105	**165**	230
	2	100	**150**	200
	3	75	**125**	170
	4	60	**95**	130
	5	75	**130**	170
	6	50	**90**	130
M	1	90	**170**	230
	2	75	**140**	200
	3	75	**135**	200
K	1	90	**135**	180
	2	70	**120**	170
	3	50	**85**	120
N	1–2	120	**305**	455
	3	60	**105**	150
	4	100	**200**	305
	5	70	**135**	195
	6	100	**170**	245
S	1	20	**40**	60
	2	20	**35**	45
	3	20	**35**	45
	4	45	**85**	120
H	1	–	**–**	–
	2	–	**–**	–
	3	–	**–**	–
	4	–	**–**	–

NOTE: FIRST choice starting speeds are in **bold** type.

Kenclamp™

D-style clamping



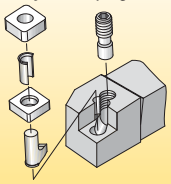
*The pin is an optional spare part and not in the standard configuration.

catalogue number	thread size	drive size	recommended torque Nm	in. lbs.	ft. lbs.
KMSP415IP	M6,3 x 1,0	15 IP	4	35	3,0
KMSP515IP	M8 x 1,0	15 IP	4,5	40	3,3
KMSP625IP	M10 x 1,0	25 IP	8	71	5,9
KMSP315IP	M5 x 0,8	15 IP	3	27	2,2
KMSP5S15IP	M8 x 1,0	15 IP	4,5	40	3,3
KMSP4S15IP	M6,3 x 1,0	15 IP	4	35	3,0

catalogue number	thread size	drive size	recommended torque Nm	in. lbs.	ft. lbs.
CM234R ASSY	M6 x 1	15 IP	4,5	40	3,3
CM209R ASSY	M6 x 1	15 IP	4,5	40	3,3
CM210R ASSY	M8 x 1	25 IP	8	71	5,9
CM215R ASSY	M6 x 1	15 IP	4,5	40	3,3

Kenlever™

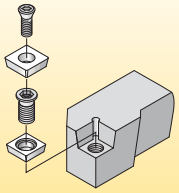
P-style clamping



catalogue number	thread size	drive size	recommended torque Nm	in. lbs.	ft. lbs.
514.122	M6	10 IP	2	18	1,5
514.123	M8 x 1,0	15 IP	3	27	2,2
514.124	M8 x 1,0	15 IP	3	27	2,2
514.125	M8 x 1,0	15 IP	3	27	2,2
514.112	M5 x 0,8	8 IP	2	18	1,5

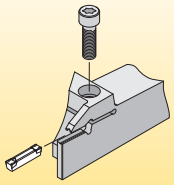
Screw-On

S-style clamping



catalogue number	thread size	drive Size	recommended torque Nm	in. lbs.	ft. lbs.
MS1153	M2,5 x 0,45	T7	0,7	6	0,5
MS1156	M3,5 x 0,6	T15	1,7	15	1,3
MS1155	M3,5 x 0,6	T15	1,7	15	1,3
MS1158	M4 x 0,5	T15	2,6	23	1,9
MS1939	M2,5 x 0,45	T7	0,7	6	0,5
MS2066	M2.5 x 0,45	7 IP	0,7	6	0,5
MS2055	M3,5 x 0,8	15 IP	1,7	15	1,3
MS1160	M5 x 0,8	T20	4	35	3,0
SSA3T	5-40UNC	T10	2,2	20	–

A4™



catalogue number	thread size	drive size	recommended torque Nm	in. lbs.	ft. lbs.
MS1156	M3,5 x 0,6	T15	3,5	31	3
MS1160	M5 x 0,8	T20	7	62	5
MS1490	M8 x 1,25	T45	17	151	13
MS1595	M6 x 1,0	T30	12	106	9
MS1944	M4 x 0,7	T25	4	35	3
MS1970	M6 x 1,0	T30	12	106	9
MS2091	M5 x 0,8	25 IP	9	80	7

Beyond™ Evolution™

catalogue number	thread size	drive size	recommended torque Nm	in. lbs.	ft. lbs.
MS1160	M5	T20	7	62	5
MS1162	M6	T25	9	80	7
MS1163	M8	T30	18	159	13
MS1273	M4	T15	4	35	3
MS1490	M8	T45	17	151	13
MS1595	M6	T30	12	106	9
MS1944	M4	T25	4	35	3
MS1970	M6	T30	12	106	9
MS2002	M6	T25	9	80	7
MS2091	M5	25 IP	9	80	7
191.916	M4	T15	5	44	4

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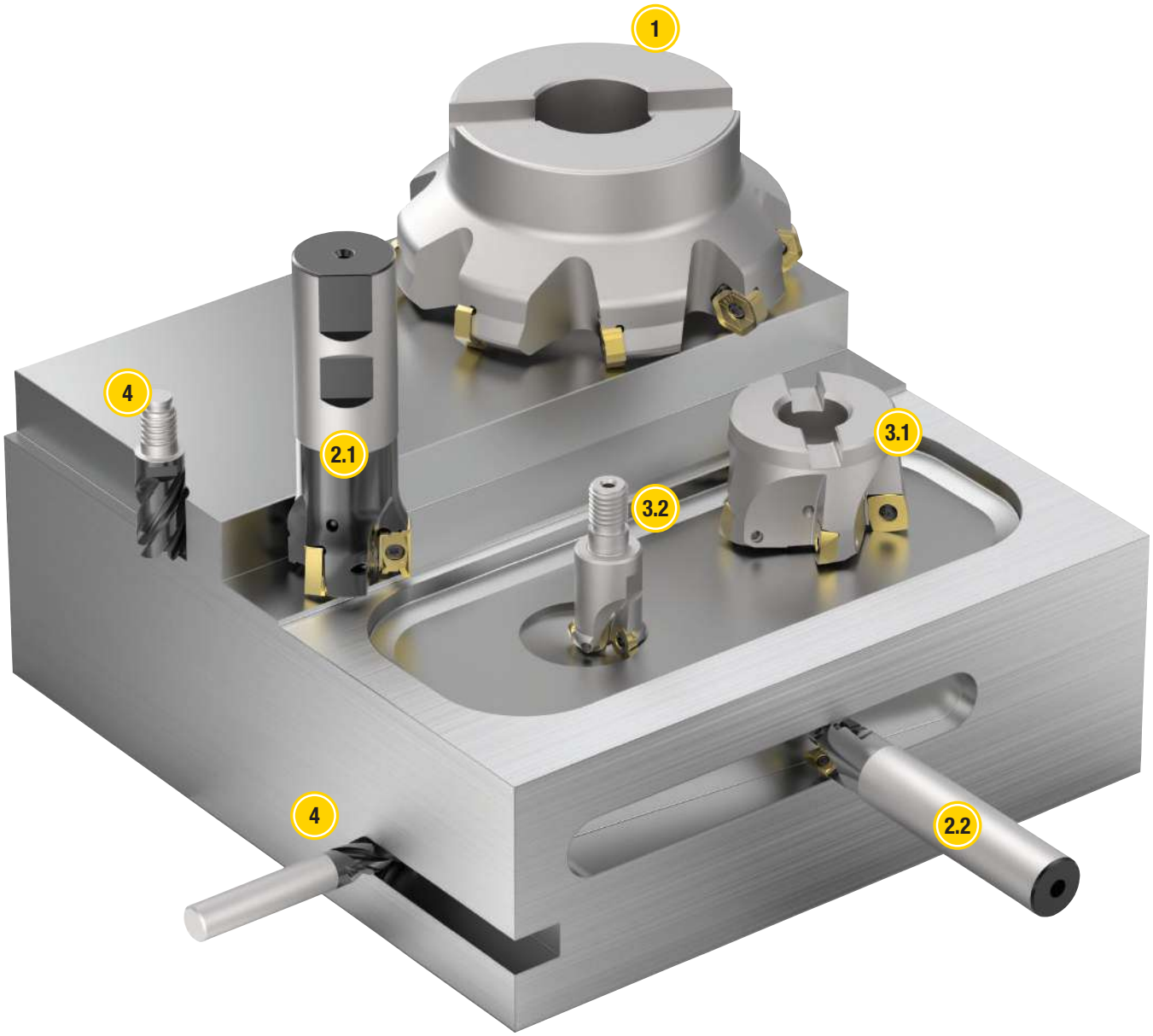
Milling



Indexable Milling

Face Milling **B3–B26**

Platform Selection B3

1 Dodeka Mini B4–B15

Dodeka B4–B5, B16–B20

7745V0D B22–B26

Shoulder Milling **B27–B81**

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2.2 Mill 1-10, Mill 1-14 ..... B47–B63, B64–B81

High-Feed and Copy Milling **B82–B136**

Platform Selection B83

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7792 IC09 ..... B92–B100

7792 IC12 ..... B101–B109

Dodeka Mini High-Feed 15° B110–B115

Dodeka High-Feed 15° B116–B119

3.2 7713 IC10 Copy Milling B120–B126

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Grades and Grade Descriptions **B134–B136**

Solid End Milling

Solid End Milling Selection System **B138–B139**

High-Performance **B140–B191**

4 Duo-Lock HARVI B140–B147

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HARVI II B166–B170

HARVI II Long B172–B175

HARVI III B176–B179

Rougher B180–B185

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General Purpose **B192–B212**

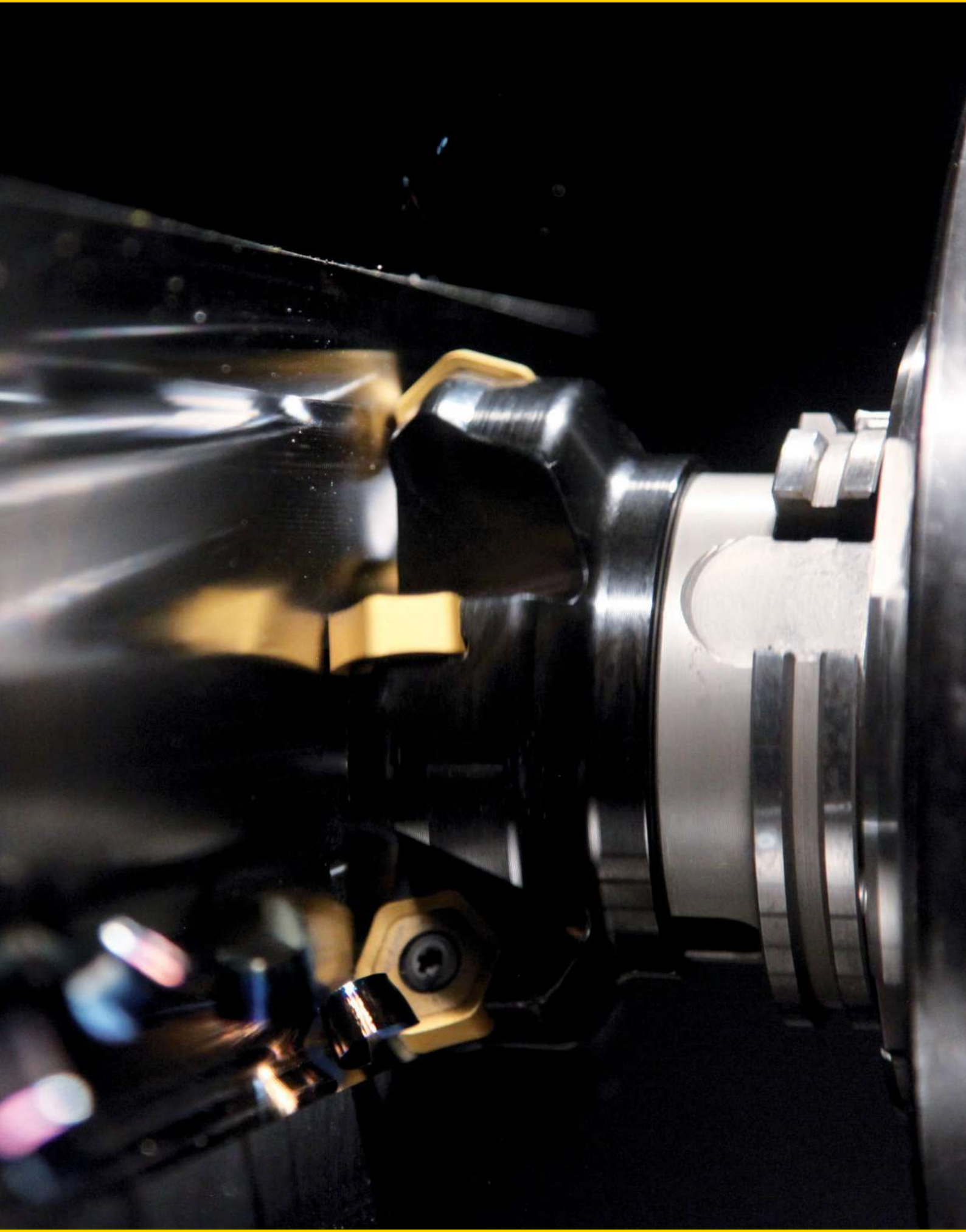
4 GOmill GP 2-Flute End Mills B192–B199

GOmill GP 3-Flute End Mills B200–B203

GOmill GP 4-Flute End Mills B204–B211

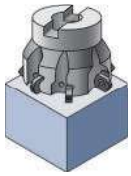
Grades and Grade Descriptions **B212**

Workpiece Material Cross Reference **E10**



Application

1



Machining Conditions and Spindle Size

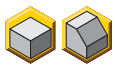
2

- Small to medium machines.
- Best fit for steep taper 40 / HSK63 and similar spindle sizes.
- Finishing cuts on large machines.

- Medium and large machines.
- Best fit for steep taper 50 / HSK100 and similar spindle sizes.
- Roughing with larger depth of cut and higher feed rates.

Capabilities

3



Platform

4

7745 VOD

42° cutter – ap max: 3,5mm
Cutter body: Ø32—Ø125mm
Insert style: OD*0404
8 cutting edges

Dodeka™ Mini

45° cutter — ap max: 3,2 mm
60° cutter — ap max: 4,4 mm
Cutter body: Ø25–Ø125mm
Insert style: HN*J0604
12 cutting edges

Dodeka

45° cutter — ap max: 4,5 mm
Cutter body: Ø50–Ø250mm
Insert style: HN*J0905
12 cutting edges

Insert Selection

5

Easy insert selection based on:
Workpiece material
Cutting conditions
Coolant type
Directly on the product page B24

Easy insert selection based on:
Workpiece material
Cutting conditions
Coolant type
Directly on the product pages B9 and B13

Easy insert selection based on:
Workpiece material
Cutting conditions
Coolant type
Directly on the product page B18

Tech Tips:

*Use 7745VOD for lowest cutting forces and improved chip evacuation. Suitable for unstable applications/fixtures.
*7745VOD is the preferred platform for finishing stainless steel and high-temp materials.
*Coarse pitch cutters are suggested for unstable applications/fixtures and long chipping materials.
*For cutter diameter selection, it is important to consider the torque value of the machine.

Dodeka™ Series

Leader in Advanced Face Milling Applications

Primary Application

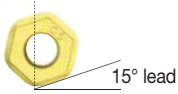
Dodeka Mini and Dodeka platforms are the most comprehensive face milling boosters on the market today. Twelve true cutting edges per insert mean low cost-per-edge and high productivity. With Beyond™ premium milling grades, achieve up to 30% higher metal removal rates (MRR), 25% lower cutting forces due to soft cutting action, and up to 35% better tool life in light to heavy machining.

Features and Benefits

Dodeka Series • Most comprehensive face milling platform on the market. Providing an excellent cost-per-cutting edge with market leading performance. The Dodeka Series platform will cover all your face milling application needs.

All cutter body variations can be loaded with one insert style.

Dodeka Mini High-Feed 15°
Dodeka High-Feed 15°



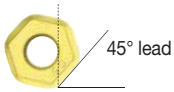
12 True Cutting Edges

Dodeka Mini	**Ap1 max = 1,6mm**
Dodeka	**Ap1 max = 2,2mm**

Dodeka Mini HF and Dodeka HF can be loaded with all Dodeka Mini standard inserts, except wiper inserts.

See High-Feed section, pages B110–B119.

Dodeka Mini 45°
Dodeka 45°

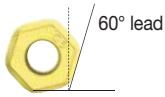


12 True Cutting Edges

Dodeka Mini	**Ap1 max = 3,2mm**
Dodeka	**Ap1 max = 4,5mm**

Best-in-class leader in face milling up to Ap1 max = 4,5mm.

Dodeka Mini 60°



12 True Cutting Edges

Dodeka Mini	**Ap1 max = 4,4mm**

Achieve a higher axial depth-of-cut capability up to Ap1 = 4,4mm with standard Dodeka Mini inserts.

Dodeka™ Mini Series

insert size HN.J06
Ap1 max = 4,4mm
(for approach angle 60º)

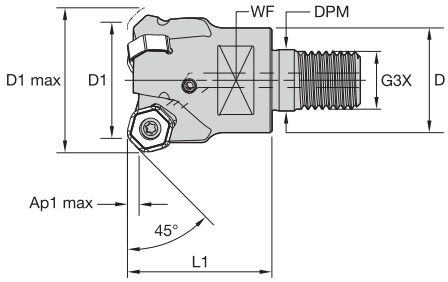
Dodeka

insert size HN.J0905
Ap1 max = 4,5mm

P M K N S

Applicable in most material groups • Excellent results in machining titanium

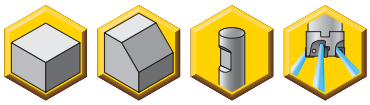
- Twelve cutting edges per insert.
- Maximum number of teeth per diameter.
- Productivity booster in all materials.

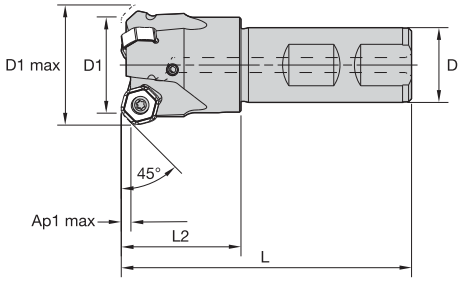


Dodeka Mini 45° • Screw-On End Mills

order number	catalogue number	D1	D1 max	D	DPM	G3X	L1	WF	Ap1 max	Z	kg	max RPM
4125882	**KSHR025D03M16HN06**	25	33,2	29	17,0	M16	32,0	22	3,2	3	0,13	20000
4126344	**KSHR032D04M16HN06**	32	40,2	29	17,0	M16	40,0	22	3,2	4	0,21	17600

- Twelve cutting edges per insert.
- Maximum number of teeth per diameter.
- Productivity booster in all materials.

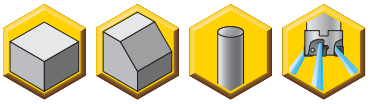


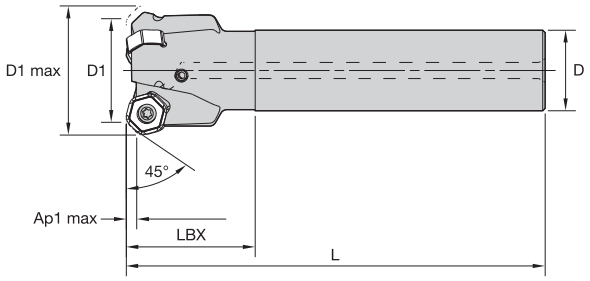


Dodeka Mini 45° • Weldon End Mills

order number	catalogue number	D1	D1 max	D	L	L2	Ap1 max	Z	kg	max RPM
4126348	**KSHR025D03B20HN06**	25	33,2	20	82	32	3,2	3	0,21	20000
4126349	**KSHR032D03B25HN06**	32	40,2	25	97	40	3,2	3	0,40	17600
4126350	**KSHR032D04B25HN06**	32	40,2	25	97	40	3,2	4	0,41	17600

- Twelve cutting edges per insert.
- Maximum number of teeth per diameter.
- Productivity booster in all materials.





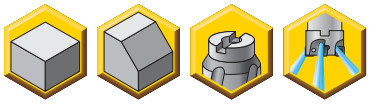
Dodeka Mini 45° • Cylindrical End Mills

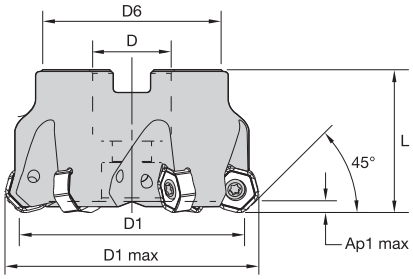
order number	catalogue number	D1	D1 max	D	L	LBX	Ap1 max	Z	kg	max RPM
4126352	**KSHR025D03A20HN06L120**	25	33,2	20	120	32	3,2	3	0,28	20000
4126383	**KSHR032D03A25HN06L130**	32	40,2	25	130	40	3,2	3	0,50	17600
4126384	**KSHR032D04A25HN06L130**	32	40,2	25	130	40	3,2	4	0,50	17600

Spare Parts

D1	 insert screw	 Nm	 wrench
25	**193.492**	3,5	**170.025**
32	**193.492**	3,5	**170.025**

- Twelve cutting edges per insert.
- Maximum number of teeth per diameter.
- Productivity booster in all materials.

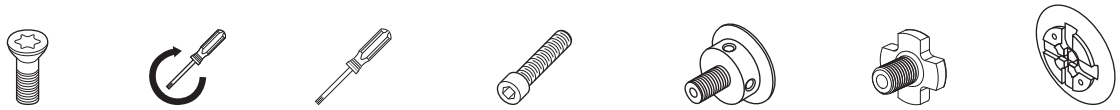




Dodeka Mini 45° • Shell Mills

order number	catalogue number	D1	D1 max	D	D6	L	Ap1 max	Z	kg	max RPM
4126387	**KSHR040A04RS45HN06**	40	48,2	22	38	40	3,2	4	0,25	15800
4124313	**KSHR040A05RS45HN06**	40	48,2	22	38	40	3,2	5	0,25	15800
4126388	**KSHR050A04RS45HN06**	50	58,2	22	38	40	3,2	4	0,36	12700
4122886	**KSHR050A05RS45HN06**	50	58,2	22	38	40	3,2	5	0,37	12700
4126389	**KSHR050A06RS45HN06**	50	58,2	22	38	40	3,2	6	0,36	12700
4122887	**KSHR063A04RS45HN06**	63	71,2	22	50	40	3,2	4	0,59	10100
4122889	**KSHR063A06RS45HN06**	63	71,2	22	50	40	3,2	6	0,65	10100
4126390	**KSHR063A08RS45HN06**	63	71,2	22	50	40	3,2	8	0,64	10100
4126391	**KSHR080A05RS45HN06**	80	88,1	27	60	50	3,2	5	1,13	7900
4126392	**KSHR080A08RS45HN06**	80	88,1	27	64	50	3,2	8	1,25	7900
4126403	**KSHR080A10RS45HN06**	80	88,1	27	60	50	3,2	10	1,19	7900
4126404	**KSHR100B06RS45HN06**	100	108,1	32	80	50	3,2	6	1,73	6300
4126405	**KSHR100B09RS45HN06**	100	108,1	32	80	50	3,2	9	1,84	6300
4126406	**KSHR100B12RS45HN06**	100	108,1	32	80	50	3,2	12	1,84	6300
4126408	**KSHR125B12RS45HN06**	125	133,1	40	90	63	3,2	12	2,98	5050
4124262	**KSHR125B16RS45HN06**	125	133,1	40	90	63	3,2	16	3,05	5050

Spare Parts

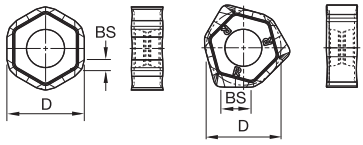


D1	insert screw	Nm	wrench	socket-head cap screw	coolant lock screw assembly	coolant lock screw	coolant shower plate
40	**193.492**	3,5	**170.025**	**125.025**	**–**	**–**	**–**
50	**193.492**	3,5	**170.025**	**125.025**	**–**	**–**	**–**
63	**193.492**	3,5	**170.025**	**125.025**	**–**	**–**	**–**
80	**193.492**	3,5	**170.025**	**125.230**	**–**	**–**	**–**
100	**193.492**	3,5	**170.025**	**–**	**MS2189C**	**–**	**–**
125	**193.492**	3,5	**170.025**	**–**	**–**	**420.200**	**470.232**

NOTE: Coolant lock screw assembly and coolant cap must be ordered separately.

✦✦ first choice with coolant
✧✧ first choice without coolant
✦ alternate choice with coolant
✧ alternate choice without coolant

	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
P1–P2				✧/✦	✦✦		✧✧		
P3–P4				✧/✦	✦✦		✧	✧✧	
P5–P6				✧/✦	✦✦		✧	✧✧	
M1–M2				✧/✦	✦			✦	✦✦
M3				✧/✦	✦				✦✦
K1–K2		✧	✦✦			✧✧			
K3		✧	✦✦				✧✧		
N1	✦✦								
N2	✦✦								
S1					✦				✦✦
S2					✦				✦✦
S3				✦	✦				✦✦
S4				✦	✦				✦✦



ISO catalogue number	D	BS	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
Light Machining											
HNGJ0604ANFNLDJ	12	1,54	4121575	–	–	–	–	–	–	–	–
HNGJ0604ANENLD	12	1,54	–	4121576	–	4121578	–	4119227	4119190	5550701	6165862
General Machining											
HNPJ0604ANSNGD	12	1,45	–	–	4119696	4119697	4119701	4119699	4119700	5550703	6165759
Heavy Machining											
HNGJ0604ANSNHD	12	1,45	–	–	–	–	–	6039660	6039812	6039659	6165864
HNPJ0604ANSNHD	12	1,45	–	–	–	4119703	4119229	–	4119228	5550702	6165760
HNPJ060432ANSNHD	12	–	–	–	–	–	–	–	–	6068798	6165861
Finishing with Wiper											
XNGJ0604ANENLD3W	12	4,80	–	–	–	4121607	–	–	–	5879813	6165863

Recommended Starting Feeds

Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.F..LDJ	0,17	**0,46**	0,79	0,12	**0,33**	0,57	0,09	**0,25**	0,43	0,08	**0,22**	0,37	0,07	**0,20**	0,34	.F..LDJ
.E..LD	0,18	**0,59**	0,99	0,13	**0,43**	0,71	0,10	**0,32**	0,53	0,09	**0,28**	0,46	0,08	**0,25**	0,42	.E..LD
.S..GD	0,33	**0,79**	1,19	0,24	**0,57**	0,86	0,18	**0,43**	0,64	0,16	**0,37**	0,56	0,14	**0,34**	0,51	.S..GD
.S..HD	0,33	**0,84**	1,35	0,24	**0,60**	0,97	0,18	**0,45**	0,72	0,16	**0,39**	0,63	0,14	**0,36**	0,57	.S..HD

HNG….: Ground inserts; high versatility for all finishing applications and difficult-to-machine stainless steels and high-temp alloys.
HNP….: Pressed inserts; lower cost per edge for most roughing to semi-finishing operations.
XNG….: Wiper finishing insert. To be used in combination with HNGJ..LD insert.

Material Group		KC410M*			KC510M			KC520M			KC522M			KC725M		
P	1	–	–	–	–	–	–	–	–	–	395	**340**	325	310	**275**	260
	2	–	–	–	–	–	–	–	–	–	330	**290**	240	265	**230**	190
	3	–	–	–	–	–	–	–	–	–	305	**260**	210	240	**205**	170
	4	–	–	–	295	**240**	205	–	–	–	270	**220**	180	215	**180**	145
	5	–	–	–	–	–	–	–	–	–	220	**205**	180	180	**160**	145
	6	–	–	–	–	–	–	–	–	–	200	**150**	120	155	**120**	95
M	1	–	–	–	–	–	–	–	–	–	245	**215**	200	205	**180**	160
	2	–	–	–	–	–	–	–	–	–	220	**190**	155	185	**155**	130
	3	–	–	–	–	–	–	–	–	–	170	**145**	115	140	**120**	95
K	1	–	–	–	355	**320**	290	325	**295**	260	275	**245**	220	–	–	–
	2	–	–	–	275	**245**	230	250	**230**	210	215	**190**	180	–	–	–
	3	–	–	–	235	**210**	190	210	**190**	175	180	**160**	145	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
H	1	–	–	–	190	**155**	110	–	–	–	145	**110**	85	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Material Group		KCK15			KCPK30			KCPM40			KCSM40		
P	1	–	–	–	545	**475**	445	355	**310**	295	275	**240**	205
	2	–	–	–	335	**305**	275	300	**260**	215	240	**205**	160
	3	–	–	–	305	**275**	245	275	**235**	190	205	**180**	160
	4	–	–	–	230	**210**	190	245	**205**	160	180	**160**	145
	5	–	–	–	310	**275**	250	205	**185**	160	160	**145**	125
	6	–	–	–	190	**160**	145	180	**140**	110	125	**110**	90
M	1	–	–	–	245	**220**	185	235	**205**	185	275	**220**	180
	2	–	–	–	220	**190**	170	210	**180**	150	180	**145**	125
	3	–	–	–	175	**155**	140	155	**140**	110	145	**125**	110
K	1	505	**460**	410	355	**320**	290	–	–	–	–	–	–
	2	400	**355**	330	280	**250**	230	–	–	–	–	–	–
	3	335	**300**	275	235	**210**	190	–	–	–	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–
H	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–

*Recommended for wet machining only.

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

Material Group		KC410M			KC510M			KC520M			KC522M			KC725M		
P	1	–	–	–	–	–	–	–	–	–	315	**270**	260	250	**220**	210
	2	–	–	–	–	–	–	–	–	–	265	**230**	190	210	**185**	150
	3	–	–	–	–	–	–	–	–	–	245	**210**	170	190	**165**	135
	4	–	–	–	235	**190**	165	–	–	–	215	**175**	145	170	**145**	115
	5	–	–	–	–	–	–	–	–	–	175	**165**	145	145	**130**	115
	6	–	–	–	–	–	–	–	–	–	160	**120**	95	125	**95**	75
M	1	–	–	–	–	–	–	–	–	–	195	**170**	160	165	**145**	130
	2	–	–	–	–	–	–	–	–	–	175	**150**	125	150	**125**	105
	3	–	–	–	–	–	–	–	–	–	135	**115**	90	110	**95**	75
K	1	–	–	–	285	**255**	230	260	**235**	210	220	**195**	175	–	–	–
	2	–	–	–	220	**195**	185	200	**185**	170	170	**150**	145	–	–	–
	3	–	–	–	190	**170**	150	170	**150**	140	145	**130**	115	–	–	–
N	1	1170	**1035**	955	615	**550**	505	–	–	–	–	–	–	–	–	–
	2	1035	**955**	880	555	**510**	470	–	–	–	–	–	–	–	–	–
	3	1035	**955**	880	555	**510**	470	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	40	**30**	25	30	**30**	25
	2	–	–	–	–	–	–	–	–	–	40	**30**	25	30	**30**	25
	3	–	–	–	–	–	–	–	–	–	50	**40**	25	45	**30**	25
	4	–	–	–	–	–	–	–	–	–	70	**50**	30	50	**45**	30
H	1	–	–	–	150	**125**	90	–	–	–	115	**90**	70	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

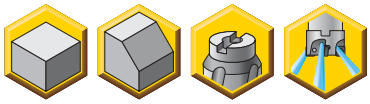
Material Group		KCK15			KCPK30			KCPM40			KCSM40		
P	1	–	–	–	435	**380**	355	285	**250**	235	–	–	–
	2	–	–	–	270	**245**	220	240	**210**	170	–	–	–
	3	–	–	–	245	**220**	195	220	**190**	150	–	–	–
	4	–	–	–	185	**170**	150	195	**165**	130	–	–	–
	5	–	–	–	250	**220**	200	165	**150**	130	165	**140**	115
	6	–	–	–	150	**130**	118	145	**110**	90	145	**105**	75
M	1	–	–	–	195	**175**	150	190	**165**	150	200	**165**	135
	2	–	–	–	175	**150**	135	170	**145**	120	170	**140**	115
	3	–	–	–	140	**125**	110	125	**110**	90	140	**105**	80
K	1	405	**370**	330	285	**255**	230	–	–	–	–	–	–
	2	320	**285**	265	225	**200**	185	–	–	–	–	–	–
	3	270	**240**	220	190	**170**	150	–	–	–	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	40	**30**	30	40	**30**	25
	2	–	–	–	–	–	–	40	**30**	30	40	**30**	25
	3	–	–	–	–	–	–	50	**40**	30	50	**40**	25
	4	–	–	–	65	**50**	30	65	**50**	30	55	**50**	30
H	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–

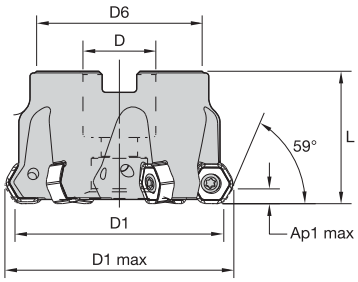
NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

- Twelve cutting edges per insert.
- Higher Ap1 max with standard inserts.
- Productivity booster in all materials.





Dodeka Mini 60° • Shell Mills

order number	catalogue number	D1	D1 max	D	D6	L	Ap1 max	Z	kg	max RPM
4147022	**KSHR040A04RS60HN06**	40	46,4	22	38	40	4,3	4	0,21	15800
4147713	**KSHR040A05RS60HN06**	40	46,4	22	38	40	4,3	5	0,21	15800
4147714	**KSHR050A04RS60HN06**	50	56,4	22	38	40	4,3	4	0,32	12700
4147715	**KSHR050A05RS60HN06**	50	56,4	22	38	40	4,3	5	0,32	12700
4147716	**KSHR063A04RS60HN06**	63	69,3	22	50	40	4,3	4	0,57	10100
4147717	**KSHR063A06RS60HN06**	63	69,3	22	50	40	4,3	6	0,59	10100
4147718	**KSHR080A05RS60HN06**	80	86,3	27	60	50	4,3	5	1,08	7900
4147719	**KSHR080A08RS60HN06**	80	86,3	27	60	50	4,3	8	1,15	7900
4147720	**KSHR100B06RS60HN06**	100	106,3	32	80	50	4,3	6	1,70	6300
4147722	**KSHR125B08RS60HN06**	125	131,3	40	90	63	4,3	8	2,92	5050

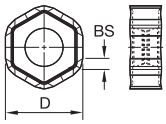
Spare Parts

D1	insert screw	Nm	wrench	mounting screw	socket-head cap screw	coolant lock screw assembly	coolant lock screw	coolant shower plate
40	**193.492**	3,5	**170.025**	**KLSSM22-39-CG**	–	–	–	–
50	**193.492**	3,5	**170.025**	–	**125.025**	–	–	–
63	**193.492**	3,5	**170.025**	–	**125.025**	–	–	–
80	**193.492**	3,5	**170.025**	–	**125.230**	–	–	–
100	**193.492**	3,5	**170.025**	–	–	**MS2189C**	–	–
125	**193.492**	3,5	**170.025**	–	–	–	**420.200**	**470.232**

NOTE: Coolant lock screw assembly and coolant cap must be ordered separately.

✦✦ first choice with coolant
✧✧ first choice without coolant
✦ alternate choice with coolant
✧ alternate choice without coolant

P1–P2				✧/✦	✦✦		✧✧		
P3–P4				✧/✦	✦✦		✧	✧✧	
P5–P6				✧/✦	✦✦		✧	✧✧	
M1–M2				✧/✦	✦			✦	✦✦
M3				✧/✦	✦				✦✦
K1–K2		✧	✦✦			✧✧			
K3		✧	✦✦				✧✧		
N1	✦✦								
N2	✦✦								
S1					✦				✦✦
S2					✦				✦✦
S3				✦	✦				✦✦
S4				✦	✦				✦✦



	ISO catalogue number	D	BS	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
	Light Machining											
	**HNGJ0604ANFNLDJ**	12	1,54	**4121575**	–	–	–	–	–	–	–	–
	HNGJ0604ANENLD	12	1,54	–	**4121576**	–	**4121578**	–	**4119227**	**4119190**	**5550701**	**6165862**
	General Machining											
	**HNPJ0604ANSNGD**	12	1,45	–	–	**4119696**	**4119697**	**4119701**	**4119699**	**4119700**	**5550703**	**6165759**
	Heavy Machining											
	**HNGJ0604ANSNHD**	12	1,45	–	–	–	–	–	**6039660**	**6039812**	**6039659**	**6165864**
	HNPJ0604ANSNHD	12	1,45	–	–	–	**4119703**	**4119229**	–	**4119228**	**5550702**	**6165760**
	HNPJ060432ANSNHD	12	–	–	–	–	–	–	–	–	**6068798**	**6165861**

Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.F..LDJ	0,13	**0,37**	0,64	0,10	**0,27**	0,46	0,07	**0,20**	0,35	0,06	**0,18**	0,30	0,06	**0,16**	0,28	.F..LDJ
.E..LD	0,15	**0,48**	0,81	0,11	**0,35**	0,58	0,08	**0,26**	0,43	0,07	**0,23**	0,38	0,07	**0,21**	0,35	.E..LD
.S..GD	0,27	**0,64**	0,97	0,20	**0,46**	0,70	0,15	**0,35**	0,52	0,13	**0,30**	0,45	0,12	**0,28**	0,42	.S..GD
.S..HD	0,27	**0,68**	1,10	0,20	**0,49**	0,79	0,15	**0,37**	0,59	0,13	**0,32**	0,51	0,12	**0,29**	0,47	.S..HD

HNG….: Ground inserts; high versatility for all finishing applications and difficult-to-machine stainless steels and high-temp alloys.
HNP….: Pressed inserts; lower cost per edge for most roughing to semi-finishing operations.

Material Group		KC410M*			KC510M			KC520M			KC522M			KC725M		
P	1	–	–	–	–	–	–	–	–	–	395	**340**	325	310	**275**	260
	2	–	–	–	–	–	–	–	–	–	330	**290**	240	265	**230**	190
	3	–	–	–	–	–	–	–	–	–	305	**260**	210	240	**205**	170
	4	–	–	–	295	**240**	205	–	–	–	270	**220**	180	215	**180**	145
	5	–	–	–	–	–	–	–	–	–	220	**205**	180	180	**160**	145
	6	–	–	–	–	–	–	–	–	–	200	**150**	120	155	**120**	95
M	1	–	–	–	–	–	–	–	–	–	245	**215**	200	205	**180**	160
	2	–	–	–	–	–	–	–	–	–	220	**190**	155	185	**155**	130
	3	–	–	–	–	–	–	–	–	–	170	**145**	115	140	**120**	95
K	1	–	–	–	355	**320**	290	325	**295**	260	275	**245**	220	–	–	–
	2	–	–	–	275	**245**	230	250	**230**	210	215	**190**	180	–	–	–
	3	–	–	–	235	**210**	190	210	**190**	175	180	**160**	145	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
H	1	–	–	–	190	**155**	110	–	–	–	145	**110**	85	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Material Group		KCK15			KCPK30			KCPM40			KCSM40		
P	1	–	–	–	545	**475**	445	355	**310**	295	275	**240**	205
	2	–	–	–	335	**305**	275	300	**260**	215	240	**205**	160
	3	–	–	–	305	**275**	245	275	**235**	190	205	**180**	160
	4	–	–	–	230	**210**	190	245	**205**	160	180	**160**	145
	5	–	–	–	310	**275**	250	205	**185**	160	160	**145**	125
	6	–	–	–	190	**160**	145	180	**140**	110	125	**110**	90
M	1	–	–	–	245	**220**	185	235	**205**	185	275	**220**	180
	2	–	–	–	220	**190**	170	210	**180**	150	180	**145**	125
	3	–	–	–	175	**155**	140	155	**140**	110	145	**125**	110
K	1	505	**460**	410	355	**320**	290	–	–	–	–	–	–
	2	400	**355**	330	280	**250**	230	–	–	–	–	–	–
	3	335	**300**	275	235	**210**	190	–	–	–	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–
H	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–

*Recommended for wet machining only.

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

Material Group		KC410M			KC510M			KC520M			KC522M			KC725M		
P	1	–	–	–	–	–	–	–	–	–	315	**270**	260	250	**220**	210
	2	–	–	–	–	–	–	–	–	–	265	**230**	190	210	**185**	150
	3	–	–	–	–	–	–	–	–	–	245	**210**	170	190	**165**	135
	4	–	–	–	235	**190**	165	–	–	–	215	**175**	145	170	**145**	115
	5	–	–	–	–	–	–	–	–	–	175	**165**	145	145	**130**	115
	6	–	–	–	–	–	–	–	–	–	160	**120**	95	125	**95**	75
M	1	–	–	–	–	–	–	–	–	–	195	**170**	160	165	**145**	130
	2	–	–	–	–	–	–	–	–	–	175	**150**	125	150	**125**	105
	3	–	–	–	–	–	–	–	–	–	135	**115**	90	110	**95**	75
K	1	–	–	–	285	**255**	230	260	**235**	210	220	**195**	175	–	–	–
	2	–	–	–	220	**195**	185	200	**185**	170	170	**150**	145	–	–	–
	3	–	–	–	190	**170**	150	170	**150**	140	145	**130**	115	–	–	–
N	1	1170	**1035**	955	615	**550**	505	–	–	–	–	–	–	–	–	–
	2	1035	**955**	880	555	**510**	470	–	–	–	–	–	–	–	–	–
	3	1035	**955**	880	555	**510**	470	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	40	**30**	25	30	**30**	25
	2	–	–	–	–	–	–	–	–	–	40	**30**	25	30	**30**	25
	3	–	–	–	–	–	–	–	–	–	50	**40**	25	45	**30**	25
	4	–	–	–	–	–	–	–	–	–	70	**50**	30	50	**45**	30
H	1	–	–	–	150	**125**	90	–	–	–	115	**90**	70	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

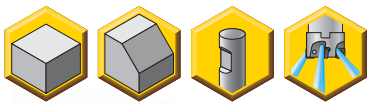
Material Group		KCK15			KCPK30			KCPM40			KCSM40		
P	1	–	–	–	435	**380**	355	285	**250**	235	–	–	–
	2	–	–	–	270	**245**	220	240	**210**	170	–	–	–
	3	–	–	–	245	**220**	195	220	**190**	150	–	–	–
	4	–	–	–	185	**170**	150	195	**165**	130	–	–	–
	5	–	–	–	250	**220**	200	165	**150**	130	165	**140**	115
	6	–	–	–	150	**130**	120	145	**110**	90	145	**105**	75
M	1	–	–	–	195	**175**	150	190	**165**	150	200	**165**	135
	2	–	–	–	175	**150**	135	170	**145**	120	170	**140**	115
	3	–	–	–	140	**125**	110	125	**110**	90	140	**105**	80
K	1	405	**370**	330	285	**255**	230	–	–	–	–	–	–
	2	320	**285**	265	225	**200**	185	–	–	–	–	–	–
	3	270	**240**	220	190	**170**	150	–	–	–	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	40	**30**	30	40	**30**	25
	2	–	–	–	–	–	–	40	**30**	30	40	**30**	25
	3	–	–	–	–	–	–	50	**40**	30	50	**40**	25
	4	–	–	–	65	**50**	30	65	**50**	30	55	**50**	30
H	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–

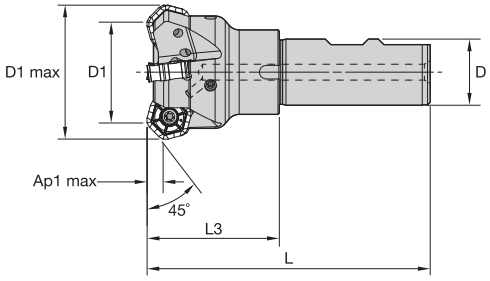
NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

- Twelve cutting edges per insert.
- Soft cutting action.
- Through tool coolant.





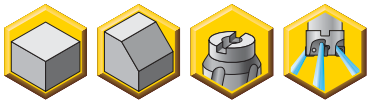
Dodeka 45° • Weldon End Mills

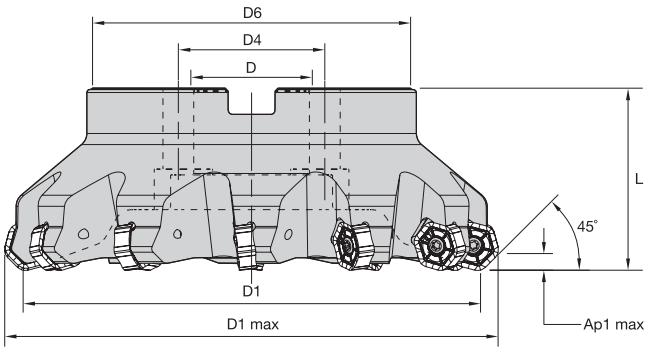
order number	catalogue number	D1	D1 max	D	L	L3	Ap1 max	Z	kg	max RPM
3324830	**KSHR40D04R50B25SHN09**	40	51,0	25	107	50,00	4,5	4	0,52	15800

Spare Parts

D1	insert screw	Nm	wrench
40	**193.492**	3,5	**170.025**

- Twelve cutting edges per insert.
- Through coolant standard.
- Soft cutting action.





Dodeka 45° • Shell Mills

order number	catalogue number	D1	D1 max	D	D4	D6	L	Ap1 max	Z	kg	max RPM
3324831	KSHR50A04RS45HN09	50	61,0	22	–	38	40	4,5	4	0,32	12700
3324832	KSHR50A05RS45HN09	50	61,0	22	–	38	40	4,5	5	0,33	12700
3749959	KSHR63A05RS45HN09	63	74,0	22	–	50	40	4,5	5	0,60	10100
3325163	KSHR63A06RS45HN09	63	74,0	22	–	50	40	4,5	6	0,56	10100
3325164	KSHR63A07RS45HN09	63	74,0	22	–	50	40	4,5	7	0,57	10100
3749960	KSHR80A05RS45HN09	80	91,0	27	–	60	50	4,5	5	1,12	7900
3325165	KSHR80A06RS45HN09	80	91,0	27	–	60	50	4,5	6	1,07	7900
3325166	KSHR80A09RS45HN09	80	91,0	27	–	60	50	4,5	9	1,11	7900
3749961	KSHR100B06RS45HN09	100	111,0	32	–	80	50	4,5	6	1,73	6300
3325167	KSHR100B08RS45HN09	100	111,0	32	–	80	50	4,5	8	1,68	6300
3325168	KSHR100B11RS45HN09	100	111,0	32	–	80	50	4,5	11	1,73	6300
3749962	KSHR125B08RS45HN09	125	135,9	40	–	90	63	4,5	8	2,84	5050
3325169	KSHR125B10RS45HN09	125	135,9	40	–	90	63	4,5	10	2,77	5050
3325170	KSHR125B14RS45HN09	125	136,0	40	–	90	63	4,5	14	2,86	5050
3750013	KSHR160C10RS45HN09	160	171,0	40	67	110	63	4,5	10	4,75	3900
3325171	KSHR160C12RS45HN09	160	171,0	40	67	110	63	4,5	12	4,56	3900
3325172	KSHR160C16RS45HN09	160	171,0	40	67	110	63	4,5	16	4,70	3900
3587732	KSHR200C16RS45HN09	200	211,0	60	102	130	63	4,5	16	6,43	3180
3587753	KSHR250C20RS45HN09	250	261,0	60	102	130	63	4,5	20	9,93	2550

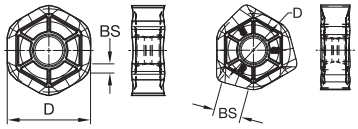
Spare Parts

D1	insert screw	Nm	wrench	mounting screw with coolant grooves	low-head cap screw	socket-head cap screw	coolant lock screw assembly	coolant lock screw	coolant shower plate
50	193.492	3,5	170.025	MS2072CG	129.025	–	–	–	–
63	193.492	3,5	170.025	MS1234CG	–	125.025	–	–	–
80	193.492	3,5	170.025	MS2038CG	–	125.230	–	–	–
100	193.492	3,5	170.025	–	–	–	MS2189C	–	–
125	193.492	3,5	170.025	–	–	–	–	420.200	470.232
160	193.492	3,5	170.025	–	–	–	–	420.200	470.233
200	193.492	3,5	170.025	–	–	–	–	–	470.234
250	193.492	3,5	170.025	–	–	–	–	–	470.235

NOTE: Coolant lock screw assembly and coolant cap must be ordered separately.

✦✦ first choice with coolant
✧✧ first choice without coolant
✦ alternate choice with coolant
✧ alternate choice without coolant

P1–P2			✧/✦	✦✦		✧✧			
P3–P4			✧/✦	✦✦		✧	✧✧		
P5–P6			✧/✦	✦✦		✧	✧✧		
M1–M2			✧/✦	✦			✦	✦✦	
M3			✧/✦	✦				✦✦	
K1–K2		✦✦			✧✧				✧✧
K3		✦✦				✧✧			
N1	✦✦								
N2	✦✦								
S1				✦				✦✦	
S2				✦				✦✦	
S3			✦	✦				✦✦	
S4			✦	✦				✦✦	



ISO catalogue number	D	BS	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
Light Machining											
HNGJ0905ANFNLDJ	16	1,80	**3849320**	–	–	–	–	–	–	–	–
HNGJ0905ANENLD	16	1,80	–	**3331174**	**3093561**	**3331175**	**3330952**	**3331178**	–	**6178103**	–
General Machining											
HNGJ0905ANSNGD	16	1,80	–	–	–	**3331176**	**3331173**	**3093719**	**5550793**	**6178104**	–
HNPJ0905ANSNGD	16	1,80	–	**3763726**	**3774250**	**3763727**	**3763725**	**3763728**	**5550795**	–	–
Heavy Machining											
HNGJ0905ANSNHD	16	1,66	–	–	–	**3556331**	**3556330**	**3556332**	**5550794**	**6178105**	–
HNPJ0905ANSNHD	16	1,66	–	–	**3774249**	**3763723**	**3763185**	**3763724**	**5550796**	**6178108**	–
HNPJ090543ANSNHD	16	–	–	–	**3774251**	**3763730**	**3763729**	**3763731**	**5550797**	**6178109**	–
HNGJ090543ANSNHD	16	–	–	–	–	**3556374**	**3556373**	**3556375**	**6068043**	**6178106**	–
Finishing with Wiper											
XNGJ0905ANSNGD3W	16	6,00	–	–	–	**3547033**	**3547022**	**3547035**	–	**6178107**	–
High Speed Cast Iron Machining											
HNEC0905ANSN	16	1,95	–	–	–	–	–	–	–	–	**6140064**

Recommended Starting Feeds

Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.F..LDJ	0,17	**0,46**	0,79	0,12	**0,33**	0,57	0,09	**0,25**	0,43	0,08	**0,22**	0,37	0,07	**0,20**	0,34	.F..LDJ
.E..LD	0,23	**0,66**	0,99	0,17	**0,47**	0,71	0,13	**0,35**	0,53	0,11	**0,31**	0,46	0,10	**0,28**	0,42	.E..LD
.S..GD	0,33	**0,72**	1,15	0,24	**0,52**	0,82	0,18	**0,39**	0,61	0,16	**0,34**	0,54	0,14	**0,31**	0,49	.S..GD
.S..HD	0,33	**0,84**	1,35	0,24	**0,60**	0,97	0,18	**0,45**	0,72	0,16	**0,39**	0,63	0,14	**0,36**	0,57	.S..HD

HNG….: Ground inserts; high versatility for all finishing applications and difficult-to-machine stainless steels and high-temp alloys.
HNP….: Pressed inserts; lower cost per edge for most roughing to semi-finishing operations.
XNG….: Wiper finishing insert. To be used in combination with HNGJ..LD insert.

Material Group		KC410M*			KC520M			KC522M			KC725M			KCK15		
P	1	–	–	–	–	–	–	395	**340**	325	310	**275**	260	–	–	–
	2	–	–	–	–	–	–	330	**290**	240	265	**230**	190	–	–	–
	3	–	–	–	–	–	–	305	**260**	210	240	**205**	170	–	–	–
	4	–	–	–	–	–	–	270	**220**	180	215	**180**	145	–	–	–
	5	–	–	–	–	–	–	220	**205**	180	180	**160**	145	–	–	–
	6	–	–	–	–	–	–	200	**150**	120	155	**120**	95	–	–	–
M	1	–	–	–	–	–	–	245	**215**	200	205	**180**	160	–	–	–
	2	–	–	–	–	–	–	220	**190**	155	185	**155**	130	–	–	–
	3	–	–	–	–	–	–	170	**145**	115	140	**120**	95	–	–	–
K	1	–	–	–	325	**295**	260	275	**245**	220	–	–	–	505	**460**	410
	2	–	–	–	250	**230**	210	215	**190**	180	–	–	–	400	**355**	330
	3	–	–	–	210	**190**	175	180	**160**	145	–	–	–	335	**300**	275
N	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
H	1	–	–	–	–	–	–	145	**110**	85	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Material Group		KCPK30			KCPM40			KCSM40			KY3500		
P	1	545	**475**	445	355	**310**	295	275	**240**	205	–	–	–
	2	335	**305**	275	300	**260**	215	240	**205**	160	–	–	–
	3	305	**275**	245	275	**235**	190	205	**180**	160	–	–	–
	4	230	**210**	190	245	**205**	160	180	**160**	145	–	–	–
	5	310	**275**	250	205	**185**	160	160	**145**	125	–	–	–
	6	190	**160**	145	180	**140**	110	125	**110**	90	–	–	–
M	1	245	**220**	185	235	**205**	185	275	**220**	180	–	–	–
	2	220	**190**	170	210	**180**	150	180	**145**	125	–	–	–
	3	175	**155**	140	155	**140**	110	145	**125**	110	–	–	–
K	1	355	**320**	290	–	–	–	–	–	–	965	**875**	780
	2	280	**250**	230	–	–	–	–	–	–	760	**685**	635
	3	235	**210**	190	–	–	–	–	–	–	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–
H	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–

*Recommended for wet machining only.

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

Material Group		KC410M			KC520M			KC522M			KC725M			KCK15		
P	1	–	–	–	–	–	–	315	**270**	260	250	**220**	210	–	–	–
	2	–	–	–	–	–	–	265	**230**	190	210	**185**	150	–	–	–
	3	–	–	–	–	–	–	245	**210**	170	190	**165**	135	–	–	–
	4	–	–	–	–	–	–	215	**175**	145	170	**145**	115	–	–	–
	5	–	–	–	–	–	–	175	**165**	145	145	**130**	115	–	–	–
	6	–	–	–	–	–	–	160	**120**	95	125	**95**	75	–	–	–
M	1	–	–	–	–	–	–	195	**170**	160	165	**145**	130	–	–	–
	2	–	–	–	–	–	–	175	**150**	125	150	**125**	105	–	–	–
	3	–	–	–	–	–	–	135	**115**	90	110	**95**	75	–	–	–
K	1	–	–	–	260	**235**	210	220	**195**	175	–	–	–	405	**370**	330
	2	–	–	–	200	**185**	170	170	**150**	145	–	–	–	320	**285**	265
	3	–	–	–	170	**150**	140	145	**130**	115	–	–	–	270	**240**	220
N	1	1170	**1035**	955	–	–	–	–	–	–	–	–	–	–	–	–
	2	1035	**955**	880	–	–	–	–	–	–	–	–	–	–	–	–
	3	1035	**955**	880	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	40	**30**	25	30	**30**	25	–	–	–
	2	–	–	–	–	–	–	40	**30**	25	30	**30**	25	–	–	–
	3	–	–	–	–	–	–	50	**40**	25	45	**30**	25	–	–	–
	4	–	–	–	–	–	–	70	**50**	30	50	**45**	30	–	–	–
H	1	–	–	–	–	–	–	115	**90**	70	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Material Group		KCPK30			KCPM40			KCSM40			KY3500*		
P	1	435	**380**	355	285	**250**	235	–	–	–	–	–	–
	2	270	**245**	220	240	**210**	170	–	–	–	–	–	–
	3	245	**220**	195	220	**190**	150	–	–	–	–	–	–
	4	185	**170**	150	195	**165**	130	–	–	–	–	–	–
	5	250	**220**	200	165	**150**	130	165	**140**	115	–	–	–
	6	150	**130**	118	145	**110**	90	145	**105**	75	–	–	–
M	1	195	**175**	150	190	**165**	150	200	**165**	135	–	–	–
	2	175	**150**	135	170	**145**	120	170	**140**	115	–	–	–
	3	140	**125**	110	125	**110**	90	140	**105**	80	–	–	–
K	1	285	**255**	230	–	–	–	–	–	–	–	–	–
	2	225	**200**	185	–	–	–	–	–	–	–	–	–
	3	190	**170**	150	–	–	–	–	–	–	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	40	**30**	30	40	**30**	25	–	–	–
	2	–	–	–	40	**30**	30	40	**30**	25	–	–	–
	3	–	–	–	50	**40**	30	50	**40**	25	–	–	–
	4	65	**50**	30	65	**50**	30	55	**50**	30	–	–	–
H	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–

*Recommended for dry machining only.

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

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Numbers shown only serve the originating country listed.

7745VOD Series

Face Milling Cutter

42° LEAD ANGLE – FACE MILLS

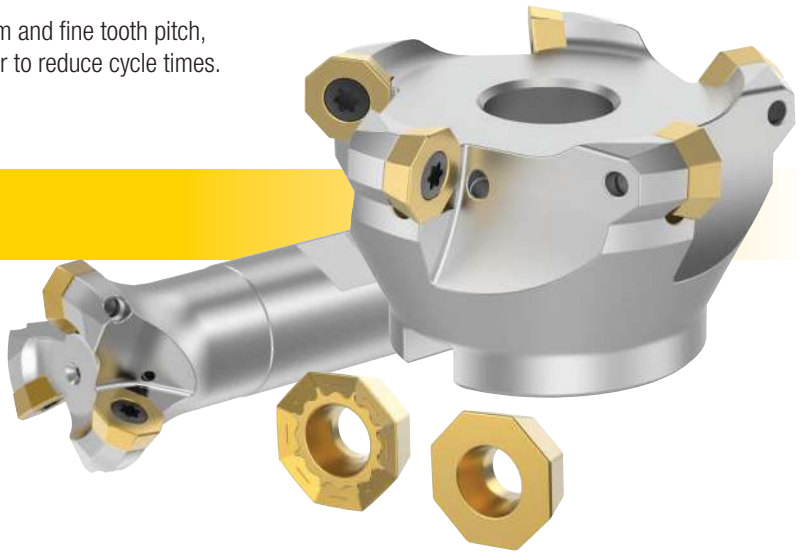
7745VOD cutters are designed for machining most materials. Octagonal inserts offer up to eight economical cutting edges.

These cutters are ideal for roughing, semi-finishing and finishing of Steel, Alloyed Steel, Stainless Steel, High Temperature Alloys, Cast Iron and Aluminium Alloys.

7745VOD cutters are also very robust when machining with tool holder extensions.

They are one of the first choice tools for machining component surface with scale as well as for machining of irregular stock.

Insert sizes: OD..04 avaliable in cutters with medium and fine tooth pitch, giving maximum efficency and performance in order to reduce cycle times.



Features and Benefits

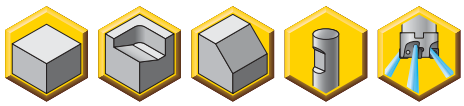
7745VOD

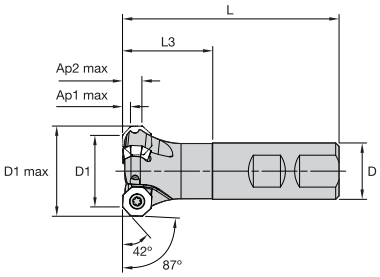
7745VOD04:

Maximum ap = 3,50mm (8 cutting edges)

Maximum ap = 8mm (4 cutting edges)

Diameter Range = 32mm to 125mm



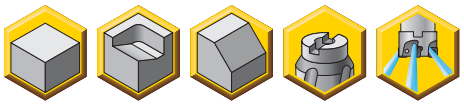


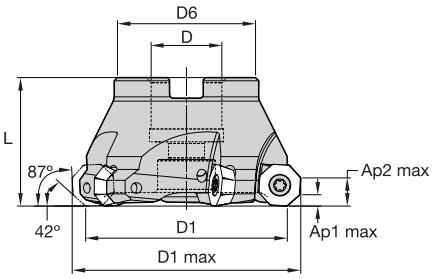
End Mill Weldon Shank

order number	catalogue number	D1 max	D1	D	L	L3	Ap1 max	Ap2 max	Z
5672181	7745VOD04WA032R	40	32	25	96	40	3,5	8,0	3

Spare Parts

catalogue number	insert screw	Nm	Torx driver
7745VOD04WA032R	F4011T	3,1	T20





Shell Mills

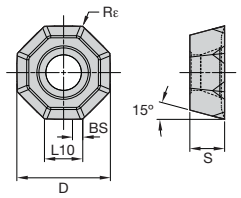
order number	catalogue number	D1 max	D1	D	D6	L	Ap1 max	Ap2 max	Z
5673810	7745VOD04-A040R	48	40	16	35	35	3,5	8,0	4
5672038	7745VOD04-A050Z6R	58	50	22	45	40	3,5	8,0	6
5671836	7745VOD04-A063R	71	63	22	45	40	3,5	8,0	5
5673700	7745VOD04-A080R	88	80	27	65	50	3,5	8,0	6
5672025	7745VOD04-A100R	108	100	32	80	50	3,5	8,0	7
5672190	7745VOD04-A125R	133	125	40	82	63	3,5	8,0	8

Spare Parts

catalogue number	insert screw	Nm	Torx driver	mounting screw	LHCS mounting screw
7745VOD04-A040R	F4011T	3,1	T20	M8 1.25 X 25 SHCS	–
7745VOD04-A050Z6R	F4011T	3,1	T20	M10 1.5 X 25 SHCS	–
7745VOD04-A063R	F4011T	3,1	T20	M10 1.5 X 25 SHCS	–
7745VOD04-A080R	F4011T	3,1	T20	M12 X 1.75 X 30 SHCS	–
7745VOD04-A100R	F4011T	3,1	T20	–	M16X2X40 LHSCS
7745VOD04-A125R	F4011T	3,1	T20	M20 X 2.5 X 50 SHCS	–

✦✦ first choice with coolant
✧✧ first choice without coolant
✦ alternate choice with coolant
✧alternate choice without coolant

P1–P2	✧✧	✧/✦	
P3–P4	✦✦	✧/✦	
P5–P6		✦✦	✧/✦
M1–M2	✧✧	✦✦	
M3	✦	✦✦	
K1–K2	✧✧	✧/✦	
K3	✦✦	✧/✦	
N1			
N2			
S1		✦✦	✦
S2		✦✦	✦
S3		✦✦	
S4		✦	✦✦



	ISO catalogue number	D	S	hm	BS	Rε	SP6519	X500	X700
	Light Machining								
	ODET0404APEN44	12,80	4,76	0,04	1,50	–	**5667950**	**5656499**	**–**
	Light Machining								
	ODMT040408EN412	12,80	4,76	0,06	–	0,80	**5665818**	**–**	**5666904**
	General Machining								
	ODMT0404APEN41	12,80	4,76	0,06	1,50	0,20	**5661185**	**5657014**	**–**
	General Machining								
	ODMT040408EN41	12,80	4,76	0,06	–	0,80	**5667576**	**5656811**	**–**
	Heavy Machining								
	ODMW040408SN	12,80	4,76	0,27	–	0,80	**5665739**	**5656555**	**–**

NOTE: ODMW040408SN X500 should be generally used for heavy duty applications as well as Stainless Steel and High-Temperature Alloys with heavy scale.
Geometry -412 is slightly more positive than -41 and can improve tool life in several applications on Stainless Steel and High Temperature Alloys

Recommended Starting Feeds

Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	10%			20%			30%			40%			50–100%			
.E..44	0,14	**0,35**	0,58	0,10	**0,25**	0,41	0,08	**0,19**	0,31	0,07	**0,17**	0,28	0,06	**0,15**	0,25	.E..44
.E..412	0,16	**0,41**	0,69	0,12	**0,30**	0,50	0,09	**0,23**	0,38	0,08	**0,20**	0,33	0,07	**0,18**	0,30	.E..412
.E..41	0,18	**0,51**	0,81	0,13	**0,36**	0,58	0,10	**0,28**	0,44	0,09	**0,24**	0,39	0,08	**0,22**	0,35	.E..41
.S..N	0,46	**0,81**	1,15	0,33	**0,58**	0,83	0,25	**0,44**	0,63	0,22	**0,39**	0,55	0,20	**0,35**	0,50	.S..N

Material Group		SP6519			X500			X700		
P	1	355	**260**	155	325	**240**	155	–	–	–
	2	310	**230**	140	290	**215**	140	–	–	–
	3	275	**200**	120	250	**185**	120	–	–	–
	4	210	**150**	90	190	**145**	90	–	–	–
	5	170	**125**	85	155	**120**	85	160	**125**	85
	6	145	**100**	60	130	**95**	60	140	**100**	60
M	1	325	**235**	140	300	**220**	140	310	**230**	140
	2	280	**205**	125	265	**190**	120	275	**205**	125
	3	235	**170**	100	215	**155**	95	230	**170**	100
K	1	355	**265**	170	310	**265**	205	–	–	–
	2	290	**210**	130	265	**215**	155	–	–	–
	3	265	**190**	120	205	**170**	120	–	–	–
N	1	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–
H	1	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–

Material Group		SP6519			X500			X700		
P	1	285	**210**	125	260	**190**	125	–	–	–
	2	250	**185**	110	230	**170**	110	–	–	–
	3	220	**160**	95	200	**150**	95	–	–	–
	4	170	**120**	70	150	**115**	70	–	–	–
	5	135	**100**	70	125	**95**	70	130	**100**	70
	6	115	**80**	50	105	**75**	50	110	**80**	50
M	1	260	**190**	110	240	**175**	110	250	**185**	110
	2	225	**165**	100	210	**150**	95	220	**165**	100
	3	190	**135**	80	170	**125**	75	185	**135**	80
K	1	285	**210**	135	250	**210**	165	–	–	–
	2	230	**170**	105	210	**170**	125	–	–	–
	3	210	**150**	95	165	**135**	95	–	–	–
N	1	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–
S	1	50	**40**	25	50	**30**	25	50	**40**	25
	2	50	**30**	20	45	**30**	20	45	**30**	20
	3	50	**40**	25	50	**40**	25	50	**40**	25
	4	75	**55**	35	70	**50**	30	70	**50**	35
H	1	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

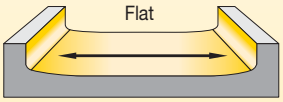
Wet

Technical Information (mm)

order number	catalogue number	dimension					
		facing pitch	ramping angle	helical hole min–max		a_p max helical/ linear	max RPM
5672181	**7745VOD04WA032R**	32	12,10	60	78	2,00	33200
5673810	**7745VOD04-A040R**	40	8.50	76	94	2,00	29200
5672038	**7745VOD04-A050Z06R**	50	6.10	96	114	2,00	25700
5671836	**7745VOD04-A063R**	63	4.30	122	140	2,00	22700
5673700	**7745VOD04-A080R**	80	3.00	156	174	2,00	17700
5672025	**7745VOD04-A100R**	100	2.40	196	214	2,00	17700
5672190	**7745VOD04-A125R**	125	2.00	246	264	2,00	15700


Ramping

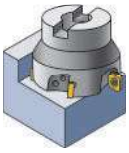

Helical Interpolation



Facing Pitch

Application

1



Machining Conditions and Spindle Size

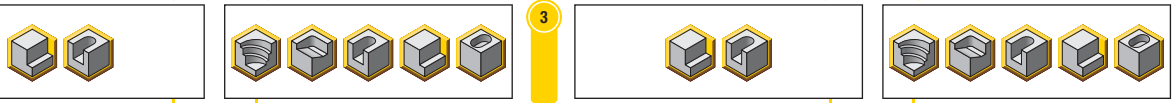
2

- Small to medium machines.
- Best fit for steep taper 40 / HSK63 and similar spindle sizes.
- All shoulder finishing cuts with medium depth of cut.

- Medium and large machines.
- Best fit for steep taper 50 / HSK100 and similar spindle sizes.
- Roughing and shoulder finishing with larger depth of cut.

Capabilities

3



Platform

4

Mill 4-11™

Ap max: 11mm
Cutter body: Ø16–Ø80mm
Insert style: LN*U1104
4 cutting edges

Mill 1-10™

Ap max: 10mm
Cutter body: Ø12–Ø100mm
Insert style: ED*T10T3
2 cutting edges

Mill 4-15™

Ap max: 15mm
Cutter body: Ø25–Ø160mm
Insert style: LN*U15T6
4 cutting edges

Mill 1-14™

Ap max: 14mm
Cutter body: Ø20–Ø160mm
Insert style: ED*T1404
2 cutting edges

Insert Selection

5

Easy insert selection based on:
- Workpiece material
- Cutting conditions
- Coolant type

Directly on the product page B34

Easy insert selection based on:
- Workpiece material
- Cutting conditions
- Coolant type

Directly on the product page B44

Tech Tips:

- Best wall and surface finishing with Mill 4-11 and Mill 4-15 series. “Stepless” solution for multiple-pass operations. For excellent wall finishing results, apply Ap up to ½ length of cutting edge.
- Full ramping, slotting, and plunging capabilities with Mill 1-10 and Mill 1-14.
- Coarse pitch cutters are suggested for large radial engagements. Fine pitch for smooth cuts at low radial engagement and/or stable machining conditions.

Mill 4-11™

One tool for all applications.

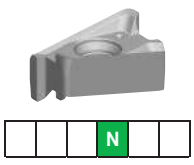
The Mill 4™ series is specially engineered to achieve excellent surface quality and higher metal removal rates in shoulder milling applications. Its unique design allows you to apply the tool in multiple passes (stepping down) with outstanding results.

From roughing to finishing operations, the Mill 4 series is applicable in a wide range of workpiece materials: steel, cast iron, stainless steel, non-ferrous materials, and high-temp alloys.

Features and Benefits

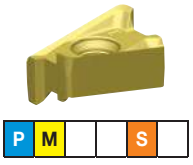
- Double-sided strong insert with 4 cutting edges.
- High positive geometry for lower cutting forces.
- Superior wall and surface finish capabilities.
- “Stepless” solution for multiple-pass operations.
- Comprehensive offering to cover all applications in all material groups.

-ELEJ



For non-ferrous materials.

-EGE



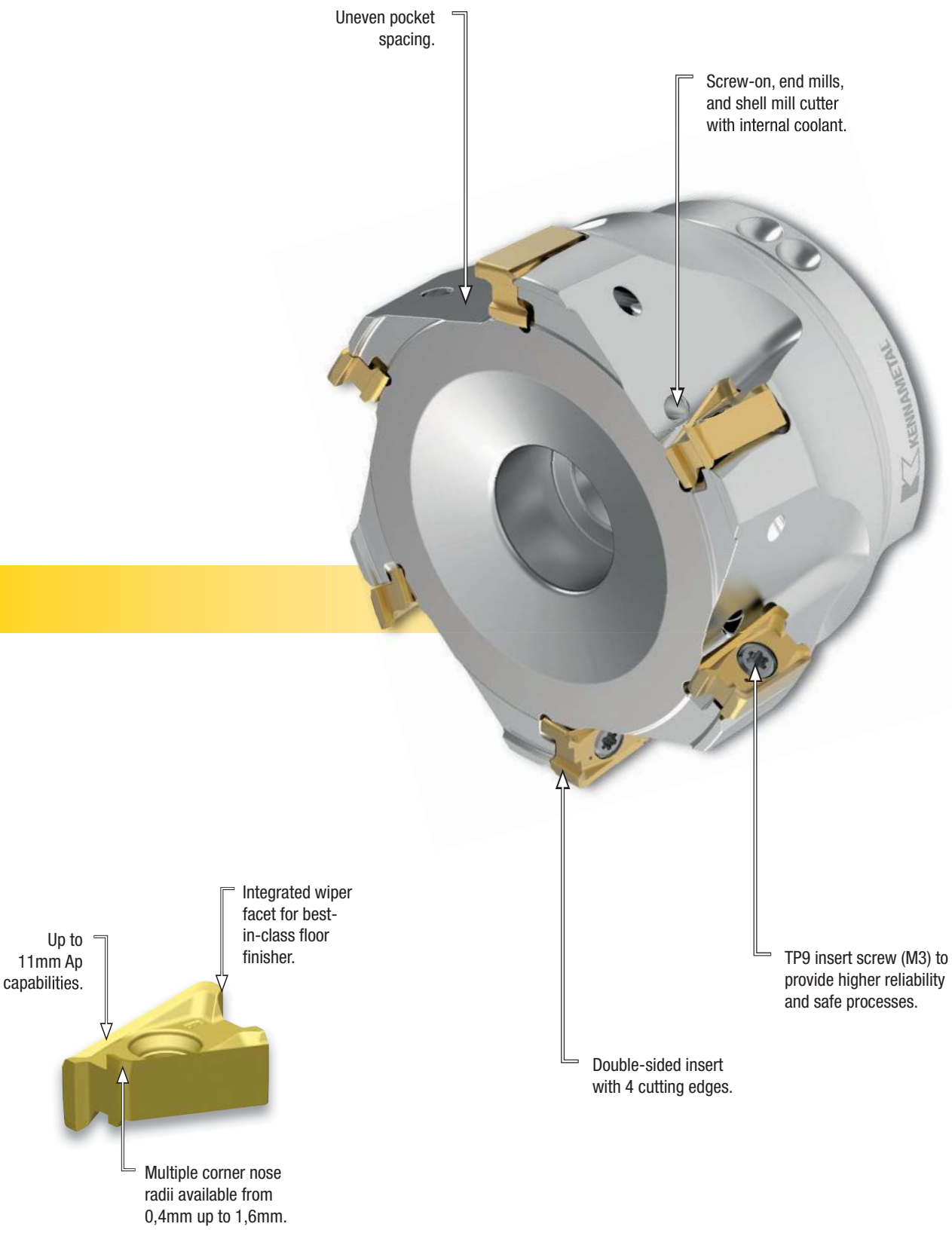
1st choice for stainless steel. Lower cutting forces.

-SGE

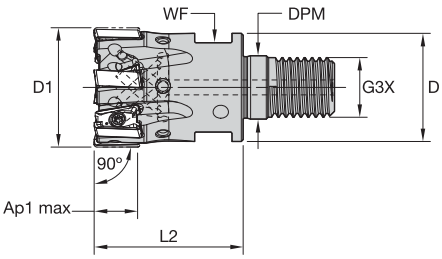
First choice for the Mill 4 platform, especially when machining steels.

-SGEM

1st choice for cast iron. Strongest cutting edge.


Uneven pocket spacing.
Screw-on, end mills, and shell mill cutter with internal coolant.
Integrated wiper facet for best-in-class floor finisher.
Up to 11mm Ap capabilities.
Multiple corner nose radii available from 0,4mm up to 1,6mm.
TP9 insert screw (M3) to provide higher reliability and safe processes.
Double-sided insert with 4 cutting edges.

- One tool for all applications: from roughing to finishing.
- Superior wall and surface finishing capabilities. Best choice for stepping down operations.
- Up to 11mm depth of cut.
- Screw-on cutters provide better rigidity and stability when used with small spindles: BT30, BT40, DV40, HSK50, HSK63, etc.
- Screw-on cutters can be less expensive when compared to cylindrical shank cutters due to their higher flexibility through multiple holder combinations.



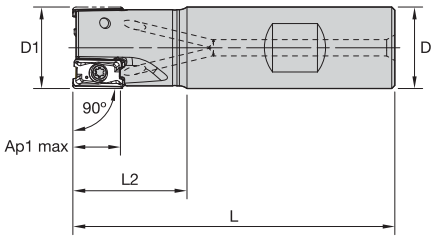
Screw-On End Mills

order number	catalogue number	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	kg	max RPM
6136738	**M4D016Z02M08LN11**	16	13	8,5	M8	25	10	11,0	2	0,03	48000
6131682	**M4D020Z03M10LN11**	20	18	10,5	M10	28	15	11,0	3	0,06	40200
6131686	**M4D025Z04M12LN11**	25	21	12,5	M12	40	17	11,0	4	0,10	34300
6136793	**M4D032Z05M16LN11**	32	29	17,0	M16	40	24	11,0	5	0,20	29200
6134187	**M4D032Z06M16LN11**	32	29	17,0	M16	40	24	11,0	6	0,19	29200

Spare Parts

D1	insert screw	Nm	Torx Plus driver
16	**MS2263**	1,5	**DT9IP**
20	**MS2263**	1,5	**DT9IP**
25	**MS2263**	1,5	**DT9IP**
32	**MS2263**	1,5	**DT9IP**

- One tool for all applications: from roughing to finishing.
- Superior wall and surface finishing capabilities.
- Best choice for stepping down operations.
- Up to 11mm depth of cut.



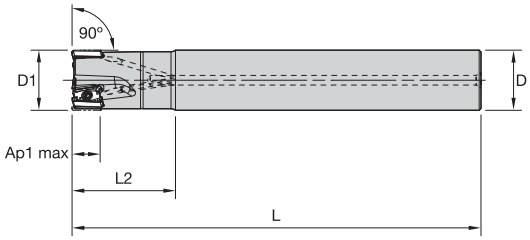
Weldon End Mills

order number	catalogue number	D1	D	L	L2	Ap1 max	Z	kg	max RPM
6131628	**M4D016Z02B16LN11**	16	16	74	25	11,0	2	0,09	48000
6131630	**M4D020Z02B20LN11**	20	20	79	28	11,0	2	0,17	40200
6136740	**M4D020Z03B20LN11**	20	20	79	28	11,0	3	0,16	42000
6131684	**M4D025Z03B25LN11**	25	25	89	32	11,0	3	0,29	34300
6134185	**M4D032Z04B32LN11**	32	32	110	49	11,0	4	0,60	29200
6136795	**M4D040Z05B32LN11**	40	32	110	49	11,0	5	0,66	25400

Spare Parts

D1	insert screw	Nm	Torx Plus driver
16	**MS2263**	1,5	**DT9IP**
20	**MS2263**	1,5	**DT9IP**
25	**MS2263**	1,5	**DT9IP**
32	**MS2263**	1,5	**DT9IP**
40	**MS2263**	1,5	**DT9IP**

- One tool for all applications: from roughing to finishing.
- Superior wall and surface finishing capabilities.
- Best choice for stepping down operations.
- Up to 11mm depth of cut.



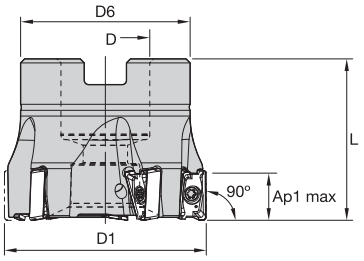
Cylindrical End Mills

order number	catalogue number	D1	D	L	L2	Ap1 max	Z	kg	max RPM
6131627	**M4D016Z02A16LN11L090**	16	16	90	25	11,0	2	0,12	48000
6136737	**M4D016Z02A16LN11L150**	16	16	150	25	11,0	2	0,21	48000
6131629	**M4D020Z02A20LN11L150**	20	20	150	28	11,0	2	0,33	40200
6131681	**M4D020Z03A20LN11L090**	20	20	90	28	11,0	3	0,21	40200
6136739	**M4D020Z03A20LN11L150**	20	20	150	28	11,0	3	0,33	40200
6131683	**M4D025Z03A25LN11L170**	25	25	170	43	11,0	3	0,63	34300
6131685	**M4D025Z04A25LN11L100**	25	25	100	43	11,0	4	0,33	34300
6136791	**M4D025Z04A25LN11L170**	25	25	170	43	11,0	4	0,59	34300
6134184	**M4D032Z04A32LN11L200**	32	32	200	49	11,0	4	1,16	29200
6134186	**M4D032Z05A32LN11L110**	32	32	110	49	11,0	5	0,61	29200
6136792	**M4D032Z05A32LN11L200**	32	32	200	49	11,0	5	1,17	29200

Spare Parts

D1	insert screw	Nm	Torx Plus driver
16	**MS2263**	1,5	**DT9IP**
20	**MS2263**	1,5	**DT9IP**
25	**MS2263**	1,5	**DT9IP**
32	**MS2263**	1,5	**DT9IP**

- One tool for all applications: from roughing to finishing.
- Superior wall and surface finishing capabilities.
- Best choice for stepping down operations.
- Up to 11mm depth of cut.



Shell Mills

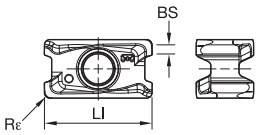
order number	catalogue number	D1	D	D6	L	Ap1 max	Z	kg	max RPM
6134188	**M4D040Z04S16LN11**	40	16	37	40	11,0	4	0,23	25400
6134189	**M4D040Z06S16LN11**	40	16	37	40	11,0	6	0,22	25400
6136796	**M4D040Z07S16LN11**	40	16	37	40	11,0	7	0,23	25400
6134190	**M4D050Z05S22LN11**	50	22	42	40	11,0	5	0,31	22300
6134231	**M4D050Z07S22LN11**	50	22	42	40	11,0	7	0,32	22300
6136797	**M4D050Z09S22LN11**	50	22	42	40	11,0	9	0,32	22300
6134232	**M4D063Z06S22LN11**	63	22	50	40	11,0	6	0,56	19500
6134233	**M4D063Z09S22LN11**	63	22	50	40	11,0	9	0,56	19500
6134234	**M4D080Z08S27LN11**	80	27	60	50	11,0	8	1,12	17100
6136798	**M4D080Z10S27LN11**	80	27	60	50	11,0	10	1,11	17100

Spare Parts

D1	 insert screw	 Nm	 Torx Plus driver	 socket-head cap screw
40	**MS2263**	1,5	**DT9IP**	**125.825**
50	**MS2263**	1,5	**DT9IP**	**125.025**
63	**MS2263**	1,5	**DT9IP**	**125.025**
80	**MS2263**	1,5	**DT9IP**	**125.230**

✦✦ first choice with coolant
✧✧ first choice without coolant
✦ alternate choice with coolant
✧ alternate choice without coolant

P1–P2			✧/✦	✦✦		✧✧		
P3–P4			✧/✦	✦✦		✧	✧✧	
P5–P6			✧/✦	✦✦		✧	✧✧	
M1–M2			✧/✦	✦			✦	✦✦
M3			✧/✦	✦				✦✦
K1–K2		✦✦			✧✧			
K3		✦✦				✧✧		
N1	✦✦							
N2	✦✦							
S1				✦				✦✦
S2				✦				✦✦
S3			✦	✦				✦✦
S4			✦	✦				✦✦



ISO catalogue number	LI	BS	Rε	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
Light Machining											
LNGU110404ERGE	12,16	1,40	0,4	–	–	–	6131514	–	–	6131516	–
LNGU110408ERGE	12,16	1,00	0,8	–	–	6131542	6131541	–	–	6131543	6201354
LNGU110412ERGE	12,17	0,60	1,2	–	–	–	–	–	–	6201353	6201351
General Machining											
LNGU110404ERLEJ	12,16	1,40	0,4	6201292	–	–	–	–	–	–	–
LNGU110408ERLEJ	12,16	1,00	0,8	6131556	–	–	–	–	–	–	–
LNGU110404SRGE	12,16	1,40	0,4	–	–	–	–	–	–	6201280	6201291
LNGU110408SRGE	12,16	1,00	0,8	–	–	6132022	6132024	6132026	6132025	6132023	6165397
LNPU110408SRGE	12,10	0,90	0,8	–	6131506	6131502	6131504	6131507	6131505	6131503	–
LNPU110412SRGE	12,10	0,50	1,2	–	6131512	–	6131430	–	–	6131429	–
LNPU110416SRGE	12,10	0,02	1,6	–	–	–	6131559	–	6131560	6131558	–
Heavy Machining											
LNGU110408SRGEM	12,16	0,90	0,8	–	6131604	–	–	6131602	6131603	6131606	–
LNGU110412SRGEM	12,16	0,60	1,2	–	6131425	–	–	–	–	6131426	–
LNGU110416SRGEM	12,16	0,10	1,6	–	6201021	–	–	–	6200730	6201022	–

Recommended Starting Feeds

Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.E..LEJ	0,13	**0,35**	0,58	0,09	**0,25**	0,42	0,07	**0,19**	0,31	0,06	**0,17**	0,27	0,06	**0,15**	0,25	.E..LEJ
.E..GE	0,23	**0,43**	0,59	0,17	**0,31**	0,43	0,13	**0,23**	0,32	0,11	**0,20**	0,28	0,10	**0,18**	0,25	.E..GE
.S..GE	0,23	**0,46**	0,65	0,17	**0,33**	0,47	0,13	**0,25**	0,35	0,11	**0,22**	0,31	0,10	**0,20**	0,28	.S..GE
.S..GEM	0,23	**0,46**	0,71	0,17	**0,33**	0,51	0,13	**0,25**	0,38	0,11	**0,22**	0,33	0,10	**0,20**	0,30	.S..GEM

LNG...: Ground inserts; high versatility for all finishing applications and difficult-to-machine stainless steels and high-temp alloys.
LNP...: Pressed; lower cost per edge for most roughing to semi-finishing operations.

.E..LEJ: For aluminium and other non-ferrous alloys.
.E..GE: First choice for stainless steel and high-temp alloys. For highest finishing requirements in light machining.
.S..GE: Universal geometry. First choice for steel.
.S..GEM: First choice for cast iron machining and all heavy applications.

Material Group		KC422M*			KC520M			KC522M			KC725M		
P	1	–	–	–	–	–	–	330	**285**	270	260	**230**	215
	2	–	–	–	–	–	–	275	**240**	200	220	**190**	160
	3	–	–	–	–	–	–	255	**215**	175	200	**170**	140
	4	–	–	–	–	–	–	225	**185**	150	180	**150**	120
	5	–	–	–	–	–	–	185	**170**	150	150	**135**	120
	6	–	–	–	–	–	–	165	**125**	100	130	**100**	80
M	1	–	–	–	–	–	–	205	**180**	165	170	**150**	135
	2	–	–	–	–	–	–	185	**160**	130	155	**130**	110
	3	–	–	–	–	–	–	140	**120**	95	115	**100**	80
K	1	–	–	–	270	**245**	215	230	**205**	185	–	–	–
	2	–	–	–	210	**190**	175	180	**160**	150	–	–	–
	3	–	–	–	175	**160**	145	150	**135**	120	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–
H	1	–	–	–	–	–	–	120	**90**	70	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–

Material Group		KCK15			KCPK30			KCPM40			KCSM40		
P	1	–	–	–	455	**395**	370	295	**260**	245	260	**230**	215
	2	–	–	–	280	**255**	230	250	**215**	180	220	**190**	160
	3	–	–	–	255	**230**	205	230	**195**	160	200	**170**	140
	4	–	–	–	190	**175**	160	205	**170**	135	180	**150**	120
	5	–	–	–	260	**230**	210	170	**155**	135	150	**135**	120
	6	–	–	–	160	**135**	125	150	**115**	90	130	**100**	80
M	1	–	–	–	205	**185**	155	195	**170**	155	170	**150**	135
	2	–	–	–	185	**160**	140	175	**150**	125	155	**130**	110
	3	–	–	–	145	**130**	115	130	**115**	90	115	**100**	80
K	1	420	**385**	340	295	**265**	240	–	–	–	–	–	–
	2	335	**295**	275	235	**210**	190	–	–	–	–	–	–
	3	280	**250**	230	195	**175**	160	–	–	–	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–
H	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–

*Recommended for wet machining only.

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

Material Group		KC422M			KC520M			KC522M			KC725M		
P	1	–	–	–	–	–	–	265	**230**	215	210	**185**	170
	2	–	–	–	–	–	–	220	**190**	160	175	**150**	130
	3	–	–	–	–	–	–	205	**170**	140	160	**135**	110
	4	–	–	–	–	–	–	180	**150**	120	145	**120**	95
	5	–	–	–	–	–	–	150	**135**	120	120	**110**	95
	6	–	–	–	–	–	–	130	**100**	80	105	**80**	65
M	1	–	–	–	–	–	–	165	**145**	130	135	**120**	110
	2	–	–	–	–	–	–	150	**130**	105	125	**105**	90
	3	–	–	–	–	–	–	110	**95**	75	90	**80**	65
K	1	–	–	–	215	**195**	170	185	**165**	150	–	–	–
	2	–	–	–	170	**150**	140	145	**130**	120	–	–	–
	3	–	–	–	140	**130**	115	120	**110**	95	–	–	–
N	1	860	**755**	700	–	–	–	–	–	–	–	–	–
	2	755	**700**	610	–	–	–	–	–	–	–	–	–
	3	755	**700**	610	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	30	**30**	20	30	**25**	20
	2	–	–	–	–	–	–	30	**30**	20	30	**25**	20
	3	–	–	–	–	–	–	40	**30**	20	35	**30**	20
	4	–	–	–	–	–	–	55	**40**	30	45	**35**	25
H	1	–	–	–	–	–	–	95	**70**	55	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–

Material Group		KCK15			KCPK30			KCPM40			KCSM40		
P	1	–	–	–	365	**315**	295	285	**250**	235	–	–	–
	2	–	–	–	225	**205**	185	240	**210**	170	–	–	–
	3	–	–	–	205	**185**	165	220	**190**	150	–	–	–
	4	–	–	–	150	**140**	130	195	**165**	130	–	–	–
	5	–	–	–	210	**185**	170	165	**150**	130	135	**115**	95
	6	–	–	–	130	**110**	100	145	**110**	90	120	**90**	65
M	1	–	–	–	165	**150**	125	190	**165**	150	170	**135**	110
	2	–	–	–	150	**130**	110	170	**145**	120	145	**115**	95
	3	–	–	–	115	**105**	90	125	**110**	90	115	**90**	70
K	1	335	**310**	270	235	**210**	190	–	–	–	–	–	–
	2	270	**235**	220	190	**170**	150	–	–	–	–	–	–
	3	225	**200**	185	155	**140**	130	–	–	–	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	40	**30**	30	30	**30**	20
	2	–	–	–	–	–	–	40	**30**	30	30	**30**	20
	3	–	–	–	–	–	–	50	**40**	30	40	**30**	20
	4	–	–	–	55	**40**	25	65	**50**	30	50	**40**	25
H	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

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Mill 4-15™ • Double-Sided Shoulder Milling

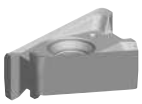
Primary Application

The Mill 4-15 series is specially engineered to achieve excellent surface quality and higher material removal rates in shoulder milling applications. Its unique design enables multiple passes (stepping down) with outstanding results. The Mill 4™ platform is applicable in a wide range of workpiece materials: steel, cast iron, stainless steel, and titanium, from roughing to finishing operations.

Features and Benefits

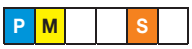
- Double-sided strong insert with 4 cutting edges.
- High positive geometry for lower cutting forces.
- Superior wall and surface finish capabilities.
- "Stepless" solution. No mismatch when machining walls in different steps.

-EGEJ



For non-ferrous materials.

-EGE



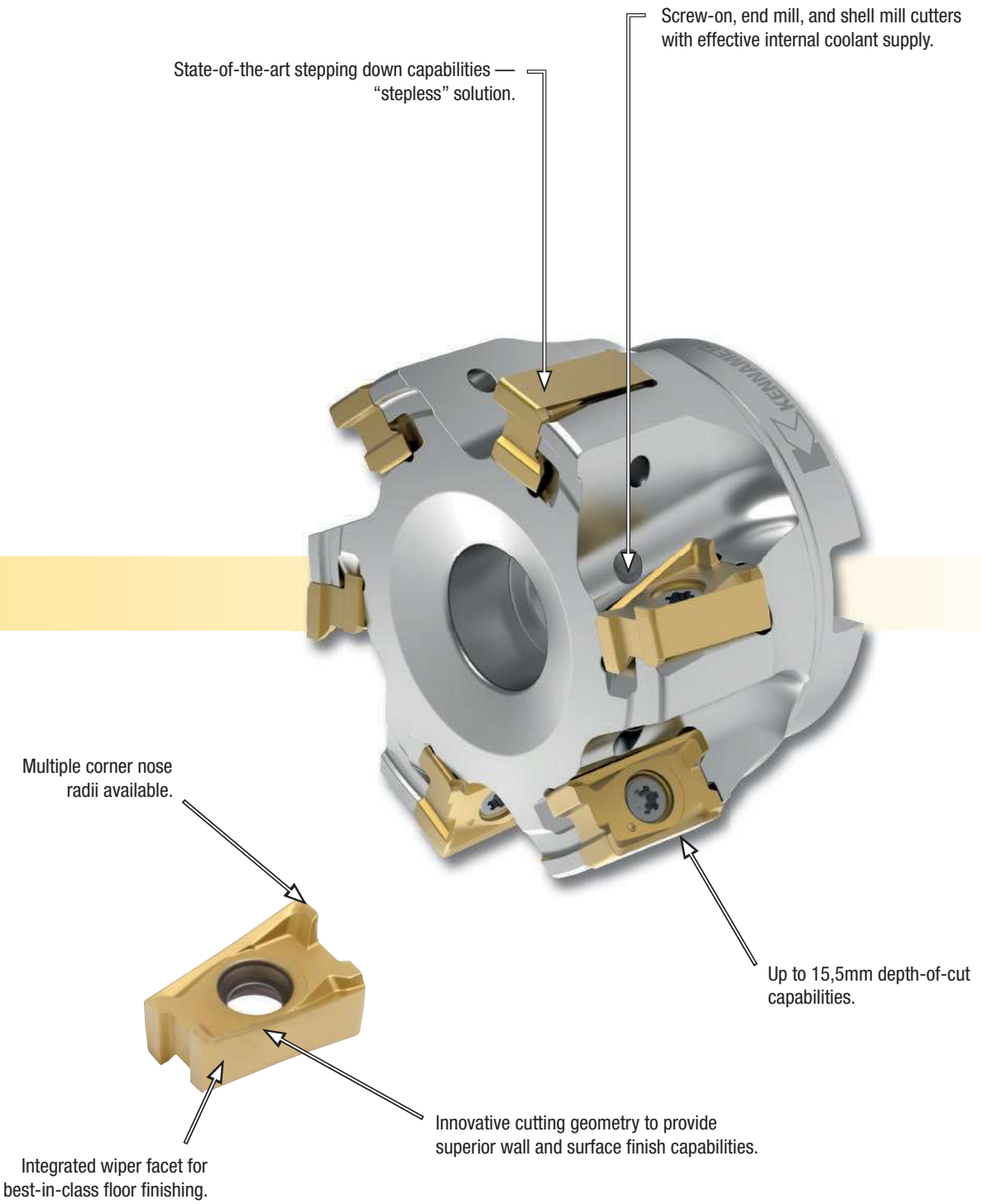
1st choice for stainless steel. Lower cutting forces.

-SGE

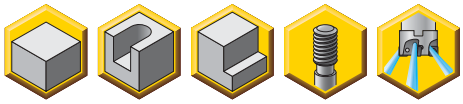
First choice for the Mill 4 platform, especially when machining steels.

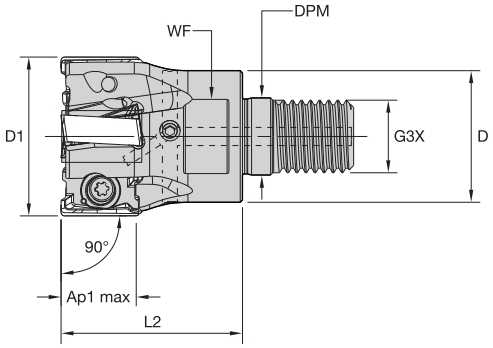
-SGEM

1st choice for cast iron. Strongest cutting edge.


Screw-on, end mill, and shell mill cutters with effective internal coolant supply.
State-of-the-art stepping down capabilities — "stepless" solution.
Multiple corner nose radii available.
Up to 15,5mm depth-of-cut capabilities.
Innovative cutting geometry to provide superior wall and surface finish capabilities.
Integrated wiper facet for best-in-class floor finishing.

- Superior wall and surface finish capabilities.
- True 90° capabilities. Stepless solution when using multiple steps.
- Engineered to run up to 15,5mm depth of cut.
- Effective internal coolant feature, reaching the cutting edge precisely.





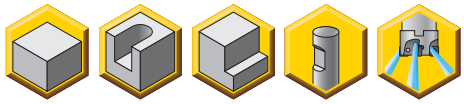
Screw-On End Mills

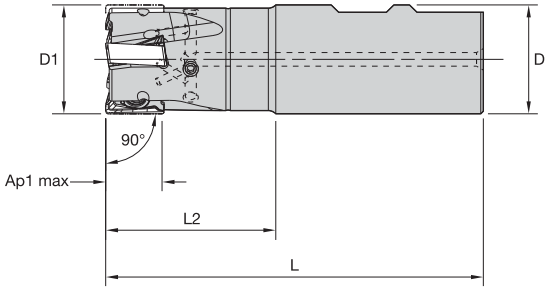
order number	catalogue number	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	kg	max RPM
5531911	**M4D025Z02M12LN15**	25	21	12,5	M12	32	17	15,5	2	0,08	26700
5531912	**M4D032Z03M16LN15**	32	29	17,0	M16	40	24	15,5	3	0,18	22000
5555606	**M4D032Z04M16LN15**	32	29	17,0	M16	40	24	15,5	4	0,18	22000
5528599	**M4D035Z04M16LN15**	35	29	17,0	M16	40	24	15,5	4	0,19	20600
5531913	**M4D040Z05M16LN15**	40	29	17,0	M16	40	24	15,5	5	0,23	18800

Spare Parts

D1	 insert screw	 Nm	 Torx Plus driver
25	**MS-2071**	3,5	**DT15IP**
32	**MS-2071**	3,5	**DT15IP**
35	**MS-2071**	3,5	**DT15IP**
40	**MS-2071**	3,5	**DT15IP**

- Superior wall and surface finish capabilities.
- True 90° capabilities. Stepless solution when using multiple steps.
- Engineered to run up to 15,5mm depth of cut.
- Effective internal coolant feature, reaching the cutting edge precisely.





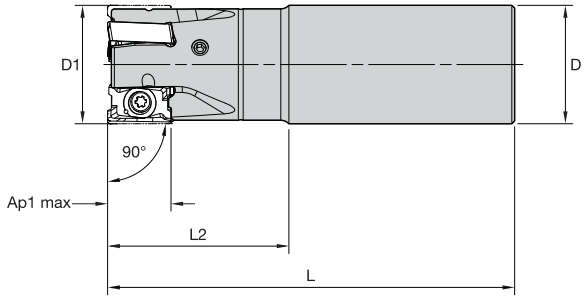
Weldon End Mills

order number	catalogue number	D1	D	L	L2	Ap1 max	Z	kg	max RPM
5528630	**M4D025Z02B25LN15**	25	25	89	32	15,5	2	0,28	26700
5528631	**M4D032Z03B32LN15**	32	32	111	50	15,5	3	0,58	22000
5531914	**M4D040Z03B32LN15**	40	32	111	50	15,5	3	0,65	18800
5555607	**M4D040Z04B32LN15**	40	32	111	50	15,5	4	0,65	18800

Spare Parts

D1	insert screw	Nm	Torx Plus driver
25	**MS-2071**	3,5	**DT15IP**
32	**MS-2071**	3,5	**DT15IP**
40	**MS-2071**	3,5	**DT15IP**

- Superior wall and surface finish capabilities.
- True 90° capabilities. Stepless solution when using multiple steps.
- Engineered to run up to 15,5mm depth of cut.
- Effective internal coolant feature, reaching the cutting edge precisely.



Cylindrical End Mills

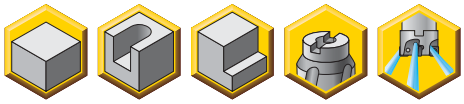
order number	catalogue number	D1	D	L	L2	Ap1 max	Z	kg	max RPM
5531915	**M4D025Z02A25LN15L100**	25	25	100	43	15,5	2	0,28	26700
5531916	**M4D025Z02A25LN15L170**	25	25	170	43	15,5	2	0,58	26700
5531917	**M4D032Z03A32LN15L110**	32	32	110	49	15,5	3	0,58	22000
5531918	**M4D032Z03A32LN15L200**	32	32	200	50	15,5	3	1,14	22000
5555608	**M4D032Z04A32LN15L110**	32	32	110	49	15,5	4	0,58	22000
5555609	**M4D032Z04A32LN15L200**	32	32	200	50	15,5	4	1,14	22000
5555800	**M4D040Z04A32LN15L200**	40	32	200	50	15,5	4	1,20	18800

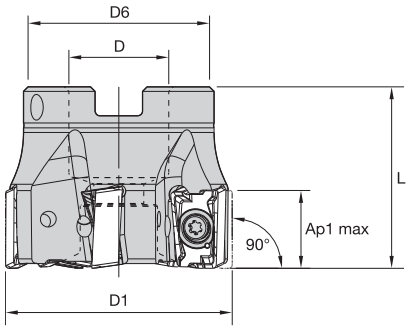
Spare Parts



D1	insert screw	Nm	Torx Plus driver
25	**MS-2071**	3,5	**DT15IP**
32	**MS-2071**	3,5	**DT15IP**
40	**MS-2071**	3,5	**DT15IP**

- Superior wall and surface finish capabilities.
- True 90° capabilities. Stepless solution when using multiple steps.
- Engineered to run up to 15,5mm depth of cut.
- Effective internal coolant feature, reaching the cutting edge precisely.





Shell Mills

order number	catalogue number	D1	D	D6	L	Ap1 max	Z	kg	max RPM
5528632	**M4D040Z04S16LN15**	40	16	37	40	15,5	4	0,20	18800
5555801	**M4D040Z05S16LN15**	40	16	37	40	15,5	5	0,19	18800
5698436	**M4D050Z04S22LN15**	50	22	42	40	15,5	4	0,28	16300
5528633	**M4D050Z05S22LN15**	50	22	42	40	15,5	5	0,28	16300
5528634	**M4D050Z06S22LN15**	50	22	42	40	15,5	6	0,27	16300
5698437	**M4D063Z05S22LN15**	63	22	50	40	15,5	5	0,50	14200
5528635	**M4D063Z06S22LN15**	63	22	50	40	15,5	6	0,49	14200
5528636	**M4D063Z07S22LN15**	63	22	50	40	15,5	7	0,50	14200
5698438	**M4D080Z05S27LN15**	80	27	60	50	15,5	5	1,03	12300
5528637	**M4D080Z07S27LN15**	80	27	60	50	15,5	7	1,02	12300
5555802	**M4D080Z09S27LN15**	80	27	60	50	15,5	9	1,04	12300
5698439	**M4D100Z06S32LN15**	100	32	80	50	15,5	6	1,58	10900
5528638	**M4D100Z08S32LN15**	100	32	80	50	15,5	8	1,57	10900
5555803	**M4D100Z11S32LN15**	100	32	80	50	15,5	11	1,64	10900
5698490	**M4D125Z07S40LN15**	125	40	90	63	15,5	7	2,96	9600
5555804	**M4D125Z09S40LN15**	125	40	90	63	15,5	9	2,98	9600
5532000	**M4D125Z12S40LN15**	125	40	90	63	15,5	12	3,00	9600
5698491	**M4D160Z08S40LN15**	160	40	110	63	15,5	8	4,67	8400
5555805	**M4D160Z12S40LN15**	160	40	110	63	15,5	12	4,78	8400
5555806	**M4D160Z16S40LN15**	160	40	110	63	15,5	16	4,75	8400

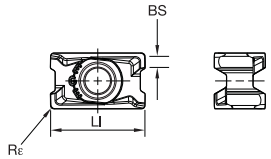
Spare Parts

D1	insert screw	Nm	Torx Plus driver	socket-head cap screw	coolant lock screw assembly	coolant lock screw	coolant cap
40	**MS-2071**	3,5	**DT15IP**	**MS1294**	–	–	–
50	**MS-2071**	3,5	**DT15IP**	**125.025**	–	–	–
63	**MS-2071**	3,5	**DT15IP**	**125.025**	–	–	–
80	**MS-2071**	3,5	**DT15IP**	**MS2038**	–	–	–
100	**MS-2071**	3,5	**DT15IP**	–	**MS2189C**	–	–
125	**MS-2071**	3,5	**DT15IP**	–	**MS2187C**	–	–
160	**MS-2071**	3,5	**DT15IP**	–	–	**420.200**	**470.233**

NOTE: Coolant lock screw assembly and coolant cap must be ordered separately.

✦✦ first choice with coolant
✧✧ first choice without coolant
✦ alternate choice with coolant
✧ alternate choice without coolant

P1–P2			✧/✦	✦✦		✧✧		
P3–P4			✧/✦	✦✦		✧	✧✧	
P5–P6			✧/✦	✦✦		✧	✧✧	
M1–M2			✧/✦	✦			✦	✦✦
M3			✧/✦	✦				✦✦
K1–K2		✦✦			✧✧			
K3		✦✦				✧✧		
N1	✦✦							
N2	✦✦							
S1				✦				✦✦
S2				✦				✦✦
S3			✦	✦				✦✦
S4			✦	✦				✦✦



ISO catalogue number	LI	BS	Rε	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
Light Machining											
LNGU15T604ERGE	17,01	2,20	0,4	–	–	–	5588513	–	–	5588515	–
LNGU15T608ERGE	17,01	1,80	0,8	–	–	5588388	5588385	–	–	5588387	6165422
LNGU15T612ERGE	17,01	1,40	1,2	–	–	–	5588517	–	–	5588519	6165423
LNGU15T616ERGE	17,01	1,07	1,6	–	–	–	5627789	–	–	5627871	–
General Machining											
LNPU15T604SRGE	16,90	2,20	0,4	–	5608034	–	5608036	–	–	–	–
LNGU15T604ERGEJ	17,00	2,20	0,4	6001231	–	–	–	–	–	–	–
LNGU15T604SRGE	17,00	2,20	0,4	–	5516073	–	5516075	–	–	–	–
LNPU15T608SRGE	16,90	1,80	0,8	–	5547848	5547849	5548040	5548041	5548042	5684657	–
LNGU15T608ERGEJ	17,00	1,80	0,8	6001232	–	–	–	–	–	–	–
LNGU15T608SRGE	17,01	1,80	0,8	–	5515759	5515890	5515891	5515892	5515893	–	6165400
LNPU15T612SRGE	16,90	1,50	1,2	–	5607996	–	5607998	–	–	5976169	–
LNGU15T612SRGE	17,01	1,40	1,2	–	5515746	–	5515748	–	–	–	6165421
LNPU15T616SRGE	16,90	1,10	1,6	–	6019501	–	6019503	–	6019505	6019506	–
LNGU15T616SRGE	17,01	1,07	1,6	–	5627784	–	5627786	–	5627788	–	–
LNPU15T620SRGE	16,92	0,70	2,0	–	–	–	6001233	–	–	6001236	–
Heavy Machining											
LNGU15T608SRGEM	17,01	1,70	0,8	–	5575827	–	–	5575828	5575829	5976170	–
LNGU15T612SRGEM	17,01	1,30	1,2	–	5947280	–	–	–	–	5976671	–
LNGU15T616SRGEM	17,01	0,95	1,6	–	5630018	–	–	–	5630070	5976672	–
LNGU15T620SRGEM	17,01	0,34	2,0	–	–	–	–	–	–	6019510	–

Recommended Starting Feeds

Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.E..GEJ	0,12	**0,47**	0,84	0,08	**0,34**	0,60	0,06	**0,26**	0,45	0,06	**0,22**	0,39	0,05	**0,20**	0,36	.E..GEJ
.E..GE	0,23	**0,54**	0,93	0,17	**0,39**	0,67	0,13	**0,29**	0,50	0,11	**0,25**	0,44	0,10	**0,23**	0,40	.E..GE
.S..GE	0,23	**0,59**	0,95	0,17	**0,43**	0,68	0,13	**0,32**	0,51	0,11	**0,28**	0,44	0,10	**0,25**	0,41	.S..GE
.S..GEM	0,23	**0,59**	0,95	0,17	**0,43**	0,68	0,13	**0,32**	0,51	0,11	**0,28**	0,44	0,10	**0,25**	0,41	.S..GEM

LNG...: Ground inserts; high versatility for all finishing applications and difficult-to-machine stainless steels and high-temp alloys.
LNP...: Pressed; lower cost per edge for most roughing to semi-finishing operations.

.E..LEJ: For aluminium and other non-ferrous alloys.
.E..GE: First choice for stainless steel and high-temp alloys. For highest finishing requirements in light machining.
.S..GE: Universal geometry. First choice for steel.
.S..GEM: First choice for cast iron machining and all heavy applications.

Material Group		KC422M*			KC520M			KC522M			KC725M		
P	1	–	–	–	–	–	–	330	**285**	270	260	**230**	215
	2	–	–	–	–	–	–	275	**240**	200	220	**190**	160
	3	–	–	–	–	–	–	255	**215**	175	200	**170**	140
	4	–	–	–	–	–	–	225	**185**	150	180	**150**	120
	5	–	–	–	–	–	–	185	**170**	150	150	**135**	120
	6	–	–	–	–	–	–	165	**125**	100	130	**100**	80
M	1	–	–	–	–	–	–	205	**180**	165	170	**150**	135
	2	–	–	–	–	–	–	185	**160**	130	155	**130**	110
	3	–	–	–	–	–	–	140	**120**	95	115	**100**	80
K	1	–	–	–	270	**245**	215	230	**205**	185	–	–	–
	2	–	–	–	210	**190**	175	180	**160**	150	–	–	–
	3	–	–	–	175	**160**	145	150	**135**	120	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–
H	1	–	–	–	–	–	–	120	**90**	70	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–

Material Group		KCK15			KCPK30			KCPM40			KCSM40		
P	1	–	–	–	455	**395**	370	295	**260**	245	260	**230**	215
	2	–	–	–	280	**255**	230	250	**215**	180	220	**190**	160
	3	–	–	–	255	**230**	205	230	**195**	160	200	**170**	140
	4	–	–	–	190	**175**	160	205	**170**	135	180	**150**	120
	5	–	–	–	260	**230**	210	170	**155**	135	150	**135**	120
	6	–	–	–	160	**135**	125	150	**115**	90	130	**100**	80
M	1	–	–	–	205	**185**	155	195	**170**	155	170	**150**	135
	2	–	–	–	185	**160**	140	175	**150**	125	155	**130**	110
	3	–	–	–	145	**130**	115	130	**115**	90	115	**100**	80
K	1	420	**385**	340	295	**265**	240	–	–	–	–	–	–
	2	335	**295**	275	235	**210**	190	–	–	–	–	–	–
	3	280	**250**	230	195	**175**	160	–	–	–	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–
H	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–

*Recommended for wet machining only.

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

Material Group		KC422M			KC520M			KC522M			KC725M		
P	1	–	–	–	–	–	–	265	**230**	215	210	**185**	170
	2	–	–	–	–	–	–	220	**190**	160	175	**150**	130
	3	–	–	–	–	–	–	205	**170**	140	160	**135**	110
	4	–	–	–	–	–	–	180	**150**	120	145	**120**	95
	5	–	–	–	–	–	–	150	**135**	120	120	**110**	95
	6	–	–	–	–	–	–	130	**100**	80	105	**80**	65
M	1	–	–	–	–	–	–	165	**145**	130	135	**120**	110
	2	–	–	–	–	–	–	150	**130**	105	125	**105**	90
	3	–	–	–	–	–	–	110	**95**	75	90	**80**	65
K	1	–	–	–	215	**195**	170	185	**165**	150	–	–	–
	2	–	–	–	170	**150**	140	145	**130**	120	–	–	–
	3	–	–	–	140	**130**	115	120	**110**	95	–	–	–
N	1	860	**755**	700	–	–	–	–	–	–	–	–	–
	2	755	**700**	610	–	–	–	–	–	–	–	–	–
	3	755	**700**	610	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	30	**30**	20	30	**25**	20
	2	–	–	–	–	–	–	30	**30**	20	30	**25**	20
	3	–	–	–	–	–	–	40	**30**	20	35	**30**	20
	4	–	–	–	–	–	–	55	**40**	30	45	**35**	25
H	1	–	–	–	–	–	–	95	**70**	55	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–

Material Group		KCK15			KCPK30			KCPM40			KCSM40		
P	1	–	–	–	365	**315**	295	285	**250**	235	–	–	–
	2	–	–	–	225	**205**	185	240	**210**	170	–	–	–
	3	–	–	–	205	**185**	165	220	**190**	150	–	–	–
	4	–	–	–	150	**140**	130	195	**165**	130	–	–	–
	5	–	–	–	210	**185**	170	165	**150**	130	135	**115**	95
	6	–	–	–	130	**110**	100	145	**110**	90	120	**90**	65
M	1	–	–	–	165	**150**	125	190	**165**	150	170	**135**	110
	2	–	–	–	150	**130**	110	170	**145**	120	145	**115**	95
	3	–	–	–	115	**105**	90	125	**110**	90	115	**90**	70
K	1	335	**310**	270	235	**210**	190	–	–	–	–	–	–
	2	270	**235**	220	190	**170**	150	–	–	–	–	–	–
	3	225	**200**	185	155	**140**	130	–	–	–	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	40	**30**	30	30	**30**	20
	2	–	–	–	–	–	–	40	**30**	30	30	**30**	20
	3	–	–	–	–	–	–	50	**40**	30	40	**30**	20
	4	–	–	–	55	**40**	25	65	**50**	30	50	**40**	25
H	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

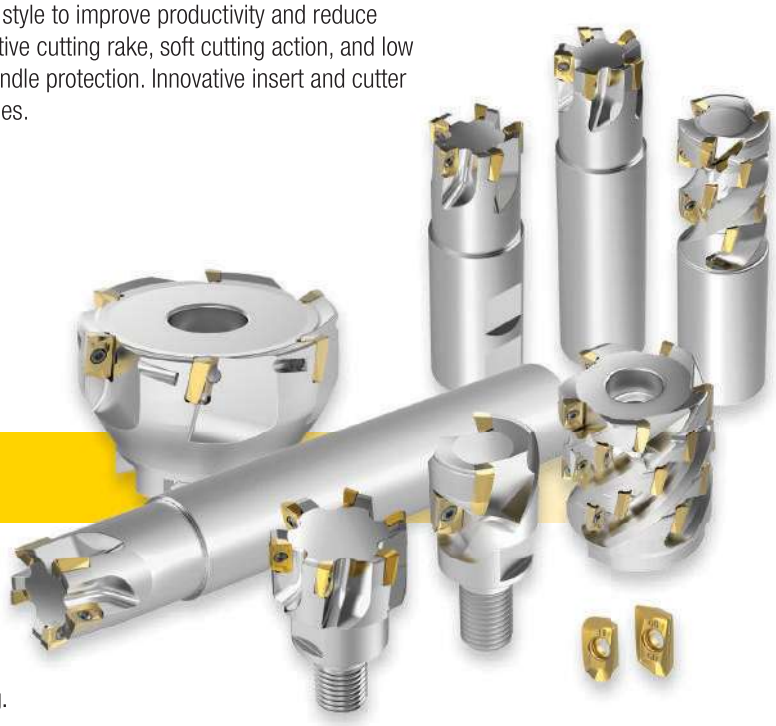
Wet

Mill 1-10™

High-Performance Shoulder Milling Platform

Primary Application

The multifunctional Mill 1-10 platform works with all workpiece materials in shoulder, ramp, slot, plunge, and helical milling with one insert style to improve productivity and reduce inventory and machining costs. The super positive cutting rake, soft cutting action, and low cutting forces enable higher feed rates and spindle protection. Innovative insert and cutter body designs offer improved ramping capabilities.



Features and Benefits

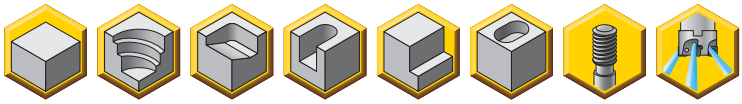
Versatility

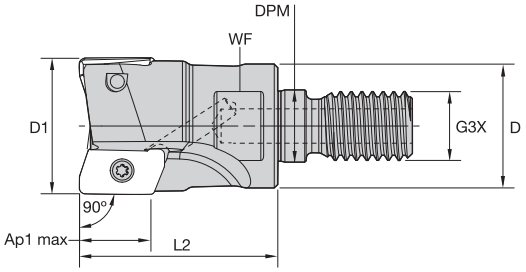
- Works with all workpiece materials.
- Capable of shoulder, ramp, plunge, and helical milling.
- Internal coolant and air supply.

Advantages

- Optimised soft cutting edge.
- Elliptical edge generates 90° wall.
- Increased ramping capability due to state of the art insert and cutter body design.
- Innovative chip gash design for excellent chip evacuation and perfect cutter body stability.
- All pockets are machined into heat-treated materials, guaranteeing best-in-class runout and pocket strength.
- Inserts feature innovative margin along the main cutting edge, corner nose radius, and wiper facet for perfect edge stability.

- Ramping capable for all Mill 1-10.
- Generates superior surface finish.
- Mill 90° walls.
- High RPM capabilities.





Screw-On End Mills

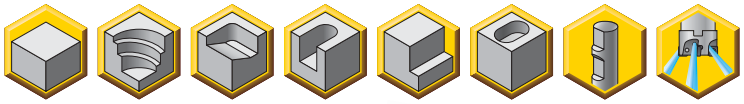
order number	catalogue number	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	max ramp angle	kg	max RPM
3745708	**16A02R025M08ED10**	16	13	8,5	M8	25	10	10,1	2	9.5°	0,02	50100
3745709	**20A02R028M10ED10**	20	18	10,5	M10	28	15	10,1	2	6.0°	0,04	44800
3745710	**20A03R028M10ED10**	20	18	10,5	M10	28	15	10,1	3	6.0°	0,05	44800
3745711	**25A03R032M12ED10**	25	21	12,5	M12	32	17	10,0	3	4.0°	0,09	40000
3745712	**25A04R032M12ED10**	25	21	12,5	M12	32	17	10,0	4	4.0°	0,08	40000
3745723	**32A04R040M16ED10**	32	29	17,0	M16	40	24	10,0	4	2.8°	0,19	35400
3745724	**32A05R040M16ED10**	32	29	17,0	M16	40	24	10,0	5	2.8°	0,19	35400
3745725	**40A06R040M16ED10**	40	29	17,0	M16	40	24	9,9	6	2.0°	0,23	31600
3745726	**42A06R040M16ED10**	42	29	17,0	M16	40	24	9,9	6	1.8°	0,23	30900

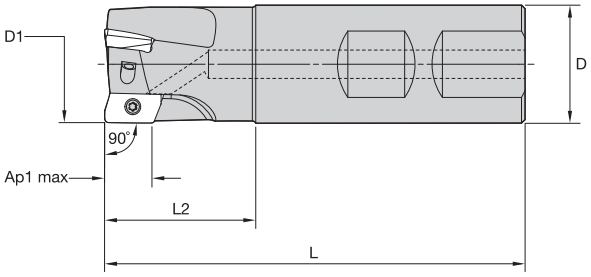
NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

Spare Parts

D1	insert screw	Nm	Torx wrench
16	**MS2205**	1,0	**F7IP**
20	**MS2205**	1,0	**F7IP**
25	**MS2205**	1,0	**F7IP**
32	**MS2205**	1,0	**F7IP**
40	**MS2205**	1,0	**F7IP**
42	**MS2205**	1,0	**F7IP**

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- High RPM capabilities.





Weldon End Mills

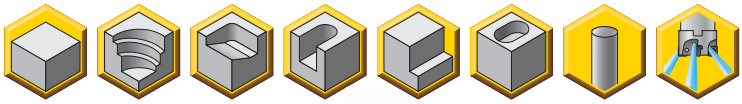
order number	catalogue number	D1	D	L	L2	Ap1 max	Z	max ramp angle	kg	max RPM
3744633	**16A02R025B16ED10**	16	16	74	25	10,1	2	9.5°	0,09	50100
3744635	**20A03R028B20ED10**	20	20	79	28	10,1	3	6.0°	0,15	44800
3744636	**25A03R032B25ED10**	25	25	89	32	10,0	3	4.0°	0,28	40000
3744637	**25A04R032B25ED10**	25	25	89	32	10,0	4	4.0°	0,28	40000
3744638	**32A04R040B32ED10**	32	32	101	40	10,0	4	2.8°	0,53	35400
3744639	**32A05R040B32ED10**	32	32	101	40	10,0	5	2.8°	0,53	35400

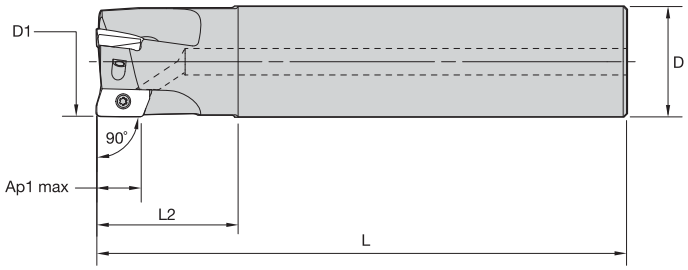
NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

Spare Parts

D1	 insert screw	 Nm	 Torx Plus driver
16	**MS2205**	1,0	**DT7IP**
20	**MS2205**	1,0	**DT7IP**
25	**MS2205**	1,0	**DT7IP**
32	**MS2205**	1,0	**DT7IP**

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- High RPM capabilities.





Cylindrical End Mills

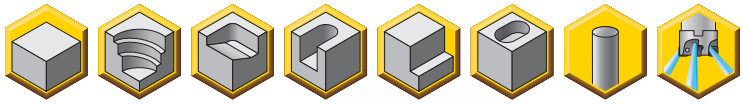
order number	catalogue number	D1	D	L	L2	Ap1 max	Z	max ramp angle	kg	max RPM
3744538	**12A01R020A16ED10**	12	16	90	20	10,3	1	11.5°	0,12	57800
3744539	**16A02R025A16ED10**	16	16	100	25	10,1	2	9.5°	0,13	50100
3744540	**20A02R028A20ED10**	20	20	110	28	10,1	2	6.0°	0,23	44800
3744541	**20A03R028A20ED10**	20	20	110	28	10,1	3	6.0°	0,22	44800
3744542	**25A03R032A25ED10**	25	25	120	32	10,0	3	4.0°	0,40	40000
3744613	**25A04R032A25ED10**	25	25	120	32	10,0	4	4.0°	0,40	40000
3744614	**32A04R040A32ED10**	32	32	130	40	10,0	4	2.8°	0,72	35400
3744615	**32A05R040A32ED10**	32	32	130	40	10,0	5	2.8°	0,71	35400

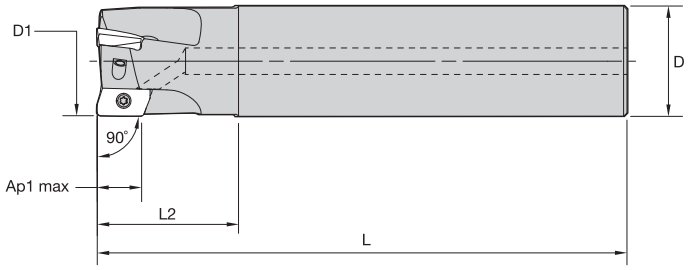
NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

Spare Parts

D1	insert screw	Nm	Torx Plus driver
12	**MS2205**	1,0	**DT7IP**
16	**MS2205**	1,0	**DT7IP**
20	**MS2205**	1,0	**DT7IP**
25	**MS2205**	1,0	**DT7IP**
32	**MS2205**	1,0	**DT7IP**

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- High RPM capabilities.





Cylindrical End Mills • Long Length

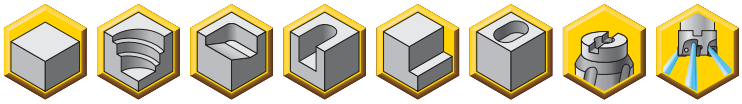
order number	catalogue number	D1	D	L	L2	Ap1 max	Z	max ramp angle	kg	max RPM
3744616	**16A02R025A16ED10-170**	16	16	170	25	10,1	2	9.5°	0,23	50100
3744617	**16A02R025A16ED10R31-170**	16	16	170	25	9,7	2	8.0°	0,23	50100
3744618	**18A02R028A16ED10-170**	18	16	170	28	10,1	2	7.5°	0,24	47200
3744619	**20A02R032A20ED10-170**	20	20	170	32	10,1	2	6.0°	0,37	44800
3744621	**20A03R032A20ED10-170**	20	20	170	32	10,1	3	6.0°	0,36	44800
3744622	**20A03R032A20ED10R31-170**	20	20	170	32	9,8	3	4.5°	0,36	44800
3744623	**22A03R032A20ED10-170**	22	20	170	32	10,1	3	5.0°	0,37	42700
3744624	**25A03R040A25ED10-200**	25	25	200	40	10,0	3	4.0°	0,69	40000
3744625	**25A03R040A25ED10R31-200**	25	25	200	40	9,8	3	3.0°	0,69	40000
3744626	**25A04R040A25ED10-200**	25	25	200	40	10,0	4	4.0°	0,68	40000
3744627	**25A04R040A25ED10R31-200**	25	25	200	40	9,8	4	3.0°	0,68	40000
3744628	**28A04R040A25ED10-200**	28	25	200	40	10,0	4	3.3°	0,71	37800
3744629	**32A04R048A32ED10-200**	32	32	200	48	10,0	4	2.8°	1,14	35400
3744631	**32A05R048A32ED10-200**	32	32	200	48	10,0	5	2.8°	1,13	35400

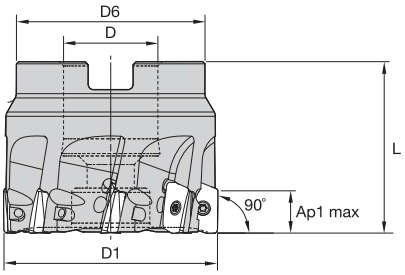
NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.
"R31" in catalogue number designates factory-relieved tool which accepts inserts with nose radii > 2mm.

Spare Parts

D1	 insert screw	 Nm	 Torx Plus driver
16	**MS2205**	1,0	**DT7IP**
18	**MS2205**	1,0	**DT7IP**
20	**MS2205**	1,0	**DT7IP**
22	**MS2205**	1,0	**DT7IP**
25	**MS2205**	1,0	**DT7IP**
28	**MS2205**	1,0	**DT7IP**
32	**MS2205**	1,0	**DT7IP**

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- High RPM capabilities.





Shell Mills

order number	catalogue number	D1	D	D6	L	Ap1 max	Z	max ramp angle	kg	max RPM
3745674	**40A04RS90ED10D**	40	16	37	40	9,9	4	2.0°	0,25	31600
3745675	**40A06RS90ED10D**	40	16	37	40	9,9	6	2.0°	0,24	31600
3745676	**50A05RS90ED10D**	50	22	44	40	9,9	5	1.5°	0,38	28300
3745677	**50A08RS90ED10D**	50	22	44	40	9,9	8	1.5°	0,36	28300
3745678	**63A06RS90ED10D**	63	22	44	40	9,9	6	1.0°	0,54	25200
3745679	**63A09RS90ED10D**	63	22	44	40	9,9	9	1.0°	0,53	25200
3745680	**80A08RS90ED10D**	80	27	60	50	9,9	8	.8°	1,26	22400
3745682	**100B08RS90ED10D**	100	32	80	50	9,9	8	.5°	1,88	20000

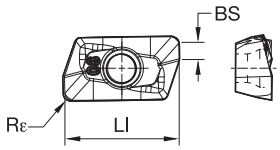
NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

Spare Parts

D1	insert screw	Nm	Torx Plus driver	socket-head cap screw
40	**MS2205**	1,0	**DT7IP**	**–**
50	**MS2205**	1,0	**DT7IP**	**–**
63	**MS2205**	1,0	**DT7IP**	**MS1234**
80	**MS2205**	1,0	**DT7IP**	**MS2038**
100	**MS2205**	1,0	**DT7IP**	**–**

✦✦ first choice with coolant
✧✧ first choice without coolant
✦ alternate choice with coolant
✧ alternate choice without coolant

P1–P2				✧/✦	✦✦	✧✧		
P3–P4				✧/✦	✦✦	✧	✧✧	
P5–P6				✧/✦	✦✦	✧	✧✧	
M1–M2				✧/✦	✦		✦	✦✦
M3				✧/✦	✦			✦✦
K1–K2			✦✦/✧✧			✧		
K3			✦✦			✧✧		
N1	✦✦	✦						
N2	✦✦	✦						
S1					✦			✦✦
S2					✦			✦✦
S3				✦	✦			✦✦
S4				✦	✦			✦✦



ISO catalogue number	LI	BS	Rε	KC410M	KC422M	KC520M	KC522M	KC725M	KCPK30	KCPM40	KCSM40
Light Machining											
EDCT10T302PDERLD	12,04	2,29	0,2	–	–	–	–	3959611	–	–	–
EDCT10T302PDFRLDJ	12,05	2,29	0,2	3684779	–	–	–	–	–	–	–
EDCT10T304PDERLD	12,05	1,98	0,4	–	–	3682452	3682513	3682514	–	–	–
EDCT10T304PDFRLDJ	12,05	1,98	0,4	3682450	–	–	–	–	–	–	–
EDCT10T308PDERLD	12,05	1,70	0,8	–	–	3649189	3649190	3649191	3649192	5545217	6176096
EDCT10T308PDFRLDJ	12,05	1,70	0,8	3649187	–	–	–	–	–	–	–
EDCT10T312PDERLD	12,06	1,30	1,2	–	–	–	–	3682655	–	–	6176097
EDCT10T316PDERLD	12,06	0,90	1,6	–	–	–	–	3682781	3682782	–	6176098
EDCT10T320PDERLD	12,06	0,49	2,0	–	–	–	–	3766023	–	–	–
EDCT10T324PDERLD	12,06	0,11	2,4	–	–	–	–	–	–	–	6176099
EDCT10T331PDERLD	11,52	–	3,1	–	–	–	–	3684828	–	–	6176100

General Machining											
EDCT10T304PDERLDJ	12,05	1,98	0,4	–	3682451	–	–	–	–	–	–
EDCT10T308PDERLDJ	12,05	1,70	0,8	–	3649188	–	–	–	–	–	–
EDCT10T316PDERLDJ	12,06	0,90	1,6	–	3682778	–	–	–	–	–	–
EDCT10T320PDERLDJ	12,06	0,49	2,0	–	3765831	–	–	–	–	–	–
EDCT10T324PDERLDJ	12,06	0,11	2,4	–	3766027	–	–	–	–	–	–
EDPT10T304PDERHD	12,05	2,07	0,4	–	–	3753592	–	3641741	–	5545215	–
EDPT10T308PDERHD	12,05	1,70	0,8	–	–	3753593	3641712	3641734	3641736	–	6175756
EDPT10T308PDERHD	12,05	1,69	0,8	–	–	–	–	–	–	5545214	–
EDPT10T310PDERHD	12,05	1,49	1,0	–	–	–	–	3747114	–	–	–
EDPT10T312PDERHD	12,06	1,30	1,2	–	–	3753594	–	3642029	–	6127887	6175757
EDPT10T316PDERHD	12,06	0,90	1,6	–	–	–	–	3642094	3642096	6127888	6175758
EDPT10T320PDERHD	12,06	0,49	2,0	–	–	–	–	3642097	–	6127889	6175759
EDPT10T324PDERHD	12,06	0,11	2,4	–	–	–	–	3642102	–	–	6175760
EDPT10T331PDERHD	11,52	–	3,1	–	–	–	–	3642137	–	–	6176091

Heavy Machining											
EDPT10T304PDSRGD	12,05	2,07	0,4	–	–	–	–	3642141	–	–	–
EDPT10T308PDSRGD	12,05	1,70	0,8	–	–	3753386	–	3642170	3642172	5545216	–
EDPT10T308PDSRGE	12,05	1,70	0,8	–	–	–	3775016	–	–	–	–
EDPT10T312PDSRGD	12,06	1,30	1,2	–	–	3753387	–	3642193	–	–	–
EDPT10T316PDSRGD	12,06	0,90	1,6	–	–	–	–	3642196	3642198	–	–

Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.F..LDJ	0,12	**0,35**	0,58	0,08	**0,25**	0,42	0,06	**0,19**	0,31	0,06	**0,16**	0,27	0,05	**0,15**	0,25	.F..LDJ
.F..-PCD	0,12	**0,35**	0,58	0,08	**0,25**	0,42	0,06	**0,19**	0,31	0,06	**0,16**	0,27	0,05	**0,15**	0,25	.F..-PCD
.E..LDJ	0,12	**0,35**	0,58	0,08	**0,25**	0,42	0,06	**0,19**	0,32	0,06	**0,16**	0,28	0,05	**0,15**	0,25	.E..LDJ
.E..LD	0,12	**0,35**	0,57	0,09	**0,25**	0,41	0,07	**0,19**	0,31	0,06	**0,17**	0,27	0,05	**0,15**	0,25	.E..LD
.S..GE	0,23	**0,46**	0,70	0,17	**0,33**	0,51	0,13	**0,25**	0,38	0,11	**0,22**	0,33	0,10	**0,20**	0,30	.S..GE
.S..GD	0,23	**0,47**	0,71	0,17	**0,34**	0,51	0,13	**0,25**	0,38	0,11	**0,22**	0,33	0,10	**0,20**	0,30	.S..GD
.E..HD	0,23	**0,51**	0,82	0,17	**0,37**	0,59	0,13	**0,28**	0,44	0,11	**0,24**	0,38	0,10	**0,22**	0,35	.E..HD

EDC...: Ground inserts; high versatility for all finishing applications and difficult-to-machine stainless steels and high-temp alloys.
EDP...: Pressed; lower cost per edge for most roughing to semi-finishing operations.

.F.LDJ: Sharp cutting edge for aluminium and other non-ferrous alloys.
.E.LDJ: For aluminium and other non-ferrous alloys.
.E.LD: Finishing and high-precision applications.
.E.HD: Medium roughing and semi-finishing.
.S.GE: Medium roughing and semi-finishing. Also suitable for austenitic stainless steel and super alloys.
.S.GD: Strongest cutting edge for heavy roughing applications with high feed rates in all material groups.

Recommended Starting Speeds for Dry Machining (m/min)

Material Group		KC520M			KC522M			KC725M			KCPK30			KCPM40			KCSM40		
P	1	–	**–**	–	330	**285**	270	260	**230**	215	455	**395**	370	295	**260**	245	260	**230**	215
	2	–	**–**	–	275	**240**	200	220	**190**	160	280	**255**	230	250	**215**	180	220	**190**	160
	3	–	**–**	–	255	**215**	175	200	**170**	140	255	**230**	205	230	**195**	160	200	**170**	140
	4	–	**–**	–	225	**185**	150	180	**150**	120	190	**175**	160	205	**170**	135	180	**150**	120
	5	–	**–**	–	185	**170**	150	150	**135**	120	260	**230**	210	170	**155**	135	150	**135**	120
	6	–	**–**	–	165	**125**	100	130	**100**	80	160	**135**	125	150	**115**	90	130	**100**	80
M	1	–	**–**	–	205	**180**	165	170	**150**	135	205	**185**	155	195	**170**	155	170	**150**	135
	2	–	**–**	–	185	**160**	130	155	**130**	110	185	**160**	140	175	**150**	125	155	**130**	110
	3	–	**–**	–	140	**120**	95	115	**100**	80	145	**130**	115	130	**115**	90	115	**100**	80
K	1	270	**245**	215	230	**205**	185	–	**–**	–	295	**265**	240	–	**–**	–	–	**–**	–
	2	210	**190**	175	180	**160**	150	–	**–**	–	235	**210**	190	–	**–**	–	–	**–**	–
	3	175	**160**	145	150	**135**	120	–	**–**	–	195	**175**	160	–	**–**	–	–	**–**	–
N	1	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
S	1	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	4	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
H	1	–	**–**	–	120	**90**	70	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

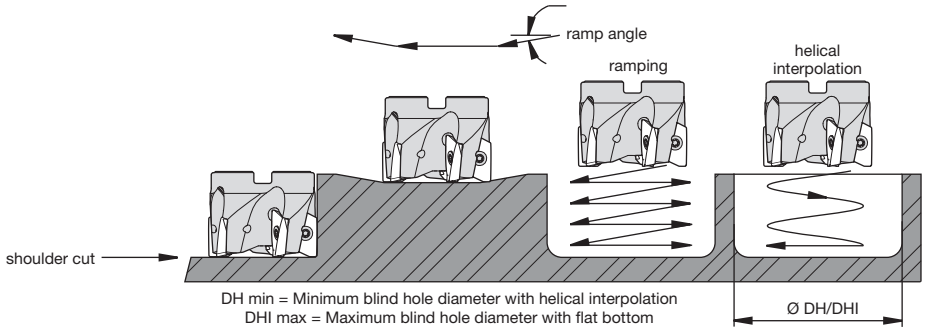
Wet

Material Group		KC410M/KC422M			KC520M			KC522M			KC725M			KCPK30			KCPM40			KCSM40		
P	1	–	**–**	–	–	**–**	–	265	**230**	215	210	**185**	170	365	**315**	295	285	**250**	235	–	**–**	–
	2	–	**–**	–	–	**–**	–	220	**190**	160	175	**150**	130	225	**205**	185	240	**210**	170	–	**–**	–
	3	–	**–**	–	–	**–**	–	205	**170**	140	160	**135**	110	205	**185**	165	220	**190**	150	–	**–**	–
	4	–	**–**	–	–	**–**	–	180	**150**	120	145	**120**	95	150	**140**	130	195	**165**	130	–	**–**	–
	5	–	**–**	–	–	**–**	–	150	**135**	120	120	**110**	95	210	**185**	170	165	**150**	130	135	**115**	95
	6	–	**–**	–	–	**–**	–	130	**100**	80	105	**80**	65	130	**110**	110	145	**110**	90	120	**90**	65
M	1	–	**–**	–	–	**–**	–	165	**145**	130	135	**120**	110	165	**150**	125	190	**165**	150	170	**135**	110
	2	–	**–**	–	–	**–**	–	150	**130**	105	125	**105**	90	150	**130**	110	170	**145**	120	145	**115**	95
	3	–	**–**	–	–	**–**	–	110	**95**	75	90	**80**	65	115	**105**	90	125	**110**	90	115	**90**	70
K	1	–	**–**	–	215	**195**	170	185	**165**	150	–	**–**	–	235	**210**	190	–	**–**	–	–	**–**	–
	2	–	**–**	–	170	**150**	140	145	**130**	120	–	**–**	–	190	**170**	150	–	**–**	–	–	**–**	–
	3	–	**–**	–	140	**130**	115	120	**110**	95	–	**–**	–	155	**140**	130	–	**–**	–	–	**–**	–
N	1	1170	**1035**	840	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	1035	**955**	730	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	1035	**955**	730	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
S	1	–	**–**	–	–	**–**	–	30	**30**	20	30	**25**	20	–	**–**	–	40	**30**	30	30	**30**	20
	2	–	**–**	–	–	**–**	–	30	**30**	20	30	**25**	20	–	**–**	–	40	**30**	30	30	**30**	20
	3	–	**–**	–	–	**–**	–	40	**30**	20	35	**30**	20	–	**–**	–	50	**40**	30	40	**30**	20
	4	–	**–**	–	–	**–**	–	55	**40**	30	45	**35**	25	55	**40**	25	65	**50**	30	50	**40**	25
H	1	–	**–**	–	–	**–**	–	95	**70**	55	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

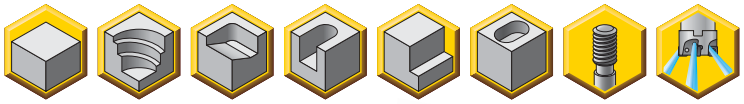


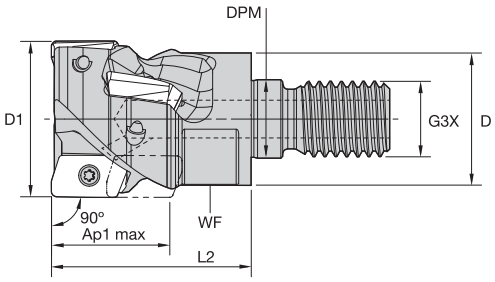
Application Examples

insert style	cutting diameter	max ramp angle to non-cutting corner tangent	max ramp angle to steel body interference	DH min (min hole diameter)	DHI min (min flat-bottomed hole diameter)	max diameter (no flat bottom)
Mill-1, 10mm	12	not recommended	not recommended	not recommended	not recommended	not recommended
Mill-1, 10mm	16	9,7°	12,3°	19,50	28,73	32
Mill-1, 10mm	18	7,6°	9,6°	23,29	32,68	63
Mill-1, 10mm	20	6,2°	8,6°	27,25	36,63	40
Mill-1, 10mm	22	5,2°	7,0°	31,25	40,63	44
Mill-1, 10mm	25	4,2°	5,3°	37,26	46,62	50
Mill-1, 10mm	28	3,5°	4,3°	43,26	52,62	56
Mill-1, 10mm	32	2,8°	3,3°	51,27	60,62	64
Mill-1, 10mm	40	2,0°	2,3°	67,30	76,61	80
Mill-1, 10mm	50	1,5°	1,6°	87,53	96,86	100
Mill-1, 10mm	63	1,2°	1,2°	113,54	122,86	126
Mill-1, 10mm	80	0,9°	0,9°	147,54	156,85	160
Mill-1, 10mm	100	0,7°	0,7°	187,54	196,85	200

NOTE: Max ramp angle decreases as nose radius increases.

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.





Screw-On Helical End Mills

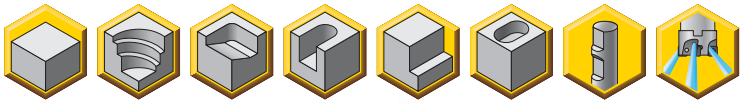
order number	catalogue number	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	Z U	max ramp angle	kg	max RPM
3773811	**M1H25J02R32M12ED10C4**	25	21	12,5	M12	32	17	18,8	4	2	4.0°	0,07	33200

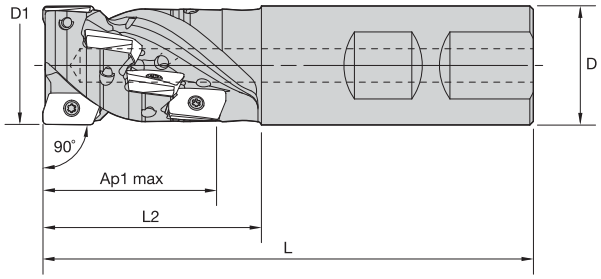
NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

Spare Parts

D1	insert screw	Nm	Torx wrench
25	**MS2205**	1,0	**F7IP**

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.





Weldon Helical End Mills

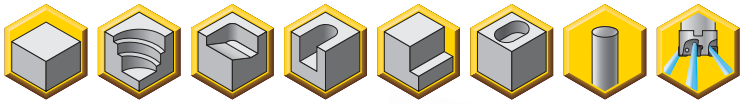
order number	catalogue number	D1	D	L	L2	Ap1 max	Z	Z U	max ramp angle	kg	max RPM
3773119	**M1H25J02R46B25ED10C8**	25	25	103	46	36,4	8	2	4.0°	0,31	33200
3773121	**M1H32J03R54B32ED10C15**	32	32	115	54	44,8	15	3	2.8°	0,53	29300

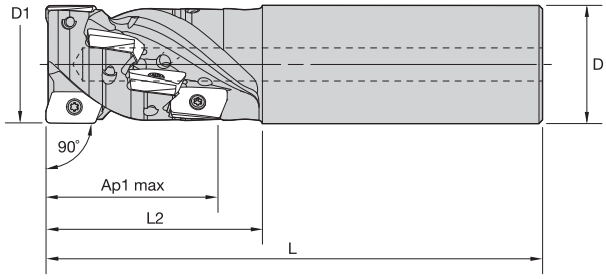
NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

Spare Parts

D1	insert screw	Nm	Torx Plus driver
25	**MS2205**	1,0	**DT7IP**
32	**MS2205**	1,0	**DT7IP**

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.





Cylindrical Helical End Mills

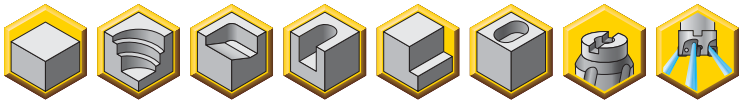
order number	catalogue number	D1	D	L	L2	Ap1 max	Z	Z U	max ramp angle	kg	max RPM
3773805	**M1H32J03R54A32ED10C15**	32	32	115	54	44,8	15	3	2.8°	0,53	29300

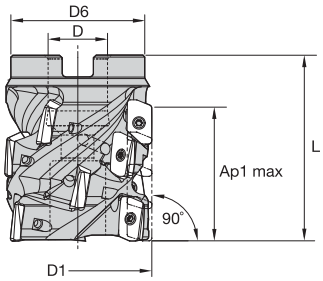
NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

Spare Parts

D1	insert screw	Nm	Torx Plus driver
32	**MS2205**	1,0	**DT7IP**

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.





Helical Shell Mills

order number	catalogue number	D1	D	D6	L	Ap1 max	Z	Z U	max ramp angle	kg	max RPM
3773814	**M1H40T03R50A16ED10C12**	40	16	37	50	35,9	12	3	2.0°	0,27	26200
3773815	**M1H40T05R50A16ED10C20**	40	16	37	50	35,9	20	5	2.0°	0,26	26200
3773817	**M1H50T05R60A22ED10C25**	50	22	44	60	44,3	25	5	1.5°	0,55	23400

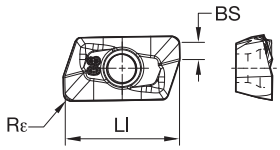
NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

Spare Parts

D1	 insert screw	 Nm	 Torx Plus driver	 socket-head cap screw
40	**MS2205**	1,0	**DT7IP**	**MS1340**
50	**MS2205**	1,0	**DT7IP**	**MS1558**

✦✦ first choice with coolant
✧✧ first choice without coolant
✦ alternate choice with coolant
✧ alternate choice without coolant

P1–P2				✧/✦	✦✦	✧✧		
P3–P4				✧/✦	✦✦	✧	✧✧	
P5–P6				✧/✦	✦✦	✧	✧✧	
M1–M2				✧/✦	✦		✦	✦✦
M3				✧/✦	✦			✦✦
K1–K2			✦✦/✧✧			✧		
K3			✦✦			✧✧		
N1	✦✦	✦						
N2	✦✦	✦						
S1					✦			✦✦
S2					✦			✦✦
S3				✦	✦			✦✦
S4				✦	✦			✦✦



ISO catalogue number	LI	BS	Rε	KC410M	KC422M	KC520M	KC522M	KC725M	KCPK30	KCPM40	KCSM40
Light Machining											
EDCT10T302PDERLD	12,04	2,29	0,2	–	–	–	–	3959611	–	–	–
EDCT10T302PDFRLDJ	12,05	2,29	0,2	3684779	–	–	–	–	–	–	–
EDCT10T304PDERLD	12,05	1,98	0,4	–	–	3682452	3682513	3682514	–	–	–
EDCT10T304PDFRLDJ	12,05	1,98	0,4	3682450	–	–	–	–	–	–	–
EDCT10T308PDERLD	12,05	1,70	0,8	–	–	3649189	3649190	3649191	3649192	–	6176096
EDCT10T308PDFRLDJ	12,05	1,70	0,8	3649187	–	–	–	–	–	–	–
EDCT10T312PDERLD	12,06	1,30	1,2	–	–	–	–	3682655	–	–	6176097
EDCT10T316PDERLD	12,06	0,90	1,6	–	–	–	–	3682781	3682782	–	6176098
EDCT10T320PDERLD	12,06	0,49	2,0	–	–	–	–	3766023	–	–	–
EDCT10T324PDERLD	12,06	0,11	2,4	–	–	–	–	–	–	–	6176099
EDCT10T331PDERLD	11,52	–	3,1	–	–	–	–	–	–	–	6176100
General Machining											
EDCT10T304PDERLDJ	12,05	1,98	0,4	–	3682451	–	–	–	–	–	–
EDCT10T308PDERLDJ	12,05	1,70	0,8	–	3649188	–	–	–	–	–	–
EDCT10T316PDERLDJ	12,06	0,90	1,6	–	3682778	–	–	–	–	–	–
EDCT10T320PDERLDJ	12,06	0,49	2,0	–	3765831	–	–	–	–	–	–
EDCT10T324PDERLDJ	12,06	0,11	2,4	–	3766027	–	–	–	–	–	–
EDPT10T304PDERHD	12,05	2,07	0,4	–	–	3753592	–	3641741	–	5545215	–
EDPT10T308PDERHD	12,05	1,70	0,8	–	–	3753593	3641712	3641734	3641736	–	6175756
EDPT10T308PDERHD	12,05	1,69	0,8	–	–	–	–	–	–	5545214	–
EDPT10T310PDERHD	12,05	1,49	1,0	–	–	–	–	3747114	–	–	–
EDPT10T312PDERHD	12,06	1,30	1,2	–	–	3753594	–	3642029	–	6127887	6175757
EDPT10T316PDERHD	12,06	0,90	1,6	–	–	–	–	3642094	3642096	6127888	6175758
EDPT10T320PDERHD	12,06	0,49	2,0	–	–	–	–	3642097	–	6127889	6175759
EDPT10T324PDERHD	12,06	0,11	2,4	–	–	–	–	3642102	–	–	6175760
EDPT10T331PDERHD	11,52	–	3,1	–	–	–	–	3642137	–	–	6176091
Heavy Machining											
EDPT10T304PDSRGD	12,05	2,07	0,4	–	–	–	–	3642141	–	–	–
EDPT10T308PDSRGD	12,05	1,70	0,8	–	–	3753386	–	3642170	3642172	5545216	–
EDPT10T308PDSRGE	12,05	1,70	0,8	–	–	–	3775016	–	–	–	–
EDPT10T312PDSRGD	12,06	1,30	1,2	–	–	3753387	–	3642193	–	–	–
EDPT10T316PDSRGD	12,06	0,90	1,6	–	–	–	–	3642196	3642198	–	–

Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.F..LDJ	0,12	**0,35**	0,58	0,08	**0,25**	0,42	0,06	**0,19**	0,31	0,06	**0,16**	0,27	0,05	**0,15**	0,25	.F..LDJ
.F..-PCD	0,12	**0,35**	0,58	0,08	**0,25**	0,42	0,06	**0,19**	0,31	0,06	**0,16**	0,27	0,05	**0,15**	0,25	.F..-PCD
.E..LDJ	0,12	**0,35**	0,58	0,08	**0,25**	0,42	0,06	**0,19**	0,32	0,06	**0,16**	0,28	0,05	**0,15**	0,25	.E..LDJ
.E..LD	0,12	**0,35**	0,57	0,09	**0,25**	0,41	0,07	**0,19**	0,31	0,06	**0,17**	0,27	0,05	**0,15**	0,25	.E..LD
.S..GE	0,23	**0,46**	0,70	0,17	**0,33**	0,51	0,13	**0,25**	0,38	0,11	**0,22**	0,33	0,10	**0,20**	0,30	.S..GE
.S..GD	0,23	**0,47**	0,71	0,17	**0,34**	0,51	0,13	**0,25**	0,38	0,11	**0,22**	0,33	0,10	**0,20**	0,30	.S..GD
.E..HD	0,23	**0,51**	0,82	0,17	**0,37**	0,59	0,13	**0,28**	0,44	0,11	**0,24**	0,38	0,10	**0,22**	0,35	.E..HD

EDC...: Ground inserts; high versatility for all finishing applications and difficult-to-machine stainless steels and high-temp alloys.
EDP...: Pressed; lower cost per edge for most roughing to semi-finishing operations.

.F.LDJ: Sharp cutting edge for aluminium and other non-ferrous alloys.
.E.LDJ: For aluminium and other non-ferrous alloys.
.E.LD: Finishing and high-precision applications.
.E.HD: Medium roughing and semi-finishing.
.S.GE: Medium roughing and semi-finishing. Also suitable for austenitic stainless steel and super alloys.
.S.GD: Strongest cutting edge for heavy roughing applications with high feed rates in all material groups.

Recommended Starting Speeds for Dry Machining (m/min)

Material Group		KC520M			KC522M			KC725M			KCPK30			KCPM40			KCSM40		
P	1	–	–	–	330	**285**	270	260	**230**	215	455	**395**	370	295	**260**	245	260	**230**	215
	2	–	–	–	275	**240**	200	220	**190**	160	280	**255**	230	250	**215**	180	220	**190**	160
	3	–	–	–	255	**215**	175	200	**170**	140	255	**230**	205	230	**195**	160	200	**170**	140
	4	–	–	–	225	**185**	150	180	**150**	120	190	**175**	160	205	**170**	135	180	**150**	120
	5	–	–	–	185	**170**	150	150	**135**	120	260	**230**	210	170	**155**	135	150	**135**	120
	6	–	–	–	165	**125**	100	130	**100**	80	160	**135**	125	150	**115**	90	130	**100**	80
M	1	–	–	–	205	**180**	165	170	**150**	135	205	**185**	155	195	**170**	155	170	**150**	135
	2	–	–	–	185	**160**	130	155	**130**	110	185	**160**	140	175	**150**	125	155	**130**	110
	3	–	–	–	140	**120**	95	115	**100**	80	145	**130**	115	130	**115**	90	115	**100**	80
K	1	270	**245**	215	230	**205**	185	–	–	–	295	**265**	240	–	–	–	–	–	–
	2	210	**190**	175	180	**160**	150	–	–	–	235	**210**	190	–	–	–	–	–	–
	3	175	**160**	145	150	**135**	120	–	–	–	195	**175**	160	–	–	–	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
H	1	–	–	–	120	**90**	70	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

Material Group		KC410M/KC422M			KC520M			KC522M			KC725M			KCPK30			KCPM40			KCSM40		
P	1	–	**–**	–	–	**–**	–	265	**230**	215	210	**185**	170	365	**315**	295	285	**250**	235	–	**–**	–
	2	–	**–**	–	–	**–**	–	220	**190**	160	175	**150**	130	225	**205**	185	240	**210**	170	–	**–**	–
	3	–	**–**	–	–	**–**	–	205	**170**	140	160	**135**	110	205	**185**	165	220	**190**	150	–	**–**	–
	4	–	**–**	–	–	**–**	–	180	**150**	120	145	**120**	95	150	**140**	130	195	**165**	130	–	**–**	–
	5	–	**–**	–	–	**–**	–	150	**135**	120	120	**110**	95	210	**185**	170	165	**150**	130	135	**115**	95
	6	–	**–**	–	–	**–**	–	130	**100**	80	105	**80**	65	130	**110**	100	145	**110**	90	120	**90**	65
M	1	–	**–**	–	–	**–**	–	165	**145**	130	135	**120**	110	165	**150**	125	190	**165**	150	170	**135**	110
	2	–	**–**	–	–	**–**	–	150	**130**	105	125	**105**	90	150	**130**	110	170	**145**	120	145	**115**	95
	3	–	**–**	–	–	**–**	–	110	**95**	75	90	**80**	65	115	**105**	90	125	**110**	90	115	**90**	70
K	1	–	**–**	–	215	**195**	170	185	**165**	150	–	**–**	–	235	**210**	190	–	**–**	–	–	**–**	–
	2	–	**–**	–	170	**150**	140	145	**130**	120	–	**–**	–	190	**170**	150	–	**–**	–	–	**–**	–
	3	–	**–**	–	140	**130**	115	120	**110**	95	–	**–**	–	155	**140**	130	–	**–**	–	–	**–**	–
N	1	1170	**1035**	840	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	1035	**955**	730	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	1035	**955**	730	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
S	1	–	**–**	–	–	**–**	–	30	**30**	20	30	**25**	20	–	**–**	–	40	**30**	30	30	**30**	20
	2	–	**–**	–	–	**–**	–	30	**30**	20	30	**25**	20	–	**–**	–	40	**30**	30	30	**30**	20
	3	–	**–**	–	–	**–**	–	40	**30**	20	35	**30**	20	–	**–**	–	50	**40**	30	40	**30**	20
	4	–	**–**	–	–	**–**	–	55	**40**	30	45	**35**	25	55	**40**	25	65	**50**	30	50	**40**	25
H	1	–	**–**	–	–	**–**	–	95	**70**	55	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

Mill 1-14™

Primary Application

The Mill 1-14 series is a versatile, functional cutter system for a range of cutting tasks. Mill 1-14 cutters can be used for profiling, slotting, ramping, helical interpolation, circular interpolation, and other milling applications. It's a single tool with multi-functional benefits. Mill 1-14 inserts are specially designed to add cutting versatility. Innovative micro-geometry features contribute greatly to enhanced performance, various rake angles, negative T-land, and small hone. Results include significantly reduced cycle times and lower cutting forces. Test results in producing 90º walls have proven excellent with the GD2 geometry.

Features and Benefits

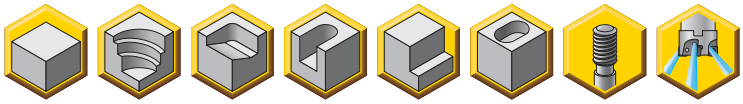
Features

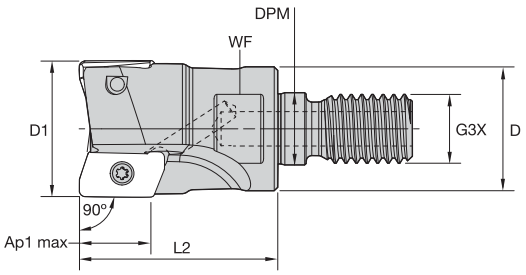
- Insert geometries and grades for most workpiece materials.
- Insert radii from 0,4mm up to 4mm.
- Axial depth of cut up to 14mm.
- Beyond™ grade technology.

Benefits

- Easy cutting action, even on entry and exiting the workpiece.
- Polished geometry for aluminium machining.
- Slotting, profiling, ramping, helical interpolation, and plunging.

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- High RPM capabilities.





Screw-On End Mills

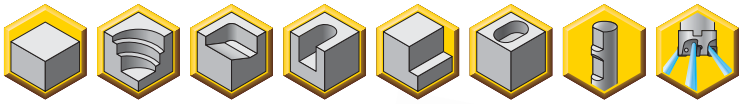
order number	catalogue number	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	max ramp angle	kg	max RPM
2968370	**20A02R035M10SED14**	20	18	10,5	M10	35	15	14,6	2	16.6°	0,05	47500
2968371	**25A02R035M12SED14**	25	21	12,5	M12	35	17	14,5	2	10.5°	0,08	39700
3345679	**25A03R035M12SED14**	25	21	12,5	M12	35	17	14,5	3	10.5°	0,08	39700
2968372	**32A03R040M16SED14**	32	29	17,0	M16	40	22	14,4	3	6.8°	0,17	33300
3345680	**32A04R040M16SED14**	32	29	17,0	M16	40	22	14,4	4	6.8°	0,18	33300
2968373	**40A04R040M16SED14**	40	29	17,0	M16	40	22	14,3	4	4.8°	0,23	28700

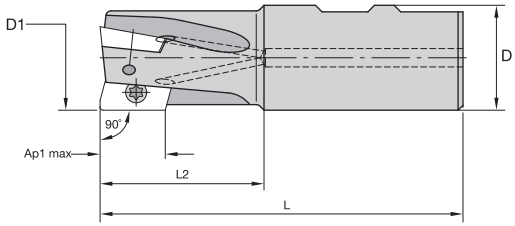
NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

Spare Parts

D1	 insert screw	 Nm	 Torx Plus driver
20	**MS2167**	2,3	**DT9IP**
25	**MS2166**	2,3	**DT9IP**
32	**MS2166**	2,3	**DT9IP**
40	**MS2166**	2,3	**DT9IP**

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- High RPM capabilities.





Weldon End Mills

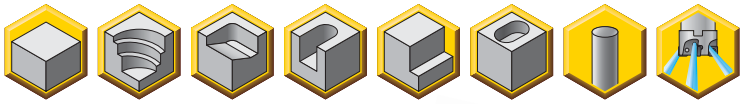
order number	catalogue number	D1	D	L	L2	Ap1 max	Z	max ramp angle	kg	max RPM
2622232	**20A02R039B20SED14**	20	20	90	39	14,7	2	16.6°	0,17	47500
2623937	**25A02R044B25SED14**	25	25	101	44	14,6	2	10.7°	0,31	39700
2478640	**25A03R044B25SED14**	25	25	101	44	14,6	3	10.5°	0,30	39700
2623938	**32A03R050B32SED14**	32	32	111	50	14,5	3	6.8°	0,55	33300
2478642	**32A04R050B32SED14**	32	32	111	50	14,5	4	6.8°	0,56	33300
2623939	**40A04R050B32SED14**	40	32	111	50	14,3	4	4.8°	0,71	28700

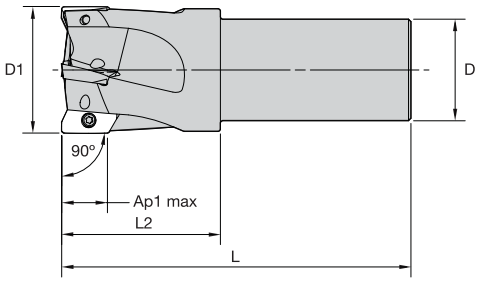
NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

Spare Parts

D1	 insert screw	 Nm	 Torx Plus driver
20	**MS2167**	2,3	**DT9IP**
25	**MS2166**	2,3	**DT9IP**
32	**MS2166**	2,3	**DT9IP**
40	**MS2166**	2,3	**DT9IP**

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- High RPM capabilities.





Cylindrical End Mills

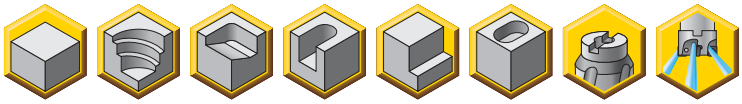
order number	catalogue number	D1	D	L	L2	Ap1 max	Z	max ramp angle	kg	max RPM
3345674	**20A02R039A20SED14**	20	20	90	39	14,7	2	16.6°	0,17	47500
2968363	**20A02R050A20SED14-170**	20	20	170	50	14,7	2	16.6°	0,34	47500
3345675	**25A02R044A25SED14**	25	25	100	44	14,6	2	10.5°	0,31	39700
2968367	**25A02R050A25SED14-170**	25	25	170	50	14,6	2	10.5°	0,56	39700
3345676	**25A03R044A25SED14**	25	25	100	44	14,6	3	10.5°	0,31	39700
2968364	**25A03R050A25SED14-170**	25	25	170	50	14,6	3	10.5°	0,56	39700
3345677	**32A03R050A25SED14**	32	25	107	50	14,6	3	6.8°	0,39	33300
3345678	**32A04R050A25SED14**	32	25	107	50	14,6	4	6.8°	0,41	33300
3348765	**32A03R050A32SED14**	32	32	110	50	14,5	3	6.8°	0,55	33300
2968368	**32A03R050A32SED14-200**	32	32	200	50	14,6	3	6.8°	1,10	33300
3348766	**32A04R050A32SED14**	32	32	110	50	14,5	4	6.8°	0,56	33300
2968365	**32A04R050A32SED14-200**	32	32	200	50	14,6	4	6.8°	1,11	33300
3348767	**40A04R050A32SED14**	40	32	110	50	14,5	4	4.8°	0,71	28700
2968369	**40A04R050A32SED14-200**	40	32	200	50	14,4	4	4.8°	1,26	28700
2968366	**40A05R050A32SED14-200**	40	32	200	50	14,4	5	4.8°	1,25	28700

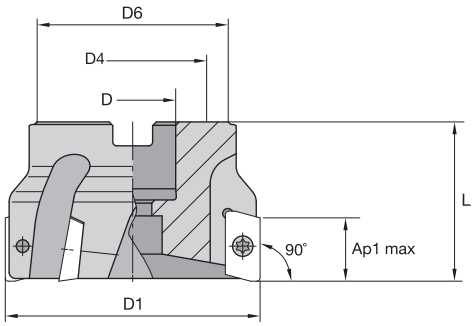
NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

Spare Parts

D1	 insert screw	 Nm	 Torx Plus driver
20	**MS2167**	2,3	**DT9IP**
25	**MS2166**	2,3	**DT9IP**
32	**MS2166**	2,3	**DT9IP**
40	**MS2166**	2,3	**DT9IP**

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- High RPM capabilities.





Shell Mills

order number	catalogue number	D1	D	D4	D6	L	Ap1 max	Z	max ramp angle	kg	max RPM
2623940	**40A04RS90ED14D**	40	16	–	37	40	14,3	4	4.8°	0,21	28700
2623934	**40A05RS90ED14D**	40	16	–	37	40	14,3	5	4.8°	0,21	28700
2623941	**50A05RS90ED14D**	50	22	–	45	40	14,0	5	3.5°	0,30	25000
2478686	**50A06RS90ED14D**	50	22	–	45	40	14,0	6	3.5°	0,29	25000
2623942	**63A06RS90ED14D**	63	22	–	50	40	14,0	6	2.5°	0,49	21800
2478689	**63A07RS90ED14D**	63	22	–	50	40	14,0	7	2.5°	0,48	21800
2623963	**80A07RS90ED14D**	80	27	–	60	50	14,0	7	1.9°	1,00	19000
2478690	**80A09RS90ED14D**	80	27	–	60	50	14,0	9	1.9°	1,00	19000
2623964	**100A08RS90ED14D**	100	32	–	80	50	14,2	8	1.5°	1,80	16800
2623935	**100A10RS90ED14D**	100	32	–	80	50	14,2	10	1.5°	1,81	16800
2510390	**125B09RS90ED14D**	125	40	–	90	63	14,1	9	1.2°	2,64	14900
2623936	**125B12RS90ED14D**	125	40	–	90	63	14,1	12	1.2°	2,66	14900
2623965	**160C11RS90ED14D**	160	40	66,7	100	63	14,1	11	.9°	3,64	13100

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

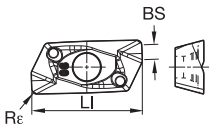
Spare Parts

D1	insert screw	Nm	Torx Plus driver	mounting screw	lock screw	coolant shower plate
40	**MS2166**	2,3	**DT9IP**	**MS1294**	–	–
50	**MS2166**	2,3	**DT9IP**	–	–	–
63	**MS2166**	2,3	**DT9IP**	–	–	–
80	**MS2166**	2,3	**DT9IP**	**MS2038**	–	–
100	**MS2166**	2,3	**DT9IP**	**MS1559**	–	–
125	**MS2166**	2,3	**DT9IP**	–	**420.200**	**470.232**
160	**MS2166**	2,3	**DT9IP**	–	**420.200**	**470.233**

NOTE: Coolant lock screw assembly and coolant cap must be ordered separately.

✦✦ first choice with coolant
✧✧ first choice without coolant
✦ alternate choice with coolant
✧ alternate choice without coolant

P1–P2				✦✦	✧✧		
P3–P4				✦✦	✧	✧✧	
P5–P6				✦✦	✧	✧✧	
M1–M2				✦		✦	✦✦
M3				✦			✦✦
K1–K2			✦✦/✧✧		✧		
K3			✦✦		✧✧		
N1	✦✦	✦					
N2	✦✦	✦					
S1				✦			✦✦
S2				✦			✦✦
S3				✦			✦✦
S4				✦			✦✦



	ISO catalogue number	LI	BS	Rε	KC410M	KC422M	KC520M	KC725M	KCPK30	KCPM40	KCSM40
	Light Machining										
	EDCT140402PDFRLDJ	17,46	3,14	0,2	3273589	–	–	–	–	–	–
	EDCT140404PDERGD	17,46	2,95	0,4	–	–	–	2983890	–	5545068	–
	EDCT140404PDFRLDJ	17,46	2,95	0,4	2984054	–	–	–	–	–	–
	EDCT140408PDERGD	17,47	2,56	0,8	–	–	–	2983331	–	5545067	6171518
	EDCT140408PDFRLDJ	17,47	2,56	0,8	2983279	–	–	–	–	–	–
	EDCT140412PDERGD	17,48	2,17	1,2	–	–	–	2984210	–	–	6171519
	EDCT140416PDERGD	17,49	1,77	1,6	–	–	–	2984773	–	–	6171520
	EDCT140431PDERGD	17,50	0,26	3,1	–	–	–	2983891	–	–	6171591
	General Machining										
	EDCT140404PDERLDJ	17,46	2,95	0,4	–	3324993	–	–	–	–	–
	EDPT140404PDERHD	17,46	2,95	0,4	–	–	3051866	3051863	–	–	–
	EDPT140404PDERHD	17,47	2,95	0,4	–	–	–	–	–	6128132	–
	EDCT140408PDERLDJ	17,47	2,56	0,8	–	3324994	–	–	–	–	–
	EDPT140408PDERHD	17,47	2,56	0,8	–	–	3033727	3033729	3033731	5545160	6172122
	EDPT140412PDERHD	17,48	2,16	1,2	–	–	3032732	3033724	–	–	6172123
	EDPT140412PDERHD	17,48	2,17	1,2	–	–	–	–	–	5545069	–
	EDPT140416PDERHD	17,49	1,77	1,6	–	–	–	3033752	3033954	6128134	6172124
	EDPT140420PDERHD	17,49	1,37	2,0	–	–	–	3051245	–	–	6172125
	EDCT140424PDERLDJ	17,50	0,99	2,4	–	3324726	–	–	–	–	–
	EDPT140424PDERHD	17,50	0,99	2,4	–	–	–	3051550	–	6128136	6172126
	EDPT140431PDERHD	17,51	0,26	3,1	–	–	–	3051248	–	–	6172127
	EDPT140440PDERHD	16,53	–	4,0	–	–	–	3051251	–	–	6172128
	Heavy Machining										
	EDPT140408PDSRGD	17,47	2,55	0,8	–	–	2980530	2981644	2980531	6128133	6172129
	EDPT140412PDSRGD	17,47	2,17	1,2	–	–	–	–	–	5545066	–
	EDPT140412PDSRGD	17,48	2,17	1,2	–	–	2980527	2980568	–	–	6172130
	EDPT140416PDSRGD	17,49	1,77	1,6	–	–	–	2982077	2982091	6128135	6172191

Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.F..LDJ	0,12	**0,46**	0,82	0,08	**0,33**	0,59	0,06	**0,25**	0,44	0,06	**0,22**	0,38	0,05	**0,20**	0,35	.F..LDJ
.E..LDJ	0,12	**0,47**	0,82	0,08	**0,34**	0,59	0,06	**0,26**	0,44	0,06	**0,22**	0,39	0,05	**0,20**	0,35	.E..LDJ
.E..LD	0,12	**0,46**	0,81	0,09	**0,33**	0,58	0,07	**0,25**	0,43	0,06	**0,22**	0,38	0,05	**0,20**	0,35	.E..LD
.E..GD	0,17	**0,52**	0,89	0,12	**0,38**	0,64	0,09	**0,28**	0,48	0,08	**0,24**	0,42	0,07	**0,22**	0,38	.E..GD
.S..GE	0,23	**0,51**	0,89	0,17	**0,37**	0,64	0,13	**0,27**	0,48	0,11	**0,24**	0,42	0,10	**0,22**	0,38	.S..GE
.S..GD	0,23	**0,50**	0,88	0,17	**0,36**	0,63	0,13	**0,27**	0,47	0,11	**0,24**	0,41	0,10	**0,22**	0,38	.S..GD
.S..GD2	0,23	**0,50**	0,88	0,17	**0,36**	0,63	0,13	**0,27**	0,47	0,11	**0,24**	0,41	0,10	**0,22**	0,38	.S..GD2
.E..HD	0,23	**0,59**	0,95	0,17	**0,43**	0,68	0,13	**0,32**	0,51	0,11	**0,28**	0,44	0,10	**0,25**	0,41	.E..HD
.E..HD2	0,21	**0,59**	0,95	0,15	**0,43**	0,68	0,11	**0,32**	0,51	0,10	**0,28**	0,44	0,09	**0,25**	0,41	.E..HD2

EDC...: Ground inserts; high versatility for all finishing applications and difficult-to-machine stainless steels and high-temp alloys.
EDP...: Pressed; lower cost per edge for most roughing to semi-finishing operations.

.F.LDJ: Sharp cutting edge for aluminium and other non-ferrous alloys.
.E.LDJ: For aluminium and other non-ferrous alloys.
.E.GD: Finishing and high-precision applications.
.E.HD: Medium roughing and semi-finishing.
.S.GD: Strongest cutting edge for heavy roughing applications with high feed rates in all material groups.

Material Group		KC520M			KC725M			KCPK30			KCPM40			KCSM40		
P	1	–	**–**	–	260	**230**	215	455	**395**	370	295	**260**	245	260	**230**	215
	2	–	**–**	–	220	**190**	160	280	**255**	230	250	**215**	180	220	**190**	160
	3	–	**–**	–	200	**170**	140	255	**230**	205	230	**195**	160	200	**170**	140
	4	–	**–**	–	180	**150**	120	190	**175**	160	205	**170**	135	180	**150**	120
	5	–	**–**	–	150	**135**	120	260	**230**	210	170	**155**	135	150	**135**	120
	6	–	**–**	–	130	**100**	80	160	**135**	125	150	**115**	90	130	**100**	80
M	1	–	**–**	–	170	**150**	135	205	**185**	155	195	**170**	155	170	**150**	135
	2	–	**–**	–	155	**130**	110	185	**160**	140	175	**150**	125	155	**130**	110
	3	–	**–**	–	115	**100**	80	145	**130**	115	130	**115**	90	115	**100**	80
K	1	270	**245**	215	–	**–**	–	295	**265**	240	–	**–**	–	–	**–**	–
	2	210	**190**	175	–	**–**	–	235	**210**	190	–	**–**	–	–	**–**	–
	3	175	**160**	145	–	**–**	–	195	**175**	160	–	**–**	–	–	**–**	–
N	1	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
S	1	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	4	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
H	1	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

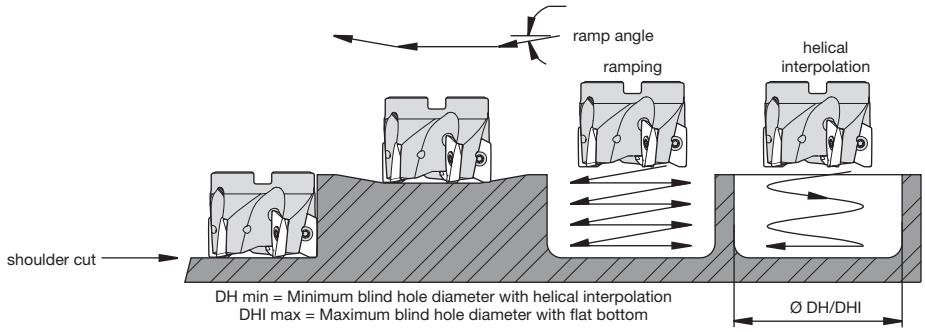
Material Group		KC410M/KC422M			KC520M			KC725M			KCPK30			KCPM40			KCSM40		
P	1	–	–	–	–	–	–	210	**185**	170	365	**315**	295	285	**250**	235	–	–	–
	2	–	–	–	–	–	–	175	**150**	130	225	**205**	185	240	**210**	170	–	–	–
	3	–	–	–	–	–	–	160	**135**	110	205	**185**	165	220	**190**	150	–	–	–
	4	–	–	–	–	–	–	145	**120**	95	150	**140**	130	195	**165**	130	–	–	–
	5	–	–	–	–	–	–	120	**110**	95	210	**185**	170	165	**150**	130	135	**115**	95
	6	–	–	–	–	–	–	105	**80**	65	130	**110**	100	145	**110**	90	120	**90**	65
M	1	–	–	–	–	–	–	135	**120**	110	165	**150**	125	190	**165**	150	170	**135**	110
	2	–	–	–	–	–	–	125	**105**	90	150	**130**	110	170	**145**	120	145	**115**	95
	3	–	–	–	–	–	–	90	**80**	65	115	**105**	90	125	**110**	90	115	**90**	70
K	1	–	–	–	215	**195**	170	–	–	–	235	**210**	190	–	–	–	–	–	–
	2	–	–	–	170	**150**	140	–	–	–	190	**170**	150	–	–	–	–	–	–
	3	–	–	–	140	**130**	115	–	–	–	155	**140**	130	–	–	–	–	–	–
N	1	1170	**1035**	840	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	1035	**955**	730	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	1035	**955**	730	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	30	**25**	20	–	–	–	40	**30**	30	30	**30**	20
	2	–	–	–	–	–	–	30	**25**	20	–	–	–	40	**30**	30	30	**30**	20
	3	–	–	–	–	–	–	35	**30**	20	–	–	–	50	**40**	30	40	**30**	20
	4	–	–	–	–	–	–	45	**35**	25	55	**40**	25	65	**50**	30	50	**40**	25
H	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

Application Examples



insert style	cutting diameter	max ramp angle	DH min (min hole diameter)	DHI min (min flat-bottomed hole diameter)	max diameter
Mill 1-14	20	16°	23,74	35,62	40
Mill 1-14	25	11°	33,75	44,44	50
Mill 1-14	32	7°	47,80	59,79	64
Mill 1-14	40	5°	63,76	75,22	80
Mill 1-14	50	4°	83,96	96,05	100
Mill 1-14	63	3°	109,93	121,47	126
Mill 1-14	80	2°	143,91	155,47	160
Mill 1-14	100	1°	183,89	199,47	200
Mill 1-14	125	1°	233,88	245,47	250
Mill 1-14	160	1°	303,88	315,47	320

NOTE: Max ramp angle decreases as nose radius increases.

Mill 1-14™

Helical Cutters

Primary Application

Mill 1-14 helical cutters will increase axial depth of cut. Designed with axial support pins for added stability, the Mill 1-14 helical cutters feature essential Load-Optimised Insert Spacing™ (LOIS) technology. LOIS dramatically minimises unwanted vibrations and fluctuations in power requirements, resulting in a much smoother-sounding cut. Up to nine different coolant nozzle diameters enable tailoring to suit each machine tool, providing remarkably consistent, focused coolant flow.

Features and Benefits

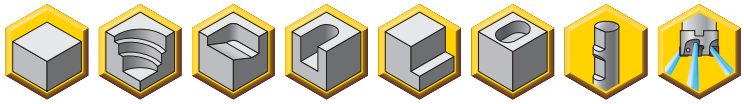
Functions

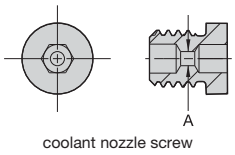
- Improves axial depth of cut better than standard end mills due to the positioning of inserts in helical configuration.
- Up to nine different coolant nozzle diameters tailored to suit each machine tool.
- One tool that offers features common to end mills, but rarely seen on a helical cutter: Helical ramping from solid, slotting, contouring, ramping, and plunging.

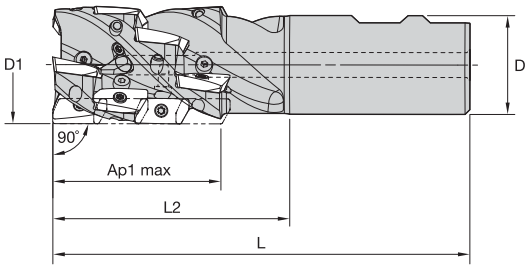
Benefits

- Increases depth of cut.
- Consistent, focused coolant flow.
- Built for performance, accuracy, and versatility.

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- Axial support pins.
- Unique coolant nozzles.







Helical Weldon End Mills • Slot and Profile

order number	catalogue number	D1	D	L	L2	Ap1 max	Z	Z U	max ramp angle	kg	max RPM
3742932	M1H32J2R50B32S90ED14C4	32	32	111	50	27,8	4	2	6.8°	0,52	31100
3743033	M1H40J3R50B32S90ED14C6	40	32	111	50	27,5	6	3	4.8°	0,59	28400
3743034	M1H40J3R65B32S90ED14C9	40	32	126	65	40,8	9	3	4.8°	0,66	28400
3743035	M1H40J3R80B32S90ED14C12	40	32	141	80	54,0	12	3	4.8°	0,73	28400
5085631	M1H40J4R80B32S90ED14C12	40	32	141	80	40,8	12	4	4.8°	0,75	28400
3743038	M1H50J3R80B40S90ED14C12	50	40	151	80	53,5	12	3	3.5°	1,30	24600

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

Spare Parts

D1	insert screw	Nm	Torx Plus driver	pin	coolant nozzle screw
32	MS2148	2,3	DT9IP	ASPM07001802	MS2191C20
40	MS2148	2,3	DT9IP	ASPM07001802	MS2191C20
50	MS2148	2,3	DT9IP	ASPM07001802	MS2191C20

Helical Weldon Mills • Profile Only

order number	catalogue number	D1	D	L	Ap1 max	Z	Z U	max ramp angle	kg	max RPM
5085631	M1H40J4R80B32S90ED14C12	40	32	141	40,8	12	4	4.8°	0,75	28400

Spare Parts

D1	insert screw	Nm	Torx Plus driver	pin	coolant nozzle screw
40	MS2148	2,3	DT9IP	ASPM07001802	MS2191C20

Optional Coolant Nozzle Screw

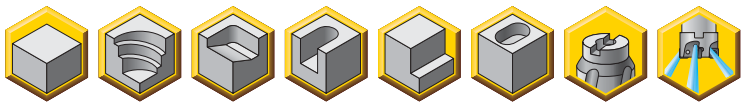
order number	catalogue number	A
3400611	MS2191C00	–
3400612	MS2191C06	0,6
3400613	MS2191C08	0,8
3400614	MS2191C10	1,0
3400616	MS2191C12	1,2
3400617	MS2191C14	1,4
3400618	MS2191C16	1,6
3400619	MS2191C18	1,8
3400620	MS2191C20	2,0

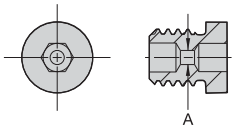
Coolant Nozzle Key

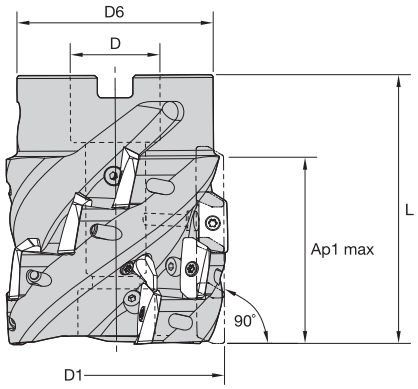
order number	catalogue number	drive size
1993552	THW2M	2 MM

NOTE: Check the spare parts table for the coolant hole size that is incorporated in the cutters.
If you need an alternative, there are eight other variants to choose from to increase or decrease the pressure.
Example: MS2191C12 is a 1,20mm hole. All coolant nozzles are interchangeable with the original that is supplied with the cutter.
This gives flexibility with coolant flow.

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- Axial support pins.
- Unique coolant nozzles.







Helical Shell Mills • Slot and Profile

order number	catalogue number	D1	D	D6	L	Ap1 max	Z	Z U	max ramp angle	kg	max RPM
3743036	M1H50T3R50A22S90ED14C6	50	22	46	50	27,3	6	3	3.5°	0,43	24600
3743037	M1H50T3R65A22S90ED14C9	50	22	46	65	40,4	9	3	3.5°	0,57	24600
3743042	M1H63T3R75A27S90ED14C12	63	27	60	75	52,8	12	3	2.5°	1,16	22000
3743041	M1H63T4R65A27S90ED14C12	63	27	60	65	39,9	12	4	2.5°	0,97	22000

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

Spare Parts

order number	D1	insert screw	Nm	Torx Plus driver	pin	socket-head cap screw	coolant nozzle screw
3743036	50	MS2148	2,3	DT9IP	ASPM07001802	MS1235	MS2191C20
3743037	50	MS2148	2,3	DT9IP	ASPM07001802	MS1233	MS2191C16
3743042	63	MS2148	2,3	DT9IP	ASPM07001802	MS1433	MS2191C16
3743041	63	MS2148	2,3	DT9IP	ASPM07001802	MS1238	MS2191C16

Helical Shell Mills • Profile Only

order number	catalogue number	D1	D	D6	L	Ap1 max	Z	Z U	max ramp angle	kg	max RPM
3831819	M1H63T5R75A27S90ED14C20	63	27	60	75	52,8	20	5	2.0°	1,06	22000

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

Spare Parts

D1	insert screw	Nm	Torx Plus driver	pin	socket-head cap screw	coolant nozzle screw
63	MS2148	2,3	DT9IP	ASPM07001802	MS1433	MS2191C12

Optional Coolant Nozzle Screw

order number	catalogue number	A
3400611	MS2191C00	–
3400612	MS2191C06	0,6
3400613	MS2191C08	0,8
3400614	MS2191C10	1,0
3400616	MS2191C12	1,2
3400617	MS2191C14	1,4
3400618	MS2191C16	1,6
3400619	MS2191C18	1,8
3400620	MS2191C20	2,0

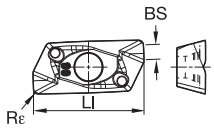
Coolant Nozzle Key

order number	catalogue number	drive size
1993552	THW2M	2 MM

NOTE: Check the spare parts table for the coolant hole size that is incorporated in the cutters.
If you need an alternative, there are eight other variants to choose from to increase or decrease the pressure.
Example: MS2191C12 is a 1,20mm hole. All coolant nozzles are interchangeable with the original that is supplied with the cutter.
This gives flexibility with coolant flow.

✦✦ first choice with coolant
✧✧ first choice without coolant
✦ alternate choice with coolant
✧ alternate choice without coolant

P1–P2				✦✦	✧✧		
P3–P4				✦✦	✧	✧✧	
P5–P6				✦✦	✧	✧✧	
M1–M2				✦		✦	✦✦
M3				✦			✦✦
K1–K2			✦✦/✧✧		✧		
K3			✦✦		✧✧		
N1	✦✦	✦					
N2	✦✦	✦					
S1				✦			✦✦
S2				✦			✦✦
S3				✦			✦✦
S4				✦			✦✦



ISO catalogue number	LI	BS	Rε	KC410M	KC422M	KC520M	KC725M	KCPK30	KCPM40	KCSM40
Light Machining										
EDCT140402PDFRLDJ	17,46	3,14	0,2	3273589	–	–	–	–	–	–
EDCT140404PDERGD	17,46	2,95	0,4	–	–	–	2983890	–	5545068	–
EDCT140404PDFRLDJ	17,46	2,95	0,4	2984054	–	–	–	–	–	–
EDCT140408PDERGD	17,47	2,56	0,8	–	–	–	2983331	–	5545067	6171518
EDCT140408PDFRLDJ	17,47	2,56	0,8	2983279	–	–	–	–	–	–
EDCT140412PDERGD	17,48	2,17	1,2	–	–	–	2984210	–	–	6171519
EDCT140416PDERGD	17,49	1,77	1,6	–	–	–	2984773	–	–	6171520
EDCT140431PDERGD	17,50	0,26	3,1	–	–	–	2983891	–	–	6171591
General Machining										
EDCT140404PDERLDJ	17,46	2,95	0,4	–	3324993	–	–	–	–	–
EDPT140404PDERHD	17,46	2,95	0,4	–	–	3051866	3051863	–	–	–
EDPT140404PDERHD	17,47	2,95	0,4	–	–	–	–	–	6128132	–
EDCT140408PDERLDJ	17,47	2,56	0,8	–	3324994	–	–	–	–	–
EDPT140408PDERHD	17,47	2,56	0,8	–	–	3033727	3033729	3033731	5545160	6172122
EDPT140412PDERHD	17,48	2,16	1,2	–	–	3032732	3033724	–	–	6172123
EDPT140412PDERHD	17,48	2,17	1,2	–	–	–	–	–	5545069	–
EDPT140416PDERHD	17,49	1,77	1,6	–	–	–	3033752	3033954	6128134	6172124
EDPT140420PDERHD	17,49	1,37	2,0	–	–	–	3051245	–	–	6172125
EDCT140424PDERLDJ	17,50	0,99	2,4	–	3324726	–	–	–	–	–
EDPT140424PDERHD	17,50	0,99	2,4	–	–	–	3051550	–	6128136	6172126
EDPT140431PDERHD	17,51	0,26	3,1	–	–	–	3051248	–	–	6172127
EDPT140440PDERHD	16,53	—	4,0	–	–	–	3051251	–	–	6172128
Heavy Machining										
EDPT140408PDSRGD	17,47	2,55	0,8	–	–	2980530	2981644	2980531	6128133	6172129
EDPT140412PDSRGD	17,47	2,17	1,2	–	–	–	–	–	5545066	–
EDPT140412PDSRGD	17,48	2,17	1,2	–	–	2980527	2980568	–	–	6172130
EDPT140416PDSRGD	17,49	1,77	1,6	–	–	–	2982077	2982091	6128135	6172191

Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.F..LDJ	0,12	**0,46**	0,82	0,08	**0,33**	0,59	0,06	**0,25**	0,44	0,06	**0,22**	0,38	0,05	**0,20**	0,35	.F..LDJ
.E..LDJ	0,12	**0,47**	0,82	0,08	**0,34**	0,59	0,06	**0,26**	0,44	0,06	**0,22**	0,39	0,05	**0,20**	0,35	.E..LDJ
.E..LD	0,12	**0,46**	0,81	0,09	**0,33**	0,58	0,07	**0,25**	0,43	0,06	**0,22**	0,38	0,05	**0,20**	0,35	.E..LD
.E..GD	0,17	**0,52**	0,89	0,12	**0,38**	0,64	0,09	**0,28**	0,48	0,08	**0,24**	0,42	0,07	**0,22**	0,38	.E..GD
.S..GE	0,23	**0,51**	0,89	0,17	**0,37**	0,64	0,13	**0,27**	0,48	0,11	**0,24**	0,42	0,10	**0,22**	0,38	.S..GE
.S..GD	0,23	**0,50**	0,88	0,17	**0,36**	0,63	0,13	**0,27**	0,47	0,11	**0,24**	0,41	0,10	**0,22**	0,38	.S..GD
.S..GD2	0,23	**0,50**	0,88	0,17	**0,36**	0,63	0,13	**0,27**	0,47	0,11	**0,24**	0,41	0,10	**0,22**	0,38	.S..GD2
.E..HD	0,23	**0,59**	0,95	0,17	**0,43**	0,68	0,13	**0,32**	0,51	0,11	**0,28**	0,44	0,10	**0,25**	0,41	.E..HD
.E..HD2	0,21	**0,59**	0,95	0,15	**0,43**	0,68	0,11	**0,32**	0,51	0,10	**0,28**	0,44	0,09	**0,25**	0,41	.E..HD2

EDC...: Ground inserts; high versatility for all finishing applications and difficult-to-machine stainless steels and high-temp alloys.
EDP...: Pressed; lower cost per edge for most roughing to semi-finishing operations.

.F.LDJ: Sharp cutting edge for aluminium and other non-ferrous alloys.
.E.LDJ: For aluminium and other non-ferrous alloys.
.E.GD: Finishing and high-precision applications.
.E.HD: Medium roughing and semi-finishing.
.S.GD: Strongest cutting edge for heavy roughing applications with high feed rates in all material groups.

Recommended Starting Speeds for Dry Machining (m/min)

Material Group		KC520M			KC725M			KCPK30			KCPM40			KCSM40		
P	1	–	–	–	260	**230**	215	455	**395**	370	295	**260**	245	260	**230**	215
	2	–	–	–	220	**190**	160	280	**255**	230	250	**215**	180	220	**190**	160
	3	–	–	–	200	**170**	140	255	**230**	205	230	**195**	160	200	**170**	140
	4	–	–	–	180	**150**	120	190	**175**	160	205	**170**	135	180	**150**	120
	5	–	–	–	150	**135**	120	260	**230**	210	170	**155**	135	150	**135**	120
	6	–	–	–	130	**100**	80	160	**135**	125	150	**115**	90	130	**100**	80
M	1	–	–	–	170	**150**	135	205	**185**	155	195	**170**	155	170	**150**	135
	2	–	–	–	155	**130**	110	185	**160**	140	175	**150**	125	155	**130**	110
	3	–	–	–	115	**100**	80	145	**130**	115	130	**115**	90	115	**100**	80
K	1	270	**245**	215	–	–	–	295	**265**	240	–	–	–	–	–	–
	2	210	**190**	175	–	–	–	235	**210**	190	–	–	–	–	–	–
	3	175	**160**	145	–	–	–	195	**175**	160	–	–	–	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
H	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

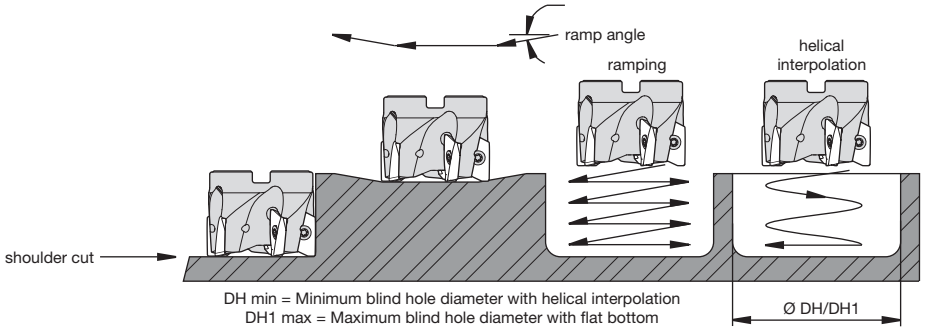
Material Group		KC410M/KC422M			KC520M			KC725M			KCPK30			KCPM40			KCSM40		
P	1	–	**–**	–	–	**–**	–	210	**185**	170	365	**315**	295	285	**250**	235	–	**–**	–
	2	–	**–**	–	–	**–**	–	175	**150**	130	225	**205**	185	240	**210**	170	–	**–**	–
	3	–	**–**	–	–	**–**	–	160	**135**	110	205	**185**	165	220	**190**	150	–	**–**	–
	4	–	**–**	–	–	**–**	–	145	**120**	95	150	**140**	130	195	**165**	130	–	**–**	–
	5	–	**–**	–	–	**–**	–	120	**110**	95	210	**185**	170	165	**150**	130	135	**115**	95
	6	–	**–**	–	–	**–**	–	105	**80**	65	130	**110**	100	145	**110**	90	120	**90**	65
M	1	–	**–**	–	–	**–**	–	135	**120**	110	165	**150**	125	190	**165**	150	170	**135**	110
	2	–	**–**	–	–	**–**	–	125	**105**	90	150	**130**	110	170	**145**	120	145	**115**	95
	3	–	**–**	–	–	**–**	–	90	**80**	65	115	**105**	90	125	**110**	90	115	**90**	70
K	1	–	**–**	–	215	**195**	170	–	**–**	–	235	**210**	190	–	**–**	–	–	**–**	–
	2	–	**–**	–	170	**150**	140	–	**–**	–	190	**170**	150	–	**–**	–	–	**–**	–
	3	–	**–**	–	140	**130**	115	–	**–**	–	155	**140**	130	–	**–**	–	–	**–**	–
N	1	1170	**1035**	840	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	1035	**955**	730	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	1035	**955**	730	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
S	1	–	**–**	–	–	**–**	–	30	**25**	20	–	**–**	–	40	**30**	30	30	**30**	20
	2	–	**–**	–	–	**–**	–	30	**25**	20	–	**–**	–	40	**30**	30	30	**30**	20
	3	–	**–**	–	–	**–**	–	35	**30**	20	–	**–**	–	50	**40**	30	40	**30**	20
	4	–	**–**	–	–	**–**	–	45	**35**	25	55	**40**	25	65	**50**	30	50	**40**	25
H	1	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

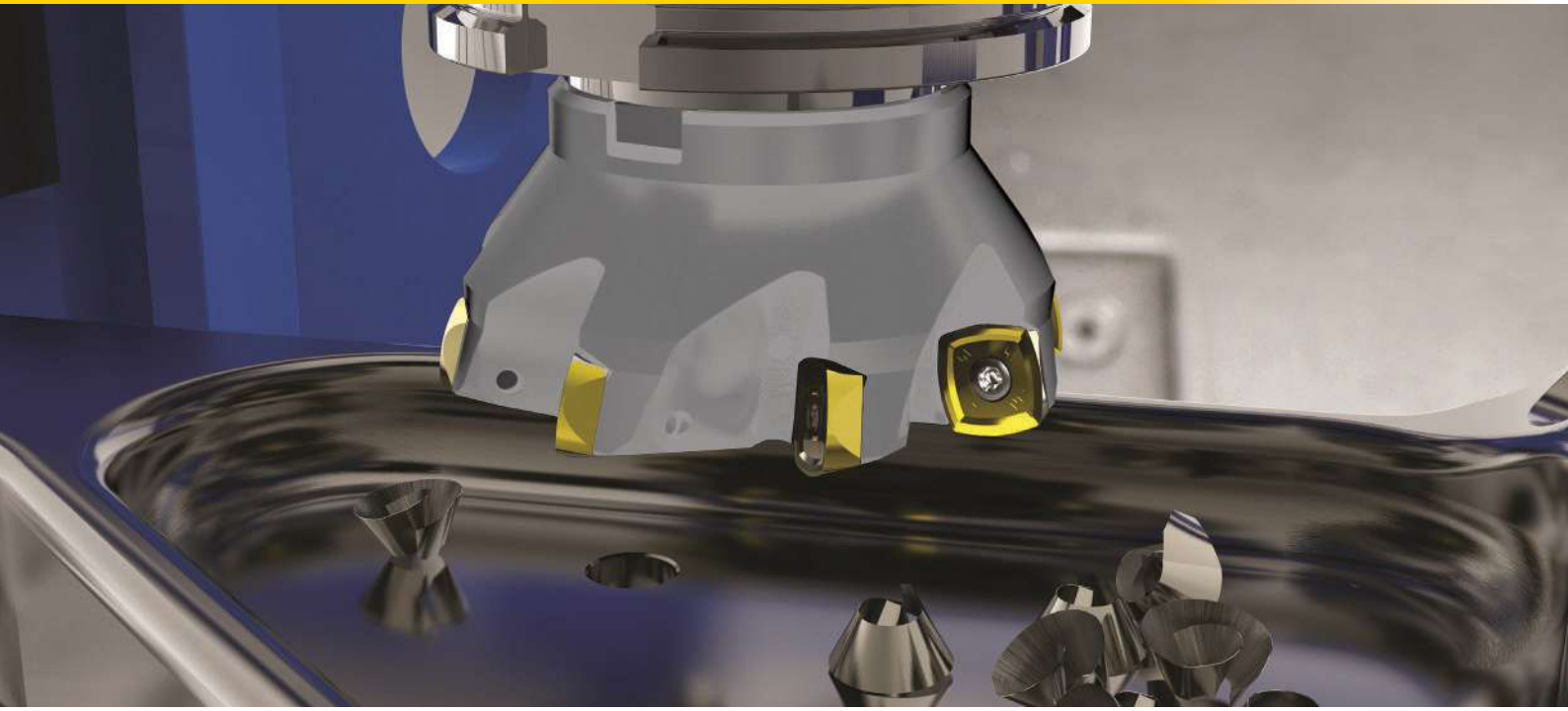
Wet

Application Examples

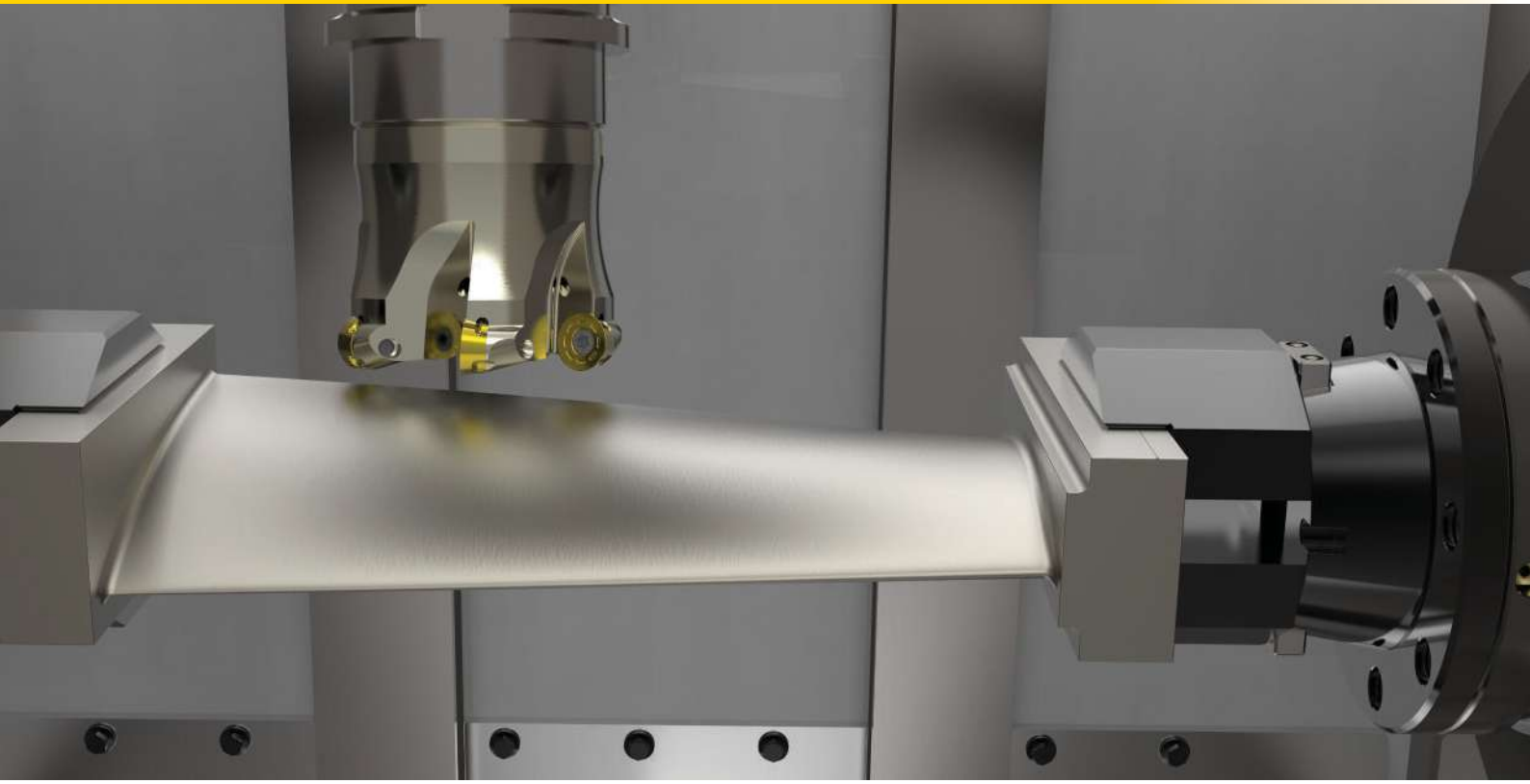


insert style	cutting diameter	max ramp angle	min hole diameter (DH min)	max flat-bottom hole diameter (DH1 max)	max diameter
Mill 1-14	32	5.4°	47,80	59,79	64
Mill 1-14	40	3.8°	64,00	75,47	80
Mill 1-14	50	2.7°	83,96	96,05	100
Mill 1-14	63	1.9°	109,93	121,47	126

High-Feed Milling

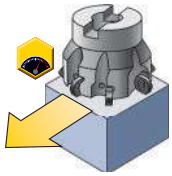


Copy/Contour Milling



Application

1



Machining Conditions and Spindle Size

2

All applications with average Ap between 0,4mm up to 1,2mm.
Small to medium machines.
Application requires a small cutter body.

- All applications with average Ap 1,5mm, up to max. 2,5mm.
- Medium and large machines.
- Cutter body with larger diameter required.

Capabilities

3

Platform

4

7792VXP06

Ap max: 0,9mm
Cutter body: Ø16–Ø25mm
Insert style: XP*0603
4 cutting edges

7792VXD09

Ap max: 1,5mm
Cutter body: Ø25–Ø66mm
Insert style: XD*0904
4 cutting edges

Dodeka™ Mini 15° HF

Ap max: 1,6mm
Cutter body: Ø25–Ø80mm
Insert style: HN*J0604
12 cutting edges

7792VXD12

Ap max: 2,5mm
Cutter body: Ø32–Ø160mm
Insert style: XD*1205
4 cutting edges

Dodeka™ 15° HF

Ap max: 2,2mm
Cutter body: Ø63–Ø125mm
Insert style: HN*J0905
12 cutting edges

Insert Selection

5

Easy insert selection based on:
Workpiece material
Cutting conditions
Coolant type
Directly on the product pages B88 and B97

Easy insert selection based on:
Workpiece material
Cutting conditions
Coolant type
Directly on the product page B113

Easy insert selection based on:
Workpiece material
Cutting conditions
Coolant type
Directly on the product page B106

Easy insert selection based on:
Workpiece material
Cutting conditions
Coolant type
Directly on the product page B117

Tech Tips:

- HF-cutters also have a tremendous advantage when used in long (extended) toolholders. These cutters greatly reduce the instability and deflection of the tool.
- Consider 7792 series for all high-feed 3D milling and machining close to a wall.
- Benefit from 12 cutting edges per Dodeka insert at all pure high-feed face milling operations.
- To optimise the tool, adjust depth of cut (Ap) and cutting speed (vc), if necessary. Always keep feed rate on a high level.

Stellram® 7792 High-Feed Series

Indexable Milling

The 7792 cutter series has been designed for high-feed milling applications with superior surface generation. 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 aluminium alloys.

Features and Benefits

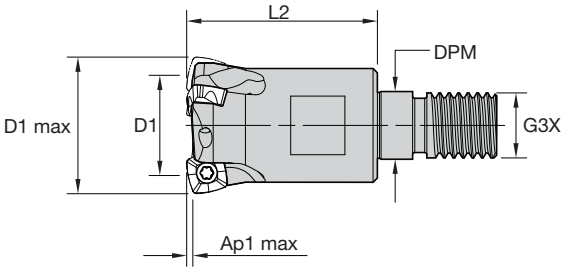
- The 7792VX high-feed cutters are the best solution for reducing cycle times or removing the maximum amount of material in the shortest time.
- New ultra-fine pitch cutters further increase metal removal rates, especially in high-temp alloys.
- The unique design and insert positioning help to achieve up to 5x higher feed rates than other cutters on the market.
- When used in long (extended) toolholders, 7792VX cutters absorb vibrations and greatly reduce instability and tool deflection.
- Integrated wiper facet for improved surface finish: 16 Ra (1,6µ) when used at <0,5mm/z.

7792VXP06:
Maximum ap = 0,9mm
Diameter Range = 16-35mm

7792VXD09:
Maximum ap = 1,50mm
Diameter Range = 25–66mm

7792VXD12:
Maximum ap = 2,50mm
Diameter Range = 32–160mm

- Superior surface generation with integrated wiper facet.
- Maximum material removal rates.
- Suitable to machine HTA and titanium.



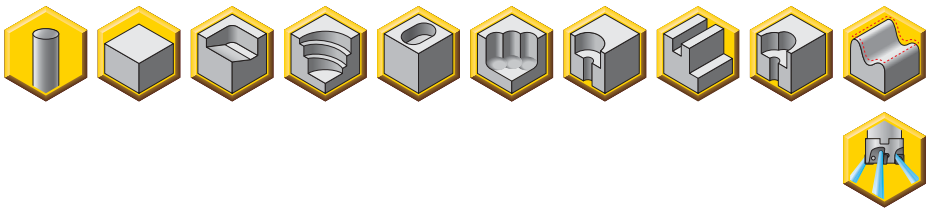
7792VXP06 Modular Head • Screw-On

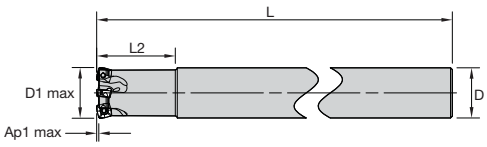
order number	catalogue number	D1 max	D1	L2	G3X	DPM	Ap1 max	Z U
5681105	**7792VXP06SA016Z2R25**	16	8	25	M8	8,50	0,90	2
5681122	**7792VXP06SA020Z3R35**	20	12	35	M10	10,50	0,90	3
5665964	**7792VXP06SA025Z3R35**	25	17	35	M12	12,50	0,90	3
5667023	**7792VXP06SA025Z4R35**	25	17	35	M12	12,50	0,90	4

Spare Parts

catalogue number	insert screw	Nm	Torx driver
7792VXP06SA016Z2R25	**FP2506T**	0,8	**TP7**
7792VXP06SA020Z3R35	**FP2506T**	0,8	**TP7**
7792VXP06SA025Z3R35	**FP2507T**	0,8	**TP7**
7792VXP06SA025Z4R35	**FP2507T**	0,8	**TP7**

- Superior surface generation with integrated wiper facet.
- Maximum material removal rates.
- Suitable to machine HTA and titanium.





7792VXP06 Cylindrical Shank

order number	catalogue number	D1 max	D	D1	L	L2	Ap1 max	Z U
5673240	**7792VXP06CA016Z2R140**	16	16	8	188	25	0,90	2
5673237	**7792VXP06CA020Z3R154**	20	20	11	200	32	0,90	3
5666409	**7792VXP06CA025Z4R154**	25	25	16	210	40	0,90	4

Spare Parts

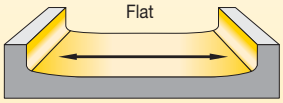
catalogue number	insert screw	Nm	Torx driver
7792VXP06CA016Z2R140	**FP2506T**	0,8	**TP7**
7792VXP06CA020Z3R154	**FP2506T**	0,8	**TP7**
7792VXP06CA025Z4R154	**FP2507T**	0,8	**TP7**

Technical Information (mm)

order number	catalogue number	dimension						max RPM
		facing pitch	ramping angle	helical hole min–max		ap max helical/ linear	a_e max plunging	
5673240	7792VXP06CA016Z2R140	7,60	5,9	22	30	0,60	3,00	65000
5673237	7792VXP06CA020Z3R154	11,60	3,4	30	38	0,60	3,00	57000
5666409	7792VXP06CA025Z4R154	16,60	2,2	40	48	0,60	3,00	49000
5681105	7792VXP06SA016Z2R25	7,60	5,9	22	30	0,60	3,00	65000
5681122	7792VXP06SA020Z3R35	11,6	3,4	30	38	0,60	3,00	57000
5665964	7792VXP06SA025Z3R35	16,60	2,8	40	48	0,60	3,00	49000
5667023	7792VXP06SA025Z4R35	16,60	2,2	40	48	0,60	3,00	49000


Helical Interpolation


Plunging



Facing Pitch

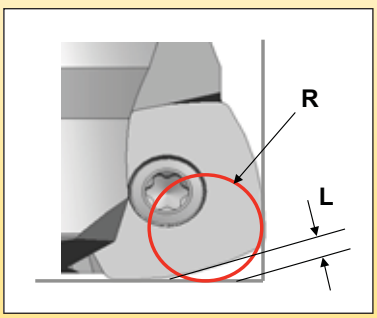
Ramp angle A uses one outside cutting edge only.

A = max ramp angle utilising full-face contact.

CNC Programme • Corner Radius Definition

The use of common CAD/CAM systems requires a round insert dimension to be known for cavity machining.
This is available with 7792VX cutters as shown below and in the reference table.

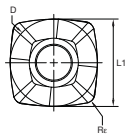
For finish pass applications:
Wiper Facet for finishing use max feed 0,5 mm/z



Programming Data (mm)			
Insert corner nose size (IC)	Rε	R	L
06	0,80	1,37	0,40
09	0,80	2,01	0,73
	1,20	2,27	0,67
12	0,80	2,50	1,02
	1,20	2,73	0,97

✦✦ first choice with coolant
✧✧ first choice without coolant
✦ alternate choice with coolant
✧ alternate choice without coolant

P1–P2	✧/✦	✧✧	✦✦		
P3–P4		✧✧	✦✦		
P5–P6		✧	✦✦	✧✧	✧/✦
M1–M2	✦✦		✧✧		✦
M3	✦		✦		✦✦
K1–K2		✧	✦✦		
K3		✧	✦✦		
N1					
N2					
S1	✦		✦		✦✦
S2	✦		✦		✦✦
S3	✦✦		✦		✦
S4	✦✦		✦		✦



ISO catalogue number	D	LI	S	Rε	KCSM40	SC6525	SP6519	X400	X500
General Machining									
XPLT060308ERD41	7,00	7,00	3,17	0,8	–	5655265	5654267	5654377	5654397
XPPT060308ERD41	7,00	7,00	3,17	0,8	6185769	–	–	–	–

Recommended Starting Feeds [mm] • High-Feed

Light Machining	General Purpose	Heavy Machining

At 0,90 Axial Depth of Cut (ap)

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.E..D41	0,37	**1,06**	1,89	0,27	**0,73**	1,24	0,20	**0,53**	0,89	0,17	**0,46**	0,77	0,16	**0,42**	0,70	.E..D41
.S..D	0,68	**1,46**	2,35	0,48	**0,98**	1,49	0,36	**0,71**	1,07	0,31	**0,62**	0,92	0,28	**0,56**	0,84	.S..D

At 0,70 Axial Depth of Cut (ap)

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.E..D41	0,42	**1,21**	2,20	0,30	**0,83**	1,41	0,22	**0,60**	1,01	0,19	**0,52**	0,87	0,18	**0,48**	0,79	.E..D41
.S..D	0,78	**1,68**	2,79	0,55	**1,12**	1,71	0,40	**0,81**	1,21	0,35	**0,70**	1,04	0,32	**0,64**	0,94	.S..D

At 0,60 Axial Depth of Cut (ap)

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.E..D41	0,46	**1,32**	2,43	0,32	**0,89**	1,53	0,24	**0,65**	1,09	0,21	**0,56**	0,94	0,19	**0,52**	0,85	.E..D41
.S..D	0,84	**1,84**	3,12	0,59	**1,21**	1,85	0,43	**0,87**	1,30	0,38	**0,75**	1,12	0,34	**0,69**	1,02	.S..D

Feed Rate Guide • Plunging • IC 06 • fz [mm/tooth]

Insert Geometry	Programmed Feed per Tooth (fz) Max 3mm insert engagement (ae radial engagement)			Insert Geometry
.E..D41	0,06	**0,15**	0,25	.E..D41
.S..D	0,10	**0,20**	0,30	.S..D

Material Group		KCSM40			SC6525			SP6519			X400			X500		
P	1	275	**240**	205	445	**305**	170	355	**260**	155	310	**230**	145	325	**240**	155
	2	240	**205**	160	390	**270**	145	310	**230**	140	275	**205**	125	290	**215**	140
	3	205	**180**	160	350	**240**	125	275	**200**	120	240	**180**	115	250	**185**	120
	4	180	**160**	145	250	**175**	95	210	**150**	90	180	**130**	85	190	**145**	90
	5	160	**145**	125	190	**145**	95	170	**125**	85	–	**–**	–	155	**120**	85
	6	125	**110**	90	170	**120**	70	145	**100**	60	–	**–**	–	130	**95**	60
M	1	275	220	180	240	215	170	325	**235**	140	–	**–**	–	300	**220**	140
	2	180	**145**	125	230	**190**	145	280	**205**	125	–	**–**	–	265	**190**	120
	3	145	**125**	110	175	**155**	110	235	**170**	100	–	**–**	–	215	**155**	95
K	1	–	**–**	–	470	**325**	175	355	**265**	170	–	**–**	–	310	**265**	205
	2	–	**–**	–	365	**250**	140	290	**210**	130	–	**–**	–	265	**215**	155
	3	–	**–**	–	–	**–**	–	265	**190**	120	–	**–**	–	205	**170**	120
N	1	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
S	1	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	4	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
H	1	–	**–**	–	–	**–**	–	–	**–**	–	115	**85**	55	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	95	**70**	40	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

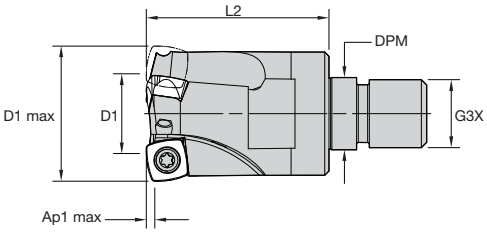
Material Group		KCSM40			SC6525			SP6519			X400			X500		
P	1	–	**–**	–	445	**305**	170	285	**210**	125	250	**185**	115	260	**190**	125
	2	–	**–**	–	390	**270**	145	250	**185**	110	220	**165**	100	230	**170**	110
	3	–	**–**	–	350	**240**	125	220	**160**	95	190	**145**	90	200	**150**	95
	4	–	**–**	–	250	**175**	95	170	**120**	70	145	**105**	70	150	**115**	70
	5	165	**140**	115	190	**145**	95	135	**100**	70	–	**–**	–	125	**95**	70
	6	145	**105**	75	170	**120**	70	115	**80**	50	–	**–**	–	105	**75**	50
M	1	200	165	135	240	215	170	260	**190**	110	–	**–**	–	240	**175**	110
	2	170	**140**	115	230	**190**	145	225	**165**	100	–	**–**	–	210	**150**	95
	3	140	**105**	80	175	**155**	110	190	**135**	80	–	**–**	–	170	**125**	75
K	1	–	**–**	–	470	**325**	175	285	**210**	135	–	**–**	–	250	**210**	165
	2	–	**–**	–	365	**250**	140	230	**170**	105	–	**–**	–	210	**170**	125
	3	–	**–**	–	–	**–**	–	210	**150**	95	–	**–**	–	165	**135**	95
N	1	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
S	1	40	**30**	25	–	**–**	–	50	**40**	25	–	**–**	–	50	**30**	25
	2	40	**30**	25	–	**–**	–	50	**30**	20	–	**–**	–	45	**30**	20
	3	50	**40**	25	–	**–**	–	50	**40**	25	–	**–**	–	50	**40**	25
	4	55	**50**	30	–	**–**	–	75	**55**	35	–	**–**	–	70	**50**	30
H	1	–	**–**	–	–	**–**	–	–	**–**	–	90	**70**	45	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	75	**55**	30	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

- Ultra-fine pitch cutters available to increase material removal rates, especially on high-temp alloys.
- Positive design to support lower cutting forces and long overhang usage.
- Ramping and plunge milling capabilities.
- Screw-on cutters provide better rigidity and stability when used with small spindels: BT30, BT40, DV40, HSK50, HSK63, etc.
- Screw-on cutters can be less expensive when compared to cylindrical shank cutters due to their higher flexibility through multiple holder combinations.



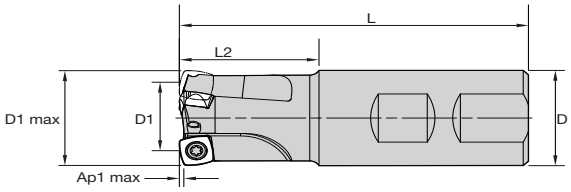
7792VXD09 Modular Head • Screw-On

order number	catalogue number	D1 max	D1	L2	G3X	DPM	Ap1 max	Z U
5667916	7792VXD09SA025Z2R35	25	12	35	M12	12,50	1,50	2
6024361	7792VXD09SA025Z3R35	25	12	35	M12	12,50	1,50	3
5660448	7792VXD09SA032Z3R43	32	19	43	M16	17,00	1,50	3
6024362	7792VXD09SA032Z4R43	32	19	43	M16	17,00	1,50	4
5673503	7792VXD09SA035Z3R43	35	22	43	M16	17,00	1,50	3
6024363	7792VXD09SA035Z4R43	35	22	43	M16	17,00	1,50	4
6024365	7792VXD09SA042Z5R43	42	29	43	M16	17,00	1,50	5

Spare Parts

catalogue number	insert screw	Nm	Torx driver
7792VXD09SA025Z2R35	F3508T	2,1	T15
7792VXD09SA025Z3R35	F3508T	2,1	TB15
7792VXD09SA032Z3R43	F3510T	2,1	T15
7792VXD09SA032Z4R43	F3508T	2,1	T15
7792VXD09SA035Z3R43	F3510T	2,1	T15
7792VXD09SA035Z4R43	F3510T	2,1	T15
7792VXD09SA042Z5R43	F3510T	2,1	T15

- Ultra-fine pitch cutters available to increase material removal rates, especially on high-temp alloys.
- Positive design to support lower cutting forces and long overhang usage.
- Ramping and plunge milling capabilities.



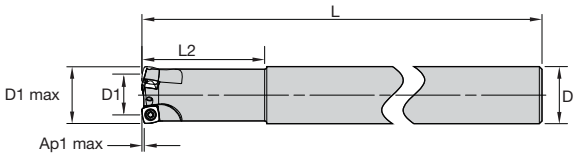
7792VXD09 Weldon Shank

order number	catalogue number	D1 max	D	D1	L	L2	Ap1 max	Z U
5658074	**7792VXD09WA032Z3R**	32	32	19	100	40	1,50	3

Spare Parts

catalogue number	 insert screw	 Nm	 Torx driver
7792VXD09WA032Z3R	**F3510T**	2,1	**T15**

- Ultra-fine pitch cutters available to increase material removal rates, especially on high-temp alloys.
- Positive design to support lower cutting forces and long overhang usage.
- Ramping and plunge milling capabilities.



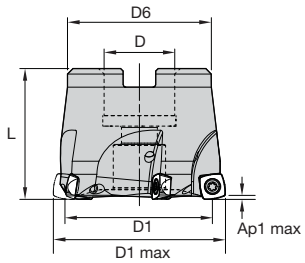
7792VXD09 Cylindrical Shank

order number	catalogue number	D1 max	D	D1	L	L2	Ap1 max	Z U
5659947	**7792VXD09CA025Z2R50**	25	25	12	200	50	1,50	2
6024366	**7792VXD09CA025Z3R50**	25	25	12	200	50	1,50	3
5661016	**7792VXD09CA032Z3R70**	32	32	19	250	70	1,50	3
6024367	**7792VXD09CA032Z4R70**	32	32	19	250	70	1,50	4

Spare Parts

catalogue number	insert screw	Nm	Torx driver
7792VXD09CA025Z2R50	**F3508T**	2,1	**T15**
7792VXD09CA025Z3R50	**F3508T**	2,1	**TB15**
7792VXD09CA032Z3R70	**F3510T**	2,1	**T15**
7792VXD09CA032Z4R70	**F3510T**	2,1	**T15**

- Ultra-fine pitch cutters available to increase material removal rates, especially on high-temp alloys.
- Positive design to support lower cutting forces and long overhang usage.
- Ramping and plunge milling capabilities.



7792VXD09 Shell Mill

order number	catalogue number	D1 max	D	D1	D6	L	Ap1 max	Z U
5656727	7792VXD09-A040Z3R	40	16	27	36	32	1,50	3
5657234	7792VXD09-A040Z4R	40	16	27	36	32	1,50	4
5667475	7792VXD09-A040Z5R	40	16	27	36	32	1,50	5
5656914	7792VXD09-A050Z5R	50	22	37	46	40	1,50	5
5656377	7792VXD09-A050Z6R	50	22	37	46	40	1,50	6
6024368	7792VXD09-A050Z7R	50	22	37	45	40	1,50	7
6024369	7792VXD09-A052Z5R	52	22	39	45	40	1,50	5
6024370	7792VXD09-A052Z6R	52	22	39	45	40	1,50	6
6024371	7792VXD09-A052Z7R	52	22	39	45	40	1,50	7
6024372	7792VXD09-A063Z5R	63	22	50	42	40	1,50	5
6024373	7792VXD09-A063Z6R	63	22	50	42	40	1,50	6
6024374	7792VXD09-A063Z9R	63	22	50	45	40	1,50	9
6024375	7792VXD09-A066Z5R	66	27	53	55	50	1,50	5
6024376	7792VXD09-A066Z6R	66	27	53	55	50	1,50	6

Spare Parts

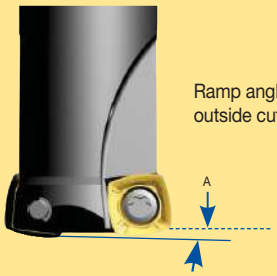
catalogue number	 insert screw	 Nm	 Torx driver	 mounting screw
7792VXD09-A040Z3R	F3510T	2,1	T15	M8 1.25 X 25 SHCS
7792VXD09-A040Z4R	F3510T	2,1	T15	M8 1.25 X 25 SHCS
7792VXD09-A040Z5R	F3510T	2,1	T15	M8 1.25 X 25 SHCS
7792VXD09-A050Z5R	F3510T	2,1	T15	M10 1.5 X 25 SHCS
7792VXD09-A050Z6R	F3510T	2,1	T15	M10 1.5 X 25 SHCS
7792VXD09-A050Z7R	F3510T	2,1	TB15	M10 1.5 X 25 SHCS
7792VXD09-A052Z5R	F3510T	2,1	T15	M10 1.5 X 25 SHCS
7792VXD09-A052Z6R	F3510T	2,1	T15	M10 1.5 X 25 SHCS
7792VXD09-A052Z7R	F3510T	2,1	TB15	M10 1.5 X 25 SHCS
7792VXD09-A063Z5R	F3510T	2,1	T15	M10 1.5 X 25 SHCS
7792VXD09-A063Z6R	F3510T	2,1	T15	M10 1.5 X 25 SHCS
7792VXD09-A063Z9R	F3510T	2,1	TB15	M10 1.5 X 25 SHCS
7792VXD09-A066Z5R	F3510T	2,1	T15	M12 X 1.75 X 30 SHCS
7792VXD09-A066Z6R	F3510T	2,1	T15	M12 X 1.75 X 30 SHCS

Technical Information (mm)

order number	catalogue number	dimension						max RPM
		facing pitch	ramping angle	helical hole min–max		ap max helical/ linear	a_e max plunging	
5658074	7792VXD09WA032Z3R	18,75	1,5	48	62	1,00	6,00	40500
5659947	7792VXD09CA025Z2R50	11,75	2,8	34	48	1,00	6,00	48500
6024366	7792VXD09CA025Z3R50	11,75	2,8	34	48	1,00	6,00	48500
5661016	7792VXD09CA032Z3R70	18,75	1,5	48	62	1,00	6,00	40500
6024367	7792VXD09CA032Z4R70	18,75	1,5	48	62	1,00	6,00	40500
5656727	7792VXD09-A040Z3R	26,75	0,8	64	78	1,00	6,00	34500
5657234	7792VXD09-A040Z4R	26,75	0,8	64	78	1,00	6,00	34500
5667475	7792VXD09-A040Z5R	26,75	0,8	64	78	1,00	6,00	34500
5656914	7792VXD09-A050Z5R	36,75	0,7	84	98	1,00	6,00	30000
5656377	7792VXD09-A050Z6R	36,75	0,7	84	98	1,00	6,00	29500
6024368	7792VXD09-A050Z7R	36,75	0,7	84	98	1,00	6,00	30000
6024369	7792VXD09-A052Z5R	38,75	0,7	88	102	1,00	6,00	29500
6024370	7792VXD09-A052Z6R	38,75	0,7	88	102	1,00	6,00	29500
6024371	7792VXD09-A052Z7R	38,75	0,7	88	102	1,00	6,00	29500
6024372	7792VXD09-A063Z5R	49,75	0,5	88	102	1,00	6,00	26000
6024373	7792VXD09-A063Z6R	49,75	0,5	88	102	1,00	6,00	26000
6024374	7792VXD09-A063Z8R	49,75	0,5	88	102	1,00	6,00	26000
6024375	7792VXD09-A066Z5R	52,75	0,5	116	130	1,00	6,00	25500
6024376	7792VXD09-A066Z6R	52,75	0,5	116	130	1,00	6,00	25500
5667916	7792VXD09SA025Z2R35	11,75	2,8	34	48	1,00	6,00	48500
6024361	7792VXD09SA025Z3R35	11,75	2,8	34	48	1,00	6,00	48500
5660448	7792VXD09SA032Z3R43	18,75	1,5	48	62	1,00	6,00	40500
6024362	7792VXD09SA032Z4R43	18,75	1,5	48	62	1,00	6,00	40500
5673503	7792VXD09SA035Z3R43	21,75	1,3	54	68	1,00	6,00	37500
6024363	7792VXD09SA035Z4R43	21,75	1,3	54	68	1,00	6,00	37500
6024365	7792VXD09SA042Z5R43	28,75	1,0	68	82	1,00	6,00	34000


Helical Interpolation


Plunging



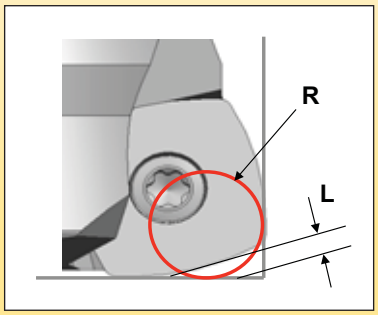
Ramp angle A uses one outside cutting edge only.

A = max ramp angle utilising full face contact.

CNC Program - Corner Radius Definition

The use of common CAD / CAM systems requires a round insert dimension to be known for cavity machining.
This is available with 7792VX cutters as shown to the right and in the reference table.

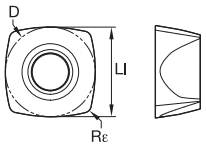
For finish pass applications:
Wiper Facet for finishing use max. feed 0,80mm/Revolution



Programming Data (mm)			
Insert size (IC)	radius	R	L
06	0,80	1,37	0,40
09	0,80	2,01	0,73
	1,20	2,27	0,67
12	0,80	2,50	1,02
	1,20	2,73	0,97

✦✦ first choice with coolant
✧✧ first choice without coolant
✦ alternate choice with coolant
✧ alternate choice without coolant

P1–P2					✧/✦		✧✧	✦✦		
P3–P4		✧/✦	✧	✧			✧✧	✦✦		
P5–P6		✧/✦		✧			✧	✦✦	✧✧	✧/✦
M1–M2					✦✦			✧✧		✦
M3					✦			✦		✦✦
K1–K2						✧✧	✧	✦✦		
K3		✧/✦	✧			✧✧	✧	✦✦		
N1	✦✦									
N2	✦✦									
S1					✦			✦		✦✦
S2					✦			✦		✦✦
S3					✦✦			✦		✦
S4					✦✦			✦		✦



ISO catalogue number	D	Ll	Rε	GH2	KC522M	KCPK30	KCPM40	KCSM40	SC3025	SC6525	SP6519	X400	X500
Light Machining													
XDPT090412ERD411	9,53	9,53	1,2	–	–	–	–	6185922	–	–	–	–	–
General Machining													
XDLT090408ERD41	9,53	9,53	0,8	–	–	–	–	–	–	5653106	5652490	–	5654896
XDLT090408ERD721	9,53	9,53	0,8	5655472	–	–	–	–	–	–	–	–	–
XDPT090408ERD41	9,53	9,53	0,8	–	–	–	–	6185921	–	6010771	6010730	–	6010729
XDLT090412ERD411	9,53	9,53	1,2	–	–	–	–	–	–	–	5652249	–	5655172
XDPT090412SRGP	9,53	9,53	1,2	–	6191645	6191643	6191642	–	–	–	–	–	–
Heavy Machining													
XDLW090408SRD	9,53	9,53	0,8	–	–	–	–	–	5656081	5655255	–	5652239	5651222
XDPW090412SRD	9,52	9,52	1,2	–	6187538	–	6187535	–	–	–	–	–	–

XDL…: Ground inserts; high versatility for machining soft materials and difficult-to-machine stainless steels and high-temp alloys.
XDP…: Pressed; lower cost per edge for most roughing to semi-finishing operations.

.E..D721: First choice for non-ferrous alloys.
.E.D41: General purpose in soft steels. Best fit for face milling and slotting operations.
.E.D411: General purpose in stainless steel and high-temp alloys. Best fit for pocketing and profiling operations in general, also in combination with long overhangs.
.S..D: First choice for roughing alloyed steel and cast iron.
.S.GP: General use on alloyed steels. Good balance across all machining situations.

Recommended Starting Feeds [mm] • High-Feed

Light Machining	General Purpose	Heavy Machining

At 1,50 Axial Depth of Cut (ap)

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.E..D721	0,30	**0,96**	1,69	0,22	**0,68**	1,18	0,16	**0,51**	0,87	0,14	**0,44**	0,75	0,13	**0,40**	0,69	.E..D721
.E..D41	0,38	**1,10**	1,69	0,27	**0,78**	1,18	0,20	**0,58**	0,87	0,18	**0,50**	0,75	0,16	**0,46**	0,69	.E..D41
.E..D411	0,38	**1,10**	1,69	0,27	**0,78**	1,18	0,20	**0,58**	0,87	0,18	**0,50**	0,75	0,16	**0,46**	0,69	.E..D411
.S..D	0,55	**1,21**	1,99	0,39	**0,86**	1,38	0,29	**0,63**	1,01	0,25	**0,55**	0,88	0,23	**0,50**	0,80	.S..D
.S..GP	0,55	**1,22**	2,01	0,39	**0,86**	1,39	0,29	**0,64**	1,02	0,25	**0,55**	0,89	0,23	**0,51**	0,81	.S..GP

At 1,10 Axial Depth of Cut (ap)

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.E..D721	0,35	**1,12**	1,98	0,25	**0,79**	1,37	0,19	**0,59**	1,01	0,16	**0,51**	0,87	0,15	**0,47**	0,80	.E..D721
.E..D41	0,44	**1,28**	1,98	0,32	**0,90**	1,37	0,24	**0,67**	1,01	0,21	**0,58**	0,87	0,19	**0,53**	0,80	.E..D41
.E..D411	0,44	**1,28**	1,98	0,32	**0,90**	1,37	0,24	**0,67**	1,01	0,21	**0,58**	0,87	0,19	**0,53**	0,80	.E..D411
.S..D	0,64	**1,42**	2,35	0,45	**1,00**	1,61	0,34	**0,74**	1,18	0,30	**0,64**	1,02	0,27	**0,59**	0,93	.S..D
.S..GP	0,64	**1,42**	2,37	0,45	**1,00**	1,63	0,34	**0,74**	1,19	0,30	**0,64**	1,03	0,27	**0,59**	0,94	.S..GP

At 0,90 Axial Depth of Cut (ap)

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.E..D721	0,39	**1,24**	2,20	0,28	**0,88**	1,52	0,21	**0,65**	1,11	0,18	**0,56**	0,96	0,17	**0,52**	0,88	.E..D721
.E..D41	0,48	**1,42**	2,20	0,35	**1,00**	1,52	0,26	**0,74**	1,11	0,23	**0,64**	0,96	0,21	**0,59**	0,88	.E..D41
.E..D411	0,48	**1,42**	2,20	0,35	**1,00**	1,52	0,26	**0,74**	1,11	0,23	**0,64**	0,96	0,21	**0,59**	0,88	.E..D411
.S..D	0,70	**1,57**	2,61	0,50	**1,10**	1,78	0,37	**0,81**	1,30	0,33	**0,71**	1,12	0,30	**0,64**	1,03	.S..D
.S..GP	0,70	**1,58**	2,65	0,50	**1,11**	1,80	0,37	**0,82**	1,31	0,33	**0,71**	1,14	0,30	**0,65**	1,04	.S..GP

Feed Rate Guide • Plunging • IC 09 • fz [mm/tooth]

Insert Geometry	Programmed Feed per Tooth (fz) Max 6mm insert engagement (ae radial engagement)			Insert Geometry
.E..D721	0,06	**0,18**	0,30	.E..D721
.E..D41	0,07	**0,20**	0,30	.E..D41
.E..D411	0,07	**0,20**	0,30	.E..D411
.S..D	0,10	**0,22**	0,35	.S..D
.S..GP	0,10	**0,22**	0,35	.S..GP

Material Group		GH2			KC522M			KCPK30			KCPM40			KCSM40		
P	1	–	–	–	395	**340**	325	545	**475**	445	355	**310**	295	275	**240**	205
	2	–	–	–	330	**290**	240	335	**305**	275	300	**260**	215	240	**205**	160
	3	–	–	–	305	**260**	210	305	**275**	245	275	**235**	190	205	**180**	160
	4	–	–	–	270	**220**	180	230	**210**	190	245	**205**	160	180	**160**	145
	5	–	–	–	220	**205**	180	310	**275**	250	205	**185**	160	160	**145**	125
	6	–	–	–	200	**150**	120	190	**160**	–	180	**140**	110	125	**110**	90
M	1	–	–	–	245	**215**	200	245	**220**	185	235	**205**	185	275	**220**	180
	2	–	–	–	220	**190**	155	220	**190**	170	210	**180**	150	180	**145**	125
	3	–	–	–	170	**145**	115	175	**155**	140	155	**140**	110	145	**125**	110
K	1	300	**220**	145	275	**245**	220	355	**320**	290	–	–	–	–	–	–
	2	260	**190**	125	215	**190**	180	280	**250**	230	–	–	–	–	–	–
	3	220	**175**	120	180	**160**	145	235	**210**	190	–	–	–	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
H	1	–	–	–	145	**110**	85	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Material Group		SC3025			SC6525			SP6519			X400			X500		
P	1	–	–	–	445	**305**	170	355	**260**	155	310	**230**	145	325	**240**	155
	2	–	–	–	390	**270**	145	310	**230**	140	275	**205**	125	290	**215**	140
	3	–	–	–	350	**240**	125	275	**200**	120	240	**180**	115	250	**185**	120
	4	–	–	–	250	**175**	95	210	**150**	90	180	**130**	85	190	**145**	90
	5	–	–	–	190	**145**	95	170	**125**	85	–	–	–	155	**120**	85
	6	–	–	–	170	**120**	70	145	**100**	60	–	–	–	130	**95**	60
M	1	–	–	–	240	**215**	170	325	**235**	140	–	–	–	300	**220**	140
	2	–	–	–	230	**190**	145	280	**205**	125	–	–	–	265	**190**	120
	3	–	–	–	175	**155**	110	235	**170**	100	–	–	–	215	**155**	95
K	1	475	**330**	180	470	**325**	175	355	**265**	170	–	–	–	310	**265**	205
	2	400	**275**	145	365	**250**	140	290	**210**	130	–	–	–	265	**215**	155
	3	330	**230**	125	–	–	–	265	**190**	120	–	–	–	205	**170**	120
N	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
H	1	–	–	–	–	–	–	–	–	–	115	**85**	55	–	–	–
	2	–	–	–	–	–	–	–	–	–	95	**70**	40	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

Material Group		GH2			KC522M			KCPK30			KCPM40			KCSM40		
P	1	–	–	–	315	**270**	260	435	**380**	355	285	**250**	235	–	–	–
	2	–	–	–	265	**230**	190	270	**245**	220	240	**210**	170	–	–	–
	3	–	–	–	245	**210**	170	245	**220**	195	220	**190**	150	–	–	–
	4	–	–	–	215	**175**	145	185	**170**	150	195	**165**	130	–	–	–
	5	–	–	–	175	**165**	145	250	**220**	200	165	**150**	130	165	**140**	115
	6	–	–	–	160	**120**	95	150	**130**	–	145	**110**	90	145	**105**	75
M	1	–	–	–	195	**170**	160	195	**175**	150	190	**165**	150	200	**165**	135
	2	–	–	–	175	**150**	125	175	**150**	135	170	**145**	120	170	**140**	115
	3	–	–	–	135	**115**	90	140	**125**	110	125	**110**	90	140	**105**	80
K	1	240	**175**	115	220	**195**	175	285	**255**	230	–	–	–	–	–	–
	2	210	**150**	100	170	**150**	145	225	**200**	185	–	–	–	–	–	–
	3	175	**140**	95	145	**130**	115	190	**170**	150	–	–	–	–	–	–
N	1	1150	**910**	385	–	–	–	–	–	–	–	–	–	–	–	–
	2	1150	**910**	385	–	–	–	–	–	–	–	–	–	–	–	–
	3	850	**700**	285	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	40	**30**	25	–	–	–	40	**30**	30	40	**30**	25
	2	–	–	–	40	**30**	25	–	–	–	40	**30**	30	40	**30**	25
	3	–	–	–	50	**40**	25	–	–	–	50	**40**	30	50	**40**	25
	4	–	–	–	70	**50**	30	65	**50**	30	65	**50**	30	55	**50**	30
H	1	–	–	–	115	**90**	70	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

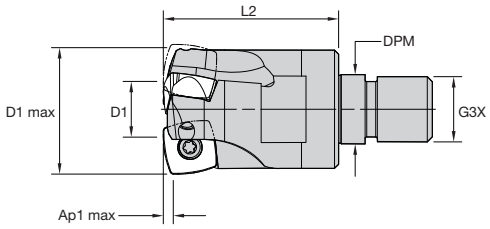
Material Group		SC3025			SC6525			SP6519			X400			X500		
P	1	355	**245**	135	445	**305**	170	285	**210**	125	250	**185**	115	260	**190**	125
	2	310	**215**	115	390	**270**	145	250	**185**	110	220	**165**	100	230	**170**	110
	3	280	**190**	100	350	**240**	125	220	**160**	95	190	**145**	90	200	**150**	95
	4	200	**140**	75	250	**175**	95	170	**120**	70	145	**105**	70	150	**115**	70
	5	150	**115**	75	190	**145**	95	135	**100**	70	–	–	–	125	**95**	70
	6	135	**95**	55	170	**120**	70	115	**80**	50	–	–	–	105	**75**	50
M	1	190	**170**	135	240	**215**	170	260	**190**	110	–	–	–	240	**175**	110
	2	185	**150**	115	230	**190**	145	225	**165**	100	–	–	–	210	**150**	95
	3	140	**125**	90	175	**155**	110	190	**135**	80	–	–	–	170	**125**	75
K	1	375	**260**	140	470	**325**	175	285	**210**	135	–	–	–	250	**210**	165
	2	290	**200**	110	365	**250**	140	230	**170**	105	–	–	–	210	**170**	125
	3	–	–	–	–	–	–	210	**150**	95	–	–	–	165	**135**	95
N	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	50	**40**	25	–	–	–	50	**30**	25
	2	–	–	–	–	–	–	50	**30**	20	–	–	–	45	**30**	20
	3	–	–	–	–	–	–	50	**40**	25	–	–	–	50	**40**	25
	4	–	–	–	–	–	–	75	**55**	35	–	–	–	70	**50**	30
H	1	–	–	–	–	–	–	–	–	–	90	**70**	45	–	–	–
	2	–	–	–	–	–	–	–	–	–	75	**55**	30	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

- Ultra-fine pitch cutters available to increase material removal rates, especially on high-temp alloys.
- Positive design to support lower cutting forces and long overhang usage.
- Ramping and plunge milling capabilities.
- Screw-on cutters provide better rigidity and stability when used with small spindles: BT30, BT40, DV40, HSK50, HSK63, etc.
- Screw-on cutters can be less expensive when compared to cylindrical shank cutters due to their higher flexibility through multiple holder combinations.



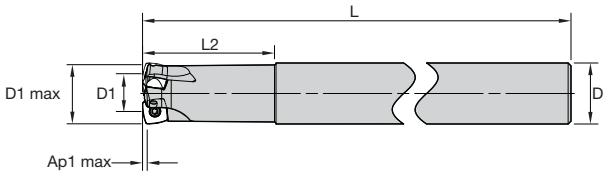
7792VXD12 Modular Head • Screw-On

order number	catalogue number	D1 max	D1	L2	G3X	DPM	Ap1 max	Z U
5659132	7792VXD12SA032Z2R43	32	11	43	M16	17,00	2,50	2
6025280	7792VXD12SA032Z3R43	32	14	43	M16	17,00	2,50	3
6025561	7792VXD12SA035Z3R43	35	17	43	M16	17,00	2,50	3
6025562	7792VXD12SA042Z4R43	42	24	43	M16	17,00	2,50	4

Spare Parts

catalogue number	insert screw	Nm	Torx driver
7792VXD12SA032Z2R43	D4010T	3,1	T15
7792VXD12SA032Z3R43	D4010T	3,1	T15
7792VXD12SA035Z3R43	D4010T	3,1	T15
7792VXD12SA042Z4R43	D4010T	3,1	T15

- Ultra-fine pitch cutters available to increase material removal rates, especially on high-temp alloys.
- Positive design to support lower cutting forces and long overhang usage.
- Ramping and plunge milling capabilities.



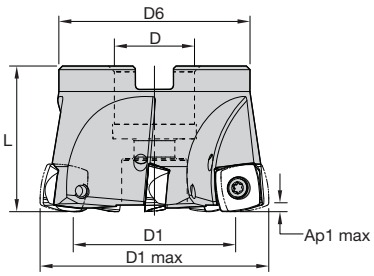
7792VXD12 Cylindrical Shank

order number	catalogue number	D1 max	D	D1	L	L2	Ap1 max	Z U
5661017	**7792VXD12CA032Z2R70**	32	32	11	250	70	2,50	2
6025563	**7792VXD12CA032Z3R70**	32	32	14	250	70	2,50	3

Spare Parts

catalogue number	insert screw	Nm	Torx driver
7792VXD12CA032Z2R70	**D4010T**	3,1	**T15**
7792VXD12CA032Z3R70	**D4010T**	3,1	**T15**

- Ultra-fine pitch cutters available to increase material removal rates, especially on high-temp alloys.
- Positive design to support lower cutting forces and long overhang usage.
- Ramping and plunge milling capabilities.



7792VXD12 Shell Mill • Coarse, Medium, and Fine Pitch

order number	catalogue number	D1 max	D	D1	D6	L	Ap1 max	Z U
6025272	7792VXD12-A040Z4R	40	22	22	38	40	2,50	4
5673504	7792VXD12-A050Z4R	50	22	32	48	40	2,50	4
6025273	7792VXD12-A050Z6R	50	22	32	45	40	2,50	6
5656728	7792VXD12-A052Z3R	52	22	34	48	40	2,50	3
5666187	7792VXD12-A052Z4R	52	22	34	48	40	2,50	4
5656383	7792VXD12-A052Z5R	52	22	34	48	40	2,50	5
6025274	7792VXD12-A052Z6R	52	22	34	45	40	2,50	6
5656729	7792VXD12-A063Z4R	63	22	45	53	40	2,50	4
5657235	7792VXD12-A063Z5R	63	22	45	53	40	2,50	5
6025275	7792VXD12-A063Z7R	63	22	45	45	40	2,50	7
5660065	7792VXD12-A066Z5R	66	27	48	58	45	2,50	5
6025276	7792VXD12-A066Z7R	66	27	48	50	45	2,50	7
5656730	7792VXD12-A080Z5R	80	27	62	55	50	2,50	5
5667478	7792VXD12-A080Z8R	80	27	62	55	50	2,50	8
6025277	7792VXD12-A080Z10R	80	27	62	55	50	2,50	10
5667834	7792VXD12-A100Z6R	100	32	82	82	50	2,50	6
5666144	7792VXD12-A100Z9R	100	32	82	82	50	2,50	9
6025278	7792VXD12-A100Z11R	100	32	82	68	50	2,50	11
5656380	7792VXD12-A125Z8R	125	40	107	82	63	2,50	8
5665943	7792VXD12-A125Z11R	125	40	107	82	63	2,50	11
5659130	7792VXD12-160Z7R	160	40	142	110	63	2,50	7

(continued)

NOTE: No through coolant for cutters where D1 max = 160mm.

(continued)

Spare Parts

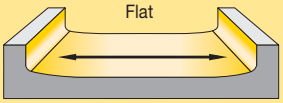
catalogue number	 insert screw	 Nm	 Torx driver	 mounting screw	 mounting screw
7792VXD12-A040Z4R	D4010T	3,1	T15	–	KLSSM22-39-CG
7792VXD12-A050Z4R	D4012T	3,1	T15	M10 1.5 X 25 SHCS	–
7792VXD12-A050Z6R	D4010T	3,1	TB15	M10 1.5 X 25 SHCS	–
7792VXD12-A052Z3R	D4012T	3,1	T15	M10 1.5 X 25 SHCS	–
7792VXD12-A052Z4R	D4012T	3,1	T15	M10 1.5 X 25 SHCS	–
7792VXD12-A052Z5R	D4010T	3,1	T15	M10 1.5 X 25 SHCS	–
7792VXD12-A052Z6R	D4010T	3,1	TB15	M10 1.5 X 25 SHCS	–
7792VXD12-A063Z4R	D4012T	3,1	T15	M10 1.5 X 25 SHCS	–
7792VXD12-A063Z5R	D4012T	3,1	T15	M10 1.5 X 25 SHCS	–
7792VXD12-A063Z7R	D4010T	3,1	TB15	M10 1.5 X 25 SHCS	–
7792VXD12-A066Z5R	D4012T	3,1	T15	M12 X 1.75 X 30 SHCS	–
7792VXD12-A066Z7R	D4010T	3,1	TB15	M12 X 1.75 X 30 SHCS	–
7792VXD12-A080Z5R	D4012T	3,1	T15	M12 X 1.75 X 30 SHCS	–
7792VXD12-A080Z8R	D4012T	3,1	T15	M12 X 1.75 X 30 SHCS	–
7792VXD12-A080Z10R	D4010T	3,1	TB15	M12 X 1.75 X 30 SHCS	–
7792VXD12-A100Z6R	D4012T	3,1	T15	M16 X 2 X 40 SHCS	–
7792VXD12-A100Z9R	D4012T	3,1	T15	M16 X 2 X 40 SHCS	–
7792VXD12-A100Z11R	D4010T	3,1	TB15	M16 X 2 X 40 SHCS	–
7792VXD12-A125Z8R	D4012T	3,1	T15	M20 X 2.5 X 50 SHCS	–
7792VXD12-A125Z11R	D4012T	3,1	T15	M20 X 2.5 X 50 SHCS	–
7792VXD12-160Z7R	D4012T	3,1	T15	–	–

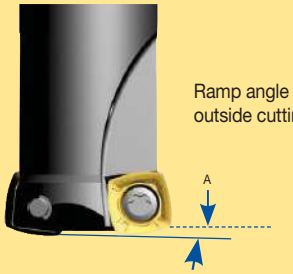
Technical Information (mm)

order number	catalogue number	dimension						max RPM
		facing pitch	ramping angle	helical hole min–max		ap max helical/ linear	a_e max plunging	
5661017	7792VXD12CA032Z2R70	10,60	1,8	42	62	1,80	9,00	31500
6025563	7792VXD12CA032Z3R70	10,6	1,8	42	62	1,80	9,00	31500
6025272	7792VXD12-A040Z4R	21,6	1,4	58	78	1,80	9,00	26500
5673504	7792VXD12-A050Z4R	31,6	0,9	78	98	1,80	9,00	22500
6025273	7792VXD12-A050Z6R	31,6	0,9	78	98	1,80	9,00	22500
5656728	7792VXD12-A052Z3R	33,60	0,8	82	102	1,80	9,00	22000
5666187	7792VXD12-A052Z4R	33,60	0,8	82	102	1,80	9,00	22000
5656383	7792VXD12-A052Z5R	33,60	0,8	82	102	1,80	9,00	22000
6025274	7792VXD12-A052Z6R	33,6	0,8	82	102	1,80	9,00	22000
5656729	7792VXD12-A063Z4R	44,60	0,6	104	124	1,80	9,00	19500
5657235	7792VXD12-A063Z5R	44,60	0,6	104	124	1,80	9,00	19500
6025275	7792VXD12-A063Z7R	44,6	0,6	104	124	1,80	9,00	19500
5660065	7792VXD12-A066Z5R	47,60	0,5	110	130	1,80	9,00	19000
6025276	7792VXD12-A066Z7R	47,6	0,5	110	130	1,80	9,00	19000
5656730	7792VXD12-A080Z5R	61,60	0,5	138	158	1,80	9,00	17000
5667478	7792VXD12-A080Z8R	61,60	0,5	138	158	1,80	9,00	17000
6025277	7792VXD12-A080Z10R	61,6	0,5	138	158	1,80	9,00	17000
5667834	7792VXD12-A100Z6R	81,60	0,3	178	198	1,80	9,00	15000
5666144	7792VXD12-A100Z9R	81,60	0,3	178	198	1,80	9,00	15000
6025278	7792VXD12-A100Z11R	81,6	0,3	178	198	1,80	9,00	15000
5656380	7792VXD12-A125Z8R	106,60	0,2	228	248	1,80	9,00	13000
5665943	7792VXD12-A125Z11R	106,60	0,2	228	248	1,80	9,00	13000
5659130	7792VXD12-160Z7R	141,6	0,2	298	318	1,80	9,00	11500
5659132	7792VXD12SA032Z2R43	10,60	1,8	42	62	1,80	9,00	31500
6025280	7792VXD12SA032Z3R43	10,6	1,8	42	62	1,80	9,0	31500
6025561	7792VXD12SA035Z3R43	16,6	1,8	48	68	1,80	9,0	29000
6025562	7792VXD12SA042Z4R43	23,6	1,3	62	82	1,80	9,0	25500


Helical Interpolation


Plunging





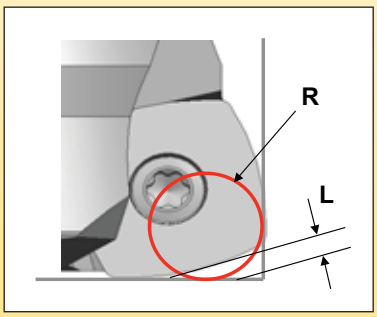
Ramp angle A uses one outside cutting edge only.

A = max ramp angle utilising full face contact.

CNC Programme • Corner Radius Definition

The use of common CAD/CAM systems requires a round insert dimension to be known for cavity machining.
This is available with 7792VX cutters as shown below and in the reference table.

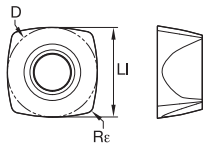
For finish pass applications:
Wiper Facet for finishing use max feed 0,5 mm/z



Programming Data (mm)			
Insert corner nose size (IC)	R_ε	R	L
06	0,80	1,37	0,40
09	0,80	2,01	0,73
	1,20	2,27	0,67
12	0,80	2,50	1,02
	1,20	2,73	0,97

✦✦ first choice with coolant
✧✧ first choice without coolant
✦ alternate choice with coolant
✧ alternate choice without coolant

P1–P2					✧/✦		✧✧	✦✦		
P3–P4		✧/✦	✧	✧			✧✧	✦✦		
P5–P6		✧/✦		✧			✧	✦✦	✧✧	✧/✦
M1–M2					✦✦			✧✧		✦
M3					✦			✦		✦✦
K1–K2						✧✧	✧	✦✦		
K3		✧/✦	✧			✧✧	✧	✦✦		
N1	✦✦									
N2	✦✦									
S1					✦			✦		✦✦
S2					✦			✦		✦✦
S3					✦✦			✦		✦
S4					✦✦			✦		✦



ISO catalogue number	D	LI	Rε	GH2	KC522M	KCPK30	KCPM40	KCSM40	SC3025	SC6525	SP6519	X400	X500
Light Machining													
XDPT120512ERD411	12,70	12,70	1,2	–	–	–	–	6187808	–	–	–	–	–
General Machining													
XDLT120508ERD41	12,70	12,70	0,8	–	–	–	–	6441067	–	5652729	5654220	–	5653930
XDLT120508ERD721	12,70	12,70	0,8	5656252	–	–	–	–	–	–	–	–	–
XDPT120508ERD41	12,70	12,70	0,8	–	–	–	–	6187806	–	6010774	6010773	–	6010772
XDLT120512ERD411	12,70	12,70	1,2	–	–	–	–	6441068	–	–	5652899	–	5652248
XDPT120515SRGP	12,70	12,70	1,5	–	6074030	6074028	6074027	–	–	–	–	–	–
Heavy Machining													
XDLW120508SRD	12,70	12,70	0,8	–	–	–	–	–	5656214	–	–	5651223	5655109
XDPW120515SRD	12,70	12,70	1,5	–	6033256	6033255	6033254	–	–	–	–	–	–

XDL…: Ground inserts; high versatility for machining soft materials and difficult-to-machine stainless steels and high-temp alloys.
XDP…: Pressed; lower cost per edge for most roughing to semi-finishing operations.

.E..D721: First choice for non-ferrous alloys.
.E.D41: General purpose in soft steels. Best fit for face milling and slotting operations.
.E.D411: General purpose in stainless steel and high-temp alloys. Best fit for pocketing and profiling operations in general, also in combination with long overhangs.
.S..D: First choice for roughing alloyed steel and cast iron.
.S.GP: General use on alloyed steels. Good balance across all machining situations.

Recommended Starting Feeds [mm] • High-Feed

Light Machining	General Purpose	Heavy Machining

At 2,50 Axial Depth of Cut (ap)

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.E..D721	0,28	**1,02**	1,65	0,21	**0,73**	1,18	0,15	**0,55**	0,88	0,13	**0,48**	0,76	0,12	**0,44**	0,70	.E..D721
.E..D41	0,36	**1,15**	1,81	0,26	**0,83**	1,29	0,19	**0,62**	0,96	0,17	**0,54**	0,83	0,15	**0,49**	0,76	.E..D41
.E..D411	0,36	**1,15**	1,81	0,26	**0,83**	1,29	0,19	**0,62**	0,96	0,17	**0,54**	0,83	0,15	**0,49**	0,76	.E..D411
.S..GP	0,51	**1,30**	1,99	0,37	**0,93**	1,41	0,28	**0,70**	1,05	0,24	**0,61**	0,91	0,22	**0,55**	0,83	.S..GP
.S..D	0,51	**1,30**	1,95	0,37	**0,93**	1,38	0,28	**0,70**	1,03	0,24	**0,61**	0,89	0,22	**0,55**	0,82	.S..D

At 1,70 Axial Depth of Cut (ap)

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.E..D721	0,34	**1,23**	2,00	0,25	**0,88**	1,42	0,19	**0,66**	1,05	0,16	**0,57**	0,92	0,15	**0,52**	0,84	.E..D721
.E..D41	0,43	**1,39**	2,20	0,31	**0,99**	1,56	0,23	**0,74**	1,15	0,20	**0,64**	1,00	0,19	**0,59**	0,92	.E..D41
.E..D411	0,43	**1,39**	2,20	0,31	**0,99**	1,56	0,23	**0,74**	1,15	0,20	**0,64**	1,00	0,19	**0,59**	0,92	.E..D411
.S..GP	0,62	**1,57**	2,41	0,45	**1,12**	1,70	0,33	**0,84**	1,26	0,29	**0,73**	1,10	0,27	**0,67**	1,00	.S..GP
.S..D	0,62	**1,57**	2,36	0,45	**1,12**	1,67	0,33	**0,84**	1,24	0,29	**0,73**	1,08	0,27	**0,67**	0,98	.S..D

At 1,30 Axial Depth of Cut (ap)

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.E..D721	0,39	**1,41**	2,29	0,28	**1,01**	1,62	0,21	**0,75**	1,20	0,18	**0,65**	1,04	0,17	**0,60**	0,96	.E..D721
.E..D41	0,49	**1,59**	2,52	0,35	**1,13**	1,78	0,26	**0,84**	1,31	0,23	**0,73**	1,14	0,21	**0,67**	1,04	.E..D41
.E..D411	0,49	**1,59**	2,52	0,35	**1,13**	1,78	0,26	**0,84**	1,31	0,23	**0,73**	1,14	0,21	**0,67**	1,04	.E..D411
.S..GP	0,70	**1,80**	2,76	0,51	**1,28**	1,94	0,38	**0,95**	1,44	0,33	**0,83**	1,25	0,30	**0,76**	1,14	.S..GP
.S..D	0,70	**1,80**	2,71	0,51	**1,28**	1,90	0,38	**0,95**	1,41	0,33	**0,83**	1,22	0,30	**0,76**	1,12	.S..D

Feed Rate Guide • Plunging • IC 12 • fz [mm/tooth]

Insert Geometry	Programmed Feed per Tooth (fz) Max 9mm insert engagement (ae radial engagement)			Insert Geometry
.E..D721	0,06	**0,20**	0,32	.E..D721
.E..D41	0,07	**0,23**	0,35	.E..D41
.E..D411	0,07	**0,23**	0,35	.E..D411
.S..GP	0,10	**0,25**	0,38	.S..GP
.S..D	0,10	**0,25**	0,38	.S..D

Material Group		GH2			KC522M			KCPK30			KCPM40			KCSM40		
P	1	–	–	–	395	**340**	325	545	**475**	445	355	**310**	295	275	**240**	205
	2	–	–	–	330	**290**	240	335	**305**	275	300	**260**	215	240	**205**	160
	3	–	–	–	305	**260**	210	305	**275**	245	275	**235**	190	205	**180**	160
	4	–	–	–	270	**220**	180	230	**210**	190	245	**205**	160	180	**160**	145
	5	–	–	–	220	**205**	180	310	**275**	250	205	**185**	160	160	**145**	125
	6	–	–	–	200	**150**	120	190	**160**	145	180	**140**	110	125	**110**	90
M	1	–	–	–	245	**215**	200	245	**220**	185	235	**205**	185	275	**220**	180
	2	–	–	–	220	**190**	155	220	**190**	170	210	**180**	150	180	**145**	125
	3	–	–	–	170	**145**	115	175	**155**	140	155	**140**	110	145	**125**	110
K	1	300	**220**	145	275	**245**	220	355	**320**	290	–	–	–	–	–	–
	2	260	**190**	125	215	**190**	180	280	**250**	230	–	–	–	–	–	–
	3	220	**175**	120	180	**160**	145	235	**210**	190	–	–	–	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
H	1	–	–	–	145	**110**	85	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Material Group		SC3025			SC6525			SP6519			X400			X500		
P	1	–	–	–	445	**305**	170	355	**260**	155	310	**230**	145	325	**240**	155
	2	–	–	–	390	**270**	145	310	**230**	140	275	**205**	125	290	**215**	140
	3	–	–	–	350	**240**	125	275	**200**	120	240	**180**	115	250	**185**	120
	4	–	–	–	250	**175**	95	210	**150**	90	180	**130**	85	190	**145**	90
	5	–	–	–	190	**145**	95	170	**125**	85	–	–	–	155	**120**	85
	6	–	–	–	170	**120**	70	145	**100**	60	–	–	–	130	**95**	60
M	1	–	–	–	240	**215**	170	325	**235**	140	–	–	–	300	**220**	140
	2	–	–	–	230	**190**	145	280	**205**	125	–	–	–	265	**190**	120
	3	–	–	–	175	**155**	110	235	**170**	100	–	–	–	215	**155**	95
K	1	475	**330**	180	470	**325**	175	355	**265**	170	–	–	–	310	**265**	205
	2	400	**275**	145	365	**250**	140	290	**210**	130	–	–	–	265	**215**	155
	3	330	**230**	125	–	–	–	265	**190**	120	–	–	–	205	**170**	120
N	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
H	1	–	–	–	–	–	–	–	–	–	115	**85**	55	–	–	–
	2	–	–	–	–	–	–	–	–	–	95	**70**	40	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

Material Group		GH2			KC522M			KCPK30			KCPM40			KCSM40		
P	1	–	**–**	–	315	**270**	260	435	**380**	355	285	**250**	235	–	**–**	–
	2	–	**–**	–	265	**230**	190	270	**245**	220	240	**210**	170	–	**–**	–
	3	–	**–**	–	245	**210**	170	245	**220**	195	220	**190**	150	–	**–**	–
	4	–	**–**	–	215	**175**	145	185	**170**	150	195	**165**	130	–	**–**	–
	5	–	**–**	–	175	**165**	145	250	**220**	200	165	**150**	130	165	**140**	115
	6	–	**–**	–	160	**120**	95	150	**130**	120	145	**110**	90	145	**105**	75
M	1	–	**–**	–	195	**170**	160	195	**175**	150	190	**165**	150	200	**165**	135
	2	–	**–**	–	175	**150**	125	175	**150**	135	170	**145**	120	170	**140**	115
	3	–	**–**	–	135	**115**	90	140	**125**	110	125	**110**	90	140	**105**	80
K	1	240	**175**	115	220	**195**	175	285	**255**	230	–	**–**	–	–	**–**	–
	2	210	**150**	100	170	**150**	145	225	**200**	185	–	**–**	–	–	**–**	–
	3	175	**140**	95	145	**130**	115	190	**170**	150	–	**–**	–	–	**–**	–
N	1	1150	**910**	385	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	1150	**910**	385	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	850	**700**	285	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
S	1	–	**–**	–	40	**30**	25	–	**–**	–	40	**30**	30	40	**30**	25
	2	–	**–**	–	40	**30**	25	–	**–**	–	40	**30**	30	40	**30**	25
	3	–	**–**	–	50	**40**	25	–	**–**	–	50	**40**	30	50	**40**	25
	4	–	**–**	–	70	**50**	30	65	**50**	30	65	**50**	30	55	**50**	30
H	1	–	**–**	–	115	**90**	70	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–

Material Group		SC3025			SC6525			SP6519			X400			X500		
P	1	355	**245**	135	445	**305**	170	285	**210**	125	250	**185**	115	260	**190**	125
	2	310	**215**	115	390	**270**	145	250	**185**	110	220	**165**	100	230	**170**	110
	3	280	**190**	100	350	**240**	125	220	**160**	95	190	**145**	90	200	**150**	95
	4	200	**140**	75	250	**175**	95	170	**120**	70	145	**105**	70	150	**115**	70
	5	150	**115**	75	190	**145**	95	135	**100**	70	–	**–**	–	125	**95**	70
	6	135	**95**	55	170	**120**	70	115	**80**	50	–	**–**	–	105	**75**	50
M	1	190	**170**	135	240	**215**	170	260	**190**	110	–	**–**	–	240	**175**	110
	2	185	**150**	115	230	**190**	145	225	**165**	100	–	**–**	–	210	**150**	95
	3	140	**125**	90	175	**155**	110	190	**135**	80	–	**–**	–	170	**125**	75
K	1	375	**260**	140	470	**325**	175	285	**210**	135	–	**–**	–	250	**210**	165
	2	290	**200**	110	365	**250**	140	230	**170**	105	–	**–**	–	210	**170**	125
	3	–	**–**	–	–	**–**	–	210	**150**	95	–	**–**	–	165	**135**	95
N	1	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
S	1	–	**–**	–	–	**–**	–	50	**40**	25	–	**–**	–	50	**30**	25
	2	–	**–**	–	–	**–**	–	50	**30**	20	–	**–**	–	45	**30**	20
	3	–	**–**	–	–	**–**	–	50	**40**	25	–	**–**	–	50	**40**	25
	4	–	**–**	–	–	**–**	–	75	**55**	35	–	**–**	–	70	**50**	30
H	1	–	**–**	–	–	**–**	–	–	**–**	–	90	**70**	45	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	75	**55**	30	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

Dodeka™ 15° High-Feed

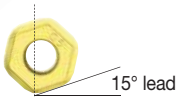
Primary Application

- Double-sided inserts with twelve cutting edges.
- Engineered to provide you with superior MRR and productivity through high feed rates for roughing operations.
- Equipped with standard Dodeka inserts.

Features and Benefits

Dodeka 15° Series — Most comprehensive high-feed milling platform. Provides excellent cost per cutting edge. Equipped with standard Dodeka inserts.

Dodeka Mini High-Feed 15°
Dodeka High-Feed 15°



12 True Cutting Edges

Dodeka Mini	**Ap1 max = 1,6mm**
Dodeka	**Ap1 max = 2,2mm**

Dodeka Mini HF and Dodeka HF can be loaded with all Dodeka Mini standard inserts, except wiper inserts.

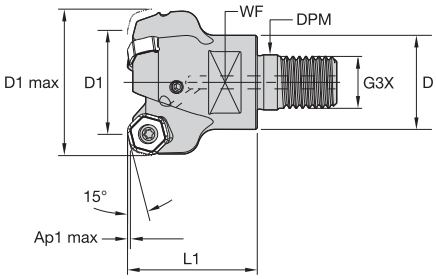
Dodeka Mini High-Feed

First choice for long reach face milling applications or light fixtures.

Chip thinning effect due to lead angle 14,5°. Tremendous enlargement of feed rate and metal removal rate (MRR).

Up to 40% shorter machining cycle time versus conventional milling.

- Twelve cutting edges per insert.
- High-feed capability.



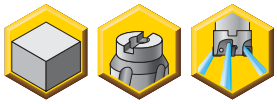
Dodeka Mini High-Feed 15° • Screw-On End Mills

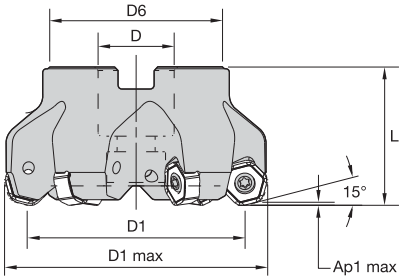
order number	catalogue number	D1	D1 max	D	DPM	G3X	L1	WF	Ap1 max	Z	kg	max RPM
4153687	**KSHRHF025D03M16HN06**	25	38,2	29	17,0	M16	32,0	22	1,6	3	0,16	20000

Spare Parts

D1	 insert screw	 Nm	 wrench
25	**193.492**	3,5	**170.025**

- Twelve cutting edges per insert.
- High-feed capability.





Dodeka Mini High-Feed 15° • Shell Mills

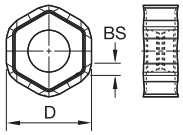
order number	catalogue number	D1	D1 max	D	D6	L	Ap1 max	Z	kg	max RPM
4153706	**KSHRHF040A05RS15HN06**	40	53,2	22	38	40	1,6	5	0,29	15800
4153707	**KSHRHF050A05RS15HN06**	50	63,1	22	38	40	1,6	5	0,39	12700
4153708	**KSHRHF063A06RS15HN06**	63	76,1	22	50	40	1,6	6	0,67	10100
4153709	**KSHRHF080A08RS15HN06**	80	93,1	27	60	50	1,6	8	1,26	7900

Spare Parts

D1	insert screw	Nm	wrench	socket-head cap screw
40	**193.492**	3,5	**170.025**	**125.025**
50	**193.492**	3,5	**170.025**	**125.025**
63	**193.492**	3,5	**170.025**	**125.025**
80	**193.492**	3,5	**170.025**	**125.230**

✦✦ first choice with coolant
✧✧ first choice without coolant
✦ alternate choice with coolant
✧ alternate choice without coolant

P1–P2				✧/✦	✦✦		✧✧		
P3–P4				✧/✦	✦✦		✧	✧✧	
P5–P6				✧/✦	✦✦		✧	✧✧	
M1–M2				✧/✦	✦			✦	✦✦
M3				✧/✦	✦				✦✦
K1–K2		✧	✦✦			✧✧			
K3		✧	✦✦				✧✧		
N1	✦✦								
N2	✦✦								
S1					✦				✦✦
S2					✦				✦✦
S3				✦	✦				✦✦
S4				✦	✦				✦✦



	ISO catalogue number	D	BS	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
	Light Machining											
	**HNGJ0604ANENLD**	12	1,54	–	4121576	–	4121578	–	4119227	4119190	5550701	6165862
	HNGJ0604ANFNLDJ	12	1,54	4121575	–	–	–	–	–	–	–	–
	General Machining											
	**HNPJ0604ANSNGD**	12	1,45	–	–	4119696	4119697	4119701	4119699	4119700	5550703	6165759
	Heavy Machining											
	**HNGJ0604ANSNHD**	12	1,45	–	–	–	–	–	6039660	6039812	6039659	6165864
	HNPJ0604ANSNHD	12	1,45	–	–	–	4119703	4119229	–	4119228	5550702	6165760
	HNPJ060432ANSNHD	12	–	–	–	–	–	–	–	–	6068798	6165861

Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40%–100%			
.F..LDJ	0,45	**1,27**	2,22	0,33	**0,91**	1,57	0,25	**0,68**	1,17	0,21	**0,59**	1,01	0,20	**0,54**	0,93	.F..LDJ
.E..LD	0,51	**1,65**	2,81	0,37	**1,17**	1,97	0,27	**0,87**	1,46	0,24	**0,76**	1,27	0,22	**0,70**	1,16	.E..LD
.S..GD	0,92	**2,22**	3,41	0,66	**1,57**	2,38	0,49	**1,17**	1,75	0,43	**1,01**	1,52	0,39	**0,93**	1,39	.S..GD
.S..HD	0,92	**2,35**	3,89	0,66	**1,67**	2,70	0,49	**1,23**	1,98	0,43	**1,07**	1,72	0,39	**0,98**	1,57	.S..HD

HNG….: Ground inserts; high versatility for all medium applications and difficult-to-machine stainless steels and high-temp alloys.
HNP….: Pressed inserts; lower cost per edge for roughing operations with high feed rates.

Material Group		KC410M*			KC510M			KC520M			KC522M			KC725M		
P	1	–	–	–	–	–	–	–	–	–	395	**340**	325	310	**275**	260
	2	–	–	–	–	–	–	–	–	–	330	**290**	240	265	**230**	190
	3	–	–	–	–	–	–	–	–	–	305	**260**	210	240	**205**	170
	4	–	–	–	295	**240**	205	–	–	–	270	**220**	180	215	**180**	145
	5	–	–	–	–	–	–	–	–	–	220	**205**	180	180	**160**	145
	6	–	–	–	–	–	–	–	–	–	200	**150**	120	155	**120**	95
M	1	–	–	–	–	–	–	–	–	–	245	**215**	200	205	**180**	160
	2	–	–	–	–	–	–	–	–	–	220	**190**	155	185	**155**	130
	3	–	–	–	–	–	–	–	–	–	170	**145**	115	140	**120**	95
K	1	–	–	–	355	**320**	290	325	**295**	260	275	**245**	220	–	–	–
	2	–	–	–	275	**245**	230	250	**230**	210	215	**190**	180	–	–	–
	3	–	–	–	235	**210**	190	210	**190**	175	180	**160**	145	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
H	1	–	–	–	190	**155**	110	–	–	–	145	**110**	85	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Material Group		KCK15			KCPK30			KCPM40			KCSM40		
P	1	–	–	–	545	**475**	445	355	**310**	295	275	**240**	205
	2	–	–	–	335	**305**	275	300	**260**	215	240	**205**	160
	3	–	–	–	305	**275**	245	275	**235**	190	205	**180**	160
	4	–	–	–	230	**210**	190	245	**205**	160	180	**160**	145
	5	–	–	–	310	**275**	250	205	**185**	160	160	**145**	125
	6	–	–	–	190	**160**	145	180	**140**	110	125	**110**	90
M	1	–	–	–	245	**220**	185	235	**205**	185	275	**220**	180
	2	–	–	–	220	**190**	170	210	**180**	150	180	**145**	125
	3	–	–	–	175	**155**	140	155	**140**	110	145	**125**	110
K	1	505	**460**	410	355	**320**	290	–	–	–	–	–	–
	2	400	**355**	330	280	**250**	230	–	–	–	–	–	–
	3	335	**300**	275	235	**210**	190	–	–	–	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–
H	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–

*Recommended for wet machining only.

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

Material Group		KC410M			KC510M			KC520M			KC522M			KC725M		
P	1	–	–	–	–	–	–	–	–	–	315	**270**	260	250	**220**	210
	2	–	–	–	–	–	–	–	–	–	265	**230**	190	210	**185**	150
	3	–	–	–	–	–	–	–	–	–	245	**210**	170	190	**165**	135
	4	–	–	–	235	**190**	165	–	–	–	215	**175**	145	170	**145**	115
	5	–	–	–	–	–	–	–	–	–	175	**165**	145	145	**130**	115
	6	–	–	–	–	–	–	–	–	–	160	**120**	95	125	**95**	75
M	1	–	–	–	–	–	–	–	–	–	195	**170**	160	165	**145**	130
	2	–	–	–	–	–	–	–	–	–	175	**150**	125	150	**125**	105
	3	–	–	–	–	–	–	–	–	–	135	**115**	90	110	**95**	75
K	1	–	–	–	285	**255**	230	260	**235**	210	220	**195**	175	–	–	–
	2	–	–	–	220	**195**	185	200	**185**	170	170	**150**	145	–	–	–
	3	–	–	–	190	**170**	150	170	**150**	140	145	**130**	115	–	–	–
N	1	1170	**1035**	955	615	**550**	505	–	–	–	–	–	–	–	–	–
	2	1035	**955**	880	555	**510**	470	–	–	–	–	–	–	–	–	–
	3	1035	**955**	880	555	**510**	470	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	40	**30**	25	30	**30**	25
	2	–	–	–	–	–	–	–	–	–	40	**30**	25	30	**30**	25
	3	–	–	–	–	–	–	–	–	–	50	**40**	25	45	**30**	25
	4	–	–	–	–	–	–	–	–	–	70	**50**	30	50	**45**	30
H	1	–	–	–	150	**125**	90	–	–	–	115	**90**	70	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

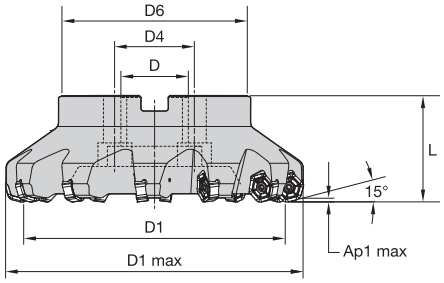
Material Group		KCK15			KCPK30			KCPM40			KCSM40		
P	1	–	–	–	435	**380**	355	285	**250**	235	–	–	–
	2	–	–	–	270	**245**	220	240	**210**	170	–	–	–
	3	–	–	–	245	**220**	195	220	**190**	150	–	–	–
	4	–	–	–	185	**170**	150	195	**165**	130	–	–	–
	5	–	–	–	250	**220**	200	165	**150**	130	165	**140**	115
	6	–	–	–	150	**130**	120	145	**110**	90	145	**105**	75
M	1	–	–	–	195	**175**	150	190	**165**	150	200	**165**	135
	2	–	–	–	175	**150**	135	170	**145**	120	170	**140**	115
	3	–	–	–	140	**125**	110	125	**110**	90	140	**105**	80
K	1	405	**370**	330	285	**255**	230	–	–	–	–	–	–
	2	320	**285**	265	225	**200**	185	–	–	–	–	–	–
	3	270	**240**	220	190	**170**	150	–	–	–	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	40	**30**	30	40	**30**	25
	2	–	–	–	–	–	–	40	**30**	30	40	**30**	25
	3	–	–	–	–	–	–	50	**40**	30	50	**40**	25
	4	–	–	–	65	**50**	30	65	**50**	30	55	**50**	30
H	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

- High feed rates for rough face milling.
- 2mm depth-of-cut capability.
- Twelve cutting edges per insert.



Dodeka High-Feed 15° • Shell Mills

order number	catalogue number	D1	D1 max	D	D4	D6	L	Ap1 max	Z	kg	max RPM
4042533	**KSHRHF63A05RS15HN09**	63	80,9	22	–	50	40	2,2	5	0,65	8950
4042534	**KSHRHF80A06RS15HN09**	80	97,9	27	–	60	50	2,2	6	1,24	7300
4042535	**KSHRHF100B08RS15HN09**	100	117,9	32	–	80	50	2,2	8	1,89	5900
4042536	**KSHRHF125B09RS15HN09**	125	142,9	40	–	90	63	2,2	9	3,23	4800

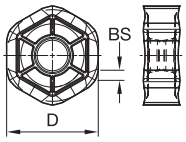
Spare Parts

D1	insert screw	Nm	wrench	socket-head cap screw	coolant lock screw assembly	coolant lock screw	coolant shower plate
63	**193.492**	3,5	**170.025**	**125.025**	–	–	–
80	**193.492**	3,5	**170.025**	**125.230**	–	–	–
100	**193.492**	3,5	**170.025**	–	**MS2189C**	–	–
125	**193.492**	3,5	**170.025**	–	–	**420.200**	**470.232**

NOTE: Coolant lock screw assembly and coolant cap must be ordered separately.

✦✦ first choice with coolant
✧✧ first choice without coolant
✦ alternate choice with coolant
✧ alternate choice without coolant

P1–P2			✧/✦	✦✦		✧✧		
P3–P4			✧/✦	✦✦		✧	✧✧	
P5–P6			✧/✦	✦✦		✧	✧✧	
M1–M2			✧/✦	✦			✦	✦✦
M3			✧/✦	✦				✦✦
K1–K2		✦✦			✧✧			
K3		✦✦				✧✧		
N1	✦✦							
N2	✦✦							
S1				✦				✦✦
S2				✦				✦✦
S3			✦	✦				✦✦
S4			✦	✦				✦✦



	ISO catalogue number	D	BS	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
	Light Machining										
	**HNGJ0905ANFNLDJ**	16	1,80	3849320	–	–	–	–	–	–	–
	HNGJ0905ANENLD	16	1,80	–	3331174	3093561	3331175	3330952	3331178	–	6178103
	General Machining										
	**HNGJ0905ANSNGD**	16	1,80	–	–	–	3331176	3331173	3093719	5550793	6178104
	HNPJ0905ANSNGD	16	1,80	–	3763726	3774250	3763727	3763725	3763728	5550795	–
	Heavy Machining										
	**HNGJ0905ANSNHD**	16	1,66	–	–	–	3556331	3556330	3556332	5550794	6178105
	HNPJ0905ANSNHD	16	1,66	–	–	3774249	3763723	3763185	3763724	5550796	6178108
	HNPJ090543ANSNHD	16	–	–	–	3774251	3763730	3763729	3763731	5550797	6178109
	HNGJ090543ANSNHD	16	–	–	–	–	3556374	3556373	3556375	6068043	6178106

Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.F..LDJ	0.45	**1.27**	2.22	0.33	**0.91**	1.57	0.25	**0.68**	1.17	0.21	**0.59**	1.01	0.20	**0.54**	0.93	.F..LDJ
.E..LD	0.63	**1.84**	2.81	0.46	**1.31**	1.97	0.34	**0.97**	1.46	0.30	**0.84**	1.27	0.27	**0.77**	1.16	.E..LD
.S..GD	0.92	**2.01**	3.27	0.66	**1.42**	2.29	0.49	**1.06**	1.69	0.43	**0.92**	1.46	0.39	**0.84**	1.34	.S..GD
.S..HD	0.92	**2.35**	3.89	0.66	**1.67**	2.70	0.49	**1.23**	1.98	0.43	**1.07**	1.72	0.39	**0.98**	1.57	.S..HD

HNG….: Ground inserts; high versatility for all medium applications and difficult-to-machine stainless steels and high-temp alloys.
HNP….: Pressed inserts; lower cost per edge for roughing operations with high feed rates.

Material Group		KC410M*			KC520M			KC522M			KC725M		
P	1	–	–	–	–	–	–	395	**340**	325	310	**275**	260
	2	–	–	–	–	–	–	330	**290**	240	265	**230**	190
	3	–	–	–	–	–	–	305	**260**	210	240	**205**	170
	4	–	–	–	–	–	–	270	**220**	180	215	**180**	145
	5	–	–	–	–	–	–	220	**205**	180	180	**160**	145
	6	–	–	–	–	–	–	200	**150**	120	155	**120**	95
M	1	–	–	–	–	–	–	245	**215**	200	205	**180**	160
	2	–	–	–	–	–	–	220	**190**	155	185	**155**	130
	3	–	–	–	–	–	–	170	**145**	115	140	**120**	95
K	1	–	–	–	325	**295**	260	275	**245**	220	–	–	–
	2	–	–	–	250	**230**	210	215	**190**	180	–	–	–
	3	–	–	–	210	**190**	175	180	**160**	145	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–
H	1	–	–	–	–	–	–	145	**110**	85	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–

Material Group		KCK15			KCPK30			KCPM40			KCSM40		
P	1	–	–	–	545	**475**	445	355	**310**	295	275	**240**	205
	2	–	–	–	335	**305**	275	300	**260**	215	240	**205**	160
	3	–	–	–	305	**275**	245	275	**235**	190	205	**180**	160
	4	–	–	–	230	**210**	190	245	**205**	160	180	**160**	145
	5	–	–	–	310	**275**	250	205	**185**	160	160	**145**	125
	6	–	–	–	190	**160**	145	180	**140**	110	125	**110**	90
M	1	–	–	–	245	**220**	185	235	**205**	185	275	**220**	180
	2	–	–	–	220	**190**	170	210	**180**	150	180	**145**	125
	3	–	–	–	175	**155**	140	155	**140**	110	145	**125**	110
K	1	505	**460**	410	355	**320**	290	–	–	–	–	–	–
	2	400	**355**	330	280	**250**	230	–	–	–	–	–	–
	3	335	**300**	275	235	**210**	190	–	–	–	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–
H	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–

*Recommended for wet machining only.

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

Material Group		KC410M			KC520M			KC522M			KC725M		
P	1	–	–	–	–	–	–	315	**270**	260	250	**220**	210
	2	–	–	–	–	–	–	265	**230**	190	210	**185**	150
	3	–	–	–	–	–	–	245	**210**	170	190	**165**	135
	4	–	–	–	–	–	–	215	**175**	145	170	**145**	115
	5	–	–	–	–	–	–	175	**165**	145	145	**130**	115
	6	–	–	–	–	–	–	160	**120**	95	125	**95**	75
M	1	–	–	–	–	–	–	195	**170**	160	165	**145**	130
	2	–	–	–	–	–	–	175	**150**	125	150	**125**	105
	3	–	–	–	–	–	–	135	**115**	90	110	**95**	75
K	1	–	–	–	260	**235**	210	220	**195**	175	–	–	–
	2	–	–	–	200	**185**	170	170	**150**	145	–	–	–
	3	–	–	–	170	**150**	140	145	**130**	115	–	–	–
N	1	1170	**1035**	955	–	–	–	–	–	–	–	–	–
	2	1035	**955**	880	–	–	–	–	–	–	–	–	–
	3	1035	**955**	880	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	40	**30**	25	30	**30**	25
	2	–	–	–	–	–	–	40	**30**	25	30	**30**	25
	3	–	–	–	–	–	–	50	**40**	25	45	**30**	25
	4	–	–	–	–	–	–	70	**50**	30	50	**45**	30
H	1	–	–	–	–	–	–	115	**90**	70	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–

Material Group		KCK15			KCPK30			KCPM40			KCSM40		
P	1	–	–	–	435	**380**	355	285	**250**	235	–	–	–
	2	–	–	–	270	**245**	220	240	**210**	170	–	–	–
	3	–	–	–	245	**220**	195	220	**190**	150	–	–	–
	4	–	–	–	185	**170**	150	195	**165**	130	–	–	–
	5	–	–	–	250	**220**	200	165	**150**	130	165	**140**	115
	6	–	–	–	150	**130**	120	145	**110**	90	145	**105**	75
M	1	–	–	–	195	**175**	150	190	**165**	150	200	**165**	135
	2	–	–	–	175	**150**	135	170	**145**	120	170	**140**	115
	3	–	–	–	140	**125**	110	125	**110**	90	140	**105**	80
K	1	405	**370**	330	285	**255**	230	–	–	–	–	–	–
	2	320	**285**	265	225	**200**	185	–	–	–	–	–	–
	3	270	**240**	220	190	**170**	150	–	–	–	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	40	**30**	30	40	**30**	25
	2	–	–	–	–	–	–	40	**30**	30	40	**30**	25
	3	–	–	–	–	–	–	50	**40**	30	50	**40**	25
	4	–	–	–	65	**50**	30	65	**50**	30	55	**50**	30
H	1	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

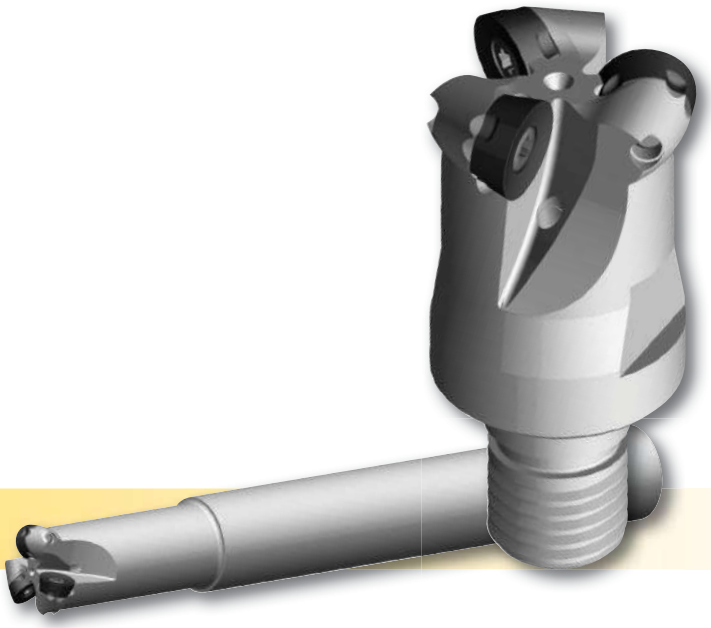
Dry

Wet

7713VR Series

Round Insert Milling Cutter with Indexation

The 7713VR is our newest round insert cutter series. Designed with a new silver-satin surface treatment that reduces body degradation during high-performance applications and enhances body tool life. This cutter series has an anti-rotation design that ensures a precise number of indexes per insert. This enables maximum usage of the available edges for roughing applications.



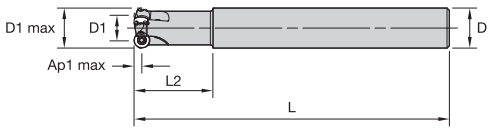
Features and Benefits

This unique patented pocket system prevents the inserts from rotating in the pocket during heavy-feed machining and unstable conditions. The 7713VR cutter is excellent for roughing and semi-finishing of all materials, especially stainless steel and high-temperature alloys, as well as for steel, and tool steel.

7713VR10:
Maximum ap = 5mm
Diameter Range = 20–50mm

7713VR12:
Maximum ap = 6mm
Diameter Range = 32–80mm

- Copy/contour milling applications.
- Patented locking system prevents insert rotation during heavy machining.
- Positive flute design for excellent chip evacuation.

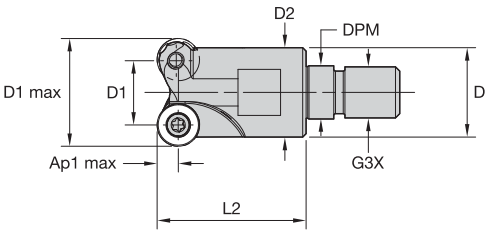


Cylindrical End Mills

order number	catalogue number	D1 max	D1	D	L	L2	Ap1 max	Z
5672811	**7713VR10CA020Z2R40**	20	10	20	180	40	5,0	2
5673047	**7713VR10CA025Z3R50**	25	15	25	200	50	5,0	3
5673048	**7713VR10CA032Z4R70**	32	22	32	250	70	5,0	4

Spare Parts

D1 max	 insert screw	 Nm	 Torx driver
20	**D4007T**	3,1	**TB15**
25	**D4007T**	3,1	**TB15**
32	**D4008T**	3,1	**TB15**



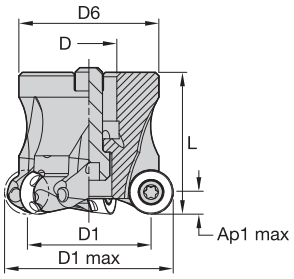
Screw-On End Mills

order number	catalogue number	D1 max	D1	D	D2	L2	G3X	DPM	Ap1 max	Z
5673768	**7713VR10SA025Z3R35**	25	15	21	24	35	M12	12,50	5,0	3
5673050	**7713VR10SA032Z4R35**	32	22	29	31	35	M16	17,00	5,0	4
5673341	**7713VR10SA035Z5R35**	35	25	29	34	35	M16	17,00	5,0	5

Spare Parts

D1 max	 insert screw	 Nm	 Torx driver
20	**D4007T**	3,1	**TB15**
25	**D4007T**	3,1	**TB15**
32	**D4008T**	3,1	**TB15**
35	**D4007T**	3,1	**TB15**

- Copy/contour milling applications.
- Patented locking system prevents insert rotation during heavy machining.
- Positive flute design for excellent chip evacuation.



Shell Mills

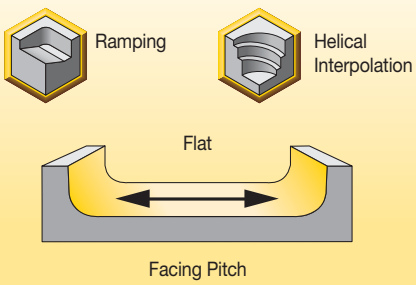
order number	catalogue number	D1 max	D1	D	D6	L	Ap1 max	Z
5672813	7713VR10-A040Z05R	40	30	16	36	40	5,0	5
5672625	7713VR10-A042Z06R	42	32	16	38	40	5,0	6
5673340	7713VR10-A050Z06R	50	40	22	41	40	5,0	6

Spare Parts

D1 max	insert screw	Nm	Torx driver	socket-head cap screw
40	D4008T	3,1	TB15	M8 1.25 X 25 SHCS
42	D4007T	3,1	TB15	M8 1.25 X 25 SHCS
50	D4008T	3,1	TB15	M10 1.5 X 25 SHCS
63	D4008T	3,1	TB15	M10 1.5 X 25 SHCS

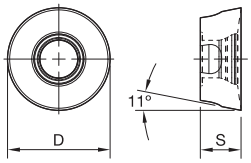
Technical Information (mm)

order number	catalogue number	dimension facing pitch	ramping angle	helical hole min	helical hole max	ap max helical/linear	max RPM
5672811	7713VR10CA020Z2R40	10	1,89	22	38	3,33	79500
5673047	7713VR10CA025Z3R50	15	5,22	32	48	3,33	64500
5673048	7713VR10CA032Z4R70	22	8,64	46	62	3,33	53500
5672813	7713VR10-A040Z05R	30	7,28	62	78	3,33	45500
5672625	7713VR10-A042Z06R	32	6,71	66	82	3,33	39500
5673340	7713VR10-A050Z06R	40	5,22	82	98	3,33	39500
5673768	7713VR10SA025Z3R35	15	5,22	32	48	3,33	64500
5673050	7713VR10SA032Z4R35	22	8,64	46	62	3,33	53500
5673341	7713VR10SA035Z5R35	25	7,20	52	68	3,33	50000



✦✦ first choice with coolant
✧✧ first choice without coolant
✦ alternate choice with coolant
✧ alternate choice without coolant

P1–P2	✧/✦	✧✧	✧/✦	
P3–P4		✦✦	✧/✦	
P5–P6			✦✦	✧/✦
M1–M2	✦✦	✧✧	✦	
M3	✦	✦	✦✦	
K1–K2		✧	✧/✦	
K3		✦	✧/✦	
N1				
N2				
S1	✦		✦✦	✦
S2	✦		✦✦	✦
S3	✦✦		✦	
S4	✦✦		✦	✦



ISO catalogue number	D	S	hm	CE	KCSM40	SP6519	X500	X700
Light Machining								
RPHT10T3M0E422X8	10,00	3,96	0,03	8	–	5660778	–	–

General Machining								
RPHT10T3M0E422X4	10,00	3,97	0,03	4	–	5659867	5660462	5665491
RPPT10T3M0E432X4	10,00	3,97	0,04	4	6201907	–	–	–
RPPT10T3M0E432X5	10,00	3,97	0,03	5	–	–	5894139	–

NOTE: CE: number of indexes
ap max recommendation to use all indexes of the insert:
..E422x8: ap recommended ≤ 1,5mm, ap max ≤ 2,5mm
..E422X4: ap recommended ≤ 2,5mm, ap max ≤ 5mm
..E432X4: ap recommended ≤ 2,5mm, ap max ≤ 5mm
..E432X5: ap recommended ≤ 2mm, ap max ≤ 3,5mm

Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining

At 5,00 Axial Depth of Cut (ap)

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	10%			20%			30%			40%			50–100%			
422-X8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	422-X8
432-X5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	432-X5
422-X4	0,12	**0,29**	0,57	0,08	**0,21**	0,40	0,06	**0,16**	0,30	0,05	**0,14**	0,26	0,05	**0,13**	0,24	422-X4
432-X4	0,12	**0,29**	0,57	0,08	**0,21**	0,40	0,06	**0,16**	0,30	0,05	**0,14**	0,26	0,05	**0,13**	0,24	432-X4

At 2,50 Axial Depth of Cut (ap)

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	10%			20%			30%			40%			50–100%			
422-X8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	422-X8
432-X5	0,13	**0,34**	0,66	0,10	**0,24**	0,47	0,07	**0,18**	0,35	0,06	**0,16**	0,30	0,06	**0,15**	0,28	432-X5
422-X4	0,13	**0,34**	0,66	0,10	**0,24**	0,47	0,07	**0,18**	0,35	0,06	**0,16**	0,30	0,06	**0,15**	0,28	422-X4
432-X4	0,13	**0,34**	0,66	0,10	**0,24**	0,47	0,07	**0,18**	0,35	0,06	**0,16**	0,30	0,06	**0,15**	0,28	432-X4

At 2,00 Axial Depth of Cut (ap)

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	10%			20%			30%			40%			50–100%			
422-X8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	422-X8
432-X5	0,14	**0,37**	0,71	0,10	**0,26**	0,51	0,08	**0,20**	0,38	0,07	**0,17**	0,33	0,06	**0,16**	0,30	432-X5
422-X4	0,14	**0,37**	0,71	0,10	**0,26**	0,51	0,08	**0,20**	0,38	0,07	**0,17**	0,33	0,06	**0,16**	0,30	422-X4
432-X4	0,14	**0,37**	0,71	0,10	**0,26**	0,51	0,08	**0,20**	0,38	0,07	**0,17**	0,33	0,06	**0,16**	0,30	432-X4

At 1,50 Axial Depth of Cut (ap)

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	10%			20%			30%			40%			50–100%			
422-X8	0,16	**0,41**	0,80	0,12	**0,30**	0,57	0,09	**0,22**	0,42	0,08	**0,19**	0,37	0,07	**0,18**	0,34	422-X8
432-X5	0,16	**0,41**	0,80	0,12	**0,30**	0,57	0,09	**0,22**	0,42	0,08	**0,19**	0,37	0,07	**0,18**	0,34	432-X5
422-X4	0,16	**0,41**	0,80	0,12	**0,30**	0,57	0,09	**0,22**	0,42	0,08	**0,19**	0,37	0,07	**0,18**	0,34	422-X4
432-X4	0,16	**0,41**	0,80	0,12	**0,30**	0,57	0,09	**0,22**	0,42	0,08	**0,19**	0,37	0,07	**0,18**	0,34	432-X4

Material Group		KCSM40			SP6519			X500			X700		
P	1	275	**240**	205	355	**260**	155	325	**240**	155	–	**–**	–
	2	240	**205**	160	310	**230**	140	290	**215**	140	–	**–**	–
	3	205	**180**	160	275	**200**	120	250	**185**	120	–	**–**	–
	4	180	**160**	145	210	**150**	90	190	**145**	90	–	**–**	–
	5	160	**145**	125	170	**125**	85	155	**120**	85	160	**125**	85
	6	125	**110**	90	145	**100**	60	130	**95**	60	140	**100**	60
M	1	275	220	180	325	**235**	140	300	**220**	140	310	**230**	140
	2	180	**145**	125	280	**205**	125	265	**190**	120	275	**205**	125
	3	145	**125**	110	235	**170**	100	215	**155**	95	230	**170**	100
K	1	–	**–**	–	355	**265**	170	310	**265**	205	–	**–**	–
	2	–	**–**	–	290	**210**	130	265	**215**	155	–	**–**	–
	3	–	**–**	–	265	**190**	120	205	**170**	120	–	**–**	–
N	1	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
S	1	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	4	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
H	1	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

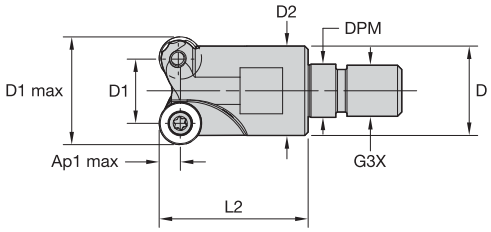
Material Group		KCSM40			SP6519			X500			X700		
P	1	–	**–**	–	285	**210**	125	260	**190**	125	–	**–**	–
	2	–	**–**	–	250	**185**	110	230	**170**	110	–	**–**	–
	3	–	**–**	–	220	**160**	95	200	**150**	95	–	**–**	–
	4	–	**–**	–	170	**120**	70	150	**115**	70	–	**–**	–
	5	165	**140**	115	135	**100**	70	125	**95**	70	130	**100**	70
	6	145	**105**	75	115	**80**	50	105	**75**	50	110	**80**	50
M	1	200	165	135	260	**190**	110	240	**175**	110	250	**185**	110
	2	170	**140**	115	225	**165**	100	210	**150**	95	220	**165**	100
	3	140	**105**	80	190	**135**	80	170	**125**	75	185	**135**	80
K	1	–	**–**	–	285	**210**	135	250	**210**	165	–	**–**	–
	2	–	**–**	–	230	**170**	105	210	**170**	125	–	**–**	–
	3	–	**–**	–	210	**150**	95	165	**135**	95	–	**–**	–
N	1	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
S	1	40	**30**	25	50	**40**	25	50	**30**	25	50	**40**	25
	2	40	**30**	25	50	**30**	20	45	**30**	20	45	**30**	20
	3	50	**40**	25	50	**40**	25	50	**40**	25	50	**40**	25
	4	55	**50**	30	75	**55**	35	70	**50**	30	70	**50**	35
H	1	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

- Copy/contour milling applications.
- Patented locking system prevents insert rotation during heavy machining.
- Positive flute design for excellent chip evacuation.

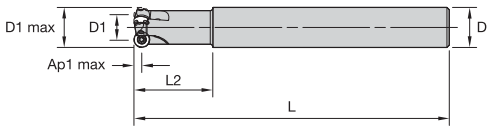


Screw-On End Mills

order number	catalogue number	D1 max	D1	D	D2	L2	G3X	DPM	Ap1 max	Z
5673052	7713VR12SA032Z3R35	32	20	29	31	35	M16	17,00	6,0	3
5673439	7713VR12SA040Z4R43	40	28	29	38	43	M16	17,00	6,0	4

Spare Parts

catalogue number	insert screw	Nm	Torx driver
7713VR12SA032Z3R35	D4008T	3,1	T15
7713VR12SA040Z4R43	D4008T	3,1	T15



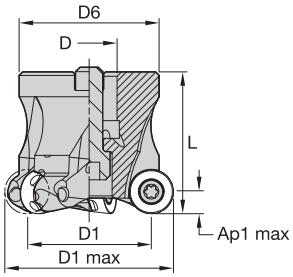
Cylindrical End Mills

order number	catalogue number	D1 max	D1	D	L	L2	Ap1 max	Z
5673830	7713VR12CA032Z3R70	32	20	32	250	70	6,0	3

Spare Parts

catalogue number	insert screw	Nm	Torx driver
7713VR12CA032Z3R70	D4008T	3,1	T15

- Copy/contour milling applications.
- Patented locking system prevents insert rotation during heavy machining.
- Positive flute design for excellent chip evacuation.



Shell Mills

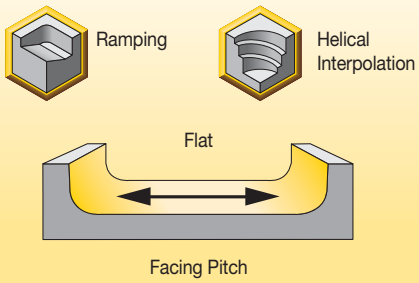
order number	catalogue number	D1 max	D1	D	D6	L	Ap1 max	Z
5672232	7713VR12-A040Z04R	40	28	16	34	40	6,0	4
5672233	7713VR12-A050Z05R	50	38	22	43	40	6,0	5
5673769	7713VR12-A052Z05R	52	40	22	45	40	6,0	5
5672234	7713VR12-A063Z06R	63	51	22	56	50	6,0	6
5672235	7713VR12-A066Z06R	66	54	27	56	50	6,0	6
5673829	7713VR12-A080Z08R	80	68	27	68	50	6,0	8

Spare Parts

catalogue number	insert screw	Nm	Torx driver	mounting screw
7713VR12-A040Z04R	D4010T	3,1	T15	M8 1.25 X 25 SHCS
7713VR12-A050Z05R	D4010T	3,1	T15	M10 1.5 X 25 SHCS
7713VR12-A052Z05R	D4010T	3,1	T15	M10 1.5 X 25 SHCS
7713VR12-A063Z06R	D4010T	3,1	T15	M10 1.5 X 25 SHCS
7713VR12-A066Z06R	D4010T	3,1	T15	M12 X 1.75 X 30 SHCS
7713VR12-A080Z08R	D4010T	3,1	T15	M12 X 1.75 X 30 SHCS

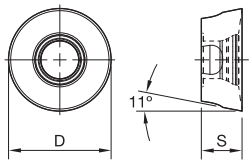
Technical Information (mm)

order number	catalogue number	dimension facing pitch	ramping angle	helical hole min	helical hole max	ap max helical/linear	max RPM
5673830	7713VR12CA032Z3R70	20	10,80	42	62	4,00	40000
5672232	7713VR12-A040Z04R	28	7,90	58	78	4,00	34000
5672233	7713VR12-A050Z05R	38	5,50	78	98	4,00	29000
5673769	7713VR12-A052Z05R	40	5,15	82	102	4,00	28500
5672234	7713VR12-A063Z06R	51	3,85	104	124	4,00	25000
5672235	7713VR12-A066Z06R	54	3,60	110	130	4,00	24500
5673829	7713VR12-A080Z08R	68	2,75	138	158	4,00	21500
5673052	7713VR12SA032Z3R35	20	10,80	42	62	4,00	40000
5673439	7713VR12SA040Z4R43	28	7,90	58	78	4,00	34000



✦✦ first choice with coolant
✧✧ first choice without coolant
✦ alternate choice with coolant
✧ alternate choice without coolant

P1–P2	✧✧	✧/✦	
P3–P4	✦✦	✧/✦	
P5–P6		✦✦	✧/✦
M1–M2	✧✧	✦	
M3	✦	✦✦	
K1–K2	✧	✧/✦	
K3	✦	✧/✦	
N1			
N2			
S1		✦✦	✦
S2		✦✦	✦
S3		✦✦	
S4		✦	✦✦



ISO catalogue number	D	S	hm	CE	SP6519	X500	X700
Light Machining							
RPHT1204M0E422X4	12,00	4,76	0,04	4	–	5666015	–
RPHT1204M0E442X4	12,00	4,76	0,04	4	5659264	5660351	–
RPHT1204M0E442X5	12,00	4,76	0,04	5	5658324	5657681	–
General Machining							
RPPT1204M0E432X4	12,00	4,76	0,04	4	–	5970235	–
RPPT1204M0E432X5	12,00	4,76	0,04	5	–	5675038	5674803
RPHT1204M0TX4	12,00	4,76	0,10	4	–	5654371	–

NOTE: CE: number of indexes
ap max recommendation to use all indexes of the insert:
..E422X4: ap recommended ≤ 3,5mm, ap max ≤ 6mm
..E422X5: ap recommended ≤ 2,5mm, ap max ≤ 4mm
..E432X4: ap recommended ≤ 3,5mm, ap max ≤ 6mm
..E432X5: ap recommended ≤ 2,5mm, ap max ≤ 4mm
..MOTX4: ap recommended ≤ 3,5mm, ap max ≤ 6mm

Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining

At 6,00 Axial Depth of Cut (ap)

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
432–X5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	432–X5
442–X4	0,23	**0,41**	0,66	0,17	**0,30**	0,47	0,13	**0,22**	0,35	0,11	**0,19**	0,31	0,10	**0,18**	0,28	442–X4
432–X4	0,23	**0,41**	0,66	0,17	**0,30**	0,47	0,13	**0,22**	0,35	0,11	**0,19**	0,31	0,10	**0,18**	0,28	432–X4
T–X4	0,23	**0,41**	0,66	0,17	**0,30**	0,47	0,13	**0,22**	0,35	0,11	**0,19**	0,31	0,10	**0,18**	0,28	T–X4

At 3,00 Axial Depth of Cut (ap)

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
432–X5	0,16	**0,49**	0,93	0,12	**0,35**	0,66	0,09	**0,26**	0,49	0,08	**0,23**	0,43	0,07	**0,21**	0,39	432–X5
442–X4	0,16	**0,49**	0,93	0,12	**0,35**	0,66	0,09	**0,26**	0,49	0,08	**0,23**	0,43	0,07	**0,21**	0,39	442–X4
432–X4	0,16	**0,49**	0,93	0,12	**0,35**	0,66	0,09	**0,26**	0,49	0,08	**0,23**	0,43	0,07	**0,21**	0,39	432–X4
T–X4	0,27	**0,68**	1,10	0,19	**0,49**	0,78	0,14	**0,36**	0,58	0,13	**0,32**	0,50	0,12	**0,29**	0,46	T–X4

At 2,50 Axial Depth of Cut (ap)

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
432–X5	0,17	**0,52**	1,00	0,12	**0,37**	0,71	0,09	**0,28**	0,53	0,08	**0,24**	0,46	0,07	**0,22**	0,42	432–X5
442–X4	0,17	**0,52**	1,00	0,12	**0,37**	0,71	0,09	**0,28**	0,53	0,08	**0,24**	0,46	0,07	**0,22**	0,42	442–X4
432–X4	0,17	**0,52**	1,00	0,12	**0,37**	0,71	0,09	**0,28**	0,53	0,08	**0,24**	0,46	0,07	**0,22**	0,42	432–X4
T–X4	0,29	**0,73**	1,18	0,21	**0,52**	0,84	0,15	**0,39**	0,62	0,13	**0,34**	0,54	0,12	**0,31**	0,49	T–X4

At 1,50 Axial Depth of Cut (ap)

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
432–X5	0,21	**0,64**	1,23	0,15	**0,46**	0,87	0,11	**0,34**	0,65	0,10	**0,30**	0,56	0,09	**0,27**	0,51	432–X5
442–X4	0,21	**0,64**	1,23	0,15	**0,46**	0,87	0,11	**0,34**	0,65	0,10	**0,30**	0,56	0,09	**0,27**	0,51	442–X4
432–X4	0,21	**0,64**	1,23	0,15	**0,46**	0,87	0,11	**0,34**	0,65	0,10	**0,30**	0,56	0,09	**0,27**	0,51	432–X4
T–X4	0,35	**0,90**	1,47	0,25	**0,64**	1,03	0,19	**0,47**	0,76	0,17	**0,41**	0,66	0,15	**0,38**	0,60	T–X4

Material Group		SP6519			X500			X700		
P	1	355	**260**	155	325	**240**	155	–	**–**	–
	2	310	**230**	140	290	**215**	140	–	**–**	–
	3	275	**200**	120	250	**185**	120	–	**–**	–
	4	210	**150**	90	190	**145**	90	–	**–**	–
	5	170	**125**	85	155	**120**	85	160	**125**	85
	6	145	**100**	60	130	**95**	60	140	**100**	60
M	1	325	**235**	140	300	**220**	140	310	**230**	140
	2	280	**205**	125	265	**190**	120	275	**205**	125
	3	235	**170**	100	215	**155**	95	230	**170**	100
K	1	355	**265**	170	310	**265**	205	–	**–**	–
	2	290	**210**	130	265	**215**	155	–	**–**	–
	3	265	**190**	120	205	**170**	120	–	**–**	–
N	1	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–
S	1	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–
	4	–	**–**	–	–	**–**	–	–	**–**	–
H	1	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–

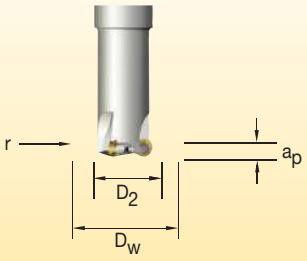
Material Group		KCSM40			SP6519			X500			X700		
P	1	–	**–**	–	285	**210**	125	260	**190**	125	–	**–**	–
	2	–	**–**	–	250	**185**	110	230	**170**	110	–	**–**	–
	3	–	**–**	–	220	**160**	95	200	**150**	95	–	**–**	–
	4	–	**–**	–	170	**120**	70	150	**115**	70	–	**–**	–
	5	165	**140**	115	135	**100**	70	125	**95**	70	130	**100**	70
	6	145	**105**	75	115	**80**	50	105	**75**	50	110	**80**	50
M	1	200	165	135	260	**190**	110	240	**175**	110	250	**185**	110
	2	170	**140**	115	225	**165**	100	210	**150**	95	220	**165**	100
	3	140	**105**	80	190	**135**	80	170	**125**	75	185	**135**	80
K	1	–	**–**	–	285	**210**	135	250	**210**	165	–	**–**	–
	2	–	**–**	–	230	**170**	105	210	**170**	125	–	**–**	–
	3	–	**–**	–	210	**150**	95	165	**135**	95	–	**–**	–
N	1	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
S	1	40	**30**	25	50	**40**	25	50	**30**	25	50	**40**	25
	2	40	**30**	25	50	**30**	20	45	**30**	20	45	**30**	20
	3	50	**40**	25	50	**40**	25	50	**40**	25	50	**40**	25
	4	55	**50**	30	75	**55**	35	70	**50**	30	70	**50**	35
H	1	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Dry

Wet

7713VR Technical Information



Working Diameter:

Formula to evaluate the correct working diameter based on axial depth of cut (ap).

$$D_w = D_2 + 2 \times \sqrt{r^2 - (r - a_p)^2}$$

where:

D_w = Working diameter
D_2 = Diameter of cutter insert centre to centre
r = Insert radius
a_p = Axial depth of cut

where:

f_z = Feed per tooth
h_m = Average chip thickness
r = Insert radius
a_e = Radial depth of cut
a_p = Axial depth of cut

Formula to find programmed feed rate based on radial engagement and axial depth of cut.

$$f_z = \frac{h_m}{\frac{\sqrt{r^2-(r-a_e)^2}}{r} \times \frac{\sqrt{r^2-(r-a_p)^2}}{r}}$$

Formula to calculate the average chip thickness hm in relation with radial engagement and depth of cut.

$$h_m = f_z \times \frac{\sqrt{r^2-(r-a_e)^2}}{r} \times \frac{\sqrt{r^2-(r-a_p)^2}}{r}$$

Simplified formulas to evaluate h_m and f_z based on radial engagement or depth of cut.

Calculation of the average chip thickness in relation with the D.O.C. (Axial)

Formula: Programme Feed Rate (f_z)

$$f_z = h_m \times \sqrt{\frac{d}{a_p}}$$

h_m = Average chip thickness
a_p = Depth of cut
f_z = Feed per tooth
d = Insert diameter

Formula: Average Chip Thickness (h_m)

$$h_m = f_z \times \sqrt{\frac{a_e}{d}}$$

Calculation of the average chip thickness in relation with the a_e (Radial Engagement) if a_e is less than 50% of diameter

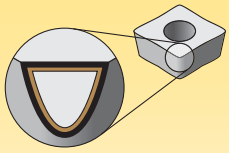
Formula: Programme Feed Rate (f_z)

$$f_z = h_m \times \sqrt{\frac{d}{a_e}}$$

h_m = Average chip thickness
a_e = Radial engagement
f_z = Feed per tooth
d = Cutter diameter

Formula: Average Chip Thickness (h_m)

$$h_m = f_z \times \sqrt{\frac{d}{a_p}}$$

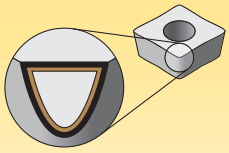


Coatings provide high-speed capability and are engineered for finishing to heavy roughing.

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

Grades

Coating	Grade Description	wear resistance ← → toughness	05	10	15	20	25	30	35	40	45
GH2	Uncoated, fine grained carbide grade with good strength. GH2 is suitable for machining of aluminium and non-ferrous materials. Also good choice for cast iron for medium toughness requirements. This grade can be used both wet and dry and is designed for light and general machining.	K				■	■	■			
		N				■	■	■			
		S				■	■				
KC410M	PVD, TiB_2 coating on grade KC410M is extremely hard and provides very good wear characteristics at higher cutting speeds. KC410M resists built-up edge, can help reduce burring, and generates excellent surface finishes. The grade is best suited for aluminium with <10% silicon and other non-ferrous materials.	N	■	■	■						
KC422M	The PVD TiB_2 coating is very wear resistant. Together with hard coating and a tough substrate, this is an excellent combination for medium to roughing applications in aluminium <10% silicon and other non-ferrous materials.	N				■	■	■			
KC510M	Coated carbide grade with a TiAiN coating (PVD). KC510M is a highly wear-resistant grade primarily for use in milling aluminium and high-temperature alloys in light applications. Can also be used for machining of steel and hardened steel.	P	■	■							
		N	■	■	■						
		S	■	■							
		H	■	■							
KC520M	Coated carbide grade with TiAlN coating (PVD). KC520M is a carbide grade developed specifically for general machining of ductile cast iron. This grade can be used with or without coolant.	K			■	■	■				
KC522M	Coated carbide grade with a AlTiN (PVD) coating. KC522M is engineered to provide better performance in general machining of high-temperature alloys and stainless steel. KC522M resists breakage and offers improved wear resistance and increased strength.	P				■	■				
		M				■	■	■			
		K					■	■	■		
		S				■	■	■			



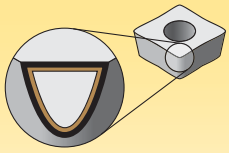
Coatings provide high-speed capability and are engineered for finishing to heavy roughing.

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

Grades

wear resistance ← → toughness

Coating	Grade Description		05	10	15	20	25	30	35	40	45
KC725M	Coated carbide grade with an advanced PVD TiAlN coating. KC725M is a high-performance grade for milling steel, stainless steel, and ductile cast iron. The good thermal shock resistance of the substrate makes this grade ideal for both wet and dry machining. Primarily for use in general and heavy machining.	P						■	■	■	
		M						■	■	■	
		S						■	■	■	
KCK15	Coated carbide grade with CVD multilayer coating (TiN/MT TiCN/Al_2O_3) and advanced Beyond™ post-coat treatment. KCK15 is a wear-resistant grade with balanced toughness for general milling of cast irons at higher speeds. Best results in dry, but can also be used wet.										
		K		■	■	■					
KCPK30	Coated carbide grade with CVD multilayer (TiN/TiCN/Al_2O_3) and advanced Beyond™ post-coat treatment. Substrate is very tough. KCPK30 has a wide application area in general and roughing milling of steels and cast irons. Performs best dry, but can also be used wet.	P					■	■	■	■	
		K					■	■	■	■	
KCPM40	Coated carbide grade with an advanced PVD TiAlN/AlCrN coating. Tough substrate with excellent capability at higher temperatures. KCPM40™ is the first choice for milling steel and stainless steel. Good thermal shock resistance makes this grade ideal for both wet and dry machining. Primarily for use in general and heavy machining.	P					■	■	■	■	
		M					■	■	■	■	
KCSM40	Coated carbide grade with an advanced PVD TiAlN/TiN coating. Premium substrate with newly developed binder composition. KCSM40 is a high-performance grade for titanium, super alloys, and stainless steel. High thermal shock resistance of the substrate makes this grade ideal for wet machining. First choice for roughing and unsuitable cutting conditions.										
		M					■	■	■	■	
		S					■	■	■	■	
KY3500	A ceramic cutting material based on micro-grain Si_3N_4 primarily for use in light to general machining of grey cast iron and ferritic ductile cast iron. Dry machining is preferred while using this grade.										
		K				■	■	■	■		

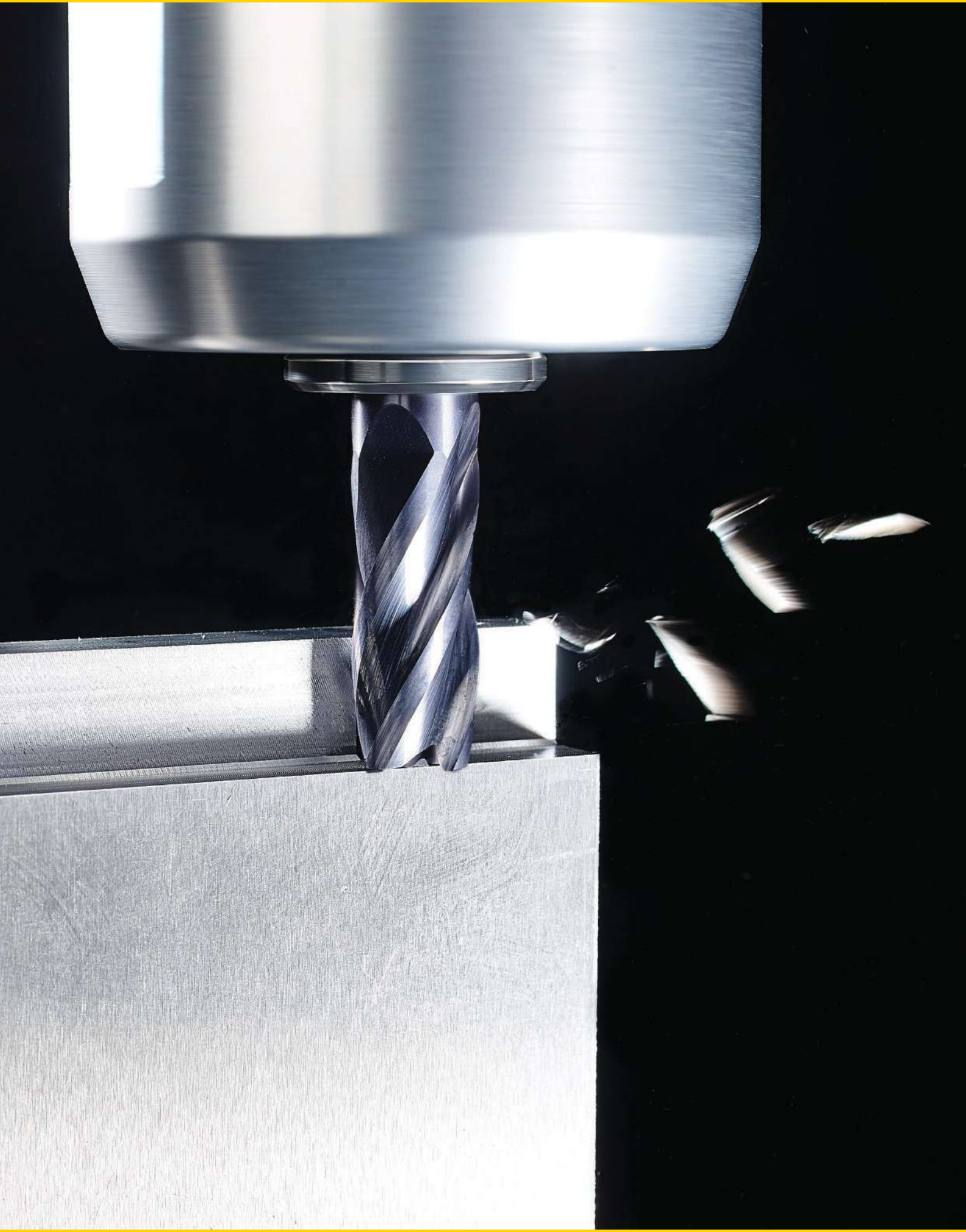


Coatings provide high-speed capability and are engineered for finishing to heavy roughing.

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

Grades

Coating	Grade Description		wear resistance ← 05 10 15 20 25 30 35 40 45 → toughness
SC3025	Coated carbide grade with CVD multilayer coating (TiN/TiCN/Al_2O_3). SC3025 is a wear-resistant grade with balanced toughness for general milling of cast irons at higher speeds. Best results when using dry, but can also be used wet.	K	10 15 20
SC6525	Coated carbide grade with CVD multi-layer (TiN/TiCN/Al_2O_3). Tough substrate with good speed capability. SC6525 has a wide application area in general and roughing milling of steels, stainless steels, and cast irons. Performs best dry, but can also be used wet.	P M K	20 25 30 35 20 25 30 25 30 35
SP6519	Coated carbide grade with PVD TiAlN nano-composite coating on a tough substrate. Primarily for use in general and heavy machining, dry and wet.	P M K N S H	15 20 25 30 10 15 20 15 20 25 30 10 15 20 10 15 15 20
X400	Coated carbide grade with thick PVD TiAlN nanocomposite on X-Grade™ technology substrate. With excellent toughness, good choice for difficult cutting conditions on alloyed and hardened steels. Usable in combination with high feeds.	P H	25 30 35 25 30 35
X500	CVD TiN/TiCN/TiN coated carbide on tough substrate (X-Grade™ technology). For difficult applications with heavy impacts, vibrations, or unstable conditions. High stability against thermal cracks. Excellent grade for high-temperature alloys, stainless steels, and titanium.	P M S	25 30 35 40 25 30 35 40 30 35 40
X700	PVD TiAlN nano-coating on premium substrate (X-Grade™ technology). Milling of stainless steel, super alloys, and titanium with medium applications.	M S	20 25 30 15 20



Platform	Unequal Fluting	series		flute Z	D1 diameter (mm)	length of cut (mm)	helix
High Performance							
HARVI™ I Duo-Lock™	✓	UKDV		ZU=4	10–32	1,5 x D	37°/39°
HARVI I Duo-Lock	✓	ULDV		ZU=4	10–32	1,5 x D	37°/39°
HARVI I TE	✓	H1TE_CH		ZU=4	4–25	1,8–3 x D	38°/39°
HARVI I TE	✓	H1TE_CH		ZU=4	4–25	1,8–3 x D	38°/39°
HARVI I TE	✓	H1TE_R		ZU=4	6–25	1,3–2 x D	38°/39°
HARVI I TE	✓	H1TE_SE		ZU=4	4–25	1,8–3 x D	38°/39°
HARVI I TE	✓	H1TE_CH_S		ZU=4	4–25	1,3–2 x D	38°/39°
HARVI I TE	✓	H1TE_SE_S		ZU=4	4–25	1,3–2 x D	38°/39°
HARVI II	✓	UCDE		ZU=5	4–25	~2,5 x D1	38°
HARVI II	✓	UDDE		ZU=5	6–25	~2 x D1	38°
HARVI II	✓	UGDE		ZU=5	6–25	5 x D	42°
HARVI III	✓	UJDE		ZU=6	12–20	3 x D	30°
Rougher		F3BH F4BJ F5BJ		ZU=3 ZU=4 ZU=5	4–25	~2 x D1	20°
Rougher		RUDC		ZU=3 ZU=4 ZU=5	4–25	2 x D	30°
Aluminium MaxiMet™		ABDF		ZU=2	1,5–20	1,9–4 x D1	45°
Aluminium MaxiMet	✓	ABDE		ZU=3	3–20	1,9–4 x D1	38°
Aluminium MaxiMet	✓	ABDE extended neck		ZU=3	6–25	1,5 x D	38°
General Purpose							
GOmill™ GP		2CH		ZU=2	2–20	1–2,5 x D1	30°
GOmill GP		2BN		ZU=2	2–20	1–3 x D1	30°
GOmill GP		3CH		ZU=3	2–20	1–3 x D1	30°
GOmill GP		4CH		ZU=4	2–20	1,3–3,2 x D1	30°
GOmill GP		4BN		ZU=4	3–20	1,9–2,75 x D1	30°

centre cutting	neck				P	M	K	N	S	H	product page(s)	cutting data page(s)
High Performance (continued)												
✓		✓	✓	✓	●	●			○	○	B142	B144
✓		✓	✓	✓	●	●	●		●	○	B143	B145
✓		✓	✓	✓	●	●	●		●	○	B150–B151	B162
✓	✓	✓	✓	✓	●	●	●		●	○	B152–B153	B162
✓	✓	✓	✓	✓	●	●	●		●	○	B154–B155	B163
✓	✓	✓	✓	✓	●	●	●		●	○	B156–B157	B163
✓		✓	✓	✓	●	●	●		●	○	B158–B159	B164
✓		✓	✓	✓	●	●	●		●	○	B160–B161	B164
		✓	✓	Max 4°	●	●	●			○	B168	B170
	✓	✓	✓	Max 4°		●			●	○	B169	B170
			✓		●	●	●		●	○	B174	B175
✓	✓		✓		○	●			●	○	B178	B179
✓		✓	✓	✓	●	●	●			○	B182	B184
✓	✓	✓	✓	✓	●	●	●		●	○	B183	B185
✓		✓	✓	✓				●			B188	B191
✓		✓	✓	✓				●			B189	B191
✓	✓	✓	✓	✓				●			B190	B191
General Purpose (continued)												
✓		✓	✓	✓	●	●	●				B194–B195	B198
✓		✓	✓		●	●	●				B196–B197	B199
✓		✓	✓	✓	●	●	●				B202	B203
✓			✓		●	●	●				B206–B207	B210
✓			✓		●	●	●				B208–B209	B211

DUO-λOCK® 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 and radii, 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.

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.

Customisation

- Intermediate diameters are available between 10–32mm.
- 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 10–32mm.
- Steel extensions with Safe-Lock™ by HAIMER® shanks to prevent pullout.

High-performance modular solid carbide end mills.

Intelligent Thread
Ensures that stress levels remain below critical values.

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.

3rd Contact Surface
Delivers high stiffness and highest accuracy below 5µm runout.

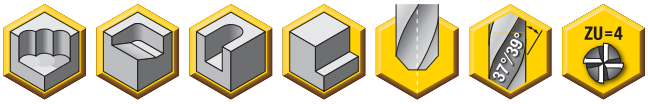
DUO-LOCK®
by HAIMER® and Kennametal

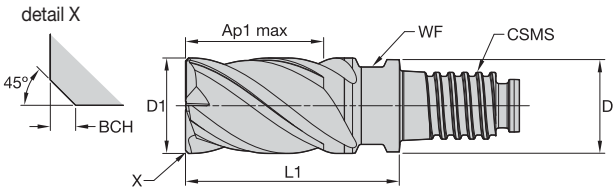
Unequal Flute Spacing
Reduces vibrations. Improves surface finish.

Double Cone
Eliminates expensive presetting processes by providing an axial 10µm repeatability.

37°/39° Variable Helix Technology
Minimises chatter and harmonics for smoother machining.

- Asymmetrical flute spacing and variable helix configuration minimises chatter and harmonics for smoother machining.
- Centre cutting.
- Single tool for both roughing and finishing, reducing setups.
- Standard items listed. Additional styles and coatings made-to-order.

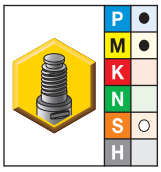




End Mill Tolerances

D1	tolerance e8
> 10–18	-0,032/-0,059
> 18–30	-0,040/-0,073
> 30	-0,050/-0,089

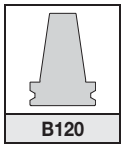
UKDV • 4 Flute • Metric



grade KCPM15

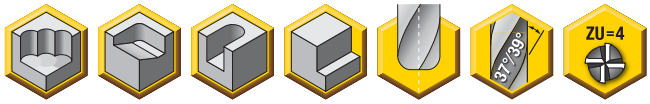
● first choice
○ alternate choice

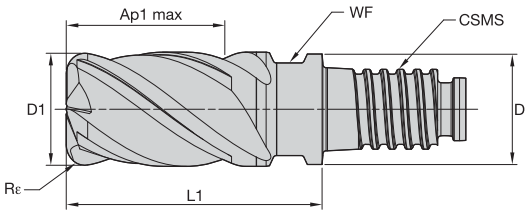
order #	catalogue #	D1	D	Ap1 max	L1	CSMS system size	WF	BCH
6072110	UKDV1000X4CV	10,00	9,60	15,00	22,50	DL10	8,00	0,50
6072161	UKDV1200X4CV	12,00	11,50	18,00	27,00	DL12	9,50	0,50
6072162	UKDV1600X4CV	16,00	15,50	24,00	36,00	DL16	13,00	0,50
6072163	UKDV2000X4CV	20,00	19,30	30,00	45,00	DL20	16,00	0,50
6072164	UKDV2500X4CV	25,00	24,00	37,50	56,50	DL25	21,00	0,50
6072165	UKDV3200X4CV	32,00	31,00	48,00	71,70	DL32	28,00	0,50



B120

- Asymmetrical flute spacing and variable helix configuration minimises chatter and harmonics for smoother machining.
- Centre cutting.
- Single tool for both roughing and finishing, reducing setups.
- Standard items listed. Additional styles and coatings made-to-order.

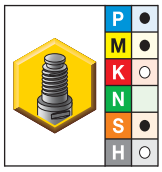




End Mill Tolerances

D1	tolerance e8
> 10–18	-0,032/-0,059
> 18–30	-0,040/-0,073
> 30	-0,050/-0,089

ULDV • 4 Flute • Metric



grade KCSM15

● first choice
○ alternate choice

order #	catalogue #	D1	D	Ap1 max	L1	CSMS system size	WF	Rε
6072166	ULDV1000X4CQE	10,00	9,60	15,00	22,50	DL10	8,00	0,50
6072167	ULDV1000X4CQG	10,00	9,60	15,00	22,50	DL10	8,00	1,00
6072168	ULDV1000X4CQJ	10,00	9,60	15,00	22,50	DL10	8,00	1,50
6072169	ULDV1200X4CQE	12,00	11,50	18,00	27,00	DL12	9,50	0,50
6072170	ULDV1200X4CQG	12,00	11,50	18,00	27,00	DL12	9,50	1,00
6072181	ULDV1200X4CQJ	12,00	11,50	18,00	27,00	DL12	9,50	1,50
6072182	ULDV1200X4CQL	12,00	11,50	18,00	27,00	DL12	9,50	2,50
6072183	ULDV1600X4CQG	16,00	15,50	24,00	36,00	DL16	13,00	1,00
6072184	ULDV1600X4CQJ	16,00	15,50	24,00	36,00	DL16	13,00	1,50
6072185	ULDV1600X4CQK	16,00	15,50	24,00	36,00	DL16	13,00	2,00
6072186	ULDV1600X4CQL	16,00	15,50	24,00	36,00	DL16	13,00	2,50
6072187	ULDV1600X4CQM	16,00	15,50	24,00	36,00	DL16	13,00	3,00
6072188	ULDV2000X4CQG	20,00	19,30	30,00	45,00	DL20	16,00	1,00
6072189	ULDV2000X4CQK	20,00	19,30	30,00	45,00	DL20	16,00	2,00
6072190	ULDV2000X4CQL	20,00	19,30	30,00	45,00	DL20	16,00	2,50
6072191	ULDV2000X4CQM	20,00	19,30	30,00	45,00	DL20	16,00	3,00
6072192	ULDV2000X4CQN	20,00	19,30	30,00	45,00	DL20	16,00	4,00
6072193	ULDV2500X4CQL	25,00	24,00	37,50	56,50	DL25	21,00	2,50
6072194	ULDV2500X4CQN	25,00	24,00	37,50	56,50	DL25	21,00	4,00
6072195	ULDV3200X4CQL	32,00	31,00	48,00	71,70	DL32	28,00	2,50
6072196	ULDV3200X4CQN	32,00	31,00	48,00	71,70	DL32	28,00	4,00

HARVI • UKDV • Asymmetrical Flute Spacing

Material Group		Side Milling (A) and Slotting (B)			short			medium			long			Recommended feed per tooth (fz = mm/th) for side milling (A). For slotting (B), reduce fz by 20%.						
		A		B	adaptor reach KCPM15 Cutting Speed — vc m/min			adaptor reach KCPM15 Cutting Speed — vc m/min			adaptor reach KCPM15 Cutting Speed — vc m/min			D1 — Diameter						
		ap	ae	ap	min		max	min		max	min		max	mm	10,0	12,0	16,0	20,0	25,0	32,0
P	0	1,5 x D	0,5 x D	1 x D	150	–	200	135	–	180	135	–	180	fz	0,061	0,070	0,086	0,097	0,105	0,106
	1	1,5 x D	0,5 x D	1 x D	150	–	200	135	–	180	135	–	180	fz	0,061	0,070	0,086	0,097	0,105	0,106
	2	1,5 x D	0,5 x D	1 x D	140	–	190	126	–	171	126	–	171	fz	0,061	0,070	0,086	0,097	0,105	0,106
	3	1,5 x D	0,5 x D	1 x D	120	–	160	108	–	144	108	–	144	fz	0,051	0,060	0,074	0,086	0,097	0,105
	4	1,5 x D	0,4 x D	0,75 x D	90	–	150	81	–	135	81	–	135	fz	0,046	0,053	0,065	0,075	0,083	0,087
	5	1,5 x D	0,4 x D	1 x D	60	–	100	51	–	85	48	–	80	fz	0,041	0,048	0,059	0,069	0,077	0,084
	6	1,5 x D	0,4 x D	0,75 x D	50	–	75	42,5	–	63,75	40	–	60	fz	0,034	0,040	0,048	0,055	0,060	0,062
M	1	1,5 x D	0,4 x D	1 x D	90	–	115	72	–	92	63	–	80,5	fz	0,051	0,060	0,074	0,086	0,097	0,105
	2	1,5 x D	0,4 x D	1 x D	60	–	80	48	–	64	42	–	56	fz	0,041	0,048	0,059	0,069	0,077	0,084
	3	1,5 x D	0,4 x D	1 x D	60	–	70	48	–	56	42	–	49	fz	0,034	0,040	0,048	0,055	0,060	0,062
S	1	1,5 x D	0,3 x D	0,3 x D	50	–	90	40	–	72	30	–	54	fz	0,051	0,060	0,074	0,086	0,097	0,105
	2	1,5 x D	0,3 x D	0,3 x D	25	–	40	20	–	32	15	–	24	fz	0,027	0,032	0,039	0,046	0,052	0,057
	3	1,5 x D	0,3 x D	0,3 x D	25	–	40	20	–	32	15	–	24	fz	0,027	0,032	0,039	0,046	0,052	0,057
	4	1,5 x D	0,4 x D	1 x D	50	–	60	40	–	48	30	–	36	fz	0,038	0,044	0,055	0,063	0,071	0,077

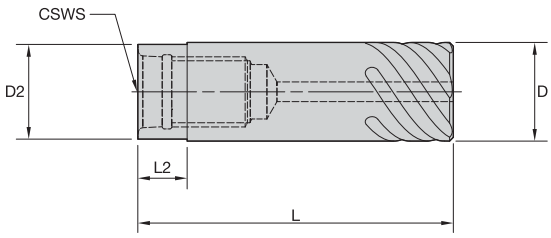
NOTE: Those guidelines may require variations to achieve optimum results.
Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) 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.

HARVI • ULDV • Asymmetrical Flute Spacing



Material Group		Side Milling (A) and Slotting (B)			short			medium			long			Recommended feed per tooth (fz = mm/th) for side milling (A). For slotting (B), reduce fz by 20%.						
		A		B	adaptor reach KCSM15 Cutting Speed — vc m/min			adaptor reach KCSM15 Cutting Speed — vc m/min			adaptor reach KCSM15 Cutting Speed — vc m/min			D1 — Diameter						
		ap	ae	ap	min		max	min		max	min		max	mm	10,0	12,0	16,0	20,0	25,0	32,0
P	0	1,5 x D	0,5 x D	1 x D	150	–	200	135	–	180	135	–	180	fz	0,061	0,070	0,086	0,097	0,105	0,106
	1	1,5 x D	0,5 x D	1 x D	150	–	200	135	–	180	135	–	180	fz	0,061	0,070	0,086	0,097	0,105	0,106
	2	1,5 x D	0,5 x D	1 x D	140	–	190	126	–	171	126	–	171	fz	0,061	0,070	0,086	0,097	0,105	0,106
	3	1,5 x D	0,5 x D	1 x D	120	–	160	108	–	144	108	–	144	fz	0,051	0,060	0,074	0,086	0,097	0,105
	4	1,5 x D	0,4 x D	0,75 x D	90	–	150	81	–	135	81	–	135	fz	0,046	0,053	0,065	0,075	0,083	0,087
	5	1,5 x D	0,4 x D	1 x D	60	–	100	51	–	85	48	–	80	fz	0,041	0,048	0,059	0,069	0,077	0,084
	6	1,5 x D	0,4 x D	0,75 x D	50	–	75	42,5	–	63,75	40	–	60	fz	0,034	0,040	0,048	0,055	0,060	0,062
M	1	1,5 x D	0,4 x D	1 x D	90	–	115	72	–	92	63	–	80,5	fz	0,051	0,060	0,074	0,086	0,097	0,105
	2	1,5 x D	0,4 x D	1 x D	60	–	80	48	–	64	42	–	56	fz	0,041	0,048	0,059	0,069	0,077	0,084
	3	1,5 x D	0,4 x D	1 x D	60	–	70	48	–	56	42	–	49	fz	0,034	0,040	0,048	0,055	0,060	0,062
K	1	1,5 x D	0,5 x D	1 x D	120	–	150	108	–	135	108	–	135	fz	0,061	0,070	0,086	0,097	0,105	0,106
	2	1,5 x D	0,5 x D	1 x D	110	–	140	99	–	126	99	–	126	fz	0,051	0,060	0,074	0,086	0,097	0,105
	3	1,5 x D	0,5 x D	1 x D	110	–	130	99	–	117	99	–	117	fz	0,041	0,048	0,059	0,069	0,077	0,084
S	1	1,5 x D	0,3 x D	0,3 x D	50	–	90	40	–	72	30	–	54	fz	0,051	0,060	0,074	0,086	0,097	0,105
	2	1,5 x D	0,3 x D	0,3 x D	25	–	40	20	–	32	15	–	24	fz	0,027	0,032	0,039	0,046	0,052	0,057
	3	1,5 x D	0,3 x D	0,3 x D	25	–	40	20	–	32	15	–	24	fz	0,027	0,032	0,039	0,046	0,052	0,057
	4	1,5 x D	0,4 x D	1 x D	50	–	60	40	–	48	30	–	36	fz	0,038	0,044	0,055	0,063	0,071	0,077
H	1	1,5 x D	0,4 x D	0,75 x D	80	–	140	64	–	112	48	–	84	fz	0,046	0,053	0,065	0,075	0,083	0,087
	2	1,5 x D	0,2 x D	0,5 x D	70	–	120	56	–	96	42	–	72	fz	0,034	0,040	0,048	0,055	0,060	0,062

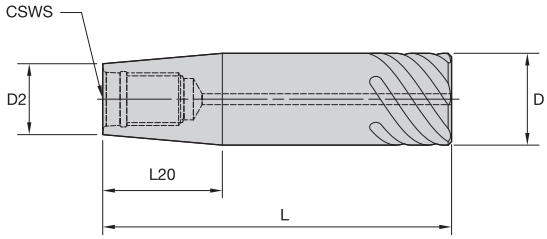
NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
Above parameters are based on ideal conditions. Please 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.



DL SS SL Cylindrical Metric

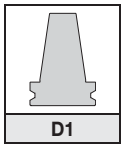
order number	catalogue number	CSWS system size	D	D2	L	L2	kg
6134889	**SS10SLDL10055M**	DL10	10	9,58	55	6	0,03
6135043	**SS12SLDL12065M**	DL12	12	11,50	65	7	0,05
6135049	**SS16SLDL16070M**	DL16	16	15,50	70	9	0,09
6135057	**SS20SLDL20080M**	DL20	20	19,30	80	11	0,16
6135063	**SS25SLDL25090M**	DL25	25	24,00	90	13	0,27
6135067	**SS32SLDL32105M**	DL32	32	31,00	105	17	0,52

NOTE: Cylindrical shanks not recommended for full slotting.



DL SS SL Conical Metric

order number	catalogue number	CSWS system size	D	D2	L	L20	kg
6135041	**SS12SLDL10065M**	DL10	12	9,58	65	14	0,05
6135045	**SS16SLDL10090M**	DL10	16	9,58	90	37	0,11
6135051	**SS20SLDL10115M**	DL10	20	9,58	115	59	0,21
6135047	**SS16SLDL12080M**	DL12	16	11,50	80	26	0,11
6135053	**SS20SLDL12105M**	DL12	20	11,50	105	49	0,20
6135055	**SS20SLDL16080M**	DL16	20	15,50	80	26	0,16
6135059	**SS25SLDL16115M**	DL16	25	15,50	115	54	0,35
6135061	**SS25SLDL20095M**	DL20	25	19,30	95	33	0,30
6135065	**SS32SLDL25105M**	DL25	32	24,00	105	46	0,52
6135069	**SS40SLDL32140M**	DL32	40	31,00	140	51	1,13
6135081	**SS50SLDL32200M**	DL32	50	31,00	200	109	2,35



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™ adaptor in a mounting block with a clamping chuck sufficient to enable torque transmission.

3 Screw the Duo-Lock™ cutting tip into adaptor by hand.

Attention: Use of protective gloves is mandatory!

4 A gap of approx. 0,15–0,3mm 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
DL 10	20
DL 12	30
DL 16	60
DL 20	80
DL 25	100
DL 32	130

Solid End Milling

POWERED BY NOVO

HARVI™ I TE

High-Performance Solid End Milling

Materials

P M K S H

Applications

- Slotting
- Side Milling/ Shoulder Milling
- Ramping
- Helical Interpolation
- Plunge Milling
- Trochoidal Milling

kennametal.com/HARVI1TE

Proprietary end face design — Twisted cutting edge increases corner stability, enabling soft cutting action even at highest ramping angles.

Proprietary core design — Increases tool stability.

Innovative end face design — Asymmetrical divided flutes and variable helix, enabling vibration dampening and unmatched feed rates.

Proprietary relief — With AVF technology. A precision-faceted eccentric relief reduces vibrations and friction. For excellent cutting conditions in multiple materials.

Proprietary flute design — Innovative chip gashes within the flutes reduce cutting forces and supports efficient chip evacuation.

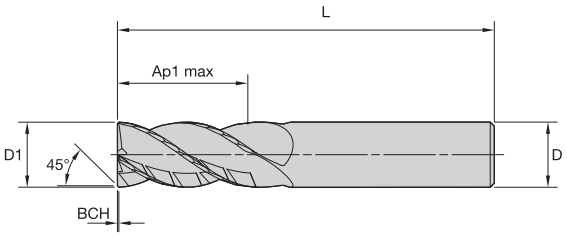
HARVI™ I TE — Innovative proprietary design features driving maximum productivity.

Universal character. Machines steel, stainless steel, cast iron, and high-temperature alloys with exceptional feed rates, reaching unmatched metal removal rates.

Applicable for a variety of operations, including dynamic milling and extreme ramping operations.

4-fluted end mill for high-performance roughing and finishing with only one tool.

HARVI I TE — Maximum metal removal. Maximum productivity. Maximum benefit.

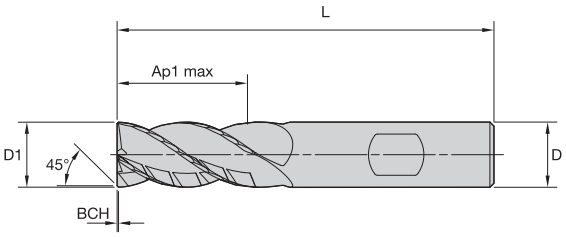


P	●
M	●
K	●
N	
S	○
H	○

● first choice
○ alternate choice

HARVI I TE • Chamfered • 4 Flutes • Plain Shank • Metric

order number	catalogue number	D1	D	Ap1 max	L	BCH	KCPM15
6675697	H1TE4CH0400R012HAM	4,00	6,00	12,00	55,00	0,40	6675697
6675698	H1TE4CH0500R013HAM	5,00	6,00	13,00	57,00	0,40	6675698
6675699	H1TE4CH0600R013HAM	6,00	6,00	13,00	57,00	0,40	6675699
6675700	H1TE4CH0800R016HAM	8,00	8,00	16,00	63,00	0,40	6675700
6675742	H1TE4CH1000R022HAM	10,00	10,00	22,00	72,00	0,50	6675742
6675743	H1TE4CH1200R026HAM	12,00	12,00	26,00	83,00	0,50	6675743
6675745	H1TE4CH1600R032HAM	16,00	16,00	32,00	92,00	0,50	6675745
6675746	H1TE4CH1800R032HAM	18,00	18,00	32,00	92,00	0,50	6675746
6675747	H1TE4CH2000R038HAM	20,00	20,00	38,00	104,00	0,50	6675747
6675748	H1TE4CH2500R045HAM	25,00	25,00	45,00	121,00	0,50	6675748

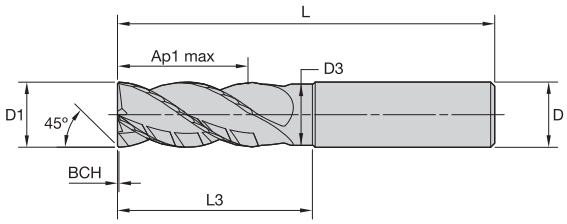


P		●
M		●
K		●
N		
S		○
H		○

● first choice
○ alternate choice

HARVI I TE • Chamfered • 4 Flutes • Weldon Shank • Metric

order number	catalogue number	D1	D	Ap1 max	L	BCH	KCPM15
6675749	H1TE4CH0400R012HBM	4,00	6,00	12,00	55,00	0,40	6675749
6675750	H1TE4CH0500R013HBM	5,00	6,00	13,00	57,00	0,40	6675750
6675751	H1TE4CH0600R013HBM	6,00	6,00	13,00	57,00	0,40	6675751
6675752	H1TE4CH0800R016HBM	8,00	8,00	16,00	63,00	0,40	6675752
6675753	H1TE4CH1000R022HBM	10,00	10,00	22,00	72,00	0,50	6675753
6675754	H1TE4CH1200R026HBM	12,00	12,00	26,00	83,00	0,50	6675754
6675756	H1TE4CH1600R032HBM	16,00	16,00	32,00	92,00	0,50	6675756
6675757	H1TE4CH1800R032HBM	18,00	18,00	32,00	92,00	0,50	6675757
6675758	H1TE4CH2000R038HBM	20,00	20,00	38,00	104,00	0,50	6675758
6687137	H1TE4CH2500R045HBM	25,00	25,00	45,00	121,00	0,50	6687137

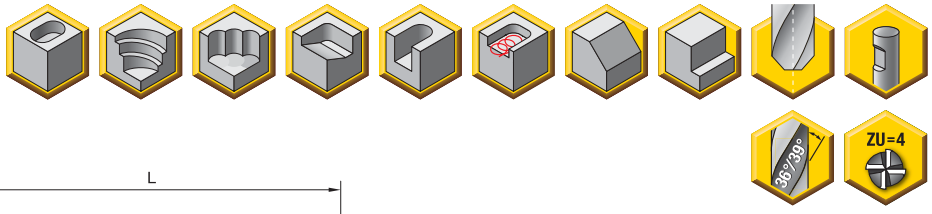


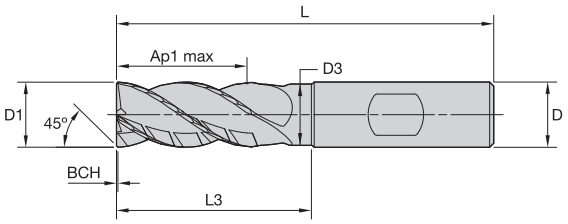
P	●
M	●
K	●
N	
S	○
H	○

● first choice
○ alternate choice

HARVI I TE • Chamfered • 4 Flutes • Necked • Plain Shank • Metric

order number	catalogue number	D1	D	D3	Ap1 max	L	BCH	KCPM15
6676308	H1TE4CH0400N011HAM	4,00	6,00	3,76	11,00	57,00	0,15	6676308
6676310	H1TE4CH0500N013HAM	5,00	6,00	4,70	13,00	57,00	0,15	6676310
6676332	H1TE4CH0600N013HAM	6,00	6,00	5,64	13,00	57,00	0,15	6676332
6676334	H1TE4CH0800N016HAM	8,00	8,00	7,52	16,00	63,00	0,20	6676334
6676336	H1TE4CH1000N022HAM	10,00	10,00	9,40	22,00	72,00	0,20	6676336
6676338	H1TE4CH1200N026HAM	12,00	12,00	11,28	26,00	83,00	0,20	6676338
6676342	H1TE4CH1600N032HAM	16,00	16,00	15,04	32,00	92,00	0,35	6676342
6676344	H1TE4CH2000N038HAM	20,00	20,00	18,80	38,00	104,00	0,35	6676344
6676346	H1TE4CH2500N045HAM	25,00	25,00	24,00	45,00	121,00	0,35	6676346





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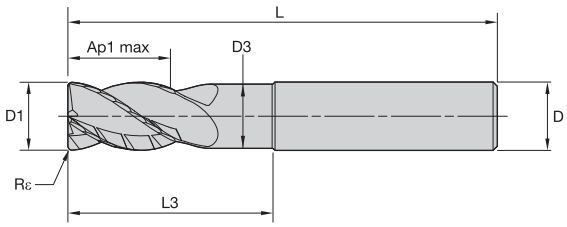
HARVI I TE • Chamfered • 4 Flutes • Necked • Weldon Shank • Metric

order number	catalogue number	D1	D	D3	Ap1 max	L	BCH	KCPM15
6676309	H1TE4CH0400N011HBM	4,00	6,00	3,76	11,00	57,00	0,15	6676309
6676331	H1TE4CH0500N013HBM	5,00	6,00	4,70	13,00	57,00	0,15	6676331
6676333	H1TE4CH0600N013HBM	6,00	6,00	5,64	13,00	57,00	0,15	6676333
6676335	H1TE4CH0800N016HBM	8,00	8,00	7,52	16,00	63,00	0,20	6676335
6676337	H1TE4CH1000N022HBM	10,00	10,00	9,40	22,00	72,00	0,20	6676337
6676339	H1TE4CH1200N026HBM	12,00	12,00	11,28	26,00	83,00	0,20	6676339
6676343	H1TE4CH1600N032HBM	16,00	16,00	15,04	32,00	92,00	0,35	6676343
6676345	H1TE4CH2000N038HBM	20,00	20,00	18,80	38,00	104,00	0,35	6676345
6676347	H1TE4CH2500N045HBM	25,00	25,00	24,00	45,00	121,00	0,35	6676347



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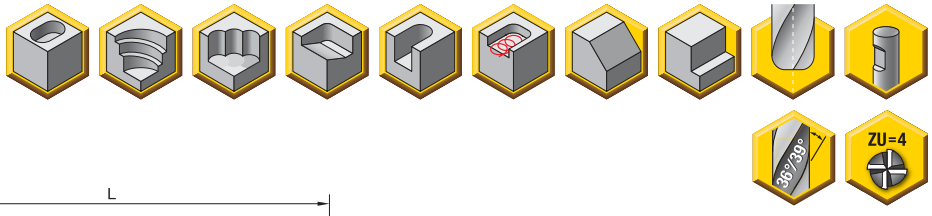
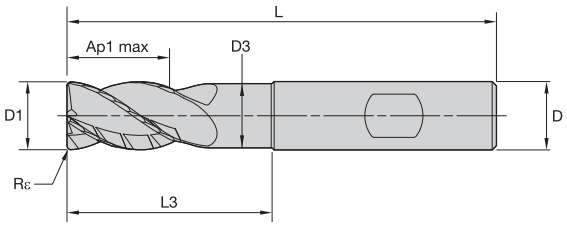
HARVI I TE • Radiused • 4 Flutes • Necked • Plain Shank • Metric

order number	catalogue number	D1	D	D3	Ap1 max	L3	L	Rε	KCSM15
6676190	H1TE4RA0600N009HAR050M	6,00	6,00	5,64	9,00	18,00	63,00	0,50	6676190
6676231	H1TE4RA0600N009HAR100M	6,00	6,00	5,64	9,00	18,00	63,00	1,00	6676231
6676234	H1TE4RA0800N012HAR050M	8,00	8,00	7,52	12,00	24,00	68,00	0,50	6676234
6676235	H1TE4RA0800N012HAR100M	8,00	8,00	7,52	12,00	24,00	68,00	1,00	6676235
6676238	H1TE4RA1000N015HAR050M	10,00	10,00	9,40	15,00	30,00	76,00	0,50	6676238
6676239	H1TE4RA1000N015HAR100M	10,00	10,00	9,40	15,00	30,00	76,00	1,00	6676239
6676240	H1TE4RA1000N015HAR200M	10,00	10,00	9,40	15,00	30,00	76,00	2,00	6676240
6676251	H1TE4RA1000N015HAR300M	10,00	10,00	9,40	15,00	30,00	76,00	3,00	6676251
6676257	H1TE4RA1200N018HAR050M	12,00	12,00	11,28	18,00	36,00	83,00	0,50	6676257
6676258	H1TE4RA1200N018HAR100M	12,00	12,00	11,28	18,00	36,00	83,00	1,00	6676258
6676259	H1TE4RA1200N018HAR200M	12,00	12,00	11,28	18,00	36,00	83,00	2,00	6676259
6676260	H1TE4RA1200N018HAR300M	12,00	12,00	11,28	18,00	36,00	83,00	3,00	6676260
6676271	H1TE4RA1200N018HAR400M	12,00	12,00	11,28	18,00	36,00	83,00	4,00	6676271
6676277	H1TE4RA1600N024HAR050M	16,00	16,00	15,04	24,00	48,00	100,00	0,50	6676277
6676278	H1TE4RA1600N024HAR100M	16,00	16,00	15,04	24,00	48,00	100,00	1,00	6676278
6676279	H1TE4RA1600N024HAR200M	16,00	16,00	15,04	24,00	48,00	100,00	2,00	6676279
6676280	H1TE4RA1600N024HAR300M	16,00	16,00	15,04	24,00	48,00	100,00	3,00	6676280
6676281	H1TE4RA1600N024HAR400M	16,00	16,00	15,04	24,00	48,00	100,00	4,00	6676281
6676282	H1TE4RA1600N024HAR600M	16,00	16,00	15,04	24,00	48,00	100,00	6,00	6676282
6676289	H1TE4RA2000N030HAR050M	20,00	20,00	18,80	30,00	60,00	115,00	0,50	6676289
6676290	H1TE4RA2000N030HAR100M	20,00	20,00	18,80	30,00	60,00	115,00	1,00	6676290
6676291	H1TE4RA2000N030HAR200M	20,00	20,00	18,80	30,00	60,00	115,00	2,00	6676291
6676292	H1TE4RA2000N030HAR300M	20,00	20,00	18,80	30,00	60,00	115,00	3,00	6676292
6676293	H1TE4RA2000N030HAR400M	20,00	20,00	18,80	30,00	60,00	115,00	4,00	6676293
6676294	H1TE4RA2000N030HAR600M	20,00	20,00	18,80	30,00	60,00	115,00	6,00	6676294
6676299	H1TE4RA2500N038HAR050M	25,00	25,00	24,00	37,50	75,00	135,00	0,50	6676299
6676300	H1TE4RA2500N038HAR100M	25,00	25,00	24,00	37,50	75,00	135,00	1,00	6676300
6676301	H1TE4RA2500N038HAR200M	25,00	25,00	24,00	37,50	75,00	135,00	2,00	6676301
6676302	H1TE4RA2500N038HAR300M	25,00	25,00	24,00	37,50	75,00	135,00	3,00	6676302
6676303	H1TE4RA2500N038HAR400M	25,00	25,00	24,00	37,50	75,00	135,00	4,00	6676303
6676304	H1TE4RA2500N038HAR600M	25,00	25,00	24,00	37,50	75,00	135,00	6,00	6676304





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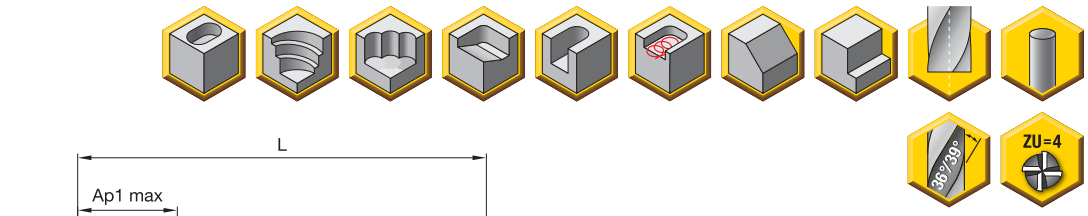
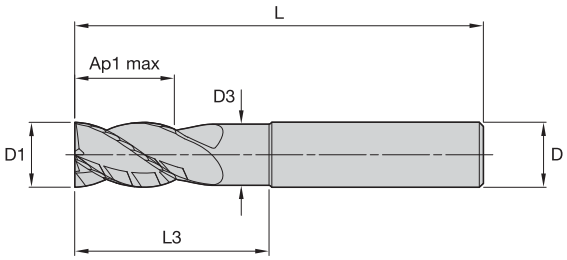
HARVI I TE • Radiused • 4 Flutes • Necked • Weldon Shank • Metric

order number	catalogue number	D1	D	D3	Ap1 max	L3	L	Rε	KCSM15
6676232	H1TE4RA0600N009HBR050M	6,00	6,00	5,64	9,00	18,00	63,00	0,50	6676232
6676233	H1TE4RA0600N009HBR100M	6,00	6,00	5,64	9,00	18,00	63,00	1,00	6676233
6676236	H1TE4RA0800N012HBR050M	8,00	8,00	7,52	12,00	24,00	68,00	0,50	6676236
6676237	H1TE4RA0800N012HBR100M	8,00	8,00	7,52	12,00	24,00	68,00	1,00	6676237
6676253	H1TE4RA1000N015HBR050M	10,00	10,00	9,40	15,00	30,00	76,00	0,50	6676253
6676254	H1TE4RA1000N015HBR100M	10,00	10,00	9,40	15,00	30,00	76,00	1,00	6676254
6676255	H1TE4RA1000N015HBR200M	10,00	10,00	9,40	15,00	30,00	76,00	2,00	6676255
6676256	H1TE4RA1000N015HBR300M	10,00	10,00	9,40	15,00	30,00	76,00	3,00	6676256
6676272	H1TE4RA1200N018HBR050M	12,00	12,00	11,28	18,00	36,00	83,00	0,50	6676272
6676273	H1TE4RA1200N018HBR100M	12,00	12,00	11,28	18,00	36,00	83,00	1,00	6676273
6676274	H1TE4RA1200N018HBR200M	12,00	12,00	11,28	18,00	36,00	83,00	2,00	6676274
6676275	H1TE4RA1200N018HBR300M	12,00	12,00	11,28	18,00	36,00	83,00	3,00	6676275
6676276	H1TE4RA1200N018HBR400M	12,00	12,00	11,28	18,00	36,00	83,00	4,00	6676276
6676283	H1TE4RA1600N024HBR050M	16,00	16,00	15,04	24,00	48,00	100,00	0,50	6676283
6676284	H1TE4RA1600N024HBR100M	16,00	16,00	15,04	24,00	48,00	100,00	1,00	6676284
6676285	H1TE4RA1600N024HBR200M	16,00	16,00	15,04	24,00	48,00	100,00	2,00	6676285
6676286	H1TE4RA1600N024HBR300M	16,00	16,00	15,04	24,00	48,00	100,00	3,00	6676286
6676287	H1TE4RA1600N024HBR400M	16,00	16,00	15,04	24,00	48,00	100,00	4,00	6676287
6676288	H1TE4RA1600N024HBR600M	16,00	16,00	15,04	24,00	48,00	100,00	6,00	6676288
6676295	H1TE4RA2000N030HBR050M	20,00	20,00	18,80	30,00	60,00	115,00	0,50	6676295
6676296	H1TE4RA2000N030HBR100M	20,00	20,00	18,80	30,00	60,00	115,00	1,00	6676296
6676297	H1TE4RA2000N030HBR200M	20,00	20,00	18,80	30,00	60,00	115,00	2,00	6676297
6676298	H1TE4RA2000N030HBR300M	20,00	20,00	18,80	30,00	60,00	115,00	3,00	6676298
6687140	H1TE4RA2000N030HBR400M	20,00	20,00	18,80	30,00	60,00	115,00	4,00	6687140
6687151	H1TE4RA2000N030HBR600M	20,00	20,00	18,80	30,00	60,00	115,00	6,00	6687151
6676305	H1TE4RA2500N038HBR050M	25,00	25,00	24,00	37,50	75,00	135,00	0,50	6676305
6687152	H1TE4RA2500N038HBR100M	25,00	25,00	24,00	37,50	75,00	135,00	1,00	6687152
6687153	H1TE4RA2500N038HBR200M	25,00	25,00	24,00	37,50	75,00	135,00	2,00	6687153
6687154	H1TE4RA2500N038HBR300M	25,00	25,00	24,00	37,50	75,00	135,00	3,00	6687154
6676306	H1TE4RA2500N038HBR400M	25,00	25,00	24,00	37,50	75,00	135,00	4,00	6676306
6676307	H1TE4RA2500N038HBR600M	25,00	25,00	24,00	37,50	75,00	135,00	6,00	6676307





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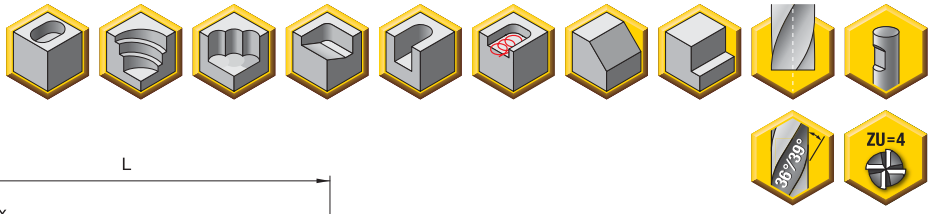
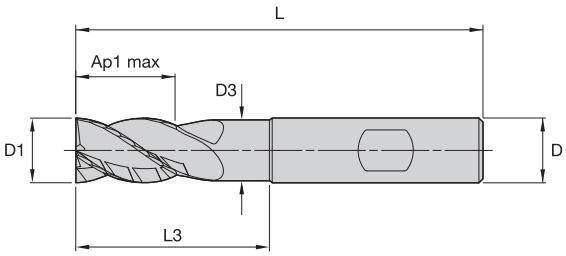
HARVI I TE • Square End • 4 Flutes • Necked • Plain Shank • Metric

order number	catalogue number	D1	D	D3	Ap1 max	L3	L	KCPM15
6769547	H1TE4SE0400N011HAM	4,00	6,00	3,76	11,00	16,00	57,00	6769547
6769548	H1TE4SE0500N013HAM	5,00	6,00	4,70	13,00	18,00	57,00	6769548
6769549	H1TE4SE0600N013HAM	6,00	6,00	5,64	13,00	18,00	57,00	6769549
6769563	H1TE4SE0800N016HAM	8,00	8,00	7,52	16,00	24,00	63,00	6769563
6769564	H1TE4SE1000N022HAM	10,00	10,00	9,40	22,00	30,00	72,00	6769564
6769565	H1TE4SE1200N026HAM	12,00	12,00	11,28	26,00	36,00	83,00	6769565
6769566	H1TE4SE1400N026HAM	14,00	14,00	13,16	26,00	42,00	83,00	6769566
6769567	H1TE4SE1600N032HAM	16,00	16,00	15,04	32,00	48,00	92,00	6769567
6769568	H1TE4SE1800N035HAM	18,00	18,00	16,92	35,00	54,00	92,00	6769568
6769569	H1TE4SE2000N038HAM	20,00	20,00	18,80	38,00	60,00	104,00	6769569
6769581	H1TE4SE2500N045HAM	25,00	25,00	24,00	45,00	75,00	121,00	6769581





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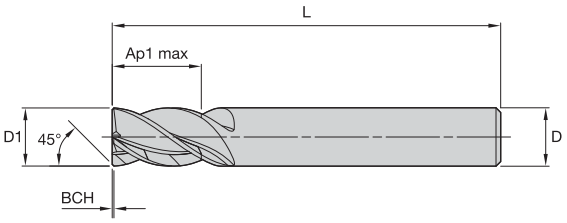
HARVI I TE • Square End • 4 Flutes • Necked • Weldon Shank • Metric

order number	catalogue number	D1	D	D3	Ap1 max	L3	L	KCPM15
6769586	H1TE4SE0400N011HBM	4,00	6,00	3,76	11,00	16,00	57,00	6769586
6769587	H1TE4SE0500N013HBM	5,00	6,00	4,70	13,00	18,00	57,00	6769587
6769588	H1TE4SE0600N013HBM	6,00	6,00	5,64	13,00	18,00	57,00	6769588
6769589	H1TE4SE0800N016HBM	8,00	8,00	7,52	16,00	24,00	63,00	6769589
6769590	H1TE4SE1000N022HBM	10,00	10,00	9,40	22,00	30,00	72,00	6769590
6769591	H1TE4SE1200N026HBM	12,00	12,00	11,28	26,00	36,00	83,00	6769591
6769592	H1TE4SE1400N026HBM	14,00	14,00	13,16	26,00	42,00	83,00	6769592
6769593	H1TE4SE1600N032HBM	16,00	16,00	15,04	32,00	48,00	92,00	6769593
6769594	H1TE4SE1800N035HBM	18,00	18,00	16,92	35,00	54,00	92,00	6769594
6769595	H1TE4SE2000N038HBM	20,00	20,00	18,80	38,00	60,00	104,00	6769595
6769596	H1TE4SE2500N045HBM	25,00	25,00	24,00	45,00	75,00	121,00	6769596



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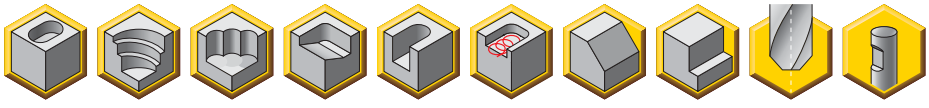
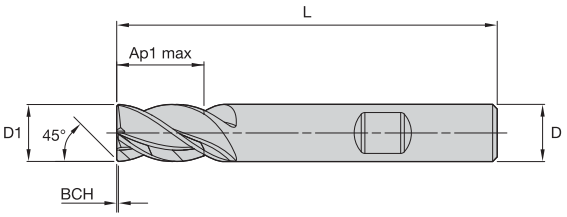
HARVI I TE • Chamfered • 4 Flutes • Short • Plain Shank • Metric

order number	catalogue number	D1	D	Ap1 max	L	BCH	KCPM15
6769611	H1TE4CH0400S008HAM	4,00	6,00	8,00	54,00	0,15	6769611
6769613	H1TE4CH0500S009HAM	5,00	6,00	9,00	54,00	0,15	6769613
6769614	H1TE4CH0600S010HAM	6,00	6,00	10,00	54,00	0,15	6769614
6769615	H1TE4CH0800S012HAM	8,00	8,00	12,00	58,00	0,20	6769615
6769616	H1TE4CH1000S014HAM	10,00	10,00	14,00	66,00	0,25	6769616
6769617	H1TE4CH1200S016HAM	12,00	12,00	16,00	73,00	0,25	6769617
6769619	H1TE4CH1400S018HAM	14,00	14,00	18,00	75,00	0,25	6769619
6769620	H1TE4CH1600S022HAM	16,00	16,00	22,00	82,00	0,35	6769620
6769621	H1TE4CH1800S024HAM	18,00	18,00	24,00	92,00	0,35	6769621
6769622	H1TE4CH2000S026HAM	20,00	20,00	26,00	92,00	0,35	6769622
6769623	H1TE4CH2500S030HAM	25,00	25,00	30,00	121,00	0,35	6769623





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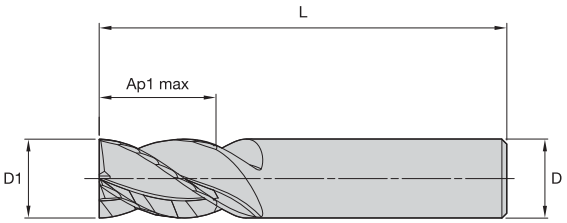
HARVI I TE • Chamfered • 4 Flutes • Short • Weldon Shank • Metric

order number	catalogue number	D1	D	Ap1 max	L	BCH	KCPM15
6769629	H1TE4CH0400S008HBM	4,00	6,00	8,00	54,00	0,15	6769629
6769630	H1TE4CH0500S009HBM	5,00	6,00	9,00	54,00	0,15	6769630
6769631	H1TE4CH0600S010HBM	6,00	6,00	10,00	54,00	0,15	6769631
6769632	H1TE4CH0800S012HBM	8,00	8,00	12,00	58,00	0,20	6769632
6769633	H1TE4CH1000S014HBM	10,00	10,00	14,00	66,00	0,25	6769633
6769634	H1TE4CH1200S016HBM	12,00	12,00	16,00	73,00	0,25	6769634
6769635	H1TE4CH1400S018HBM	14,00	14,00	18,00	75,00	0,25	6769635
6769636	H1TE4CH1600S022HBM	16,00	16,00	22,00	82,00	0,35	6769636
6769637	H1TE4CH1800S024HBM	18,00	18,00	24,00	92,00	0,35	6769637
6769638	H1TE4CH2000S026HBM	20,00	20,00	26,00	92,00	0,35	6769638
6769639	H1TE4CH2500S030HBM	25,00	25,00	30,00	121,00	0,35	6769639



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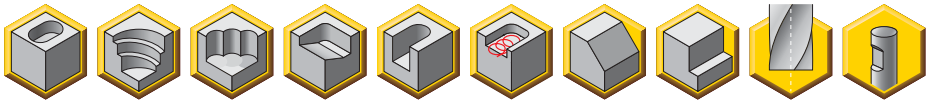
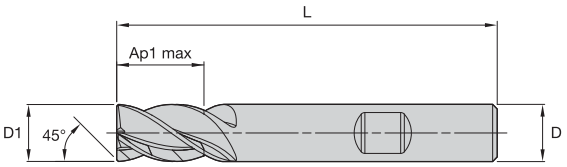
○ alternate choice

HARVI I TE • Square End • 4 Flutes • Short • Plain Shank • Metric

order number	catalogue number	D1	D	Ap1 max	L	KCPM15
6769682	H1TE4SE0400S008HAM	4,00	6,00	8,00	54,00	6769682
6769683	H1TE4SE0500S009HAM	5,00	6,00	9,00	54,00	6769683
6769684	H1TE4SE0600S010HAM	6,00	6,00	10,00	54,00	6769684
6769685	H1TE4SE0800S012HAM	8,00	8,00	12,00	58,00	6769685
6769686	H1TE4SE1000S014HAM	10,00	10,00	14,00	66,00	6769686
6769687	H1TE4SE1200S016HAM	12,00	12,00	16,00	73,00	6769687
6769688	H1TE4SE1400S018HAM	14,00	14,00	18,00	75,00	6769688
6769689	H1TE4SE1600S022HAM	16,00	16,00	22,00	82,00	6769689
6769690	H1TE4SE1800S024HAM	18,00	18,00	24,00	92,00	6769690
6769701	H1TE4SE2000S026HAM	20,00	20,00	26,00	92,00	6769701
6769702	H1TE4SE2500S030HAM	25,00	25,00	30,00	121,00	6769702





P		●
M		●
K		●
N		
S		○
H		○

● first choice
○ alternate choice

HARVI I TE • Square End • 4 Flutes • Short • Weldon Shank • Metric

order number	catalogue number	D1	D	Ap1 max	L	KCPM15
6769709	H1TE4SE0400S008HBM	4,00	6,00	8,00	54,00	6769709
6769710	H1TE4SE0500S009HBM	5,00	6,00	9,00	54,00	6769710
6769711	H1TE4SE0600S010HBM	6,00	6,00	10,00	54,00	6769711
6769712	H1TE4SE0800S012HBM	8,00	8,00	12,00	58,00	6769712
6769713	H1TE4SE1000S014HBM	10,00	10,00	14,00	66,00	6769713
6769714	H1TE4SE1200S016HBM	12,00	12,00	16,00	73,00	6769714
6769715	H1TE4SE1400S018HBM	14,00	14,00	18,00	75,00	6769715
6769716	H1TE4SE1600S022HBM	16,00	16,00	22,00	82,00	6769716
6769717	H1TE4SE1800S024HBM	18,00	18,00	24,00	92,00	6769717
6769718	H1TE4SE2000S026HBM	20,00	20,00	26,00	92,00	6769718
6769719	H1TE4SE2500S030HBM	25,00	25,00	30,00	121,00	6769719

Material Group		Side Milling (A) and Slotting (B) A ap	A ae	B ap	KCPM15–KCSM15 Cutting Speed — vc m/min min	Start	max	Recommended feed per tooth (fz = mm/z) for side milling (A). For slotting (B), reduce fz by 20%. D1 — Diameter mm	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0	25,0
P	0	1,5 x D1	0,5 x D1	1,25 x D1	150	**175**	200	fz	0,031	0,040	0,048	0,066	0,079	0,091	0,102	0,111	0,119	0,125	0,136
	1	1,5 x D1	0,5 x D1	1,25 x D1	150	**175**	200	fz	0,031	0,040	0,048	0,066	0,079	0,091	0,102	0,111	0,119	0,125	0,136
	2	1,5 x D1	0,5 x D1	1,25 x D1	140	**165**	190	fz	0,031	0,040	0,048	0,066	0,079	0,091	0,102	0,111	0,119	0,125	0,136
	3	1,5 x D1	0,5 x D1	1,25 x D1	120	**140**	160	fz	0,026	0,033	0,040	0,055	0,067	0,077	0,087	0,096	0,104	0,111	0,125
	4	1,5 x D1	0,5 x D1	1,25 x D1	90	**120**	150	fz	0,024	0,030	0,036	0,049	0,059	0,069	0,077	0,084	0,091	0,097	0,107
	5	1,5 x D1	0,5 x D1	1,25 x D1	60	**80**	100	fz	0,021	0,027	0,032	0,044	0,053	0,062	0,070	0,077	0,083	0,089	0,100
	6	1,5 x D1	0,5 x D1	1,25 x D1	50	**65**	75	fz	0,018	0,022	0,027	0,037	0,044	0,051	0,057	0,063	0,067	0,071	0,078
M	1	1,5 x D1	0,5 x D1	1,25 x D1	90	**100**	115	fz	0,026	0,033	0,040	0,055	0,067	0,077	0,087	0,096	0,104	0,111	0,125
	2	1,5 x D1	0,5 x D1	1,25 x D1	60	**70**	80	fz	0,021	0,027	0,032	0,044	0,053	0,062	0,070	0,077	0,083	0,089	0,100
	3	1,5 x D1	0,5 x D1	1,0 x D1	60	**65**	70	fz	0,018	0,022	0,027	0,037	0,044	0,051	0,057	0,063	0,067	0,071	0,078
K	1	1,5 x D1	0,5 x D1	1,0 x D1	120	**135**	150	fz	0,031	0,040	0,048	0,066	0,079	0,091	0,102	0,111	0,119	0,125	0,136
	2	1,5 x D1	0,5 x D1	1,0 x D1	110	**125**	140	fz	0,026	0,033	0,040	0,055	0,067	0,077	0,087	0,096	0,104	0,111	0,125
	3	1,5 x D1	0,5 x D1	1,0 x D1	110	**120**	130	fz	0,021	0,027	0,032	0,044	0,053	0,062	0,070	0,077	0,083	0,089	0,100
S	1	1,5 x D1	0,5 x D1	0,75 x D1	50	**70**	90	fz	0,026	0,033	0,040	0,055	0,067	0,077	0,087	0,096	0,104	0,111	0,125
	2	1,5 x D1	0,5 x D1	0,75 x D1	50	**65**	80	fz	0,021	0,027	0,032	0,044	0,053	0,062	0,070	0,077	0,083	0,089	0,100
	3	1,5 x D1	0,5 x D1	0,5 x D1	25	**30**	40	fz	0,014	0,018	0,021	0,029	0,035	0,041	0,046	0,051	0,055	0,059	0,067
	4	1,5 x D1	0,5 x D1	1,25 x D1	50	**55**	60	fz	0,017	0,023	0,028	0,040	0,049	0,057	0,064	0,071	0,076	0,082	0,092
H	1	1,5 x D1	0,5 x D1	1,0 x D1	80	**110**	140	fz	0,024	0,030	0,036	0,049	0,059	0,069	0,077	0,084	0,091	0,097	0,107
	2	1,5 x D1	0,5 x D1	1,0 x D1	70	**90**	120	fz	0,018	0,022	0,027	0,037	0,044	0,051	0,057	0,063	0,067	0,071	0,078

HARVI I TE • 4 Flutes • Adjustment factor for feed and speed calculation

To calculate application specific cutting data, please use KV coefficient table to the right for adaptation of cutting speed and KFz for feed respectively.

Vc new = Vc * Kv
Fz new = IPT * KFz

Calculation example:
Application: D = 20mm; M2 material group;
Ae = 2mm
Cutting data recommendation: Vc = 80 m/min;
fz = 0,089mm/th
Adjustment coefficients: Ae = 2mm equals 10,0%;
Kv = 1,35; KFz = 1,7

Final cutting data recommendation:
Vc new = 80 * 1,35 = 108 m/min
Fz new = 0,089 * 1,7 = 0,15mm/th

	Ae/D	0,50%	1,00%	1,60%	2,00%	4,00%	5,00%	8,00%	10,00%	20,00%	30,00%	40,00%	50,00%
Speed factor	Kv	2,9	2,85	2,8	2	1,5	1,45	1,4	1,35	1,25	1,2	1	1
Feed factor	KFz	2,8	2,6	2,5	2,4	2,3	2,2	2	1,7	1,25	1,02	1	1

Material Group		Helical Interpolation/ Ramping 0°–15°	KCPM15–KCSM15 Cutting Speed — vc m/min			Recommended feed per tooth (fz = mm/z) for Helical Interpolation and Ramping — fz x 2										
						Diameter — D1 [Ømin—Ømax] for helical interpolation										
		Max Depth	min	Start	max	mm	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0	25,0
						mm	4,6–7,6	5,8–9,5	6,9–11,4	9,2–15,2	11,5–19,0	13,8–22,8	16,1–26,6	18,4–30,4	20,7–34,2	23,0–38,0	28,8–47,5
P	0	1,25 x D1	150	**175**	200	fz	0,031	0,040	0,048	0,066	0,079	0,091	0,102	0,111	0,119	0,125	0,136
	1	1,25 x D1	150	**175**	200	fz	0,031	0,040	0,048	0,066	0,079	0,091	0,102	0,111	0,119	0,125	0,136
	2	1,25 x D1	140	**165**	190	fz	0,031	0,040	0,048	0,066	0,079	0,091	0,102	0,111	0,119	0,125	0,136
	3	1,25 x D1	120	**140**	160	fz	0,026	0,033	0,040	0,055	0,067	0,077	0,087	0,096	0,104	0,111	0,125
	4	1,25 x D1	90	**120**	150	fz	0,024	0,030	0,036	0,049	0,059	0,069	0,077	0,084	0,091	0,097	0,107
	5	1,25 x D1	60	**80**	100	fz	0,021	0,027	0,032	0,044	0,053	0,062	0,070	0,077	0,083	0,089	0,100
	6	1,25 x D1	50	**65**	75	fz	0,018	0,022	0,027	0,037	0,044	0,051	0,057	0,063	0,067	0,071	0,078
M	1	1,25 x D1	90	**100**	115	fz	0,026	0,033	0,040	0,055	0,067	0,077	0,087	0,096	0,104	0,111	0,125
	2	1,25 x D1	60	**70**	80	fz	0,021	0,027	0,032	0,044	0,053	0,062	0,070	0,077	0,083	0,089	0,100
	3	1,0 x D1	60	**65**	70	fz	0,018	0,022	0,027	0,037	0,044	0,051	0,057	0,063	0,067	0,071	0,078
K	1	1,0 x D1	120	**135**	150	fz	0,031	0,040	0,048	0,066	0,079	0,091	0,102	0,111	0,119	0,125	0,136
	2	1,0 x D1	110	**125**	140	fz	0,026	0,033	0,040	0,055	0,067	0,077	0,087	0,096	0,104	0,111	0,125
	3	1,0 x D1	110	**120**	130	fz	0,021	0,027	0,032	0,044	0,053	0,062	0,070	0,077	0,083	0,089	0,100
S	1	0,75 x D1	50	**70**	90	fz	0,026	0,033	0,040	0,055	0,067	0,077	0,087	0,096	0,104	0,111	0,125
	2	0,75 x D1	50	**65**	80	fz	0,021	0,027	0,032	0,044	0,053	0,062	0,070	0,077	0,083	0,089	0,100
	3	0,5 x D1	25	**30**	40	fz	0,014	0,018	0,021	0,029	0,035	0,041	0,046	0,051	0,055	0,059	0,067
	4	1,25 x D1	50	**55**	60	fz	0,017	0,023	0,028	0,040	0,049	0,057	0,064	0,071	0,076	0,082	0,092
H	1	1,0 x D1	80	**110**	140	fz	0,024	0,030	0,036	0,049	0,059	0,069	0,077	0,084	0,091	0,097	0,107
	2	1,0 x D1	70	**90**	120	fz	0,018	0,022	0,027	0,037	0,044	0,051	0,057	0,063	0,067	0,071	0,078

Material Group		Helical Interpolation/ Ramping 15°–30°	KCPM15–KCSM15 Cutting Speed — vc m/min			Recommended feed per tooth (fz = mm/z) for Helical Interpolation and Ramping — fz x 2										
						Diameter — D1 [Ømin—Ømax] for helical interpolation										
		Max Depth	min	Start	max	mm	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0	25,0
						mm	4,6–7,6	5,8–9,5	6,9–11,4	9,2–15,2	11,5–19,0	13,8–22,8	16,1–26,6	18,4–30,4	20,7–34,2	23,0–38,0	28,8–47,5
P	0	1,25 x D1	150	**165**	175	fz	0,023	0,030	0,036	0,050	0,059	0,068	0,076	0,083	0,089	0,094	0,102
	1	1,25 x D1	150	**165**	175	fz	0,023	0,030	0,036	0,050	0,059	0,068	0,076	0,083	0,089	0,094	0,102
	2	1,25 x D1	140	**155**	165	fz	0,023	0,030	0,036	0,050	0,059	0,068	0,076	0,083	0,089	0,094	0,102
	3	1,25 x D1	120	**130**	140	fz	0,019	0,025	0,030	0,041	0,050	0,058	0,065	0,072	0,078	0,083	0,094
	4	1,25 x D1	90	**105**	120	fz	0,018	0,022	0,027	0,037	0,045	0,051	0,058	0,063	0,068	0,073	0,080
	5	1,25 x D1	60	**70**	80	fz	0,016	0,020	0,024	0,033	0,040	0,046	0,052	0,058	0,062	0,067	0,075
	6	1,25 x D1	50	**55**	65	fz	0,013	0,017	0,020	0,028	0,033	0,038	0,043	0,047	0,050	0,053	0,059
M	1	1,25 x D1	90	**95**	100	fz	0,019	0,025	0,030	0,041	0,050	0,058	0,065	0,072	0,078	0,083	0,094
	2	1,25 x D1	60	**65**	70	fz	0,016	0,020	0,024	0,033	0,040	0,046	0,052	0,058	0,062	0,067	0,075
	3	1,0 x D1	60	**62**	65	fz	0,013	0,017	0,020	0,028	0,033	0,038	0,043	0,047	0,050	0,053	0,059
K	1	1,0 x D1	120	**130**	135	fz	0,023	0,030	0,036	0,050	0,059	0,068	0,076	0,083	0,089	0,094	0,102
	2	1,0 x D1	110	**120**	125	fz	0,019	0,025	0,030	0,041	0,050	0,058	0,065	0,072	0,078	0,083	0,094
	3	1,0 x D1	110	**115**	120	fz	0,016	0,020	0,024	0,033	0,040	0,046	0,052	0,058	0,062	0,067	0,075
S	1	0,75 x D1	50	**60**	70	fz	0,019	0,025	0,030	0,041	0,050	0,058	0,065	0,072	0,078	0,083	0,094
	2	0,75 x D1	50	**55**	65	fz	0,016	0,020	0,024	0,033	0,040	0,046	0,052	0,058	0,062	0,067	0,075
	3	0,5 x D1	25	**27**	30	fz	0,010	0,013	0,016	0,022	0,026	0,031	0,035	0,038	0,042	0,045	0,051
	4	1,25 x D1	50	**52**	55	fz	0,013	0,017	0,021	0,030	0,037	0,043	0,048	0,053	0,057	0,061	0,069
H	1	1,0 x D1	80	**95**	110	fz	0,018	0,022	0,027	0,037	0,045	0,051	0,058	0,063	0,068	0,073	0,080
	2	1,0 x D1	70	**80**	90	fz	0,013	0,017	0,020	0,028	0,033	0,038	0,043	0,047	0,050	0,053	0,059

Material Group		Max Depth	Helical Interpolation/ Ramping 30°–45° KCPM15–KCSM15 Cutting Speed — vc m/min min	Start	max	Recommended feed per tooth (fz = mm/z) for Helical Interpolation and Ramping — fz x 2 Diameter — D1 [Ømin—Ømax] for helical interpolation mm	4,0 4,6–7,6	5,0 5,8–9,5	6,0 6,9–11,4	8,0 9,2–15,2	10,0 11,5–19,0	12,0 13,8–22,8	14,0 16,1–26,6	16,0 18,4–30,4	18,0 20,7–34,2	20,0 23,0–38,0	25,0 28,8–47,5
P	0	1,25 x D1	140	**150**	165	fz	0,019	0,024	0,029	0,040	0,048	0,055	0,061	0,067	0,071	0,075	0,082
	1	1,25 x D1	140	**150**	165	fz	0,019	0,024	0,029	0,040	0,048	0,055	0,061	0,067	0,071	0,075	0,082
	2	1,25 x D1	140	**150**	165	fz	0,019	0,024	0,029	0,040	0,048	0,055	0,061	0,067	0,071	0,075	0,082
	3	1,25 x D1	105	**115**	120	fz	0,015	0,020	0,024	0,033	0,040	0,046	0,052	0,058	0,062	0,067	0,075
	4	1,25 x D1	90	**100**	110	fz	0,014	0,018	0,022	0,030	0,036	0,041	0,046	0,051	0,055	0,058	0,064
	5	1,25 x D1	70	**75**	80	fz	0,013	0,016	0,019	0,026	0,032	0,037	0,042	0,046	0,050	0,053	0,060
	6	1,25 x D1	55	**60**	65	fz	0,011	0,013	0,016	0,022	0,027	0,031	0,034	0,038	0,040	0,043	0,047
M	1	1,25 x D1	75	**85**	90	fz	0,015	0,020	0,024	0,033	0,040	0,046	0,052	0,058	0,062	0,067	0,075
	2	1,25 x D1	50	**55**	60	fz	0,013	0,016	0,019	0,026	0,032	0,037	0,042	0,046	0,050	0,053	0,060
	3	1,0 x D1	45	**50**	55	fz	0,011	0,013	0,016	0,022	0,027	0,031	0,034	0,038	0,040	0,043	0,047
K	1	1,0 x D1	110	**120**	130	fz	0,019	0,024	0,029	0,040	0,048	0,055	0,061	0,067	0,071	0,075	0,082
	2	1,0 x D1	100	**110**	120	fz	0,015	0,020	0,024	0,033	0,040	0,046	0,052	0,058	0,062	0,067	0,075
	3	1,0 x D1	90	**100**	110	fz	0,013	0,016	0,019	0,026	0,032	0,037	0,042	0,046	0,050	0,053	0,060
S	1	0,75 x D1	80	**85**	90	fz	0,015	0,020	0,024	0,033	0,040	0,046	0,052	0,058	0,062	0,067	0,075
	2	0,75 x D1	55	**60**	65	fz	0,013	0,016	0,019	0,026	0,032	0,037	0,042	0,046	0,050	0,053	0,060
	3	0,5 x D1	20	**25**	28	fz	0,008	0,011	0,013	0,017	0,021	0,025	0,028	0,031	0,033	0,036	0,040
	4	1,25 x D1	35	**40**	45	fz	0,010	0,014	0,017	0,024	0,029	0,034	0,038	0,042	0,046	0,049	0,055
H	1	1,0 x D1	75	**80**	85	fz	0,014	0,018	0,022	0,030	0,036	0,041	0,046	0,051	0,055	0,058	0,064
	2	1,0 x D1	65	**70**	75	fz	0,011	0,013	0,016	0,022	0,027	0,031	0,034	0,038	0,040	0,043	0,047

Material Group		Max Depth	Plunging/Drilling Applicable	Coolant	KCPM15–KCSM15 Cutting Speed — vc m/min min	Start	max	Recommended feed per revolution (fn =mm/rev) for Plunging and Drilling D1 — Diameter mm	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0	25,0
P	0	1,5 x D	●	Preferred	140	**150**	165	fn	0,040	0,045	0,055	0,065	0,080	0,095	0,110	0,120	0,140	0,160	0,180
	1	1,5 x D	●	Required	140	**150**	165	fn	0,040	0,045	0,055	0,065	0,080	0,095	0,110	0,120	0,140	0,160	0,180
	2	1,5 x D	●	Required	140	**150**	165	fn	0,040	0,045	0,055	0,065	0,080	0,095	0,110	0,120	0,140	0,160	0,180
	3	1 x D	●	Required	105	**115**	120	fn	0,028	0,033	0,040	0,050	0,060	0,070	0,085	0,100	0,110	0,125	0,150
	4	1 x D	●	Required	90	**100**	110	fn	0,028	0,033	0,040	0,050	0,060	0,070	0,085	0,100	0,110	0,125	0,150
	5	0,5 x D	●	Required	70	**75**	80	fn	0,018	0,020	0,025	0,035	0,040	0,050	0,055	0,065	0,075	0,085	0,100
	6	0,5 x D	●	Required	55	**60**	65	fn	0,018	0,020	0,025	0,035	0,040	0,050	0,055	0,065	0,075	0,085	0,100
M	1	0,75 x D	●	Required	75	**85**	90	fn	0,028	0,033	0,040	0,050	0,060	0,070	0,085	0,100	0,110	0,125	0,150
	2	0,5 x D	●	Required	50	**55**	60	fn	0,018	0,020	0,025	0,035	0,040	0,050	0,055	0,065	0,075	0,085	0,100
	3	0,5 x D	●	Required	45	**50**	55	fn	0,018	0,020	0,025	0,035	0,040	0,050	0,055	0,065	0,075	0,085	0,100
K	1	1,5 x D	●	Preferred	110	**120**	130	fn	0,040	0,045	0,055	0,065	0,080	0,095	0,110	0,120	0,140	0,160	0,180
	2	1 x D	●	Required	100	**110**	120	fn	0,028	0,033	0,040	0,050	0,060	0,070	0,085	0,100	0,110	0,125	0,150
	3	1 x D	●	Required	90	**100**	110	fn	0,028	0,033	0,040	0,050	0,060	0,070	0,085	0,100	0,110	0,125	0,150
S	1	0,3 x D	○	Required	80	**85**	90	fn	0,028	0,033	0,040	0,050	0,060	0,070	0,085	0,100	0,110	0,125	0,150
	2	0,1 x D	○	Required	55	**60**	65	fn	0,018	0,020	0,025	0,035	0,040	0,050	0,055	0,065	0,075	0,085	0,100
	3	0,1 x D	○	Required	20	**25**	28	fn	0,012	0,015	0,018	0,022	0,028	0,033	0,040	0,045	0,050	0,060	0,070
	4	0,2 x D	○	Required	35	**40**	45	fn	0,018	0,020	0,025	0,035	0,040	0,050	0,055	0,065	0,075	0,085	0,100
H	1	0,3 x D	○	Required	75	**80**	85	fn	0,028	0,033	0,040	0,050	0,060	0,070	0,085	0,100	0,110	0,125	0,150
	2	0,2 x D	○	Required	65	**70**	75	fn	0,018	0,020	0,025	0,035	0,040	0,050	0,055	0,065	0,075	0,085	0,100

Materials to Cut	• Steels (P0-P5). • Stainless steels (M1-M3). • Cast iron (K1-K3). • High-temp alloys (S1-S4). • Hardened materials (H1-H2).
Cutting Speed	• Refer to application data recommendation.
Feed Rate	• Refer to application data recommendation. • Works in same feed rate range as standard 4FL high-versatility tools, for productivity advantage follow application recommendation.
Depth of Cut	• Refer to application data recommendation.
Coolant	• External coolant preferred for steel, stainless, high-temp alloys, and hardened materials. • Pressurized air applicable for carbon steels. • Minimal quantity lubrication (MQL) and dry applicable for carbon steels.
Adaptation	• Hydraulic chuck with or without sleeve preferred. • Weldon® adaptor for Weldon shank tools preferred for high Ap/high Ae applications, but not recommended for finishing applications. • High-performance collet (HPMC) or milling power chucks applicable. • Shrink adaptor applicable.
Roughing Application	• Yes.
Finishing Application	• Yes.
Milling Strategy	• Traditional milling (full slotting, high Ae side and shoulder milling). • High velocity milling (dynamic milling, trochoidal milling).
Application Range	• Full slotting. • Shoulder milling. • Peel milling and HPC techniques. • Centre cutting. • Linear ramping at unlimited angle and 90° plunging. • Ramping into stainless and high-temperature alloys limited by coolant configuration. • Helical interpolation.
Engineered Solutions	• Available upon request.
Reconditioning Service	• Full reconditioning available with Kennametal reconditioning procedures. • Check services under Kennametal website for detailed information.

PROBLEM	CAUSE	REMEDIES
• Tool pullout.	• High axial forces. • Wrong adaptor. • Unadapted application data.	• Use Weldon chuck if applicable or adaptor with higher clamping force. • Reduce feed per tooth.
• Unevenly colored chips when slotting deep (>1.25 x D).	• Not enough coolant in cutting zone.	• Adjust coolant method to improve coolant in cutting zone.
• Sudden breakage when milling dry in Shrink Fit or hydraulic adaptor.	• Tool is too hot and loses fit in adaptor.	• Check temperature on adaptor/spindle. • Improve coolant provision or reduce cutting speed; eventually change to HPMC or Weldon, if applicable.
• Material build-up on cutting edge.	• Cold welding of material at cutting edge.	• Increase coolant in cutting zone. • Decrease cutting speed.
• High flank wear.	• Unadapted application data. • High tool runout.	• Decrease feed rate. • Check tool runout.
• Chipping on tool.	• Unadapted application data. • Insufficient coolant. • High tool runout. • Unstable adaptor. • Clamping on coating area.	• Adjust to recommended speeds and feeds. • Adjust coolant method to improve coolant in cutting zone. • Check runout; eventually change to more stable adaptor. • Adjust clamping to clamp on uncoated area only. • Minimise overhang length.

HARVI™ II

High-Performance Solid Carbide End Mills

Primary Application

The HARVI II system is designed to provide maximum metal removal rates with five unequally spaced flutes for roughing and finishing operations in side milling, slotting, and profiling. A wide range of diameters and corner configurations, such as chamfer, radii, and sharp edges, are available from stock.

- 1 x D slotting in titanium and stainless steels with five unequally spaced flutes.
- Roughing and finishing with one tool.
- KCPM15™ Beyond™ grade for long tool life.

Features and Benefits

Advanced Technology

- Five unequally spaced flutes for chatter-free machining at high feed rates.
- Proprietary parabolic core design increases stability.
- Ramping up to 3°.
- 1 x D full slotting capability in:
  - — Titanium
  - — Stainless steel

Tailored Grades

- KCPM15 Beyond grade for outstanding wear protection in stainless steel to mitigate crater, depth-of-cut notching, and flank wear.
- Universal KC643M™ grade suitable for cutting steel, cast iron, stainless steel (wet), and titanium (wet).

Customisation

- Intermediate diameters available.
- Expanded length of tool and increased length of cut possible.
- Chip divider geometry reduces power consumption and improves chip formation in difficult-to-cut materials.
- Ball-nose version available.
- Internal coolant axial and radial available.
- Various shanks and non-standard coatings available.
- Multiple steps possible.

Extensive Standard Offering

- Diameter range 4–25mm.
- Corner radii in necked and non-necked offering.

High-feed roughing and finishing with one tool at highest length of cut.

Unequal Flute Spacing
Reduces vibrations.
Improves surface finish.

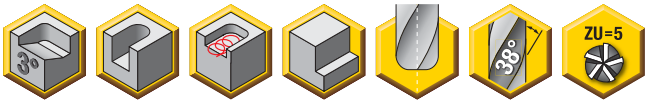
Proprietary Core Design
Improves tool stability.

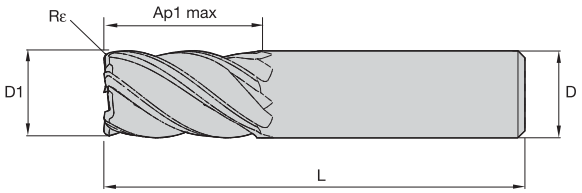
38° Helix Angle
Roughing and finishing.

KCPM15™ Beyond™ Grade
Excellent performance up to 52 HRC. Optimised for steel and stainless steel machining.

KC643M™ AlTiN Grade
Universal usage.
For highest tool life.

- Single tool for both roughing and finishing operations for fewer setups.
- Unequal flute spacing minimises chatter for smoother machining.
- Ramping up to 3°.
- Kennametal standard dimensions.
- Non-centre cutting.
- Five-flute geometry enables slotting up to 1 x D.

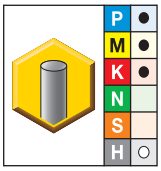




End Mill Tolerances

D1	tolerance e8	D	tolerance h6
≤3	-0,014/-0,028	≤3	+0/-0,006
>3–6	-0,020/-0,038	>3–6	+0/-0,008
>6–10	-0,025/-0,047	>6–10	+0/-0,009
>10–18	-0,032/-0,059	>10–18	+0/-0,011
>18–30	-0,040/-0,073	>18–30	+0/-0,013

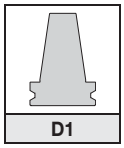
UCDE • 5-Flute • Metric



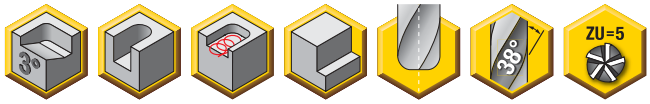
grade KCPM15

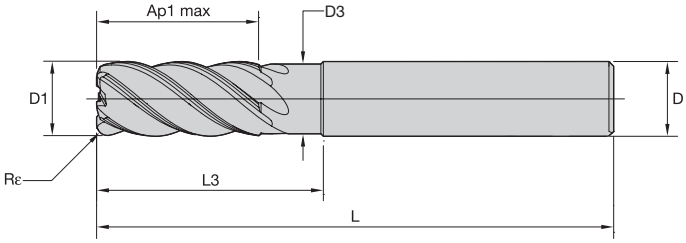
● first choice
○ alternate choice

order #	catalogue #	D1	D	Ap1 max	L	Rε
4046284	UCDE0400A5ARA	4,00	6,00	11,00	55,00	0,25
4046288	UCDE0500A5ARA	5,00	6,00	13,00	57,00	0,25
4046291	UCDE0600A5ARA	6,00	6,00	13,00	57,00	0,40
4046374	UCDE0700A5ARA	7,00	8,00	16,00	63,00	0,40
4046377	UCDE0800A5ARA	8,00	8,00	19,00	63,00	0,50
4046380	UCDE0900A5ARA	9,00	10,00	19,00	72,00	0,50
4046383	UCDE1000A5ARA	10,00	10,00	22,00	72,00	0,50
4046386	UCDE1200A5ARA	12,00	12,00	26,00	83,00	0,75
4046389	UCDE1400A5ARA	14,00	14,00	26,00	83,00	0,75
4046392	UCDE1600A5ARA	16,00	16,00	32,00	92,00	0,75
4046395	UCDE1800A5ARA	18,00	18,00	32,00	92,00	0,75
4046398	UCDE2000A5ARA	20,00	20,00	38,00	104,00	0,75
4046401	UCDE2500A5ARA	25,00	25,00	45,00	121,00	0,75



- Kennametal standard dimensions.
- Non-centre cutting.
- Ramping up to 3°.
- Optimised geometry for titanium machining.
- Unequal flute spacing minimises chatter for smoother machining.
- Single tool for both roughing and finishing operations requiring fewer setups.
- Five-flute geometry enables slotting up to 1 x D.

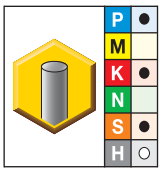




End Mill Tolerances

D1	tolerance e8	D	tolerance h6
≤3	-0,014 / -0,028	≤3	+0 / -0,006
>3–6	-0,020 / -0,038	>3–6	+0 / -0,008
>6–10	-0,025 / -0,047	>6–10	+0 / -0,009
>10–18	-0,032 / -0,059	>10–18	+0 / -0,011
>18–30	-0,040 / -0,073	>18–30	+0 / -0,013

UDDE • 5-Flute with Neck • Metric



grade KC643M

● first choice
○ alternate choice

order #	catalogue #	D1	D	D3	Ap1 max	L3	L	Rε
3524486	UDDE0600A5ARA	6,00	6,00	5,64	13,00	18,00	63,00	0,50
3524487	UDDE0600A5ARB	6,00	6,00	5,64	13,00	18,00	63,00	1,00
3524488	UDDE0600A5ARC	6,00	6,00	5,64	13,00	18,00	63,00	1,50
3524490	UDDE0800A5ARA	8,00	8,00	7,52	19,00	24,00	76,00	0,50
3524491	UDDE0800A5ARB	8,00	8,00	7,52	19,00	24,00	76,00	1,00
3524492	UDDE0800A5ARC	8,00	8,00	7,52	19,00	24,00	76,00	2,00
3524514	UDDE1000A5ARA	10,00	10,00	9,40	22,00	30,00	76,00	0,50
3524515	UDDE1000A5ARB	10,00	10,00	9,40	22,00	30,00	76,00	1,00
3524516	UDDE1000A5ARC	10,00	10,00	9,40	22,00	30,00	76,00	2,00
3524517	UDDE1000A5ARD	10,00	10,00	9,40	22,00	30,00	76,00	2,50
3524519	UDDE1200A5ARA	12,00	12,00	11,28	26,00	36,00	83,00	0,50
3524520	UDDE1200A5ARB	12,00	12,00	11,28	26,00	36,00	83,00	1,00
3524521	UDDE1200A5ARC	12,00	12,00	11,28	26,00	36,00	83,00	2,00
3524522	UDDE1200A5ARD	12,00	12,00	11,28	26,00	36,00	83,00	3,00
3873932	UDDE1400A5ARA	14,00	14,00	13,15	26,00	42,00	84,00	0,50
3874035	UDDE1400A5ARD	14,00	14,00	13,15	26,00	42,00	84,00	3,00
3524524	UDDE1600A5ARA	16,00	16,00	15,04	32,00	48,00	100,00	0,50
3524525	UDDE1600A5ARB	16,00	16,00	15,04	32,00	48,00	100,00	1,00
3524526	UDDE1600A5ARC	16,00	16,00	15,04	32,00	48,00	100,00	2,00
3524527	UDDE1600A5ARD	16,00	16,00	15,04	32,00	48,00	100,00	3,00
3524528	UDDE1600A5ARE	16,00	16,00	15,04	32,00	48,00	100,00	4,00
6063443	UDDE1600A5ARP	16,00	16,00	15,04	32,00	48,00	100,00	6,00
3524530	UDDE2000A5ARA	20,00	20,00	18,80	38,00	60,00	115,00	0,50
3524531	UDDE2000A5ARB	20,00	20,00	18,80	38,00	60,00	115,00	1,00
3524532	UDDE2000A5ARC	20,00	20,00	18,80	38,00	60,00	115,00	2,00
3524533	UDDE2000A5ARD	20,00	20,00	18,80	38,00	60,00	115,00	3,00
3524534	UDDE2000A5ARE	20,00	20,00	18,80	38,00	60,00	115,00	4,00
6063444	UDDE2000A5ARP	20,00	20,00	18,80	38,00	60,00	115,00	6,00
3524536	UDDE2500A5ARA	25,00	25,00	23,50	45,00	75,00	135,00	0,50
3524537	UDDE2500A5ARB	25,00	25,00	23,50	45,00	75,00	135,00	1,00
3524538	UDDE2500A5ARC	25,00	25,00	23,50	45,00	75,00	135,00	2,00
3524539	UDDE2500A5ARD	25,00	25,00	23,50	45,00	75,00	135,00	3,00
3524540	UDDE2500A5ARE	25,00	25,00	23,50	45,00	75,00	135,00	4,00
6063445	UDDE2500A5ARP	25,00	25,00	23,50	45,00	75,00	135,00	6,00

HARVI II • UCDE • Unequal Flute Spacing

Material Group		Side Milling (A) and Slotting (B)			KCPM15		Recommended feed per tooth (fz = mm/th) for side milling (A). For slotting (B), reduce fz by 10%.									
		A		B	Cutting Speed — vc m/min			D1 — Diameter								
		ap	ae	ap	min	max	mm	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0	25,0
P	0	1,5 x D	0,5 x D	1 x D	150	200	fz	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114	0,124
	1	1,5 x D	0,5 x D	1 x D	150	200	fz	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114	0,124
	2	1,5 x D	0,5 x D	1 x D	140	190	fz	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114	0,124
	3	1,5 x D	0,5 x D	1 x D	120	160	fz	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101	0,114
	4	1,5 x D	0,5 x D	0,75 x D	90	150	fz	0,027	0,033	0,045	0,054	0,062	0,070	0,077	0,083	0,088	0,098
	5	1,5 x D	0,5 x D	1 x D	60	100	fz	0,024	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081	0,091
	6	1,5 x D	0,5 x D	0,75 x D	50	75	fz	0,020	0,025	0,034	0,040	0,047	0,052	0,057	0,061	0,065	0,071
M	1	1,5 x D	0,5 x D	1 x D	90	115	fz	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101	0,114
	2	1,5 x D	0,5 x D	1 x D	60	80	fz	0,024	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081	0,091
	3	1,5 x D	0,5 x D	1 x D	60	70	fz	0,020	0,025	0,034	0,040	0,047	0,052	0,057	0,061	0,065	0,071
K	1	1,5 x D	0,5 x D	1 x D	120	150	fz	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114	0,124
	2	1,5 x D	0,5 x D	1 x D	110	140	fz	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101	0,114
	3	1,5 x D	0,5 x D	1 x D	110	130	fz	0,024	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081	0,091
S	1	1,5 x D	0,3 x D	0,3 x D	–	–	fz	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101	0,114
	2	1,5 x D	0,3 x D	0,3 x D	–	–	fz	0,016	0,019	0,026	0,032	0,037	0,042	0,046	0,050	0,054	0,061
	3	1,5 x D	0,3 x D	0,3 x D	–	–	fz	0,016	0,019	0,026	0,032	0,037	0,042	0,046	0,050	0,054	0,061
	4	1,5 x D	0,5 x D	1 x D	–	–	fz	0,021	0,026	0,037	0,045	0,052	0,058	0,064	0,069	0,074	0,084
H	1	1,5 x D	0,5 x D	0,75 x D	80	140	fz	0,027	0,033	0,045	0,054	0,062	0,070	0,077	0,083	0,088	0,098

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. For smaller taper machining centres, please adjust parameters accordingly on >12mm diameter.

HARVI II • UDDE • Unequal Flute Spacing

Material Group		Side Milling (A) and Slotting (B)			KC643M		Recommended feed per tooth (fz = mm/th) for side milling (A). For slotting (B), reduce fz by 10%.								
		A		B	Cutting Speed — vc m/min			D1 — Diameter								
		ap	ae	ap	min	max	mm	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0	25,0
P	5	1,5 x D	0,5 x D	1 x D	60	100	fz	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081	0,091
	6	1,5 x D	0,5 x D	0,75 x D	50	75	fz	0,025	0,034	0,040	0,047	0,052	0,057	0,061	0,065	0,071
K	1	1,5 x D	0,5 x D	1 x D	120	150	fz	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114	0,124
	2	1,5 x D	0,5 x D	1 x D	110	140	fz	0,036	0,050	0,061	0,07	0,079	0,087	0,095	0,101	0,114
	3	1,5 x D	0,5 x D	1 x D	110	130	fz	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081	0,091
S	1	1,5 x D	0,3 x D	0,3 x D	50	90	fz	0,036	0,050	0,061	0,07	0,079	0,087	0,095	0,101	0,114
	2	1,5 x D	0,3 x D	0,3 x D	25	40	fz	0,019	0,026	0,032	0,037	0,042	0,046	0,050	0,054	0,061
	3	1,5 x D	0,3 x D	0,3 x D	25	40	fz	0,019	0,026	0,032	0,037	0,042	0,046	0,050	0,054	0,061
	4	1,5 x D	0,5 x D	1 x D	50	60	fz	0,026	0,037	0,045	0,052	0,058	0,064	0,069	0,074	0,084
H	1	1,5 x D	0,5 x D	0,75 x D	80	140	fz	0,033	0,045	0,054	0,062	0,070	0,077	0,083	0,088	0,098

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 > 12mm diameter.
Side milling applications — for longest reach (L3) tools, reduce Ae by 30%.
Slot milling applications — for longest reach (L3) tools, reduce Ae by 30%.

CAS — Customer Application Support

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

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	Finland	English	0800 919412	na.techsupport@kennametal.com
	France	French	080 5540 367	eu.techsupport@kennametal.com
	Germany	German	0800 0006651	eu.techsupport@kennametal.com
	Israel	English	1809 449889	na.techsupport@kennametal.com
	Italy	Italian	800 916561	eu.techsupport@kennametal.com
	Netherlands	English	0800 0201 130	eu.techsupport@kennametal.com
	Norway	English	800 10080	na.techsupport@kennametal.com
	Poland	Polish	0080 04411887	eu.techsupport@kennametal.com
	Russia (landline)	Russian	8800 5556394	eu.techsupport@kennametal.com
	Russia (cell phone)	Russian	+7 800 5556394	eu.techsupport@kennametal.com
	Sweden	English	0207 99246	na.techsupport@kennametal.com
	UK	English	0800 032 8339	na.techsupport@kennametal.com
	Ukraine	Russian	800 502664	eu.techsupport@kennametal.com
Asia Pacific	**Australia**	English	1800 666 667	ap-kmt.techsupport@kennametal.com
	India	English	1 800 103 5227	in.techsupport@kennametal.com
	Japan	English	03 3820 2855	ap-kmt.techsupport@kennametal.com
	Korea (South)	English	+82 2 2100 6100	ap-kmt.techsupport@kennametal.com
	Malaysia	English	1800 812 990	ap-kmt.techsupport@kennametal.com
	New Zealand	English	0800 450 941	ap-kmt.techsupport@kennametal.com
	Singapore	English	1800 6221031	ap-kmt.techsupport@kennametal.com
	Taiwan	English	0800 666 197	ap-kmt.techsupport@kennametal.com
	Thailand	English	1800 4417820	ap-kmt.techsupport@kennametal.com

Numbers shown only serve the originating country listed.

HARVI™ II Long

High-Performance Solid Carbide End Mills

Primary Application

The HARVI II Long system is designed for machining titanium, steels, and stainless steels with excellent surface finishes at maximum Metal Removal Rates (MRR). The extended cutting length enables the HARVI II Long system to machine deep pockets with thin walls in semi-finishing and finishing operations. It also reduces the number of cuts when machining wing profiles for the aerospace industry.

- Up to 5 x D side milling finishing operations in titanium and stainless steels.
- Exceptionally straight walls.
- Universal KC643M™ grade for long tool life.

Features and Benefits

Advanced Technology

- Five unequally spaced flutes for chatter-free machining at high feed rates, improving surface finish and tool life.
- 5 x D lengths for reduced number of cuts.
- Innovative core design increases stability for exceptionally straight walls.
- Improved feed rate in corner machining operations versus conventional cutters.

Tailored Grades

- Universal KC643M grade suitable for cutting steel, cast iron, stainless steel (wet), and titanium (wet).

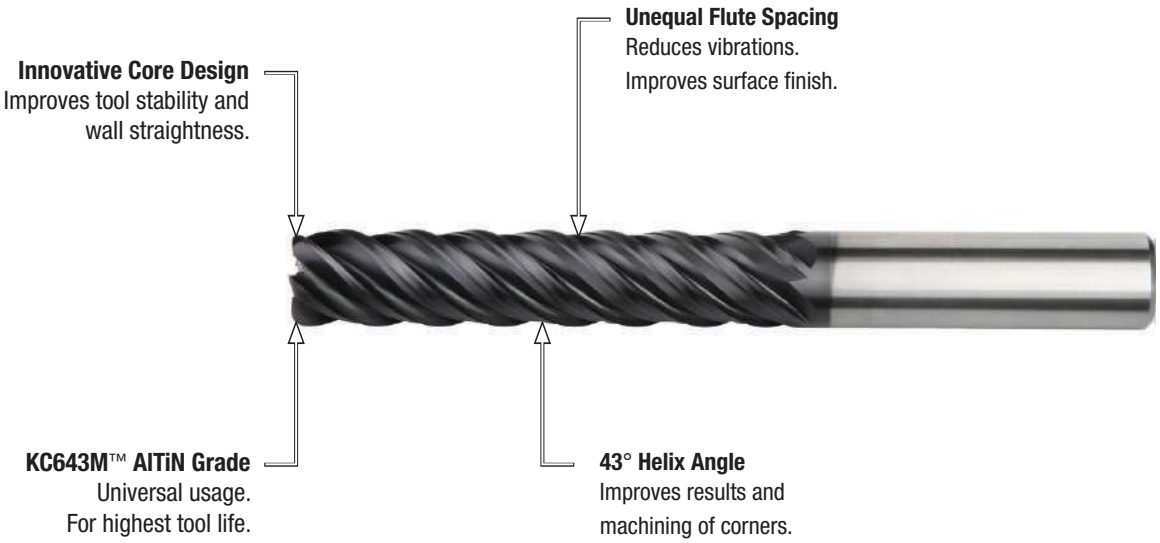
Customisation

- Intermediate diameters available.
- Chip divider geometry available for reduced power consumption and improved chip formation in difficult-to-cut materials.
- Internal coolant axial, as well as radial, available.
- Various shank options and non-standard coatings available.

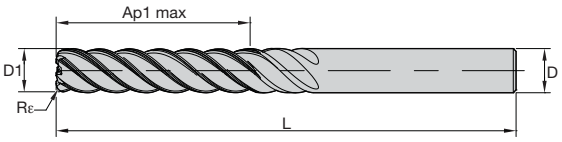
Extensive Standard Offering

- Diameter range 6–25mm.
- Various corner radii in stock.

5 x D lengths of cut without reduced feed rates when machining corners.



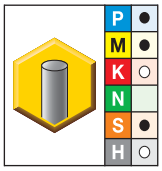
- For finishing and semi-finishing applications.
- Unequal flute spacing minimises chatter for smoother machining.
- Non-centre cutting.
- Kennametal standard dimensions.



End Mill Tolerances

D1	tolerance e8	D	tolerance h6
≤3	-0,014 / -0,028	≤3	+0 / -0,006
>3–6	-0,020 / -0,038	>3–6	+0 / -0,008
>6–10	-0,025 / -0,047	>6–10	+0 / -0,009
>10–18	-0,032 / -0,059	>10–18	+0 / -0,011
>18–30	-0,040 / -0,073	>18–30	+0 / -0,013

HARVI II • UGDE • 5 x D Lengths of Cut

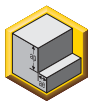


grade KC643M

● first choice
○ alternate choice

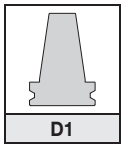
order #	catalogue #	D1	D	Ap1 max	L	Rε
4124327	UGDE0600A5BRA	6,00	6,00	30,00	76,00	0,20
4124328	UGDE0600A5BRB	6,00	6,00	30,00	76,00	0,50
4124329	UGDE0600A5BRC	6,00	6,00	30,00	76,00	1,00
4124343	UGDE0800A5BRA	8,00	8,00	40,00	87,00	0,20
4124344	UGDE0800A5BRB	8,00	8,00	40,00	87,00	0,50
4124345	UGDE0800A5BRC	8,00	8,00	40,00	87,00	1,00
4124350	UGDE1000A5BRA	10,00	10,00	50,00	100,00	0,50
4124351	UGDE1000A5BRB	10,00	10,00	50,00	100,00	1,00
4124352	UGDE1000A5BRC	10,00	10,00	50,00	100,00	2,00
4124353	UGDE1000A5BRD	10,00	10,00	50,00	100,00	2,50
4124358	UGDE1200A5BRA	12,00	12,00	60,00	125,00	0,50
4124359	UGDE1200A5BRB	12,00	12,00	60,00	125,00	1,00
4124360	UGDE1200A5BRC	12,00	12,00	60,00	125,00	2,00
4124361	UGDE1200A5BRD	12,00	12,00	60,00	125,00	2,50
4156132	UGDE1400A5BRD	14,00	14,00	70,00	120,00	3,00
4124367	UGDE1600A5BRA	16,00	16,00	80,00	141,00	1,00
4124368	UGDE1600A5BRB	16,00	16,00	80,00	141,00	2,00
4124369	UGDE1600A5BRC	16,00	16,00	80,00	141,00	2,50
4124370	UGDE1600A5BRD	16,00	16,00	80,00	141,00	3,00
4124371	UGDE1600A5BRE	16,00	16,00	80,00	141,00	4,00
6063449	UGDE1600A5BRP	16,00	16,00	80,00	141,00	6,00
4124377	UGDE2000A5BRA	20,00	20,00	100,00	166,00	1,00
4124378	UGDE2000A5BRB	20,00	20,00	100,00	166,00	2,00
4124379	UGDE2000A5BRC	20,00	20,00	100,00	166,00	2,50
4124380	UGDE2000A5BRD	20,00	20,00	100,00	166,00	3,00
4124381	UGDE2000A5BRE	20,00	20,00	100,00	166,00	4,00
6063450	UGDE2000A5BRP	20,00	20,00	100,00	166,00	6,00
4124387	UGDE2500A5BRA	25,00	25,00	125,00	190,00	1,00
4124388	UGDE2500A5BRB	25,00	25,00	125,00	190,00	2,00
4124390	UGDE2500A5BRD	25,00	25,00	125,00	190,00	3,00
4124391	UGDE2500A5BRE	25,00	25,00	125,00	190,00	4,00
6063471	UGDE2500A5BRP	25,00	25,00	125,00	190,00	6,00

HARVI II • UGDE • Unequal Flute Spacing • 5 x D Lengths of Cut

Material Group													
		Side Milling (A)		KC643M		Recommended feed per tooth (fz = mm/th) for side milling (A).							
		A		Cutting Speed — vc m/min			D1 — Diameter						
		ap	ae	min	max	mm	6,0	8,0	10,0	12,0	14,0	16,0	20,0	25,0
P	1	Ap1 max	0,05 x D*	300	400	fz	0,044	0,060	0,072	0,083	0,092	0,101	0,114	0,124
	2	Ap1 max	0,05 x D*	280	380	fz	0,044	0,060	0,072	0,083	0,092	0,101	0,114	0,124
	3	Ap1 max	0,05 x D*	240	320	fz	0,036	0,050	0,061	0,070	0,079	0,087	0,101	0,114
	4	Ap1 max	0,05 x D*	180	300	fz	0,033	0,045	0,054	0,062	0,070	0,077	0,088	0,098
	5	Ap1 max	0,05 x D*	120	200	fz	0,029	0,040	0,048	0,056	0,063	0,070	0,081	0,091
	6	Ap1 max	0,05 x D*	100	150	fz	0,025	0,034	0,040	0,047	0,052	0,057	0,065	0,071
M	1	Ap1 max	0,05 x D*	180	230	fz	0,036	0,050	0,061	0,070	0,079	0,087	0,101	0,114
	2	Ap1 max	0,05 x D*	120	160	fz	0,029	0,040	0,048	0,056	0,063	0,070	0,081	0,091
	3	Ap1 max	0,05 x D*	120	140	fz	0,025	0,034	0,040	0,047	0,052	0,057	0,065	0,071
K	1	Ap1 max	0,05 x D*	240	300	fz	0,044	0,060	0,072	0,083	0,092	0,101	0,114	0,124
	2	Ap1 max	0,05 x D*	220	260	fz	0,036	0,050	0,061	0,070	0,079	0,087	0,101	0,114
	3	Ap1 max	0,05 x D*	200	260	fz	0,029	0,040	0,048	0,056	0,063	0,070	0,081	0,091
S	1	Ap1 max	0,05 x D*	100	180	fz	0,036	0,050	0,061	0,070	0,079	0,087	0,101	0,114
	2	Ap1 max	0,05 x D*	100	180	fz	0,036	0,050	0,061	0,070	0,079	0,087	0,101	0,114
	3	Ap1 max	0,05 x D*	50	80	fz	0,019	0,026	0,032	0,037	0,042	0,046	0,054	0,061
	4	Ap1 max	0,05 x D*	100	120	fz	0,026	0,037	0,045	0,052	0,058	0,064	0,074	0,084
H	1	Ap1 max	0,05 x D*	160	280	fz	0,033	0,045	0,054	0,062	0,070	0,077	0,088	0,098

* For the above cutting data, do not exceed an overall ae of 0,8mm.

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 machinining centres, please adjust parameters accordingly on >12mm diameter.



HARVI™ III

High-Performance Solid Carbide End Mills

Primary Application

The HARVI III system takes high-performance profiling, semi-finishing, and finishing to the next level. These end mills are designed to provide maximum metal removal rates in titanium and stainless steel while achieving supreme surface conditions. A wide range of diameters and corner radii are available from stock.

- Outstanding metal removal rates increase productivity.
- Longest tool life due to eccentric relief grind and proprietary KCSM15™ Beyond™ grade.
- Increased process safety with Safe-Lock™ shanks.

Features and Benefits

Advanced Technology

- Six unequally spaced flutes for chatter-free machining at high feed rates.
- Lower cutting forces and pressure on cutting edge through tailored axial and radial rake angles.
- Eccentric relief design increases tool life through higher edge stability.
- Proprietary tapered core provides highest tool stability in roughing and finishing operations.
- Centre cutting design for higher flexibility as well as radial and axial finishing pass after roughing operation.

Tailored Grades

- KCSM15 Beyond grade for exceptional tool life in titanium and stainless steels.

Customisation

- Engineered solutions, including ball nose versions, are available upon request.

Extensive Standard Offering

- Diameter ranges 12–25mm.
- Necked and corner radii offering.

Maximum metal removal rates in machining titanium and stainless steel with supreme surfaces.

Proprietary Core Design
Improves tool stability.

Centre Cutting
Enables axial movement for finish pass. Expands ramping capabilities.

38° Helix Angle
Roughing and finishing.

Safe-Lock™ Shank
Prevents end mill pullout. Enables higher feed rates.

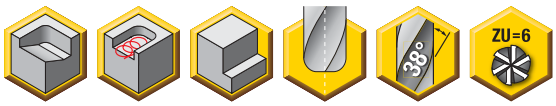
Unequal Flute Spacing
Reduces vibrations. Improves surface finish.

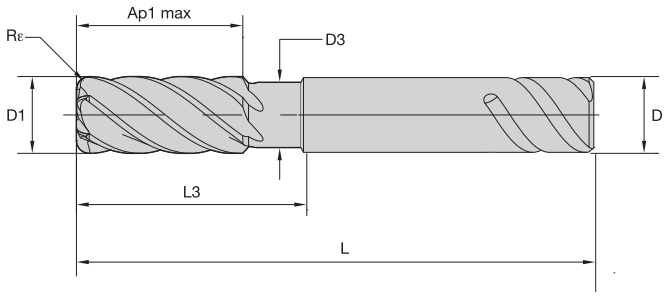
Eccentric Relief Grind
Improves edge stability. Enables higher feed rates.

KCSM15™ Beyond™ Grade
Highest tool life. Enables higher cutting speeds. Optimised for titanium machining.

SAFE-λOCK®
by HAIMER®

- Kennametal standard dimensions.
- Centre cutting.
- Optimised geometry for titanium machining.
- Unequal flute spacing minimises chatter for smoother machining.
- Single tool for both roughing and finishing operations requiring fewer setups.

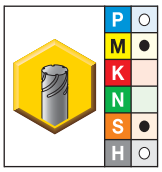




End Mill Tolerances

D1	tolerance e8	D	tolerance h6
≤3	-0,014 / -0,028	≤3	+0 / -0,006
>3–6	-0,020 / -0,038	>3–6	+0 / -0,008
>6–10	-0,025 / -0,047	>6–10	+0 / -0,009
>10–18	-0,032 / -0,059	>10–18	+0 / -0,011
>18–30	-0,040 / -0,073	>18–30	+0 / -0,013

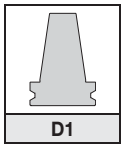
UJDE • 6 Flute with Eccentric Relief Grind and Neck • Metric



grade KCSM15

● first choice
○ alternate choice

order #	catalogue #	D1	D	D3	Ap1 max	L3	L	Rε
5350332	UJDE1200E6AQE	12,00	12,00	11,28	26,00	36,00	83,00	0,50
5350333	UJDE1200E6AQG	12,00	12,00	11,28	26,00	36,00	83,00	1,00
5350348	UJDE1600E6AQE	16,00	16,00	15,04	32,00	48,00	100,00	0,50
5350349	UJDE1600E6AQG	16,00	16,00	15,04	32,00	48,00	100,00	1,00
5350350	UJDE1600E6AQK	16,00	16,00	15,04	32,00	48,00	100,00	2,00
5350352	UJDE1600E6AQN	16,00	16,00	15,04	32,00	48,00	100,00	4,00
5350644	UJDE2000E6AQE	20,00	20,00	18,80	38,00	60,00	115,00	0,50
5350645	UJDE2000E6AQG	20,00	20,00	18,80	38,00	60,00	115,00	1,00
5350646	UJDE2000E6AQK	20,00	20,00	18,80	38,00	60,00	115,00	2,00
5350647	UJDE2000E6AQM	20,00	20,00	18,80	38,00	60,00	115,00	3,00
5350648	UJDE2000E6AQN	20,00	20,00	18,80	38,00	60,00	115,00	4,00



HARVI III • UJDE • Unequal Flute Spacing • Roughing • With Neck

Material Group		Side Milling (A)		KCSM15		Recommended feed per tooth (fz = mm/th) for side milling (A).				
		A		Cutting Speed — vc m/min			D1 — Diameter			
		ap	ae	min	max	mm	12,0	16,0	18,0	20,0
P	4	Ap max	0,4 x D	90	150	fz	0,062	0,077	0,083	0,088
	5	Ap max	0,4 x D	60	100	fz	0,056	0,070	0,076	0,081
M	1	Ap max	0,4 x D	90	115	fz	0,070	0,087	0,095	0,101
	2	Ap max	0,4 x D	60	80	fz	0,056	0,070	0,076	0,081
	3	Ap max	0,4 x D	60	70	fz	0,047	0,057	0,061	0,065
S	1	Ap max	0,4 x D	50	90	fz	0,070	0,087	0,095	0,101
	2	Ap max	0,4 x D	25	40	fz	0,037	0,046	0,050	0,054
	3	Ap max	0,4 x D	25	40	fz	0,037	0,046	0,050	0,054
	4	Ap max	0,4 x D	50	60	fz	0,052	0,064	0,069	0,074
H	1	Ap max	0,4 x D	80	140	fz	0,062	0,077	0,083	0,088

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 centres, please adjust parameters accordingly on >12mm diameter.

HARVI III • UJDE • Unequal Flute Spacing • Finishing • With Neck

Material Group		Side Milling (A)		KCSM15		Recommended feed per tooth (fz = mm/th) for side milling (A).					
		A		Cutting Speed — vc m/min			D1 — Diameter				
		ap	ae	min	max	mm	12,0	14,0	16,0	18,0	20,0
P	4	Ap max	0,06 x D	171	285	fz	0,075	0,084	0,092	0,099	0,106
	5	Ap max	0,06 x D	114	190	fz	0,067	0,076	0,084	0,091	0,097
M	1	Ap max	0,06 x D	171	218,5	fz	0,084	0,095	0,105	0,113	0,121
	2	Ap max	0,06 x D	114	152	fz	0,067	0,076	0,084	0,091	0,097
	3	Ap max	0,06 x D	114	133	fz	0,056	0,062	0,068	0,073	0,078
S	1	Ap max	0,06 x D	95	171	fz	0,084	0,095	0,105	0,113	0,121
	2	Ap max	0,06 x D	47,5	76	fz	0,045	0,050	0,056	0,060	0,065
	3	Ap max	0,06 x D	47,5	76	fz	0,045	0,050	0,056	0,060	0,065
	4	Ap max	0,06 x D	95	114	fz	0,062	0,070	0,077	0,083	0,089
H	1	Ap max	0,06 x D	152	266	fz	0,075	0,084	0,092	0,099	0,106
	2	Ap max	0,06 x D	133	228	fz	0,056	0,062	0,068	0,073	0,078

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 centres, please adjust parameters accordingly on >12mm diameter.

High-Performance Solid Carbide Roughing End Mills

Primary Application

High-performance roughers can be applied in a wide range of workplace materials such as steels, stainless steels, cast irons, and in certain cases, hardened materials. Tailored roughing profiles reduce cutting forces to the necessary level or combine roughing and semi-finishing for fewer tool changes.

- High-performance universal tools for almost all cutting materials.
- Lower cutting forces and spindle power consumption.
- Centre cutting for plunging, 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 for the right balance between cutting forces, feed rates, and surface quality.

Tailored Grades

- From proprietary KCPM15™ Beyond™ grade for outstanding wear to uncoated tools suitable for a variety of workpiece materials.

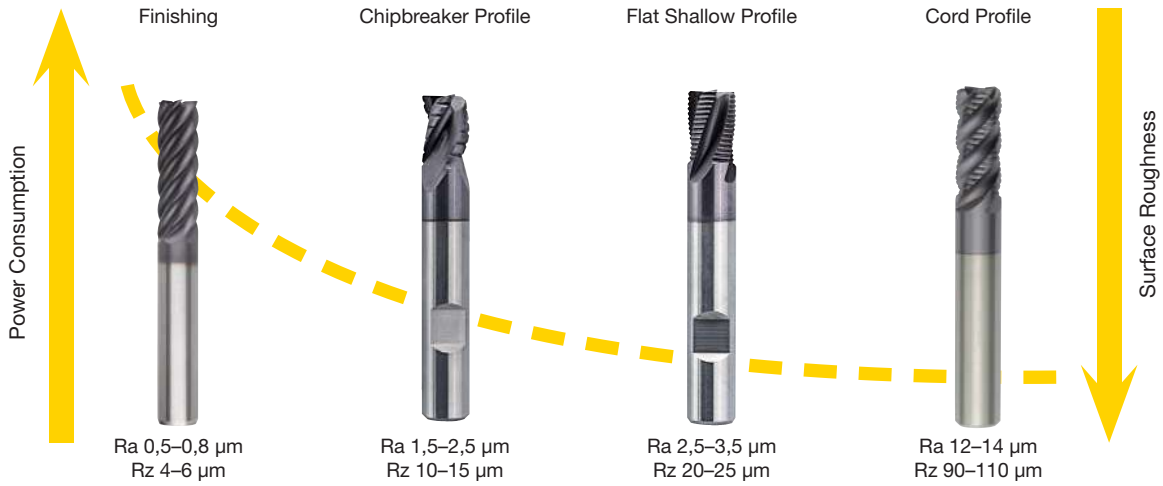
Customisation

- Intermediate diameters available.
- Corner radii for near-shape roughing operations available.
- Various shank options, including the Safe-Lock™ system by HAIMER®, and non-standard coatings available.

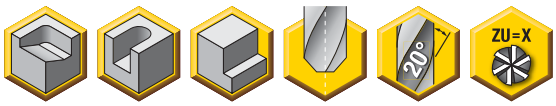
Extensive Standard Offering

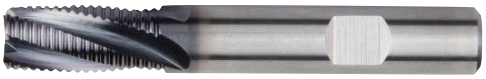
- Diameter ranges 4–25mm.
- Weldon® shank for maximum torque transmission.

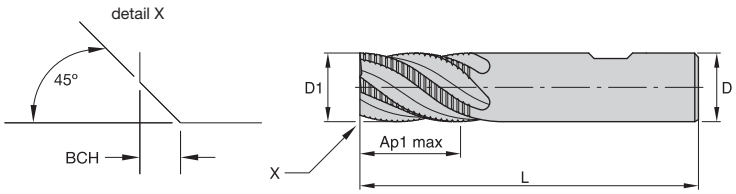
Highest metal removal rates — even on unstable machines or workpiece clamping.



- Kennametal standard dimensions.
- Centre cutting.
- Cord profile.



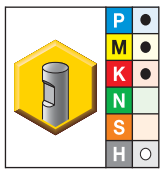




End Mill Tolerances

D1	tolerance d11	D	tolerance h6
≤ 3	-0,020/-0,080	≤ 3	+0/-0,006
> 3–6	-0,030/-0,105	> 3–6	+0/-0,008
> 6–10	-0,040/-0,130	> 6–10	+0/-0,009
> 10–18	-0,050/0,160	> 10–18	+0/-0,011
> 18–30	-0,065/-0,195	> 18–30	+0/-0,013

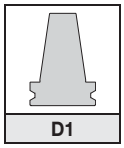
F3BH-F4BJ-F5BJ...WS-WM-WL-WX • Metric



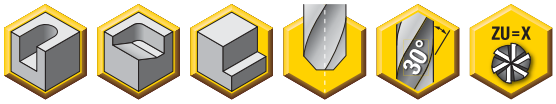
grade KCPM15

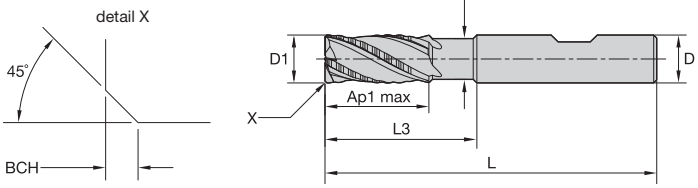
● first choice
○ alternate choice

order #	catalogue #	D1	D	Ap1 max	L	BCH	Z U
4047065	F3BH0400BWS20L110	4,00	6,00	11,00	55,00	0,30	3
4047066	F3BH0500BWS20L130	5,00	6,00	13,00	57,00	0,30	3
4047067	F3BH0600BWS20L080	6,00	6,00	8,00	54,00	0,30	3
4047068	F3BH0600BWS20L130	6,00	6,00	13,00	57,00	0,30	3
4047070	F3BH0800BWS20L110	8,00	8,00	11,00	58,00	0,30	3
4047069	F3BH0800BWM20L160	8,00	8,00	16,00	63,00	0,30	3
4047071	F4BJ1000BWM20L130	10,00	10,00	13,00	66,00	0,50	4
4047072	F4BJ1000BWM20L220	10,00	10,00	22,00	72,00	0,50	4
4047074	F4BJ1200BWM20L160	12,00	12,00	16,00	73,00	0,50	4
4047073	F4BJ1200BWL20L260	12,00	12,00	26,00	83,00	0,50	4
4047075	F4BJ1400BWL20L260	14,00	14,00	26,00	83,00	0,50	4
4047076	F4BJ1600BWL20L190	16,00	16,00	19,00	82,00	0,50	4
4047077	F4BJ1600BWL20L320	16,00	16,00	32,00	92,00	0,50	4
4047078	F4BJ2000BWL20L220	20,00	20,00	22,00	92,00	0,50	4
4047079	F4BJ2000BWX20L380	20,00	20,00	38,00	104,00	0,50	4
4047080	F5BJ2500BWX20L450	25,00	25,00	45,00	121,00	0,50	5



- Kennametal standard dimensions.
- Centre cutting.
- Flat shallow profile.

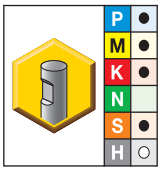




End Mill Tolerances

D1	tolerance d11	D	tolerance h6 + / -
≤ 3	-0,020/-0,080	≤ 3	0/0,006
> 3–6	-0,030/-0,105	> 3–6	0/0,008
> 6–10	-0,040/-0,130	> 6–10	0/0,009
> 10–18	-0,050/-0,160	> 10–18	0/0,011
> 18–30	-0,065/-0,195	> 18–30	0/0,013

RUDC.. • With Neck • Metric



grade KCPM15

● first choice
○ alternate choice

order #	catalogue #	D1	D	D3	length of cut Ap1 max	L3	length L	BCH	Z U
5357041	RUDC0400B3BN	4,00	6,00	3,60	8,00	21,00	57,00	0,30	3
5357042	RUDC0500B3BN	5,00	6,00	4,60	13,00	21,00	57,00	0,30	3
5357043	RUDC0600B3BN	6,00	6,00	5,50	13,00	21,00	57,00	0,30	3
5357044	RUDC0800B3BN	8,00	8,00	7,50	16,00	27,00	63,00	0,30	3
5357045	RUDC1000B4BN	10,00	10,00	9,50	22,00	32,00	72,00	0,50	4
5357046	RUDC1200B4BN	12,00	12,00	11,00	26,00	38,00	83,00	0,50	4
5357047	RUDC1400B4BN	14,00	14,00	13,00	26,00	38,00	83,00	0,50	4
5357048	RUDC1600B4BN	16,00	16,00	15,00	32,00	44,00	92,00	0,50	4
5357049	RUDC1800B4BN	18,00	18,00	17,00	32,00	44,00	92,00	0,50	4
5357090	RUDC2000B4BN	20,00	20,00	19,00	38,00	54,00	104,00	0,50	4
5357091	RUDC2500B5BN	25,00	25,00	24,00	45,00	65,00	121,00	0,50	5

F3BH-F4BJ-F5BJ...WS-WM-WL-WX

Material Group		Side Milling (A) and Slotting (B)			KCPM15		Recommended feed per tooth (fz = mm/th) for side milling (A). For slotting (B), reduce fz by 20%.										
		A		B	Cutting Speed — vc m/min			D1 — Diameter									
		ap	ae	ap	min	max	mm	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0	25,0
P	0	1,5 x D	0,5 x D	1 x D	150	200	fz	0,024	0,031	0,037	0,051	0,061	0,070	0,079	0,086	0,092	0,097	0,105
	1	1,5 x D	0,5 x D	1 x D	150	200	fz	0,024	0,031	0,037	0,051	0,061	0,070	0,079	0,086	0,092	0,097	0,105
	2	1,5 x D	0,5 x D	1 x D	140	190	fz	0,024	0,031	0,037	0,051	0,061	0,070	0,079	0,086	0,092	0,097	0,105
	3	1,5 x D	0,4 x D	0,75 x D	120	160	fz	0,020	0,025	0,031	0,043	0,051	0,060	0,067	0,074	0,080	0,086	0,097
	4	1,5 x D	0,3 x D	0,3 x D	90	150	fz	0,018	0,023	0,028	0,038	0,046	0,053	0,060	0,065	0,070	0,075	0,083
	5	1,5 x D	0,4 x D	0,75 x D	60	100	fz	0,016	0,021	0,025	0,034	0,041	0,048	0,054	0,059	0,064	0,069	0,077
M	1	1,5 x D	0,4 x D	0,75 x D	90	115	fz	0,020	0,025	0,031	0,043	0,051	0,060	0,067	0,074	0,080	0,086	0,097
	2	1,5 x D	0,4 x D	0,75 x D	60	80	fz	0,016	0,021	0,025	0,034	0,041	0,048	0,054	0,059	0,064	0,069	0,077
	3	1,5 x D	0,4 x D	0,75 x D	60	70	fz	0,014	0,017	0,021	0,029	0,034	0,040	0,044	0,048	0,052	0,055	0,060
K	1	1,5 x D	0,5 x D	1 x D	120	150	fz	0,024	0,031	0,037	0,051	0,061	0,070	0,079	0,086	0,092	0,097	0,105
	2	1,5 x D	0,4 x D	1 x D	110	140	fz	0,020	0,025	0,031	0,043	0,051	0,060	0,067	0,074	0,080	0,086	0,097
	3	1,5 x D	0,4 x D	1 x D	110	130	fz	0,016	0,021	0,025	0,034	0,041	0,048	0,054	0,059	0,064	0,069	0,077
H	1	1,5 x D	0,3 x D	0,3 x D	80	140	fz	0,018	0,023	0,028	0,038	0,046	0,053	0,060	0,065	0,070	0,075	0,083

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. For smaller taper machining centres, please adjust parameters accordingly on >12mm diameter.

RUDC.. • With Neck • Metric



Material Group		Side Milling (A) and Slotting (B)			KCPM15		Recommended feed per tooth (fz = mm/th) for side milling (A). For slotting (B), reduce fz by 10%.											
		A		B	Cutting Speed — vc m/min			D1 — Diameter										
		ap	ae	ap	min	max	mm	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0	25,0
P	0	1,5 x D	0,5 x D	1 x D	150	200	fz	0,024	0,031	0,037	0,051	0,061	0,070	0,079	0,086	0,092	0,097	0,105
	1	1,5 x D	0,5 x D	1 x D	150	200	fz	0,024	0,031	0,037	0,051	0,061	0,070	0,079	0,086	0,092	0,097	0,105
	2	1,5 x D	0,5 x D	1 x D	140	190	fz	0,024	0,031	0,037	0,051	0,061	0,070	0,079	0,086	0,092	0,097	0,105
	3	1,5 x D	0,4 x D	0,75 x D	120	160	fz	0,020	0,025	0,031	0,043	0,051	0,060	0,067	0,074	0,080	0,086	0,097
	4	1,5 x D	0,3 x D	0,3 x D	90	150	fz	0,018	0,023	0,028	0,038	0,046	0,053	0,060	0,065	0,070	0,075	0,083
	5	1,5 x D	0,4 x D	0,75 x D	60	100	fz	0,016	0,021	0,025	0,034	0,041	0,048	0,054	0,059	0,064	0,069	0,077
M	1	1,5 x D	0,4 x D	0,75 x D	90	115	fz	0,020	0,025	0,031	0,043	0,051	0,060	0,067	0,074	0,080	0,086	0,097
	2	1,5 x D	0,4 x D	0,75 x D	60	80	fz	0,016	0,021	0,025	0,034	0,041	0,048	0,054	0,059	0,064	0,069	0,077
	3	1,5 x D	0,4 x D	0,75 x D	60	70	fz	0,014	0,017	0,021	0,029	0,034	0,040	0,044	0,048	0,052	0,055	0,060
K	1	1,5 x D	0,5 x D	1 x D	120	150	fz	0,024	0,031	0,037	0,051	0,061	0,070	0,079	0,086	0,092	0,097	0,105
	2	1,5 x D	0,4 x D	1 x D	110	140	fz	0,020	0,025	0,031	0,043	0,051	0,060	0,067	0,074	0,080	0,086	0,097
	3	1,5 x D	0,4 x D	1 x D	110	130	fz	0,016	0,021	0,025	0,034	0,041	0,048	0,054	0,059	0,064	0,069	0,077
S	1	1,5 x D	0,4 x D	0,75 x D	50	90	fz	0,020	0,025	0,031	0,043	0,051	0,060	0,067	0,074	0,080	0,086	0,097
	3	1,5 x D	0,3 x D	0,3 x D	25	40	fz	0,011	0,014	0,017	0,022	0,027	0,032	0,036	0,039	0,043	0,046	0,052
H	1	1,5 x D	0,3 x D	0,3 x D	80	140	fz	0,018	0,023	0,028	0,038	0,046	0,053	0,060	0,065	0,070	0,075	0,083

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 centres, please adjust parameters accordingly on >12mm diameter.

MaxiMet™

Primary Application

The MaxiMet system provides extraordinary metal removal rates and combines roughing and finishing operations with any aluminium plunging, slotting, and profiling application. Its proprietary flute geometry is designed for high stiffness and improved chip evacuation, and generates exceptional wall to floor perpendicularity in thin-wall applications. To ensure a superior floor surface finish, the MaxiMet front geometry is equipped with a wiper facet grind.

- Use only one tool for roughing and finishing operations.
- Slotting depths up to 1 x D as well as side milling up to 0.5 x D radial and 1.5 x D axial engagement.
- Unequal flute spacing for chatter-free performance with the 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 increased metal removal rates.
- No specific tools for roughing and finishing necessary.
- 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 aluminium and other non-ferrous materials.

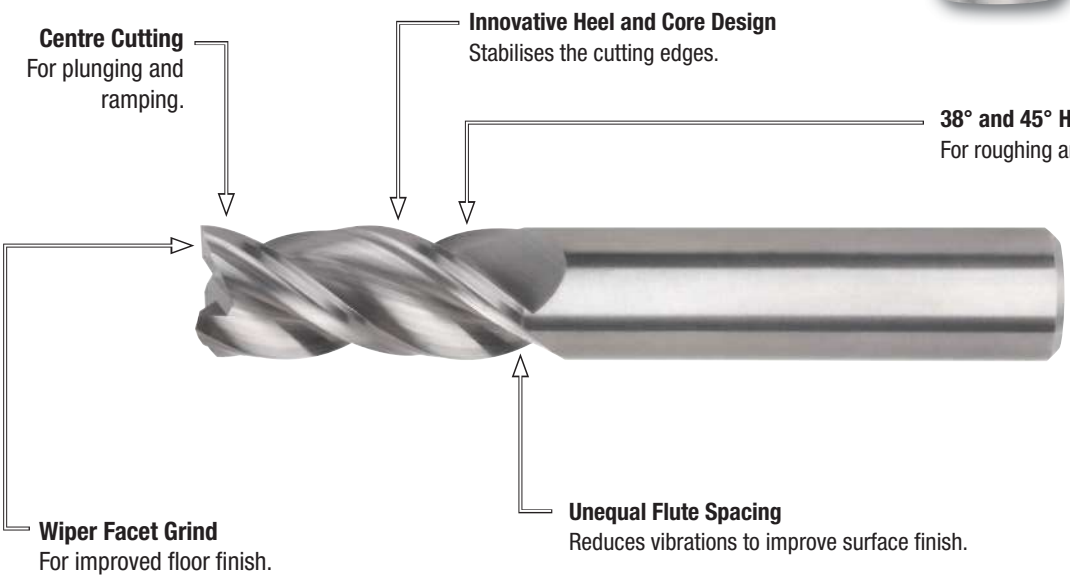
Customisation

- Intermediate diameters available.
- Custom solutions available for machining titanium and other high-temperature alloys.
- Internal coolant axial and radial available.
- Various shank options and non-standard coatings available.

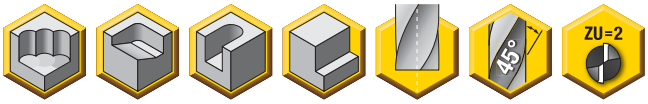
Extensive Standard Offering

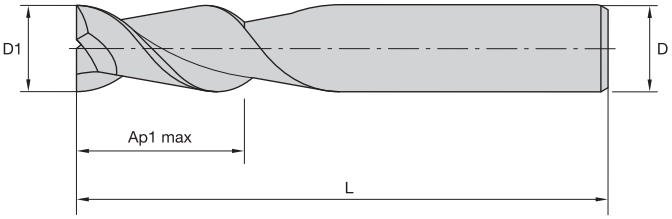
- Diameter ranges 1,5 to 25mm.
- Extended neck for long-reach applications and radii and sharp corner configurations.

Solid carbide end mills for high metal removal rates and superior surface finishes in aluminium.



- Kennametal standard dimensions.
- Centre cutting.
- Effective in thin wall applications.
- Wiper facet, special end gash, and flute geometry provide better surface finishes.
- Unique geometry delivers maximum metal removal rates.

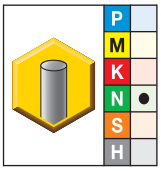




End Mill Tolerances

D1	D1 tolerance	D tolerance
<6mm	DIN e8	DIN h6
>6mm	DIN h6	DIN h6

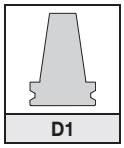
ABDF • Wiper Facet



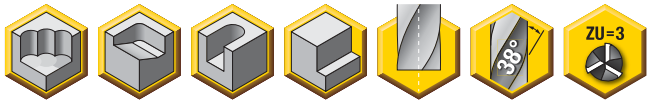
grade K600

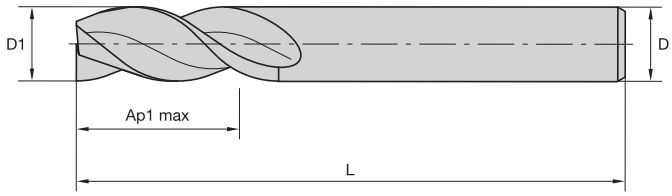
● first choice
○ alternate choice

order #	catalogue #	D1	D	Ap1 max	L
3637552	ABDF0150A2AS	1,50	3,00	6,00	38,00
3637553	ABDF0200A2AS	2,00	3,00	8,00	38,00
3637554	ABDF0250A2AS	2,50	3,00	9,00	38,00
3637555	ABDF0300A2AS	3,00	3,00	12,00	38,00
3637556	ABDF0400A2AS	4,00	4,00	12,00	50,00
3637557	ABDF0500A2AS	5,00	6,00	14,00	50,00
3637558	ABDF0600A2AS	6,00	6,00	16,00	50,00
3637559	ABDF0800A2AS	8,00	8,00	20,00	63,00
3637560	ABDF1000A2AS	10,00	10,00	22,00	76,00
3637561	ABDF1200A2AS	12,00	12,00	25,00	76,00
3637562	ABDF1400A2AS	14,00	14,00	32,00	83,00
3637563	ABDF1600A2AS	16,00	16,00	32,00	89,00
3637564	ABDF1800A2AS	18,00	18,00	38,00	100,00
3637565	ABDF2000A2AS	20,00	20,00	38,00	104,00



- Kennametal standard dimensions.
- Centre cutting.
- Effective in thin wall applications.
- Wiper facet, special end gash, and flute geometry provide better surface finishes.
- Unique geometry delivers maximum metal removal rates.

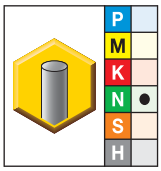




End Mill Tolerances

D1	D1 tolerance	D tolerance
<6mm	DIN e8	DIN h6
>6mm	DIN h6	DIN h6

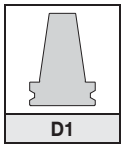
ABDE • Wiper Facet



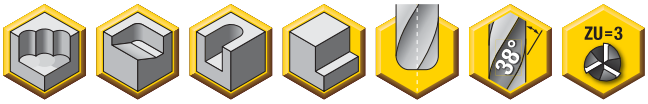
grade K600

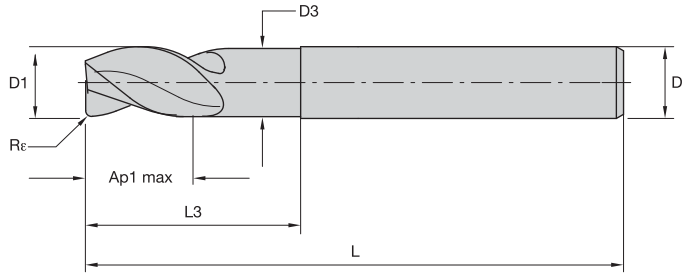
● first choice
○ alternate choice

order #	catalogue #	D1	D	Ap1 max	L
3637429	ABDE0300A3AS	3,00	3,00	12,00	38,00
3637430	ABDE0400A3AS	4,00	4,00	12,00	50,00
3637431	ABDE0500A3AS	5,00	5,00	14,00	50,00
3637432	ABDE0600A3AS	6,00	6,00	16,00	50,00
3637463	ABDE0800A3AS	8,00	8,00	20,00	63,00
3637464	ABDE1000A3AS	10,00	10,00	22,00	76,00
3637465	ABDE1200A3AS	12,00	12,00	25,00	76,00
3637466	ABDE1400A3AS	14,00	14,00	32,00	83,00
3637467	ABDE1600A3AS	16,00	16,00	32,00	89,00
3637468	ABDE1800A3AS	18,00	18,00	38,00	100,00
3637469	ABDE2000A3AS	20,00	20,00	38,00	104,00



- Kennametal standard dimensions.
- Centre cutting.
- Effective in thin wall applications.
- Wiper facet, special end gash, and flute geometry provide better surface finishes.
- Unique geometry delivers maximum metal removal rates.

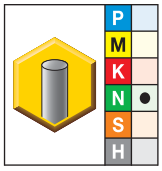




End Mill Tolerances

D1	D1 tolerance	D tolerance
<6mm	DIN e8	DIN h6
>6mm	DIN h6	DIN h6

ABDE • Wiper Facet • Extended Neck



grade K600

● first choice
○ alternate choice

order #	catalogue #	D1	D	Ap1 max	L	Rε
3637389	ABDE0600A3ARA	6,00	6,00	9,00	63,00	0,20
3637390	ABDE0600A3ARB	6,00	6,00	9,00	63,00	0,50
3637391	ABDE0600A3ARC	6,00	6,00	9,00	63,00	1,00
3637392	ABDE0800A3ARA	8,00	8,00	12,00	76,00	0,20
3637413	ABDE0800A3ARB	8,00	8,00	12,00	76,00	0,50
3637414	ABDE0800A3ARC	8,00	8,00	12,00	76,00	1,00
3637415	ABDE1000A3ARA	10,00	10,00	15,00	89,00	0,20
3637416	ABDE1000A3ARB	10,00	10,00	15,00	89,00	0,50
5414455	ABDE1000A3ARG	10,00	10,00	15,00	76,00	1,00
3637417	ABDE1000A3ARC	10,00	10,00	15,00	89,00	1,50
5414456	ABDE1000A3ARK	10,00	10,00	15,00	76,00	2,00
5414458	ABDE1000A3ARN	10,00	10,00	15,00	76,00	4,00
3637418	ABDE1200A3ARA	12,00	12,00	18,00	100,00	0,20
3637419	ABDE1200A3ARB	12,00	12,00	18,00	100,00	0,50
5414459	ABDE1200A3ARG	12,00	12,00	18,00	83,00	1,00
3637420	ABDE1200A3ARC	12,00	12,00	18,00	100,00	1,50
5414470	ABDE1200A3ARK	12,00	12,00	18,00	83,00	2,00
5414471	ABDE1200A3ARM	12,00	12,00	18,00	83,00	3,00
5414473	ABDE1200A3ARN	12,00	12,00	18,00	83,00	4,00
3637421	ABDE1600A3ARA	16,00	16,00	24,00	110,00	0,20
3637422	ABDE1600A3ARB	16,00	16,00	24,00	110,00	0,50
3637423	ABDE1600A3ARC	16,00	16,00	24,00	110,00	1,00
3637424	ABDE1600A3ARD	16,00	16,00	24,00	110,00	2,00
6066132	ABDE1600A3ARL	16,00	16,00	24,00	110,00	2,50
5414474	ABDE1600A3ARM	16,00	16,00	24,00	100,00	3,00
5414475	ABDE1600A3ARN	16,00	16,00	24,00	100,00	4,00
3637425	ABDE2000A3ARA	20,00	20,00	30,00	125,00	0,20
3637426	ABDE2000A3ARB	20,00	20,00	30,00	125,00	0,50
3637427	ABDE2000A3ARC	20,00	20,00	30,00	125,00	1,50
5414477	ABDE2000A3ARK	20,00	20,00	30,00	115,00	2,00
5414478	ABDE2000A3ARM	20,00	20,00	30,00	115,00	3,00
3637428	ABDE2000A3ARD	20,00	20,00	30,00	125,00	4,00
5414479	ABDE2500A3ARE	25,00	25,00	37,50	135,00	0,50

ABDE... • ABDF...



Material Group		Side Milling (A) and Slotting (B)			K600		Feed per Tooth — fz information is for side milling (A). For slotting (B), reduce fz by 20%.									
		A		B	Cutting Speed — vc m/min			D1 — Diameter								
		ap	ae	ap	min	max	mm	1,5	2,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
N	1	1,5 x D	0,5 x D	1,0 x D	500	2000	fz	0,014	0,018	0,036	0,054	0,072	0,090	0,108	0,144	0,180
	2	1,5 x D	0,5 x D	1,0 x D	500	1500	fz	0,012	0,016	0,032	0,049	0,065	0,081	0,097	0,130	0,162
	3	1,5 x D	0,5 x D	1,0 x D	500	1500	fz	0,009	0,013	0,025	0,038	0,050	0,063	0,076	0,101	0,126
	4	1,5 x D	0,5 x D	1,0 x D	400	750	fz	0,009	0,013	0,025	0,038	0,050	0,063	0,076	0,101	0,126
	5	1,5 x D	0,5 x D	1,0 x D	250	1000	fz	0,012	0,016	0,032	0,049	0,065	0,081	0,097	0,130	0,162

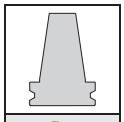
NOTE: Those guidelines may require variations to achieve optimum results. For better surface finish, reduce feed per tooth.
For cutting aluminium with high silicon, TiCN coating is recommended.
Ap for milling machine with ceramic bearings spindle, multiply by 0,5.
For better surface finish, reduce feed per tooth.
Above parameters are based on ideal conditions. For smaller taper machining centres, please adjust parameters accordingly on >12mm diameter.
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%.

ABDE... • Extended Neck



Material Group		Side Milling (A) and Slotting (B)			K600		Feed per Tooth — fz information is for side milling (A). For slotting (B), reduce fz by 20%.							
		A		B	Cutting Speed — vc m/min			D1 — Diameter						
		ap	ae	ap	min	max	mm	6,0	8,0	10,0	12,0	16,0	20,0	25,0
N	1	1 x D	0,5 x D	1,0 x D	500	2000	fz	0,060	0,080	0,100	0,120	0,160	0,200	0,240
	2	1 x D	0,5 x D	1,0 x D	500	1500	fz	0,054	0,072	0,090	0,108	0,144	0,180	0,220
	3	1 x D	0,5 x D	1,0 x D	500	1500	fz	0,042	0,056	0,070	0,084	0,112	0,140	0,180
	4	1 x D	0,5 x D	1,0 x D	400	750	fz	0,042	0,056	0,070	0,084	0,112	0,140	0,180
	5	1 x D	0,5 x D	1,0 x D	250	1000	fz	0,054	0,072	0,090	0,108	0,144	0,180	0,220

NOTE: Those guidelines may require variations to achieve optimum results. For better surface finish, reduce feed per tooth.
For cutting aluminium with high silicon, TiCN coating is recommended.
Ap for milling machine with ceramic bearings spindle, multiply by 0,5.
For better surface finish, reduce feed per tooth.
Above parameters are based on ideal conditions. For smaller taper machining centres, please adjust parameters accordingly on >12mm diameter.
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%.


D1

GOmill™ GP General Purpose Solid Carbide End Mills • 2 Flute

Primary Application

The GOmill GP series offers plunging, slotting, and profiling with long tool life on a wide range of workpiece materials. They are designed to provide high Metal Removal Rates (MRR) and achieve good surface quality at an excellent cost-benefit ratio. A wide range of diameters and lengths are available with chamfered edge and ball nose as stocked standard.

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

Features and Benefits

Advanced Technology

- Roughing and finishing with one tool reduces tool changes and unnecessary tooling inventory.
- Eccentric relief increases edge stability for longer tool life and better surface quality.
- Eccentric relief eases regrinding and reduces reconditioning cost.
- 2-flute design for unstable conditions and high flexibility.

Tailored Grades

- Universal multilayer KC633M coating for cutting steel, cast iron, and stainless (wet).

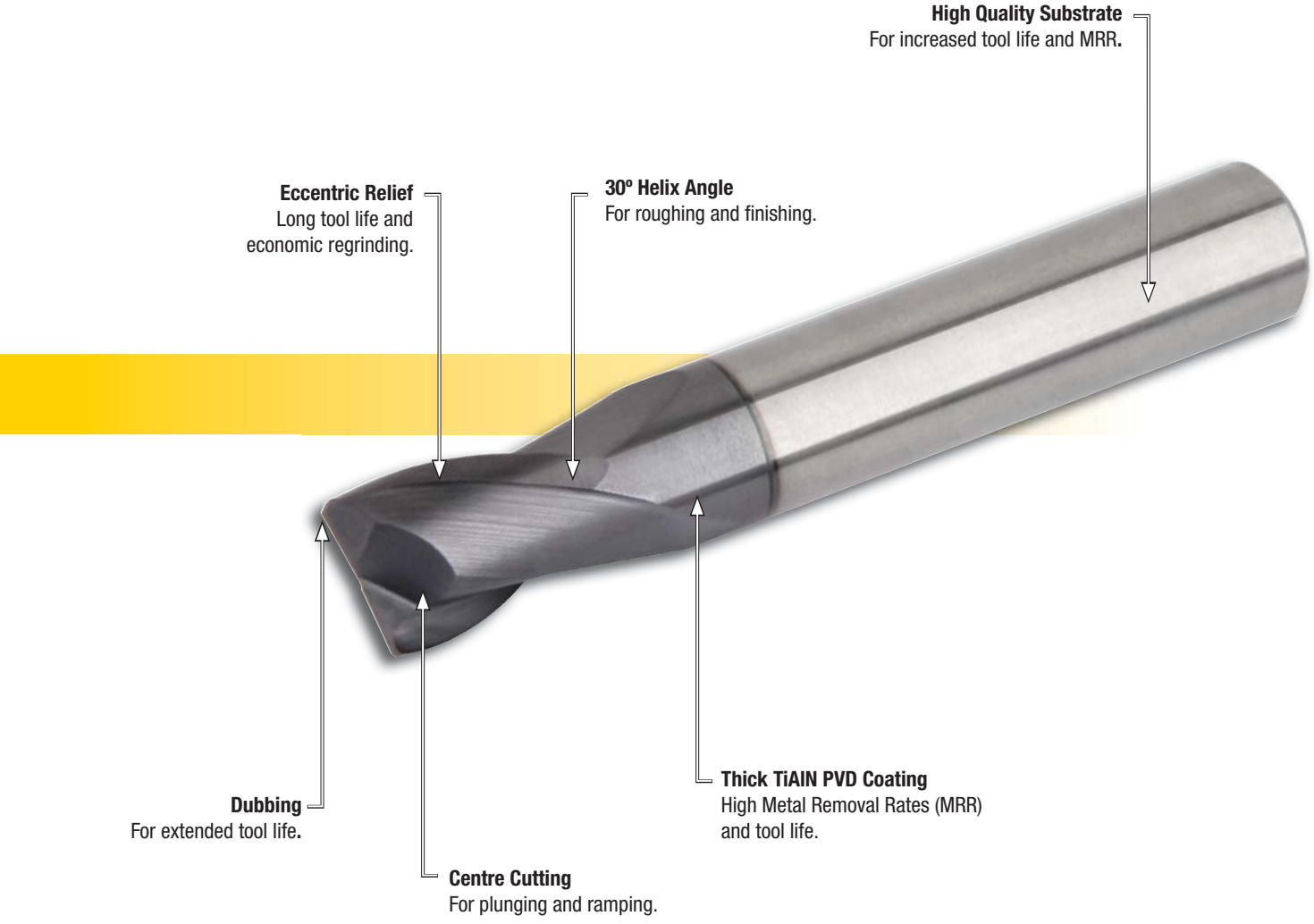
Customisation

- Intermediate diameters available.

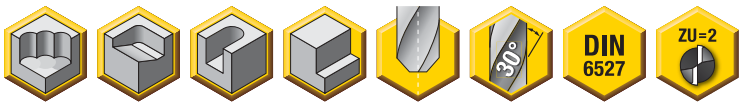
Extensive Standard Offering

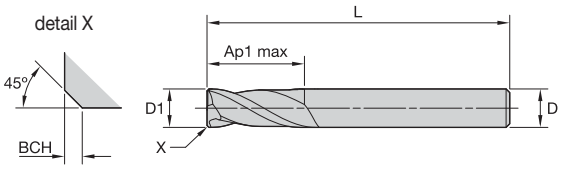
- Diameter range 2–20mm.
- Chamfered edge and ball nose as standard offering.

Designed for roughing and finishing with one tool at a value price.



- Centre cutting.

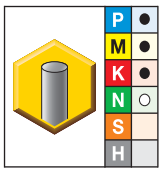




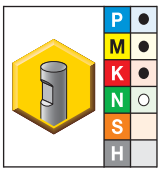
End Mill Tolerances

D1	tolerance e8	D	tolerance h6 + / -
≤ 3	-0,014/-0,028	≤ 3	0/0,006
> 3–6	-0,020/-0,038	> 3–6	0/0,008
> 6–10	-0,025/-0,047	> 6–10	0/0,009
> 10–18	-0,032/-0,059	> 10–18	0/0,011
> 18–30	-0,040/-0,073	> 18–30	0/0,013

2CH..DK-DL • 2 Flute • Metric



grade KC633M

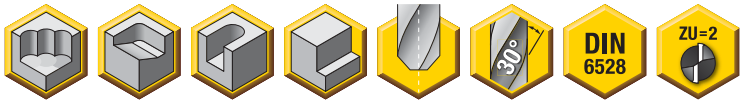


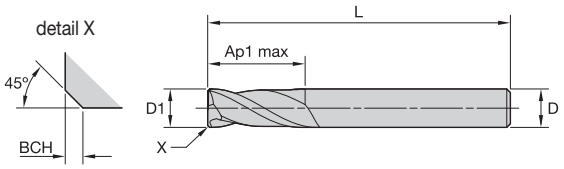
grade KC633M

● first choice
○ alternate choice

order #	catalogue #	order #	catalogue #	D1	D	length of cut Ap1 max	length L	BCH
5872943	2CH0200DK003A		–	2,0	6	3,00	50	–
5872944	2CH0300DK004A		–	3,0	6	4,00	50	–
5872945	2CH0300DL007A		–	3,0	6	7,00	57	–
5872946	2CH0350DK004A		–	3,5	6	4,00	50	–
5872947	2CH0400DK005A		–	4,0	6	5,00	54	0,10
5872948	2CH0400DL008A		–	4,0	6	8,00	57	0,10
5872949	2CH0450DK005A		–	4,5	6	5,00	54	0,10
5872950	2CH0450DL008A		–	4,5	6	8,00	57	0,10
5872961	2CH0500DK006A		–	5,0	6	6,00	54	0,10
5872962	2CH0500DL010A		–	5,0	6	10,00	57	0,10
5872963	2CH0600DK007A		–	6,0	6	7,00	54	0,10
5872964	2CH0600DL010A		–	6,0	6	10,00	57	0,10
5872965	2CH0700DK008A		–	7,0	8	8,00	58	0,10
5872966	2CH0700DL013A		–	7,0	8	13,00	63	0,10
5872967	2CH0800DK009A		–	8,0	8	9,00	58	0,20
5872968	2CH0800DL016A		–	8,0	8	16,00	63	0,20
5872970	2CH0900DK010A		–	9,0	10	10,00	66	0,20
5872971	2CH0900DL016A		–	9,0	10	16,00	72	0,20
5872972	2CH1000DK011A		–	10,0	10	11,00	66	0,20
5872974	2CH1000DL019A		–	10,0	10	19,00	72	0,20
5872975	2CH1200DK012A	5872985	2CH1200DK012B	12,0	12	12,00	73	0,30
5872976	2CH1200DL022A	5872986	2CH1200DL022B	12,0	12	22,00	83	0,30
5872977	2CH1400DK014A	5872987	2CH1400DK014B	14,0	14	14,00	75	0,30
5872978	2CH1400DL022A	5872988	2CH1400DL022B	14,0	14	22,00	83	0,30
5872979	2CH1600DK016A	5872989	2CH1600DK016B	16,0	16	16,00	82	0,30
5872980	2CH1600DL026A	5872990	2CH1600DL026B	16,0	16	26,00	92	0,30
5872981	2CH1800DK018A		–	18,0	18	18,00	84	0,30
5872982	2CH1800DL026A		–	18,0	18	26,00	92	0,30
5872983	2CH2000DK020A	5872993	2CH2000DK020B	20,0	20	20,00	92	0,30
5872984	2CH2000DL032A	5872994	2CH2000DL032B	20,0	20	32,00	104	0,30

• Centre cutting.

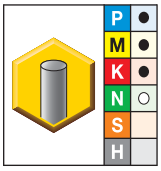




End Mill Tolerances

D1	tolerance e8	D	tolerance h6 + / -
≤ 3	-0,014/-0,028	≤ 3	0/0,006
> 3–6	-0,020/-0,038	> 3–6	0/0,008
> 6–10	-0,025/-0,047	> 6–10	0/0,009
> 10–18	-0,032/-0,059	> 10–18	0/0,011
> 18–30	-0,040/-0,073	> 18–30	0/0,013

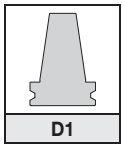
2CH..DD • 2 Flute • Metric



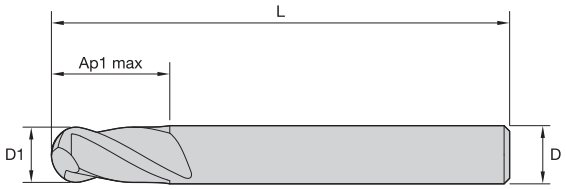
grade KC633M

● first choice
○ alternate choice

order #	catalogue #	D1	D	length of cut Ap1 max	length L	BCH
5872995	2CH0300DD007A	3,0	3	8,00	50	–
5872996	2CH0400DD008A	4,0	4	8,00	50	0,10
5872997	2CH0500DD010A	5,0	5	10,00	50	0,10
5872998	2CH0600DD010A	6,0	6	10,00	57	0,10
5872999	2CH0700DD013A	7,0	7	13,00	60	0,10
5873000	2CH0800DD016A	8,0	8	16,00	63	0,20
5873001	2CH0900DD016A	9,0	9	16,00	67	0,20
5873002	2CH1000DD019A	10,0	10	19,00	72	0,20
5873003	2CH1200DD022A	12,0	12	22,00	83	0,30
5873005	2CH1400DD022A	14,0	14	22,00	83	0,30
5873006	2CH1500DD026A	15,0	15	26,00	92	0,30
5873007	2CH1600DD026A	16,0	16	26,00	92	0,30
5873008	2CH1800DD026A	18,0	18	26,00	92	0,30
5873009	2CH2000DD032A	20,0	20	32,00	104	0,30



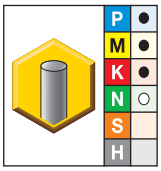
- Centre cutting.



End Mill Tolerances

D1	tolerance e8	D	tolerance h6 + / -
≤ 3	-0,014/-0,028	≤ 3	0/0,006
> 3–6	-0,020/-0,038	> 3–6	0/0,008
> 6–10	-0,025/-0,047	> 6–10	0/0,009
> 10–18	-0,032/-0,059	> 10–18	0/0,011
> 18–30	-0,040/-0,073	> 18–30	0/0,013

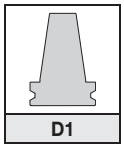
2BN..DK-DL • 2 Flute • Ball Nose • Metric



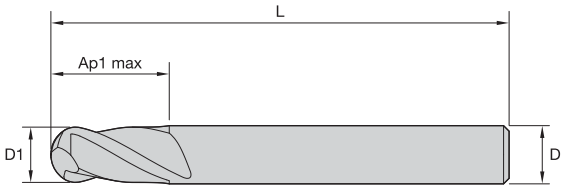
grade KC633M

● first choice
○ alternate choice

order #	catalogue #	D1	D	length of cut Ap1 max	length L
5874065	2BN0200DL006A	2,0	6	6,00	57
5874066	2BN0300DK004A	3,0	6	4,00	50
5874067	2BN0300DL007A	3,0	6	7,00	57
5874068	2BN0400DK005A	4,0	6	5,00	54
5874069	2BN0400DL008A	4,0	6	8,00	57
5874070	2BN0500DL010A	5,0	6	10,00	57
5874161	2BN0600DL010A	6,0	6	10,00	57
5874162	2BN0700DL013A	7,0	8	13,00	63
5874163	2BN0800DL016A	8,0	8	16,00	63
5874164	2BN1000DL019A	10,0	10	19,00	72
5874165	2BN1200DL022A	12,0	12	22,00	83
5874166	2BN1400DL022A	14,0	14	22,00	83
5874167	2BN1600DL026A	16,0	16	26,00	92
5874168	2BN2000DK020A	20,0	20	20,00	92
5874169	2BN2000DL032A	20,0	20	32,00	104



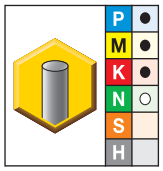
- Centre cutting.



End Mill Tolerances

D1	tolerance e8	D	tolerance h6 + / -
≤ 3	-0,014/-0,028	≤ 3	0/0,006
> 3–6	-0,020/-0,038	> 3–6	0/0,008
> 6–10	-0,025/-0,047	> 6–10	0/0,009
> 10–18	-0,032/-0,059	> 10–18	0/0,011
> 18–30	-0,040/-0,073	> 18–30	0/0,013

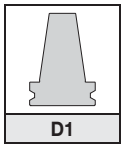
2BN..DD • 2 Flute • Ball Nose • Metric



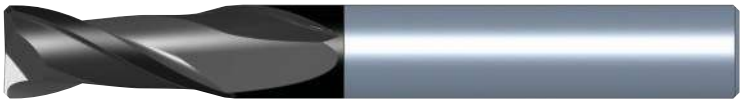
grade KC633M

● first choice
○ alternate choice

order #	catalogue #	D1	D	length of cut Ap1 max	length L
5874170	2BN0200DD007A	2,0	2	7,00	50
5874171	2BN0300DD007A	3,0	3	7,00	50
5874172	2BN0400DD008A	4,0	4	8,00	50
5874173	2BN0500DD010A	5,0	5	10,00	50
5874174	2BN0600DD010A	6,0	6	10,00	57
5874175	2BN0800DD016A	8,0	8	16,00	63
5874176	2BN1000DD019A	10,0	10	19,00	72
5874177	2BN1200DD022A	12,0	12	22,00	83
5874178	2BN1400DD022A	14,0	14	22,00	83
5874179	2BN1600DD026A	16,0	16	26,00	92
5874180	2BN2000DD032A	20,0	20	32,00	104



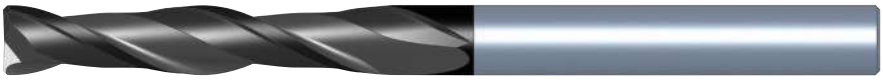
GOmill GP • 2CH..DK • 2 Flute • Short • Regular



Material Group		Side Milling (A) and Slotting (B) A ap	A ae	B ap	KC633M Cutting Speed — vc m/min min		max	Recommended feed per tooth (fz = mm/th) for side milling (A). For slotting (B), reduce fz by 20%. mm	D1 — Diameter 2,0	3,0	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0
P	0	Ap1 max	0,1 x D	0,5 x D	150	–	200	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	1	Ap1 max	0,1 x D	0,5 x D	150	–	200	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	2	Ap1 max	0,1 x D	0,5 x D	140	–	190	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	3	Ap1 max	0,1 x D	0,5 x D	120	–	160	fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
	4	Ap1 max	0,1 x D	0,5 x D	90	–	150	fz	0,010	0,016	0,021	0,027	0,033	0,045	0,054	0,062	0,070	0,077	0,083	0,088
M	1	Ap1 max	0,1 x D	0,5 x D	90	–	115	fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
	2	Ap1 max	0,1 x D	0,5 x D	60	–	80	fz	0,009	0,014	0,019	0,024	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081
K	1	Ap1 max	0,1 x D	0,5 x D	120	–	150	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	2	Ap1 max	0,1 x D	0,5 x D	110	–	140	fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
N	1	Ap1 max	0,1 x D	0,5 x D	250	–	1000	fz	0,020	0,030	0,040	0,050	0,060	0,080	0,100	0,120	0,140	0,160	0,180	0,200
	2	Ap1 max	0,1 x D	0,5 x D	250	–	750	fz	0,016	0,024	0,032	0,040	0,048	0,064	0,080	0,096	0,112	0,128	0,144	0,160
	4	Ap1 max	0,1 x D	0,5 x D	250	–	750	fz	0,018	0,027	0,036	0,045	0,054	0,072	0,090	0,108	0,126	0,144	0,162	0,180

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 centres, please adjust parameters accordingly on >12mm diameter.

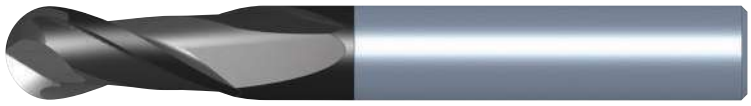
GOmill GP • 2CH..DL-DD • 2 Flute • Long



Material Group		Side Milling (A) A ap	A ae	KC633M Cutting Speed — vc m/min min		max	Recommended feed per tooth (fz = mm/th) for side milling (A). mm	D1 — Diameter 3,0	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0
P	0	Ap1 max	0,1 x D	150	–	200	fz	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	1	Ap1 max	0,1 x D	150	–	200	fz	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	2	Ap1 max	0,1 x D	140	–	190	fz	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	3	Ap1 max	0,1 x D	120	–	160	fz	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
	4	Ap1 max	0,1 x D	90	–	150	fz	0,016	0,021	0,027	0,033	0,045	0,054	0,062	0,070	0,077	0,083	0,088
M	1	Ap1 max	0,1 x D	90	–	115	fz	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
	2	Ap1 max	0,1 x D	60	–	80	fz	0,014	0,019	0,024	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081
K	1	Ap1 max	0,1 x D	120	–	150	fz	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	2	Ap1 max	0,1 x D	110	–	140	fz	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
N	1	Ap1 max	0,1 x D	250	–	1000	fz	0,030	0,040	0,050	0,060	0,080	0,100	0,120	0,140	0,160	0,180	0,200
	2	Ap1 max	0,1 x D	250	–	750	fz	0,024	0,032	0,040	0,048	0,064	0,080	0,096	0,112	0,128	0,144	0,160
	4	Ap1 max	0,1 x D	250	–	750	fz	0,027	0,036	0,045	0,054	0,072	0,090	0,108	0,126	0,144	0,162	0,180

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 centres, please adjust parameters accordingly on >12mm diameter.

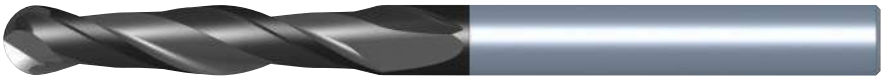
GOmill GP • 2BN..DK • 2 Flute • Ball Nose • Short • Regular



Material Group		Side Milling (A) and Slotting (B)			KC633M			Recommended feed per tooth (fz = mm/th) for side milling (A). For slotting (B), reduce fz by 20%.													
		A		B	Cutting Speed — vc m/min				D1 — Diameter												
		ap	ae	ap	min		max	mm	1,0	2,0	3,0	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0
P	0	Ap1 max	0,1 x D	0,5 x D	150	–	200	fz	0,007	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	1	Ap1 max	0,1 x D	0,5 x D	150	–	200	fz	0,007	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	2	Ap1 max	0,1 x D	0,5 x D	140	–	190	fz	0,007	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	3	Ap1 max	0,1 x D	0,5 x D	120	–	160	fz	0,006	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
	4	Ap1 max	0,1 x D	0,5 x D	90	–	150	fz	0,005	0,010	0,016	0,021	0,027	0,033	0,045	0,054	0,062	0,070	0,077	0,083	0,088
M	1	Ap1 max	0,1 x D	0,5 x D	90	–	115	fz	0,006	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
	2	Ap1 max	0,1 x D	0,5 x D	60	–	80	fz	0,005	0,009	0,014	0,019	0,024	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081
K	1	Ap1 max	0,1 x D	0,5 x D	120	–	150	fz	0,007	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	2	Ap1 max	0,1 x D	0,5 x D	110	–	140	fz	0,006	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
N	1	Ap1 max	0,1 x D	0,5 x D	250	–	1000	fz	0,010	0,020	0,030	0,040	0,050	0,060	0,080	0,100	0,120	0,140	0,160	0,180	0,200
	2	Ap1 max	0,1 x D	0,5 x D	250	–	750	fz	0,008	0,016	0,024	0,032	0,040	0,048	0,064	0,080	0,096	0,112	0,128	0,144	0,160
	4	Ap1 max	0,1 x D	0,5 x D	250	–	750	fz	0,009	0,018	0,027	0,036	0,045	0,054	0,072	0,090	0,108	0,126	0,144	0,162	0,180

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 centres, please adjust parameters accordingly on >12mm diameter.

GOmill GP • 2BN..DL-DD • 2 Flute • Ball Nose • Long



Material Group		Side Milling (A)		KC633M			Recommended feed per tooth (fz = mm/th) for side milling (A).											
		A		Cutting Speed — vc m/min				D1 — Diameter										
		ap	ae	min		max	mm	2,0	3,0	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0
P	0	Ap1 max	0,1 x D	150	–	200	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	1	Ap1 max	0,1 x D	150	–	200	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	2	Ap1 max	0,1 x D	140	–	190	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	3	Ap1 max	0,1 x D	120	–	160	fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
	4	Ap1 max	0,1 x D	90	–	150	fz	0,010	0,016	0,021	0,027	0,033	0,045	0,054	0,062	0,070	0,077	0,083	0,088
M	1	Ap1 max	0,1 x D	90	–	115	fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
	2	Ap1 max	0,1 x D	60	–	80	fz	0,009	0,014	0,019	0,024	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081
K	1	Ap1 max	0,1 x D	120	–	150	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	2	Ap1 max	0,1 x D	110	–	140	fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
N	1	Ap1 max	0,1 x D	250	–	1000	fz	0,020	0,030	0,040	0,050	0,060	0,080	0,100	0,120	0,140	0,160	0,180	0,200
	2	Ap1 max	0,1 x D	250	–	750	fz	0,016	0,024	0,032	0,040	0,048	0,064	0,080	0,096	0,112	0,128	0,144	0,160
	4	Ap1 max	0,1 x D	250	–	750	fz	0,018	0,027	0,036	0,045	0,054	0,072	0,090	0,108	0,126	0,144	0,162	0,180

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 centres, please adjust parameters accordingly on >12mm diameter.

GOmill™ GP General Purpose Solid Carbide End Mills • 3 Flute

Primary Application

The GOmill GP series offers plunging, slotting, and profiling with long tool life on a wide range of materials. Designed to provide high Metal Removal Rates (MRR) and to achieve good surface conditions at excellent cost-benefit ratio. A wide range of diameters and lengths with chamfered edge are available from stock.

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

Features and Benefits

Advanced Technology

- Roughing and finishing with one tool reduces tool changes and unnecessary tooling inventory.
- Eccentric relief increases edge stability for longer tool life and better surface quality.
- Eccentric relief eases regrinding and enables higher flexibility and lower reconditioning cost.
- 3-flute design for maximum manufacturing flexibility.

Tailored Grade

- Universal multilayer KC633M coating for cutting steel, cast iron, and stainless steel (wet).

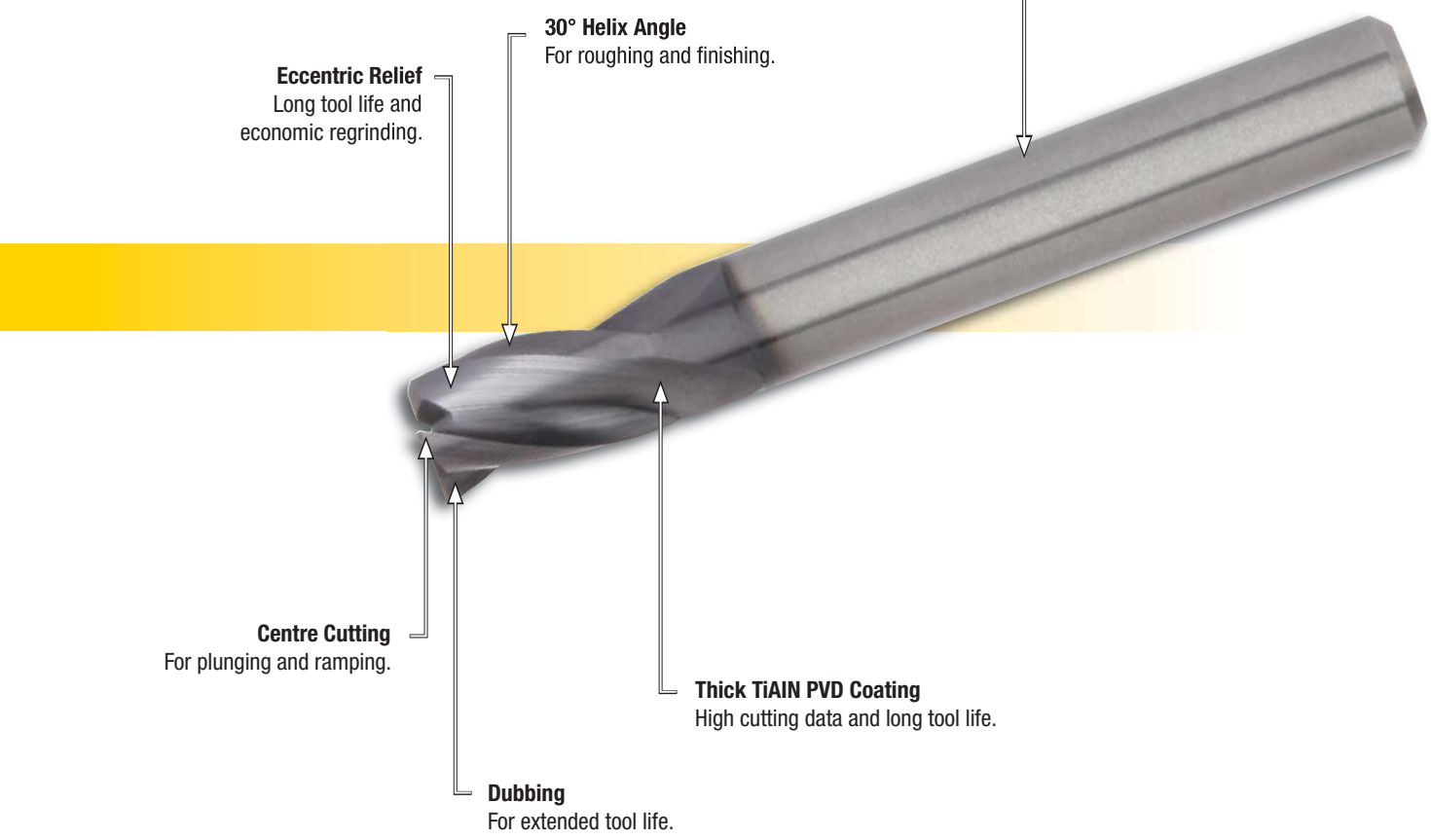
Customisation

- Intermediate diameters available.

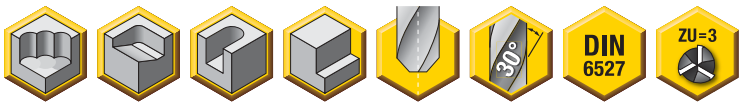
Extensive Standard Offering

- Diameter range 2–20mm.
- Chamfered edge as standard offering.
- Two different lengths as DIN standard in stock.

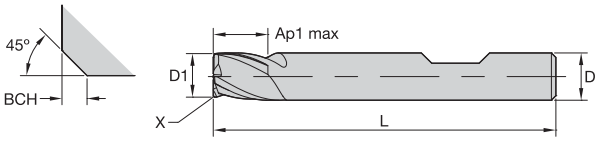
Designed for roughing and finishing with one tool at an economical price.



- Centre cutting.



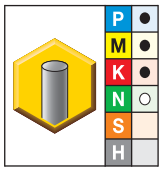
detail X



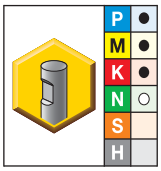
End Mill Tolerances

D1	tolerance e8	D	tolerance h6 + / -
≤ 3	-0,014/-0,028	≤ 3	0/0,006
> 3–6	-0,020/-0,038	> 3–6	0/0,008
> 6–10	-0,025/-0,047	> 6–10	0/0,009
> 10–18	-0,032/-0,059	> 10–18	0/0,011
> 18–30	-0,040/-0,073	> 18–30	0/0,013

3CH..DK-DL • 3 Flute • Metric



grade KC633M

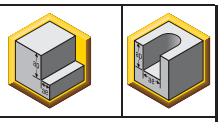


grade KC633M

● first choice
○ alternate choice

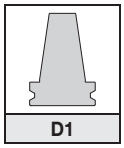
order #	catalogue #	order #	catalogue #	D1	D	length of cut Ap1 max	length L	BCH
6146940	3CH0200DL006A	6146957	3CH0200DL006B	2,0	6	6,00	57	–
6146871	3CH0250DK003A	6146890	3CH0250DK003B	2,5	6	3,00	50	–
6146941	3CH0250DL007A		–	2,5	6	7,00	57	–
6146872	3CH0300DK004A	6146891	3CH0300DK004B	3,0	6	4,00	50	–
6146942	3CH0300DL007A	6146959	3CH0300DL007B	3,0	6	7,00	57	–
6146874	3CH0350DK004A	6146892	3CH0350DK004B	3,5	6	4,00	50	–
6146943	3CH0350DL007A	6146960	3CH0350DL007B	3,5	6	7,00	57	–
6146875	3CH0400DK005A	6146893	3CH0400DK005B	4,0	6	5,00	54	0,10
6146944	3CH0400DL008A	6146961	3CH0400DL008B	4,0	6	8,00	57	0,10
6146876	3CH0450DK005A	6146894	3CH0450DK005B	4,5	6	5,00	54	0,10
6146945	3CH0450DL008A	6146962	3CH0450DL008B	4,5	6	8,00	57	0,10
6146877	3CH0500DK006A	6146895	3CH0500DK006B	5,0	6	6,00	54	0,10
6146946	3CH0500DL010A	6146963	3CH0500DL010B	5,0	6	10,00	57	0,10
6146878	3CH0550DK007A	6146896	3CH0550DK007B	5,5	6	7,00	54	0,10
6146947	3CH0550DL010A	6146964	3CH0550DL010B	5,5	6	10,00	57	0,10
6146879	3CH0600DK007A	6146897	3CH0600DK007B	6,0	6	7,00	54	0,10
6146948	3CH0600DL010A	6146965	3CH0600DL010B	6,0	6	10,00	57	0,10
6146880	3CH0700DK008A	6146898	3CH0700DK008B	7,0	8	8,00	58	0,10
6146949	3CH0700DL013A	6146966	3CH0700DL013B	7,0	8	13,00	63	0,10
6146881	3CH0800DK009A	6146899	3CH0800DK009B	8,0	8	9,00	58	0,20
6146950	3CH0800DL016A	6146967	3CH0800DL016B	8,0	8	16,00	63	0,20
6146882	3CH1000DK011A	6146900	3CH1000DK011B	10,0	10	11,00	66	0,20
6146951	3CH1000DL019A	6146968	3CH1000DL019B	10,0	10	19,00	72	0,20
6146883	3CH1200DK012A	6146901	3CH1200DK012B	12,0	12	12,00	73	0,30
6146952	3CH1200DL022A	6146969	3CH1200DL022B	12,0	12	22,00	83	0,30
6146884	3CH1400DK014A	6146902	3CH1400DK014B	14,0	14	14,00	75	0,30
6146953	3CH1400DL022A	6146970	3CH1400DL022B	14,0	14	22,00	83	0,30
6146885	3CH1600DK016A	6146903	3CH1600DK016B	16,0	16	16,00	82	0,30
6146954	3CH1600DL026A	6146971	3CH1600DL026B	16,0	16	26,00	92	0,30
6146886	3CH1800DK018A	6146904	3CH1800DK018B	18,0	18	18,00	84	0,30
6146955	3CH1800DL026A	6146972	3CH1800DL026B	18,0	18	26,00	92	0,30
6146888	3CH2000DK020A	6146905	3CH2000DK020B	20,0	20	20,00	92	0,30
6146956	3CH2000DL032A	6146973	3CH2000DL032B	20,0	20	32,00	104	0,30

GOmill • GP 3CH..DK-DL • 3 Flute • Short • Regular



Material Group		Side Milling (A) and Slotting (B)			KC633M			Recommended feed per tooth (fz = mm/th) for side milling (A). For slotting (B), reduce fz by 20%.													
		A		B	Cutting Speed — vc m/min				D1 — Diameter												
		ap	ae	ap	min		max	mm	2,0	3,0	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0
P	0	Ap1 max	0,1 x D	0,5 x D	150	–	200	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	1	Ap1 max	0,1 x D	0,5 x D	150	–	200	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	2	Ap1 max	0,1 x D	0,5 x D	140	–	190	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	3	Ap1 max	0,1 x D	0,5 x D	120	–	160	fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
	4	Ap1 max	0,1 x D	0,5 x D	90	–	150	fz	0,010	0,016	0,021	0,027	0,033	0,045	0,054	0,062	0,070	0,077	0,083	0,088
M	1	Ap1 max	0,1 x D	0,5 x D	90	–	115	fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
	2	Ap1 max	0,1 x D	0,5 x D	60	–	80	fz	0,009	0,014	0,019	0,024	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081
K	1	Ap1 max	0,1 x D	0,5 x D	120	–	150	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	2	Ap1 max	0,1 x D	0,5 x D	110	–	140	fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
N	1	Ap1 max	0,1 x D	0,5 x D	250	–	1000	fz	0,020	0,030	0,040	0,050	0,060	0,080	0,100	0,120	0,140	0,160	0,180	0,200
	2	Ap1 max	0,1 x D	0,5 x D	250	–	750	fz	0,016	0,024	0,032	0,040	0,048	0,064	0,080	0,096	0,112	0,128	0,144	0,160
	5	Ap1 max	0,1 x D	0,5 x D	250	–	750	fz	0,018	0,027	0,036	0,045	0,054	0,072	0,090	0,108	0,126	0,144	0,162	0,180

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 centres, please adjust parameters accordingly on diameters >12mm.


D1

GOmill™ GP General Purpose Solid Carbide End Mills • 4 Flute

Primary Application

The GOmill GP series offers plunging, slotting, and profiling with long tool life in a wide range of workpiece materials. These end mills are designed to provide high Metal Removal Rates (MRR) and to achieve good surface quality at an excellent cost-benefit ratio. A wide range of diameters and lengths are available with chamfered edge and ball nose as stocked standard.

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

Features and Benefits

Advanced Technology

- Roughing and finishing with one tool reduces tool changes and unnecessary tooling inventory.
- Eccentric relief increases edge stability for longer tool life and better surface quality.
- Eccentric relief eases regrinding and reduces reconditioning cost.
- 4-flute design for high MRR and reduced machining time.

Tailored Grades

- Universal multilayer KC633M coating for cutting steel, cast iron, and stainless steel (wet).

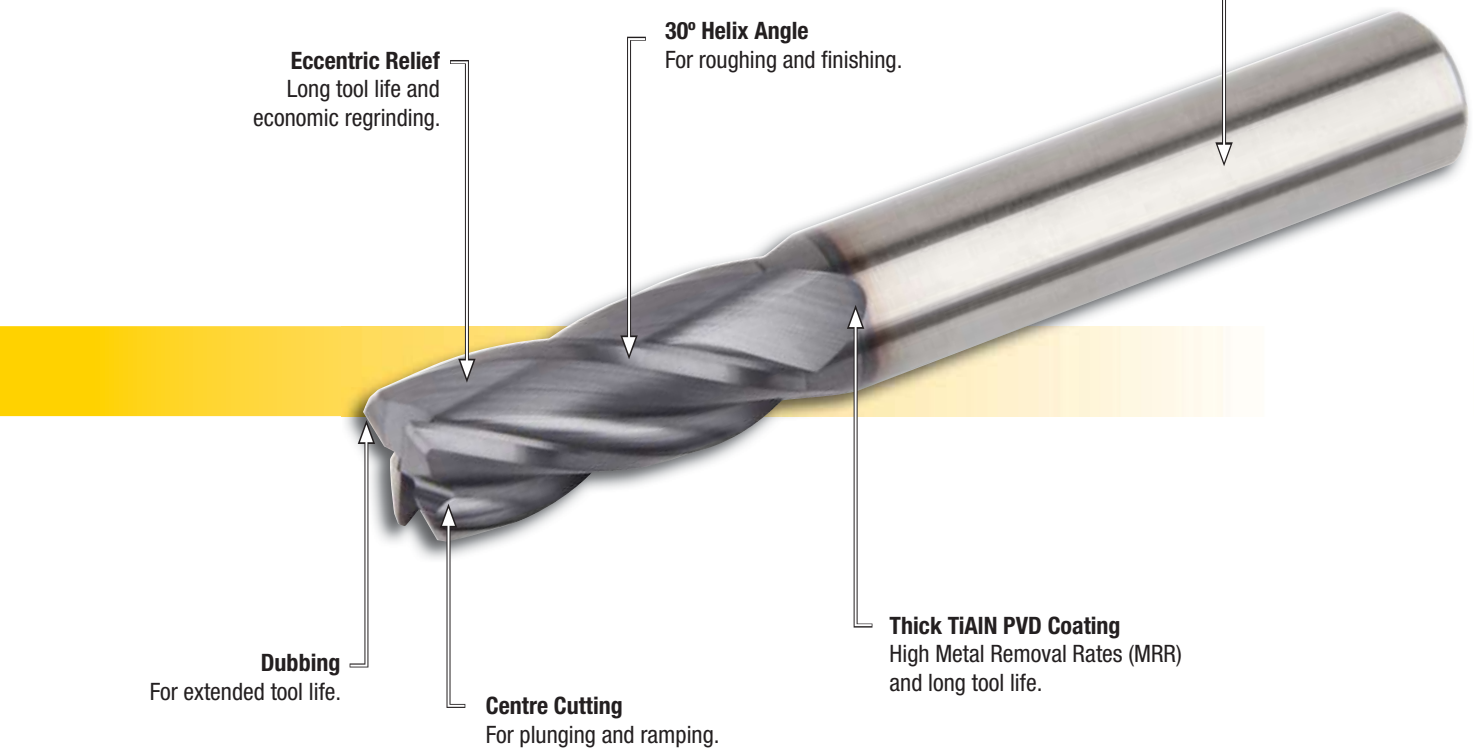
Customisation

- Intermediate diameters available.

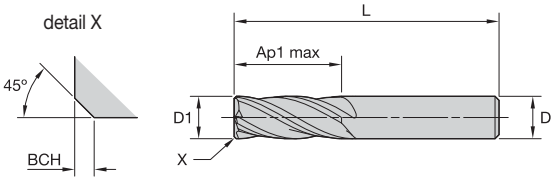
Extensive Standard Offering

- Diameter range 2–20mm.
- Chamfered edge and ball nose as standard offering.

Designed for roughing and finishing with one tool at a value price.



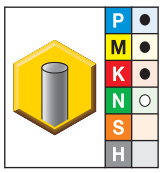
- Centre cutting.



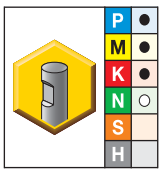
End Mill Tolerances

D1	tolerance e8	D	tolerance h6 + / -
≤ 3	-0,014/-0,028	≤ 3	0/0,006
> 3–6	-0,020/-0,038	> 3–6	0/0,008
> 6–10	-0,025/-0,047	> 6–10	0/0,009
> 10–18	-0,032/-0,059	> 10–18	0/0,011
> 18–30	-0,040/-0,073	> 18–30	0/0,013

4CH..DK-DL • 4 Flute • Metric



grade KC633M

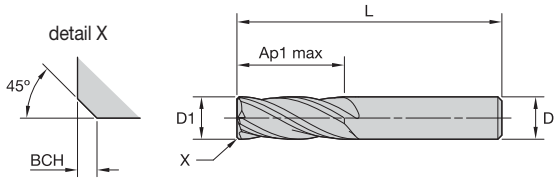


grade KC633M

● first choice
○ alternate choice

order #	catalogue #	order #	catalogue #	D1	D	length of cut Ap1 max	length L	BCH
5824127	4CH0200DK004A		–	2,0	3	4,00	38	–
5824128	4CH0250DL008A		–	2,5	6	8,00	57	–
5824129	4CH0300DK005A		–	3,0	6	5,00	50	–
5824130	4CH0350DL010A		–	3,5	6	10,00	58	–
5824171	4CH0400DK008A		–	4,0	6	8,00	54	0,10
5824172	4CH0400DL011A		–	4,0	6	11,00	57	0,10
5824173	4CH0450DL011A		–	4,5	6	11,00	57	0,10
5824174	4CH0500DK009A		–	5,0	6	9,00	54	0,10
5824175	4CH0500DL013A		–	5,0	6	13,00	57	0,10
5824176	4CH0550DL013A		–	5,5	6	13,00	57	0,10
5824177	4CH0600DK010A		–	6,0	6	10,00	54	0,10
5824178	4CH0600DL013A		–	6,0	6	13,00	57	0,10
5824179	4CH0650DL016A		–	6,5	8	16,00	63	0,10
5824180	4CH0700DK011A		–	7,0	8	11,00	58	0,10
5824181	4CH0700DL016A		–	7,0	8	16,00	63	0,10
5824182	4CH0800DK012A		–	8,0	8	12,00	58	0,20
5824183	4CH0800DL019A		–	8,0	8	19,00	63	0,20
5824184	4CH0900DK013A		–	9,0	10	13,00	66	0,20
5824185	4CH0900DL019A		–	9,0	10	19,00	72	0,20
5824186	4CH1000DK014A		–	10,0	10	14,00	66	0,20
5824187	4CH1000DL022A		–	10,0	10	22,00	72	0,20
5824188	4CH1200DK016A	5824208	4CH1200DK016B	12,0	12	16,00	73	0,30
5824189	4CH1200DL026A	5824209	4CH1200DL026B	12,0	12	26,00	83	0,30
5824190	4CH1400DK018A	5824210	4CH1400DK018B	14,0	14	18,00	75	0,30
5824191	4CH1400DL026A	5824211	4CH1400DL026B	14,0	14	26,00	83	0,30
5824192	4CH1600DK022A	5824212	4CH1600DK022B	16,0	16	22,00	82	0,30
5824193	4CH1600DL032A	5824213	4CH1600DL032B	16,0	16	32,00	92	0,30
5824194	4CH1800DK024A	5824214	4CH1800DK024B	18,0	18	24,00	84	0,30
5824195	4CH1800DL032A	5824215	4CH1800DL032B	18,0	18	32,00	92	0,30
5824196	4CH2000DK026A	5824216	4CH2000DK026B	20,0	20	26,00	92	0,30
5824197	4CH2000DL038A	5824217	4CH2000DL038B	20,0	20	38,00	104	0,30

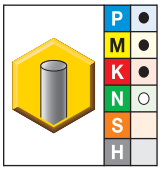
• Centre cutting.



End Mill Tolerances

D1	tolerance e8	D	tolerance h6 + / -
≤ 3	-0,014/-0,028	≤ 3	0/0,006
> 3–6	-0,020/-0,038	> 3–6	0/0,008
> 6–10	-0,025/-0,047	> 6–10	0/0,009
> 10–18	-0,032/-0,059	> 10–18	0/0,011
> 18–30	-0,040/-0,073	> 18–30	0/0,013

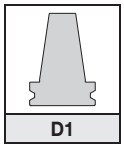
4CH..DD • 4 Flute • Metric



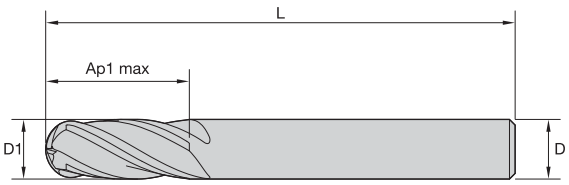
grade KC633M

● first choice
○ alternate choice

order #	catalogue #	D1	D	length of cut Ap1 max	length L	BCH
5824198	4CH0400DD011A	4,0	4	11,00	50	0,10
5824199	4CH0500DD013A	5,0	5	13,00	50	0,10
5824200	4CH0600DD013A	6,0	6	13,00	57	0,10
5824201	4CH0800DD019A	8,0	8	19,00	63	0,20
5824202	4CH1000DD022A	10,0	10	22,00	72	0,20
5824203	4CH1200DD026A	12,0	12	26,00	83	0,30
5824204	4CH1400DD026A	14,0	14	26,00	83	0,30
5824205	4CH1600DD032A	16,0	16	32,00	92	0,30
5824206	4CH1800DD032A	18,0	18	32,00	92	0,30
5824207	4CH2000DD038A	20,0	20	38,00	104	0,30



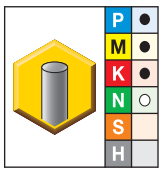
- Centre cutting.



End Mill Tolerances

D1	tolerance e8	D	tolerance h6 + / -
≤ 3	-0,014/-0,028	≤ 3	0/0,006
> 3–6	-0,020/-0,038	> 3–6	0/0,008
> 6–10	-0,025/-0,047	> 6–10	0/0,009
> 10–18	-0,032/-0,059	> 10–18	0/0,011
> 18–30	-0,040/-0,073	> 18–30	0/0,013

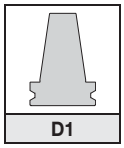
4BN..DL • 4 Flute • Ball Nose • Metric



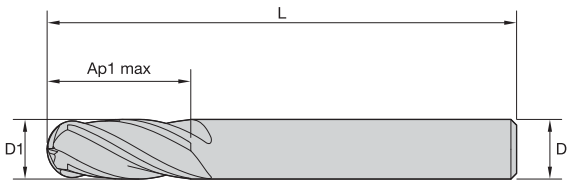
grade KC633M

● first choice
○ alternate choice

order #	catalogue #	D1	D	length of cut Ap1 max	length L
5824720	4BN0300DL008A	3,0	6	8,00	57
5824921	4BN0400DL011A	4,0	6	11,00	57
5824922	4BN0500DL013A	5,0	6	13,00	57
5824923	4BN0600DL013A	6,0	6	13,00	57
5824924	4BN0800DL019A	8,0	8	19,00	63
5824925	4BN1000DL022A	10,0	10	22,00	72
5824926	4BN1200DL026A	12,0	12	26,00	83
5824927	4BN1400DL026A	14,0	14	26,00	83
5824928	4BN1600DL032A	16,0	16	32,00	92
5824929	4BN1800DL032A	18,0	18	32,00	92
5824930	4BN2000DL038A	20,0	20	38,00	104



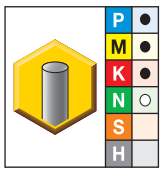
• Centre cutting.



End Mill Tolerances

D1	tolerance e8	D	tolerance h6 + / -
≤ 3	-0,014/-0,028	≤ 3	0/0,006
> 3–6	-0,020/-0,038	> 3–6	0/0,008
> 6–10	-0,025/-0,047	> 6–10	0/0,009
> 10–18	-0,032/-0,059	> 10–18	0/0,011
> 18–30	-0,040/-0,073	> 18–30	0/0,013

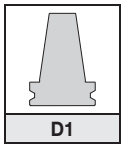
4BN..DD • 4 Flute • Ball Nose • Metric



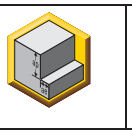
grade KC633M

● first choice
○ alternate choice

order #	catalogue #	D1	D	length of cut Ap1 max	length L
5824931	4BN0400DD011A	4,0	4	11,00	50
5824932	4BN0500DD013A	5,0	5	13,00	50
5824933	4BN0600DD013A	6,0	6	13,00	57
5824934	4BN0800DD019A	8,0	8	19,00	63
5824935	4BN1000DD022A	10,0	10	22,00	72
5824936	4BN1200DD026A	12,0	12	26,00	83
5824937	4BN1400DD026A	14,0	14	26,00	83
5824938	4BN1600DD032A	16,0	16	32,00	92
5824939	4BN1800DD032A	18,0	18	32,00	92
5824940	4BN2000DD038A	20,0	20	38,00	104



GOmill GP • 4CH..DK • 4 Flute • Regular



Material Group		Side Milling (A) and Slotting (B)			KC633M			Recommended feed per tooth (fz = mm/th) for side milling (A). For slotting (B), reduce fz by 20%.												
		A		B	Cutting Speed — vc m/min			D1 — Diameter												
		ap	ae	ap	min		max	mm	2,0	3,0	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0
P	0	Ap1 max	0,1 x D	0,5 x D	150	–	200	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	1	Ap1 max	0,1 x D	0,5 x D	150	–	200	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	2	Ap1 max	0,1 x D	0,5 x D	140	–	190	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	3	Ap1 max	0,1 x D	0,5 x D	120	–	160	fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
	4	Ap1 max	0,1 x D	0,5 x D	90	–	150	fz	0,010	0,016	0,021	0,027	0,033	0,045	0,054	0,062	0,070	0,077	0,083	0,088
M	1	Ap1 max	0,1 x D	0,5 x D	90	–	115	fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
	2	Ap1 max	0,1 x D	0,5 x D	60	–	80	fz	0,009	0,014	0,019	0,024	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081
K	1	Ap1 max	0,1 x D	0,5 x D	120	–	150	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	2	Ap1 max	0,1 x D	0,5 x D	110	–	140	fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
N	1	Ap1 max	0,1 x D	0,5 x D	250	–	1000	fz	0,020	0,030	0,040	0,050	0,060	0,080	0,100	0,120	0,140	0,160	0,180	0,200
	2	Ap1 max	0,1 x D	0,5 x D	250	–	750	fz	0,016	0,024	0,032	0,040	0,048	0,064	0,080	0,096	0,112	0,128	0,144	0,160
	4	Ap1 max	0,1 x D	0,5 x D	250	–	750	fz	0,018	0,027	0,036	0,045	0,054	0,072	0,090	0,108	0,126	0,144	0,162	0,180

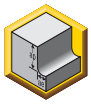
NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
Above parameters are based on ideal conditions. For smaller taper machining centres, please adjust parameters accordingly on >12mm diameter.

GOmill GP • 4CH..DL-DD • 4 Flute • Long


Material Group		Side Milling (A)		KC633M			Recommended feed per tooth (fz = mm/th) for side milling (A).										
		A		Cutting Speed — vc m/min			D1 — Diameter										
		ap	ae	min		max	mm	3,0	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0
P	0	Ap1 max	0,1 x D	150	–	200	fz	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	1	Ap1 max	0,1 x D	150	–	200	fz	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	2	Ap1 max	0,1 x D	140	–	190	fz	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	3	Ap1 max	0,1 x D	120	–	160	fz	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
	4	Ap1 max	0,1 x D	90	–	150	fz	0,016	0,021	0,027	0,033	0,045	0,054	0,062	0,070	0,077	0,083	0,088
M	1	Ap1 max	0,1 x D	90	–	115	fz	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
	2	Ap1 max	0,1 x D	60	–	80	fz	0,014	0,019	0,024	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081
K	1	Ap1 max	0,1 x D	120	–	150	fz	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	2	Ap1 max	0,1 x D	110	–	140	fz	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
N	1	Ap1 max	0,1 x D	250	–	1000	fz	0,030	0,040	0,050	0,060	0,080	0,100	0,120	0,140	0,160	0,180	0,200
	2	Ap1 max	0,1 x D	250	–	750	fz	0,024	0,032	0,040	0,048	0,064	0,080	0,096	0,112	0,128	0,144	0,160
	4	Ap1 max	0,1 x D	250	–	750	fz	0,027	0,036	0,045	0,054	0,072	0,090	0,108	0,126	0,144	0,162	0,180

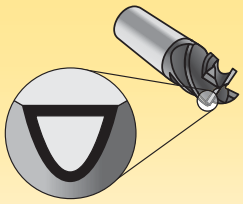
NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
Above parameters are based on ideal conditions. For smaller taper machining centres, please adjust parameters accordingly on >12mm diameter.

GOmill GP • 4BN..DL-DD • 4 Flute • Ball Nose • Long • Extra Long



Material Group		Side Milling (A)		KC633M			Recommended feed per tooth (fz = mm/th) for side milling (A).										
		A		Cutting Speed — vc m/min			D1 — Diameter										
		ap	ae	min		max	mm	3,0	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0
P	0	Ap1 max	0,1 x D	150	–	200	fz	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	1	Ap1 max	0,1 x D	150	–	200	fz	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	2	Ap1 max	0,1 x D	140	–	190	fz	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	3	Ap1 max	0,1 x D	120	–	160	fz	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
	4	Ap1 max	0,1 x D	90	–	150	fz	0,016	0,021	0,027	0,033	0,045	0,054	0,062	0,070	0,077	0,083	0,088
M	1	Ap1 max	0,1 x D	90	–	115	fz	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
	2	Ap1 max	0,1 x D	60	–	80	fz	0,014	0,019	0,024	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081
K	1	Ap1 max	0,1 x D	120	–	150	fz	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	2	Ap1 max	0,1 x D	110	–	140	fz	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
N	1	Ap1 max	0,1 x D	250	–	1000	fz	0,030	0,040	0,050	0,060	0,080	0,100	0,120	0,140	0,160	0,180	0,200
	2	Ap1 max	0,1 x D	250	–	750	fz	0,024	0,032	0,040	0,048	0,064	0,080	0,096	0,112	0,128	0,144	0,160
	4	Ap1 max	0,1 x D	250	–	750	fz	0,027	0,036	0,045	0,054	0,072	0,090	0,108	0,126	0,144	0,162	0,180

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 centres, please adjust parameters accordingly on >12mm diameter.



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

Grades

Coating	Grade Description		wear resistance ← → toughness								
			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 optimised 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									
KCSM15	Coated carbide grade with thick PVD coating and optimised 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									
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 characterised by good hardness and wear resistance. It provides outstanding protection for solid carbide tools against cratering and abrasion.	P, M, K									

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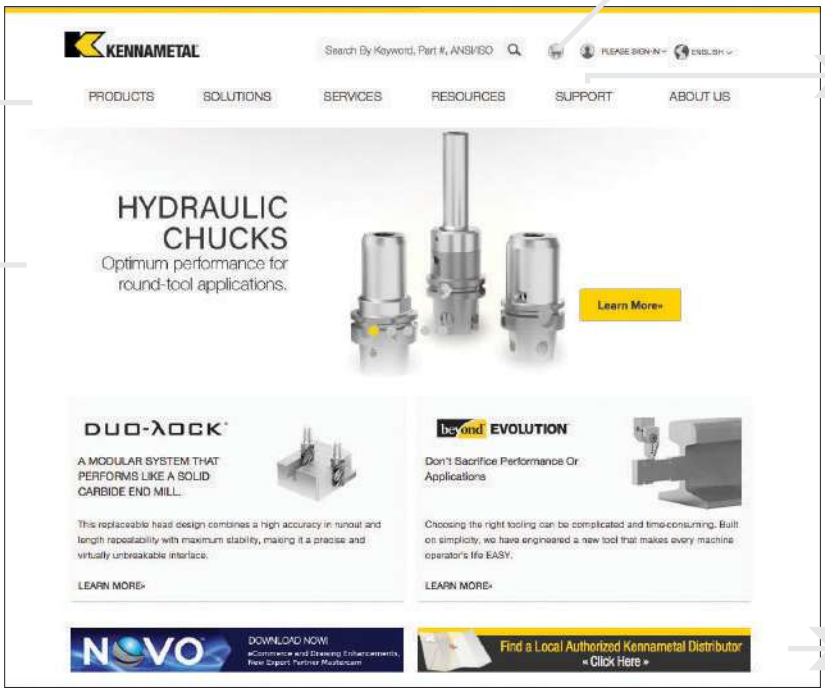

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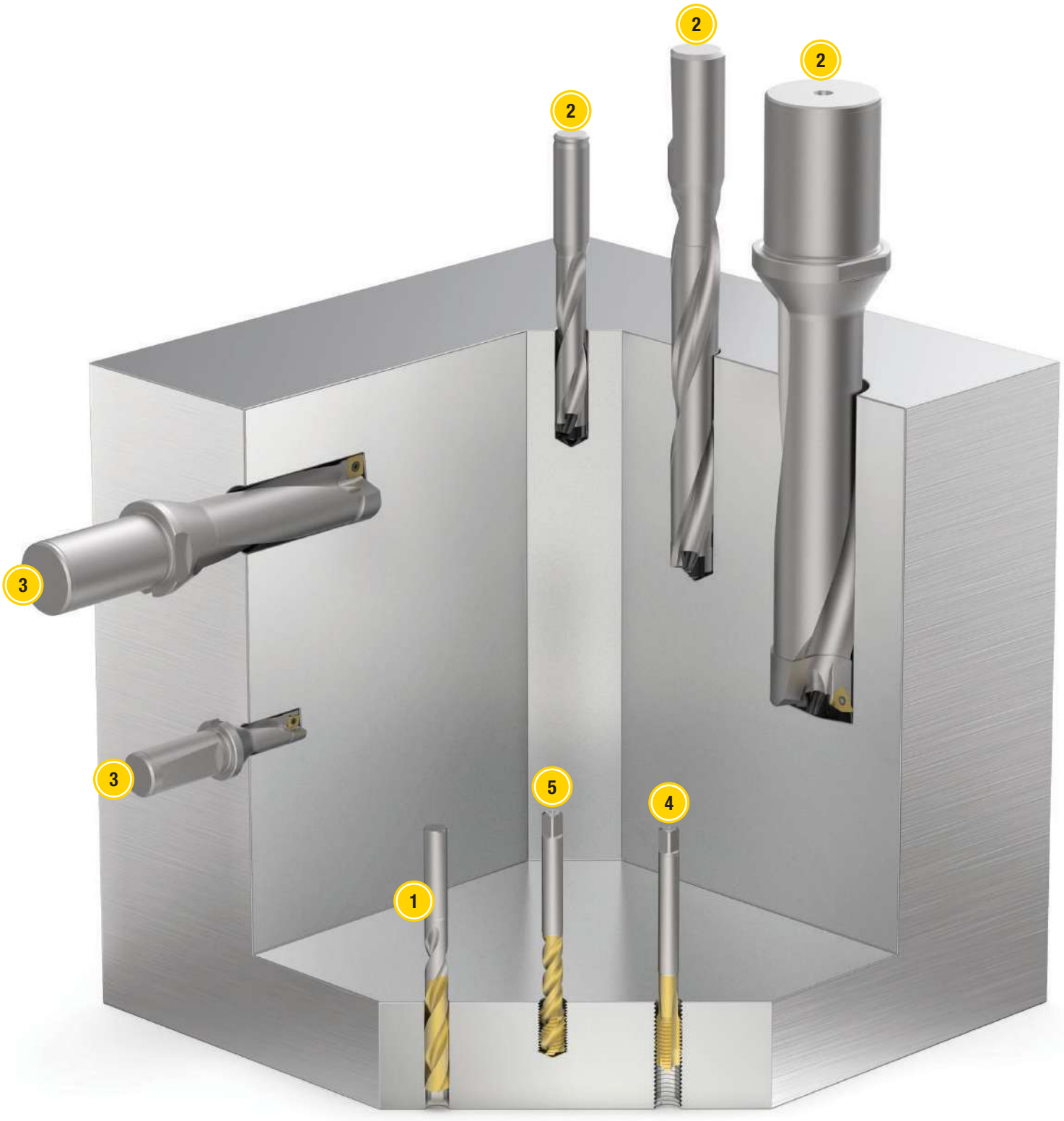
Holemaking and Tapping



Holemaking

Choosing the Correct Solution **C2**

Solid Carbide Drills **C3–C29**

Platform Selection C3

1 GOdrill — 1,0–20,0mm, 3 x D/5 x D, Internal Coolant, External Coolant C4–C16

Kenna Universal Drills — 3,0–20,0mm, 3 x D/5 x D/8 x D, Internal Coolant C18–C29

Modular Drills **C31–C69**

Platform Selection C31

2 KenTIP FS 8–26, 3 x D/5 x D C32–C41

KSEM — 12,5–40mm, 3 x D/10 x D C42–C53

KSEM PLUS — 28–70mm, 3 x D/10 x D C54–C69

Indexable Drills **C71–C100**

Platform Selection C71

3 Drill Fix DFR — 12,0–25,0mm, 2 x D/3 x D C72–C83

Drill Fix DFSP — 14,0–55,0mm, 2 x D/3 x D C84–C93, C96–C100

Drill Fix DFT Inserts C94–C95

Tapping

Selection System **C102–C103**

Spiral-Point Taps for Through Holes **C104–C107**

4 HSS-E-PM High-Performance Taps — M3–M18 External Coolant C106

GOtap HSS-E — M3–M24 External Coolant C107

Spiral-Flute Taps for Blind Holes **C108–C113**

5 HSS-E-PM High-Performance Taps — M3–M18 External and Internal Coolant C110–C111

GOtap HSS-E — M3–M24 External Coolant C112–C113

Straight-Flute Taps for Blind and Through Holes for Short-Chipping Materials **C114–C119**

4 5 HSS-E-PM High-Performance Taps — M4–M20 External and Internal Coolant C116–C117

Application Data and Drill Diameters **C118–C119**

Workpiece Material Cross Reference **E10**

Select the Correct Holemaking Solution for Your Application

Added Value for Your Performance

Increase of Productivity and Efficiency

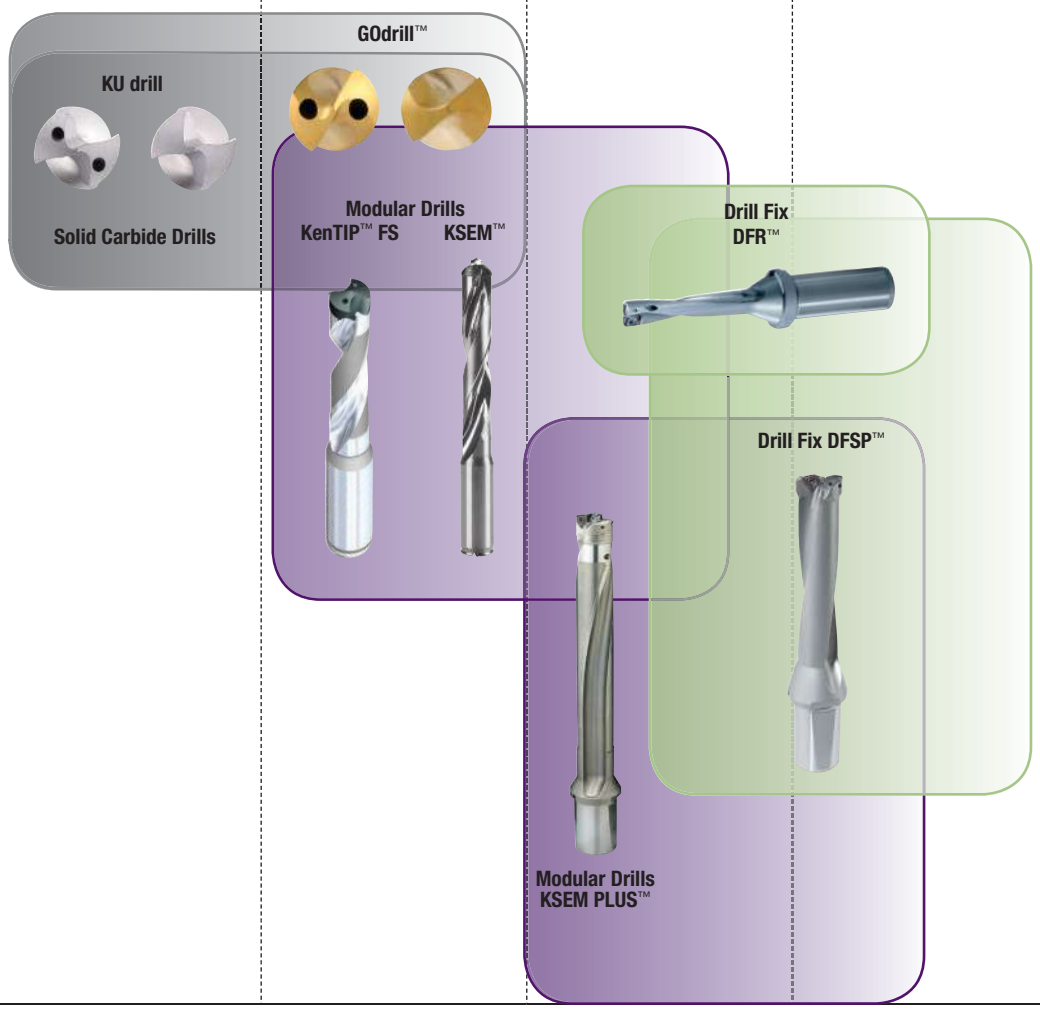
- Material and application-specific solutions.
- Maximum metal removal rates and repeatability.
- Standardised design platforms for special tools based on “proven solutions” for individual optimisations and combination tools.

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)
		precision			
mm	inch	IT8	IT9	IT10	IT11
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				
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				



Choose solid carbide drills for:

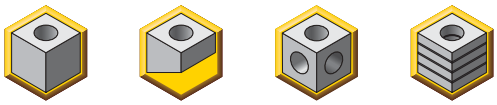
- Small to medium diameters.
- 3 x D, 5 x D, and 8 x D.
- High metal removal rates, productivity.
- High precision.
- Dry, flood, and through coolant, and MQL machining.
- If reconditioning is manageable.

Choose modular drills for:

- Medium to large diameters.
- Drilling depth from 3 x D–10 x D.
- High productivity and great hole quality.
- Lowering direct tooling cost and creating a smaller tool inventory.
- Improve process stability by using indexable drill bits.

Choose indexable drills for:

- Medium to large diameter range.
- Short hole applications, 2 x D and 3 x D.
- Very cost-effective drilling using standard indexable inserts.
- Materials and machine setups that do not allow for high feed rates.

		GOdrill™	KU Drill
Diameter		1–20mm (.03942–.7874")	3–20mm (.1181–.7874")
Capabilities			
Coolant options		 	
		 	
Materials	P	●	●
	M	●	○
	K	●	●
	N	●	●
	S	●	○
Cutting parameters		+	++
Hole quality/tolerance		+	++
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 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 utilisation of the drill's tool life capacity.	The **Kenna Universal**™ drill is a multipurpose 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.
Regrindability		limited	fully regrindable
		Reconditioning of a GOdrill < Ø4mm is not as cost-effective as a new drill, and therefore not recommended. Because of its unique design, it is technically impossible to regrind the GOdrill to its original shape.	The KU Drill can be reconditioned to original shape and coating.

Tool Selection Guide

		Drill Series	grade	standard ● first choice ○ alternate choice P M K N S H	hole tolerance	First Choice Range diameter range D1 mm min–max	D1 inch min–max	drilling depth L/D1
Solid Carbide Drills — for highest cutting parameters, highest precision in small to medium diameter range, regrindable								
Solid Carbide Drills for external coolant or dry machining								
	GOdrill™ for Multiple Materials	**B04_CPG**	**KC7325**	● ● ● ● ● ○	IT9–IT10	1,0–20,0	.0394–.7874	3 x D 5 x D
Solid Carbide Drills with internal coolant channel								
	GOdrill™ for Multiple Materials	**B05_CPG**	**KC7325**	● ● ● ● ● ○	IT9–IT10	1,5–20,0	.0591–.7874	3 x D 5 x D
	KU Drill for Universal Applications	**B97_**	**KC7315**	● ○ ● ○ ○		3,0–20,0	.1181–.7874	3 x D 5 x D 8 x D

*Not all intermediate sizes available in First Choice.

GOdrill™

For Multiple Materials

Primary Application

The GOdrill platform addresses drilling operations in a diameter range of 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 platform expands the advantages of modular drills into the small diameter range: high-end grades, wear-indicator coating, and new, proprietary geometries enable full utilisation 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.
- Good hole quality, roundness, and cylindricity for all materials.

CPG Point

- Optimised gashing design for microdrilling ensures free flow of chips in the centre of the drill.
- Excellent centring capabilities.
- Reduced axial forces.
- Uninterrupted straight cutting lip allows no starting point for wear and enables even distribution of cutting forces for longer tool life in all materials and less chipping on cutting edge.

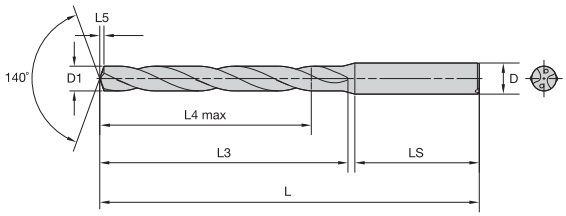
The high-performance solid carbide drill tailored for very small- to medium-diameter drilling applications.

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 utilise the tool's full tool life capacity.

For standard line items with F-shank, please refer to the Master Catalogue 2018 or to the e-catalogue on kennametal.com.



B051A


B051A

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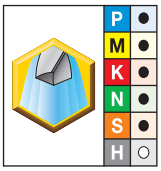

● first choice
○ alternate choice

grade KC7325		grade KC7325		D1 diameter						
order #	catalogue #	order #	catalogue #	mm	in	L	L3	L4 max	L5	LS	D
4151623	B041A01000CPG		–	1,000	.0394	58	7	5	0,2	28	4
4151628	B041A01100CPG		–	1,100	.0433	58	7	5	0,2	28	4
4151631	B041A01200CPG		–	1,200	.0472	58	7	5	0,2	28	4
4151632	B041A01300CPG		–	1,300	.0512	58	7	5	0,2	28	4
4151633	B041A01321CPG		–	1,321	.0520	58	7	5	0,2	28	4
4151635	B041A01400CPG		–	1,400	.0551	58	7	5	0,2	28	4
4151636	B041A01500CPG	4148804	B051A01500CPG	1,500	.0591	58	9	6	0,2	28	4
4151637	B041A01600CPG		–	1,600	.0630	58	9	6	0,3	28	4
4151638	B041A01700CPG	4148806	B051A01700CPG	1,700	.0669	58	9	6	0,3	28	4
4151639	B041A01800CPG		–	1,800	.0709	58	9	6	0,3	28	4
4151640	B041A01900CPG		–	1,900	.0748	58	9	6	0,3	28	4
4151642	B041A02000CPG	4124962	B051A02000CPG	2,000	.0787	58	13	10	0,3	28	4
4151643	B041A02100CPG	4148810	B051A02100CPG	2,100	.0827	58	13	10	0,3	28	4
4151644	B041A02200CPG	4148811	B051A02200CPG	2,200	.0866	58	13	10	0,4	28	4
4151645	B041A02300CPG	4148812	B051A02300CPG	2,300	.0906	58	13	10	0,4	28	4
4151646	B041A02383CPG		–	2,383	.0938	58	17	12	0,4	28	4
4151647	B041A02400CPG	4148844	B051A02400CPG	2,400	.0945	58	17	12	0,4	28	4
4151648	B041A02439CPG		–	2,439	.0960	58	17	12	0,4	28	4
4151649	B041A02489CPG	4148846	B051A02489CPG	2,489	.0980	58	17	12	0,4	28	4
4151650	B041A02500CPG	4148847	B051A02500CPG	2,500	.0984	58	17	12	0,4	28	4
4151651	B041A02578CPG	4148848	B051A02578CPG	2,578	.1015	58	17	12	0,4	28	4
4151652	B041A02600CPG	4148849	B051A02600CPG	2,600	.1024	58	17	12	0,4	28	4
4151653	B041A02642CPG		–	2,642	.1040	58	17	12	0,4	28	4
4151654	B041A02700CPG	4148851	B051A02700CPG	2,700	.1063	58	17	12	0,4	28	4
	–	4148853	B051A02779CPG	2,779	.1094	58	17	12	0,5	28	4
4151657	B041A02800CPG	4148854	B051A02800CPG	2,800	.1102	58	17	12	0,5	28	4
4151658	B041A02820CPG		–	2,820	.1110	58	17	12	0,5	28	4
4151659	B041A02870CPG		–	2,870	.1130	58	17	12	0,5	28	4
4151660	B041A02900CPG	4148857	B051A02900CPG	2,900	.1142	58	17	12	0,5	28	4
4150155	B041A03000CPG	4151081	B051A03000CPG	3,000	.1181	62	20	14	0,5	36	6
4150156	B041A03048CPG	4151082	B051A03048CPG	3,048	.1200	62	20	14	0,5	36	6
4150157	B041A03100CPG		–	3,100	.1220	62	20	14	0,5	36	6

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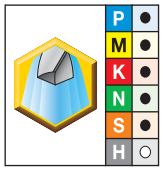
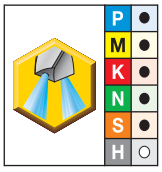


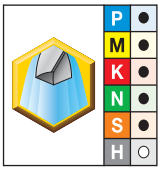


● first choice
○ alternate choice

grade KC7325		grade KC7325		D1 diameter							
order #	catalogue #	order #	catalogue #	mm	in	L	L3	L4 max	L5	LS	D
4150158	B041A03175CPG		–	3,175	.1250	62	20	14	0,5	36	6
4150159	B041A03200CPG	4121528	B051A03200CPG	3,200	.1260	62	20	14	0,5	36	6
4150160	B041A03264CPG		–	3,264	.1285	62	20	14	0,5	36	6
4150161	B041A03300CPG	4151106	B051A03300CPG	3,300	.1299	62	20	14	0,5	36	6
4150162	B041A03400CPG	4151107	B051A03400CPG	3,400	.1339	62	20	14	0,6	36	6
4150183	B041A03455CPG		–	3,455	.1360	62	20	14	0,6	36	6
4150184	B041A03500CPG	4151109	B051A03500CPG	3,500	.1378	62	20	14	0,6	36	6
4150186	B041A03600CPG	4151111	B051A03600CPG	3,600	.1417	62	20	14	0,6	36	6
4150188	B041A03700CPG	4151113	B051A03700CPG	3,700	.1457	62	20	14	0,6	36	6
	–	4151114	B051A03734CPG	3,734	.1470	62	20	14	0,6	36	6
4150190	B041A03800CPG	4151115	B051A03800CPG	3,800	.1496	66	24	17	0,6	36	6
4150191	B041A03900CPG	4151116	B051A03900CPG	3,900	.1535	66	24	17	0,6	36	6
4150192	B041A03970CPG	4151117	B051A03970CPG	3,970	.1563	66	24	17	0,7	36	6
4150193	B041A04000CPG	4121529	B051A04000CPG	4,000	.1575	66	24	17	0,7	36	6
4150194	B041A04039CPG		–	4,039	.1590	66	24	17	0,7	36	6
4150196	B041A04100CPG	4151120	B051A04100CPG	4,100	.1614	66	24	17	0,7	36	6
4150197	B041A04200CPG	4151121	B051A04200CPG	4,200	.1654	66	24	17	0,7	36	6
4150199	B041A04300CPG	4151123	B051A04300CPG	4,300	.1693	66	24	17	0,7	36	6
4150201	B041A04400CPG	4151125	B051A04400CPG	4,400	.1732	66	24	17	0,7	36	6
4150202	B041A04500CPG	4151126	B051A04500CPG	4,500	.1772	66	24	17	0,7	36	6
4150203	B041A04600CPG		–	4,600	.1811	66	24	17	0,8	36	6
	–	4151128	B051A04623CPG	4,623	.1820	66	24	17	0,8	36	6
4150205	B041A04700CPG	4151129	B051A04700CPG	4,700	.1850	66	24	17	0,8	36	6
4150206	B041A04763CPG	4151130	B051A04763CPG	4,763	.1875	66	28	20	0,8	36	6
4150207	B041A04800CPG	4151131	B051A04800CPG	4,800	.1890	66	28	20	0,8	36	6
4150209	B041A04900CPG	4151133	B051A04900CPG	4,900	.1929	66	28	20	0,8	36	6
4150210	B041A05000CPG	4151134	B051A05000CPG	5,000	.1969	66	28	20	0,8	36	6
4150211	B041A05100CPG	4151135	B051A05100CPG	5,100	.2008	66	28	20	0,9	36	6
4150212	B041A05106CPG		–	5,106	.2010	66	28	20	0,9	36	6
4150214	B041A05200CPG	4151138	B051A05200CPG	5,200	.2047	66	28	20	0,9	36	6
4150215	B041A05300CPG	4151139	B051A05300CPG	5,300	.2087	66	28	20	0,9	36	6
4150216	B041A05400CPG	4151140	B051A05400CPG	5,400	.2126	66	28	20	0,9	36	6
4150218	B041A05500CPG	4151142	B051A05500CPG	5,500	.2165	66	28	20	0,9	36	6
4150219	B041A05558CPG	4151143	B051A05558CPG	5,558	.2188	66	28	20	0,9	36	6
4150220	B041A05600CPG	4151144	B051A05600CPG	5,600	.2205	66	28	20	0,9	36	6
4150222	B041A05700CPG	4151146	B051A05700CPG	5,700	.2244	66	28	20	1,0	36	6
4150223	B041A05800CPG	4151147	B051A05800CPG	5,800	.2283	66	28	20	1,0	36	6
4150224	B041A05900CPG		–	5,900	.2323	66	28	20	1,0	36	6
	–	4151148	B051A05954CPG	5,954	.2344	66	28	20	1,0	36	6
4150226	B041A06000CPG	4121534	B051A06000CPG	6,000	.2362	66	28	20	1,0	36	6
4150227	B041A06100CPG	4151149	B051A06100CPG	6,100	.2402	79	34	24	1,0	36	8
4150228	B041A06200CPG		–	6,200	.2441	79	34	24	1,0	36	8
4150229	B041A06300CPG		–	6,300	.2480	79	34	24	1,1	36	8
4150230	B041A06350CPG	4151152	B051A06350CPG	6,350	.2500	79	34	24	1,1	36	8
4150231	B041A06400CPG	4151153	B051A06400CPG	6,400	.2520	79	34	24	1,1	36	8
4150232	B041A06500CPG	4151154	B051A06500CPG	6,500	.2559	79	34	24	1,1	36	8
4150233	B041A06528CPG	4151155	B051A06528CPG	6,528	.2570	79	34	24	1,1	36	8
4150234	B041A06600CPG	4151156	B051A06600CPG	6,600	.2598	79	34	24	1,1	36	8

(continued)

(B041A/B051A • ~3 x D — continued)

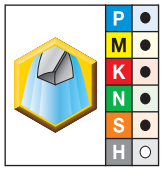


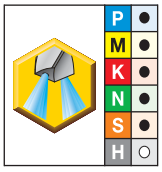
● first choice
○ alternate choice

grade KC7325		grade KC7325		D1 diameter							
order #	catalogue #	order #	catalogue #	mm	in	L	L3	L4 max	L5	LS	D
4150236	B041A06700CPG	4151158	B051A06700CPG	6,700	.2638	79	34	24	1,1	36	8
4150237	B041A06746CPG	4151159	B051A06746CPG	6,746	.2656	79	34	24	1,1	36	8
4150238	B041A06800CPG	4151160	B051A06800CPG	6,800	.2677	79	34	24	1,1	36	8
4150239	B041A06900CPG	4151161	B051A06900CPG	6,900	.2717	79	34	24	1,2	36	8
4150240	B041A07000CPG	4151162	B051A07000CPG	7,000	.2756	79	34	24	1,2	36	8
4150241	B041A07100CPG	4151163	B051A07100CPG	7,100	.2795	79	41	29	1,2	36	8
4150242	B041A07145CPG	4151164	B051A07145CPG	7,145	.2813	79	41	29	1,2	36	8
4150243	B041A07200CPG	4151165	B051A07200CPG	7,200	.2835	79	41	29	1,2	36	8
4150244	B041A07300CPG		—	7,300	.2874	79	41	29	1,2	36	8
4150245	B041A07400CPG	4151167	B051A07400CPG	7,400	.2913	79	41	29	1,3	36	8
4150246	B041A07500CPG	4151168	B051A07500CPG	7,500	.2953	79	41	29	1,3	36	8
4150247	B041A07541CPG		—	7,541	.2969	79	41	29	1,3	36	8
4150248	B041A07600CPG		—	7,600	.2992	79	41	29	1,3	36	8
4150249	B041A07700CPG	4151171	B051A07700CPG	7,700	.3031	79	41	29	1,3	36	8
4150250	B041A07800CPG	4151172	B051A07800CPG	7,800	.3071	79	41	29	1,3	36	8
4150251	B041A07900CPG	4151173	B051A07900CPG	7,900	.3110	79	41	29	1,3	36	8
4150252	B041A07938CPG		—	7,938	.3125	79	41	29	1,3	36	8
4150253	B041A08000CPG	4151175	B051A08000CPG	8,000	.3150	79	41	29	1,4	36	8
4150254	B041A08100CPG	4151176	B051A08100CPG	8,100	.3189	89	47	35	1,4	40	10
4150255	B041A08200CPG	4151177	B051A08200CPG	8,200	.3228	89	47	35	1,4	40	10
4150256	B041A08300CPG	4151178	B051A08300CPG	8,300	.3268	89	47	35	1,4	40	10
	—	4151179	B051A08334CPG	8,334	.3281	89	47	35	1,4	40	10
4150258	B041A08400CPG	4151180	B051A08400CPG	8,400	.3307	89	47	35	1,4	40	10
4150259	B041A08433CPG		—	8,433	.3320	89	47	35	1,4	40	10
4150260	B041A08500CPG	4151182	B051A08500CPG	8,500	.3346	89	47	35	1,4	40	10
4150261	B041A08600CPG	4151183	B051A08600CPG	8,600	.3386	89	47	35	1,5	40	10
4150262	B041A08700CPG	4151184	B051A08700CPG	8,700	.3425	89	47	35	1,5	40	10
4150264	B041A08800CPG	4151186	B051A08800CPG	8,800	.3465	89	47	35	1,5	40	10
4150265	B041A08900CPG	4151187	B051A08900CPG	8,900	.3504	89	47	35	1,5	40	10
4150266	B041A09000CPG	4151188	B051A09000CPG	9,000	.3543	89	47	35	1,5	40	10
4150267	B041A09100CPG	4151189	B051A09100CPG	9,100	.3583	89	47	35	1,6	40	10
4150269	B041A09200CPG		—	9,200	.3622	89	47	35	1,6	40	10
4150270	B041A09300CPG	4151192	B051A09300CPG	9,300	.3661	89	47	35	1,6	40	10
4150272	B041A09400CPG	4151194	B051A09400CPG	9,400	.3701	89	47	35	1,6	40	10
4150273	B041A09500CPG	4151195	B051A09500CPG	9,500	.3740	89	47	35	1,6	40	10
4150274	B041A09525CPG		—	9,525	.3750	89	47	35	1,6	40	10
4150275	B041A09600CPG	4151197	B051A09600CPG	9,600	.3780	89	47	35	1,6	40	10
4150276	B041A09700CPG	4151198	B051A09700CPG	9,700	.3819	89	47	35	1,7	40	10
4150277	B041A09800CPG	4151199	B051A09800CPG	9,800	.3858	89	47	35	1,7	40	10
4150278	B041A09900CPG	4151200	B051A09900CPG	9,900	.3898	89	47	35	1,7	40	10
4150279	B041A09921CPG		—	9,921	.3906	89	47	35	1,7	40	10
4150176	B041A10000CPG	4151202	B051A10000CPG	10,000	.3937	89	47	35	1,7	40	10
4150177	B041A10100CPG	4151203	B051A10100CPG	10,100	.3976	102	55	40	1,7	45	12
4150178	B041A10200CPG	4150456	B051A10200CPG	10,200	.4016	102	55	40	1,7	45	12
4150179	B041A10300CPG	4150457	B051A10300CPG	10,300	.4055	102	55	40	1,8	45	12
4150180	B041A10320CPG		—	10,320	.4063	102	55	40	1,8	45	12
4150181	B041A10400CPG	4150459	B051A10400CPG	10,400	.4094	102	55	40	1,8	45	12
4150182	B041A10500CPG	4150460	B051A10500CPG	10,500	.4134	102	55	40	1,8	45	12

(continued)

(B041A/B051A • ~3 x D — continued)



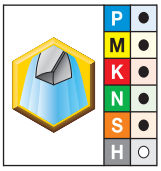


● first choice
○ alternate choice

grade KC7325		grade KC7325		D1 diameter							
order #	catalogue #	order #	catalogue #	mm	in	L	L3	L4 max	L5	LS	D
4150293	B041A10600CPG	4150461	B051A10600CPG	10,600	.4173	102	55	40	1,8	45	12
4150294	B041A10700CPG		–	10,700	.4213	102	55	40	1,8	45	12
4150296	B041A10800CPG	4151214	B051A10800CPG	10,800	.4252	102	55	40	1,9	45	12
4150297	B041A10900CPG	4151215	B051A10900CPG	10,900	.4291	102	55	40	1,9	45	12
4150298	B041A11000CPG	4151216	B051A11000CPG	11,000	.4331	102	55	40	1,9	45	12
4150299	B041A11100CPG	4151217	B051A11100CPG	11,100	.4370	102	55	40	1,9	45	12
4150301	B041A11200CPG		–	11,200	.4409	102	55	40	1,9	45	12
4150302	B041A11300CPG		–	11,300	.4449	102	55	40	1,9	45	12
4150303	B041A11400CPG		–	11,400	.4488	102	55	40	2,0	45	12
4150304	B041A11500CPG	4151222	B051A11500CPG	11,500	.4528	102	55	40	2,0	45	12
4150306	B041A11600CPG	4151224	B051A11600CPG	11,600	.4567	102	55	40	2,0	45	12
4150307	B041A11700CPG	4151225	B051A11700CPG	11,700	.4606	102	55	40	2,0	45	12
4150308	B041A11800CPG	4151226	B051A11800CPG	11,800	.4646	102	55	40	2,0	45	12
4150309	B041A11900CPG		–	11,900	.4685	102	55	40	2,0	45	12
4150311	B041A12000CPG	4151229	B051A12000CPG	12,000	.4724	102	55	40	2,1	45	12
4150312	B041A12100CPG	4151230	B051A12100CPG	12,100	.4764	107	60	43	2,1	45	14
4150313	B041A12200CPG	4151231	B051A12200CPG	12,200	.4803	107	60	43	2,1	45	14
4150314	B041A12300CPG	4151232	B051A12300CPG	12,300	.4843	107	60	43	2,1	45	14
4150316	B041A12400CPG		–	12,400	.4882	107	60	43	2,1	45	14
4150317	B041A12500CPG	4151235	B051A12500CPG	12,500	.4921	107	60	43	2,2	45	14
4150318	B041A12600CPG	4151236	B051A12600CPG	12,600	.4961	107	60	43	2,2	45	14
4150319	B041A12700CPG	4151237	B051A12700CPG	12,700	.5000	107	60	43	2,2	45	14
4150320	B041A12800CPG	4151238	B051A12800CPG	12,800	.5039	107	60	43	2,2	45	14
4150321	B041A12900CPG		–	12,900	.5079	107	60	43	2,2	45	14
4150322	B041A13000CPG	4151240	B051A13000CPG	13,000	.5118	107	60	43	2,2	45	14
4150324	B041A13100CPG		–	13,100	.5157	107	60	43	2,3	45	14
4150326	B041A13300CPG		–	13,300	.5236	107	60	43	2,3	45	14
4150328	B041A13500CPG	4151246	B051A13500CPG	13,500	.5315	107	60	43	2,3	45	14
4150329	B041A13600CPG		–	13,600	.5354	107	60	43	2,3	45	14
4150330	B041A13700CPG		–	13,700	.5394	107	60	43	2,4	45	14
4150331	B041A13800CPG		–	13,800	.5433	107	60	43	2,4	45	14
4150334	B041A14000CPG	4121491	B051A14000CPG	14,000	.5512	107	60	43	2,4	45	14
4150335	B041A14100CPG		–	14,100	.5551	115	65	45	2,4	48	16
4150336	B041A14200CPG	4151253	B051A14200CPG	14,200	.5591	115	65	45	2,5	48	16
4150338	B041A14300CPG	4151255	B051A14300CPG	14,300	.5630	115	65	45	2,5	48	16
4150340	B041A14500CPG	4151257	B051A14500CPG	14,500	.5709	115	65	45	2,5	48	16
4150341	B041A14600CPG		–	14,600	.5748	115	65	45	2,5	48	16
4150343	B041A14700CPG		–	14,700	.5787	115	65	45	2,5	48	16
4150344	B041A14800CPG	4151261	B051A14800CPG	14,800	.5827	115	65	45	2,6	48	16
4150345	B041A14900CPG		–	14,900	.5866	115	65	45	2,6	48	16
4150346	B041A15000CPG	4151263	B051A15000CPG	15,000	.5906	115	65	45	2,6	48	16
4150349	B041A15200CPG		–	15,200	.5984	115	65	45	2,6	48	16
4150350	B041A15300CPG	4151267	B051A15300CPG	15,300	.6024	115	65	45	2,6	48	16
4150353	B041A15500CPG		–	15,500	.6102	115	65	45	2,7	48	16
4150359	B041A16000CPG	4151276	B051A16000CPG	16,000	.6299	115	65	45	2,8	48	16
4150360	B041A16100CPG		–	16,100	.6339	123	73	51	2,8	48	18
4150364	B041A16400CPG		–	16,400	.6457	123	73	51	2,8	48	18
4150365	B041A16500CPG	4151282	B051A16500CPG	16,500	.6496	123	73	51	2,9	48	18

(continued)

(B041A/B051A • ~3 x D — continued)

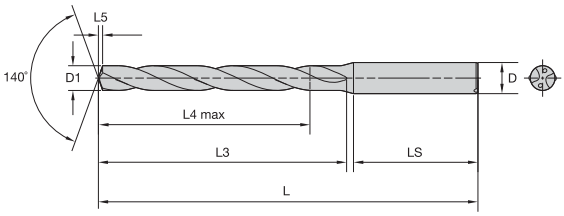


● first choice
○ alternate choice

grade KC7325		grade KC7325		D1 diameter							
order #	catalogue #	order #	catalogue #	mm	in	L	L3	L4 max	L5	LS	D
4150371	**B041A17000CPG**	**4151288**	**B051A17000CPG**	17,000	.6693	123	73	51	3,0	48	18
4150374	**B041A17300CPG**		**—**	17,300	.6811	123	73	51	3,0	48	18
4150377	**B041A17500CPG**	**4151294**	**B051A17500CPG**	17,500	.6890	123	73	51	3,0	48	18
4150403	**B041A18000CPG**	**4148475**	**B051A18000CPG**	18,000	.7087	123	73	51	3,1	48	18
4150409	**B041A18500CPG**		**—**	18,500	.7283	131	79	55	3,2	50	20
4150411	**B041A18654CPG**		**—**	18,654	.7344	131	79	55	3,2	50	20
4150421	**B041A19500CPG**		**—**	19,500	.7677	131	79	55	3,4	50	20
4150426	**B041A20000CPG**	**4148598**	**B051A20000CPG**	20,000	.7874	131	79	55	3,5	50	20

Tolerance • Metric

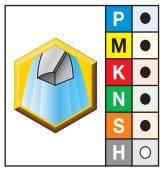
nominal size range	D1 tolerance	D tolerance h6
1–3	0,000/-0,014 (h8)	0,000/-0,006
>3–6	0,000/-0,012 (h7)	0,000/-0,008
>6–10	0,000/-0,015 (h7)	0,000/-0,009
>10–18	0,000/-0,018 (h7)	0,000/-0,011
>18–20	0,000/-0,021 (h7)	0,000/-0,013



B052A


B052A

B042A/B052A • ~5 x D



● first choice
○ alternate choice

grade KC7325		grade KC7325		D1 diameter							
order #	catalogue #	order #	catalogue #	mm	in	L	L3	L4 max	L5	LS	D
4151774	B042A01000CPG		–	1,000	.0394	58	9	6	0,2	28	4
4151777	B042A01041CPG		–	1,041	.0410	58	9	6	0,2	28	4
4151780	B042A01100CPG		–	1,100	.0433	58	9	6	0,2	28	4
4151781	B042A01181CPG		–	1,181	.0465	58	9	6	0,2	28	4
4151783	B042A01200CPG		–	1,200	.0472	58	9	6	0,2	28	4
4151784	B042A01300CPG		–	1,300	.0512	58	9	6	0,2	28	4
4151787	B042A01400CPG		–	1,400	.0551	58	9	6	0,2	28	4
4151788	B042A01500CPG	4149143	B052A01500CPG	1,500	.0591	58	12	9	0,2	28	4
4151789	B042A01600CPG	4149144	B052A01600CPG	1,600	.0630	58	12	9	0,3	28	4
4151790	B042A01700CPG	4149145	B052A01700CPG	1,700	.0669	58	12	9	0,3	28	4
4151791	B042A01800CPG	4149146	B052A01800CPG	1,800	.0709	58	12	9	0,3	28	4
4151792	B042A01900CPG	4149147	B052A01900CPG	1,900	.0748	58	12	9	0,3	28	4
	–	4149148	B052A01984CPG	1,984	.0781	58	18	14	0,3	28	4
4151794	B042A02000CPG	4149149	B052A02000CPG	2,000	.0787	58	18	14	0,3	28	4
4151795	B042A02100CPG	4149150	B052A02100CPG	2,100	.0827	58	18	14	0,3	28	4
4151796	B042A02200CPG	4149151	B052A02200CPG	2,200	.0866	58	18	14	0,4	28	4
4151797	B042A02300CPG	4149152	B052A02300CPG	2,300	.0906	58	18	14	0,4	28	4
4151798	B042A02383CPG	4149153	B052A02383CPG	2,383	.0938	58	22	17	0,4	28	4
4151799	B042A02400CPG	4149154	B052A02400CPG	2,400	.0945	58	22	17	0,4	28	4
	–	4149156	B052A02489CPG	2,489	.0980	58	22	17	0,4	28	4
4151802	B042A02500CPG	4149157	B052A02500CPG	2,500	.0984	58	22	17	0,4	28	4
4151803	B042A02578CPG		–	2,578	.1015	58	22	17	0,4	28	4
4151804	B042A02600CPG	4149159	B052A02600CPG	2,600	.1024	58	22	17	0,4	28	4
4151806	B042A02700CPG	4149161	B052A02700CPG	2,700	.1063	58	22	17	0,4	28	4
4151808	B042A02779CPG	4149163	B052A02779CPG	2,779	.1094	58	22	17	0,5	28	4
4151809	B042A02800CPG	4149164	B052A02800CPG	2,800	.1102	58	22	17	0,5	28	4
4151811	B042A02870CPG		–	2,870	.1130	58	22	17	0,5	28	4
4151812	B042A02900CPG	4149167	B052A02900CPG	2,900	.1142	58	22	17	0,5	28	4
4150602	B042A03000CPG	4149125	B052A03000CPG	3,000	.1181	66	28	23	0,5	36	6
4150633	B042A03048CPG	4149126	B052A03048CPG	3,048	.1200	66	28	23	0,5	36	6
4150634	B042A03100CPG		–	3,100	.1220	66	28	23	0,5	36	6
4150635	B042A03175CPG		–	3,175	.1250	66	28	23	0,5	36	6

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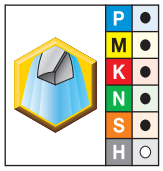
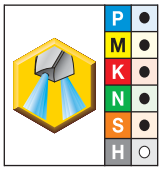
(B042A/B052A • ~5 x D — continued)



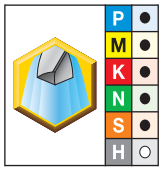


● first choice
○ alternate choice

grade KC7325		grade KC7325		D1 diameter							
order #	catalogue #	order #	catalogue #	mm	in	L	L3	L4 max	L5	LS	D
4150636	B042A03200CPG	4149130	B052A03200CPG	3,200	.1260	66	28	23	0,5	36	6
	–	4149131	B052A03264CPG	3,264	.1285	66	28	23	0,5	36	6
4150638	B042A03300CPG	4121505	B052A03300CPG	3,300	.1299	66	28	23	0,5	36	6
4150639	B042A03400CPG	4149132	B052A03400CPG	3,400	.1339	66	28	23	0,6	36	6
4150640	B042A03455CPG		–	3,455	.1360	66	28	23	0,6	36	6
4150641	B042A03500CPG	4149184	B052A03500CPG	3,500	.1378	66	28	23	0,6	36	6
4150643	B042A03600CPG	4149186	B052A03600CPG	3,600	.1417	66	28	23	0,6	36	6
4150645	B042A03700CPG	4149188	B052A03700CPG	3,700	.1457	66	28	23	0,6	36	6
4150647	B042A03800CPG	4149190	B052A03800CPG	3,800	.1496	74	36	29	0,6	36	6
4150648	B042A03900CPG	4149191	B052A03900CPG	3,900	.1535	74	36	29	0,6	36	6
4150650	B042A04000CPG	4149193	B052A04000CPG	4,000	.1575	74	36	29	0,7	36	6
4150651	B042A04039CPG	4149194	B052A04039CPG	4,039	.1590	74	36	29	0,7	36	6
4150653	B042A04100CPG	4149196	B052A04100CPG	4,100	.1614	74	36	29	0,7	36	6
4150654	B042A04200CPG	4149197	B052A04200CPG	4,200	.1654	74	36	29	0,7	36	6
4150655	B042A04217CPG	4149198	B052A04217CPG	4,217	.1660	74	36	29	0,7	36	6
4150656	B042A04300CPG	4149199	B052A04300CPG	4,300	.1693	74	36	29	0,7	36	6
4150658	B042A04400CPG	4149201	B052A04400CPG	4,400	.1732	74	36	29	0,7	36	6
4150659	B042A04500CPG	4149202	B052A04500CPG	4,500	.1772	74	36	29	0,7	36	6
	–	4149203	B052A04600CPG	4,600	.1811	74	36	29	0,8	36	6
4150662	B042A04700CPG	4149205	B052A04700CPG	4,700	.1850	74	36	29	0,8	36	6
	–	4149206	B052A04763CPG	4,763	.1875	82	44	35	0,8	36	6
4150664	B042A04800CPG	4149207	B052A04800CPG	4,800	.1890	82	44	35	0,8	36	6
4150666	B042A04900CPG	4149209	B052A04900CPG	4,900	.1929	82	44	35	0,8	36	6
4150667	B042A05000CPG	4149210	B052A05000CPG	5,000	.1969	82	44	35	0,8	36	6
4150668	B042A05100CPG	4149211	B052A05100CPG	5,100	.2008	82	44	35	0,9	36	6
	–	4149213	B052A05159CPG	5,159	.2031	82	44	35	0,9	36	6
4150671	B042A05200CPG	4149214	B052A05200CPG	5,200	.2047	82	44	35	0,9	36	6
4150672	B042A05300CPG	4149215	B052A05300CPG	5,300	.2087	82	44	35	0,9	36	6
4150673	B042A05400CPG		–	5,400	.2126	82	44	35	0,9	36	6
4150675	B042A05500CPG	4149218	B052A05500CPG	5,500	.2165	82	44	35	0,9	36	6
	–	4149219	B052A05558CPG	5,558	.2188	82	44	35	0,9	36	6
4150677	B042A05600CPG	4149220	B052A05600CPG	5,600	.2205	82	44	35	0,9	36	6
4150679	B042A05700CPG	4149222	B052A05700CPG	5,700	.2244	82	44	35	1,0	36	6
4150680	B042A05800CPG	4149223	B052A05800CPG	5,800	.2283	82	44	35	1,0	36	6
4150681	B042A05900CPG		–	5,900	.2323	82	44	35	1,0	36	6
4150683	B042A06000CPG	4149226	B052A06000CPG	6,000	.2362	82	44	35	1,0	36	6
4150684	B042A06100CPG	4149227	B052A06100CPG	6,100	.2402	91	53	43	1,0	36	8
4150685	B042A06200CPG	4149228	B052A06200CPG	6,200	.2441	91	53	43	1,0	36	8
4150686	B042A06300CPG	4149229	B052A06300CPG	6,300	.2480	91	53	43	1,1	36	8
4150688	B042A06350CPG	4149230	B052A06350CPG	6,350	.2500	91	53	43	1,1	36	8
4150689	B042A06400CPG	4149231	B052A06400CPG	6,400	.2520	91	53	43	1,1	36	8
4150690	B042A06500CPG	4149232	B052A06500CPG	6,500	.2559	91	53	43	1,1	36	8
4150692	B042A06600CPG	4149234	B052A06600CPG	6,600	.2598	91	53	43	1,1	36	8
	–	4149235	B052A06630CPG	6,630	.2610	91	53	43	1,1	36	8
4150694	B042A06700CPG	4149236	B052A06700CPG	6,700	.2638	91	53	43	1,1	36	8
4150695	B042A06746CPG	4149237	B052A06746CPG	6,746	.2656	91	53	43	1,1	36	8
4150696	B042A06800CPG	4149238	B052A06800CPG	6,800	.2677	91	53	43	1,1	36	8
4150697	B042A06900CPG	4149239	B052A06900CPG	6,900	.2717	91	53	43	1,2	36	8

(continued)

(B042A/B052A • ~5 x D — continued)

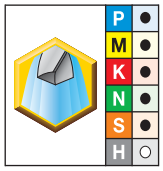


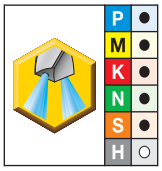
● first choice
○ alternate choice

grade KC7325		grade KC7325		D1 diameter							
order #	catalogue #	order #	catalogue #	mm	in	L	L3	L4 max	L5	LS	D
4150698	B042A07000CPG	4149240	B052A07000CPG	7,000	.2756	91	53	43	1,2	36	8
4150700	B042A07145CPG		–	7,145	.2813	91	53	43	1,2	36	8
4150701	B042A07200CPG	4149243	B052A07200CPG	7,200	.2835	91	53	43	1,2	36	8
	–	4149244	B052A07300CPG	7,300	.2874	91	53	43	1,2	36	8
4150703	B042A07400CPG	4149245	B052A07400CPG	7,400	.2913	91	53	43	1,3	36	8
4150704	B042A07500CPG	4149246	B052A07500CPG	7,500	.2953	91	53	43	1,3	36	8
4150706	B042A07600CPG		–	7,600	.2992	91	53	43	1,3	36	8
4150707	B042A07700CPG		–	7,700	.3031	91	53	43	1,3	36	8
4150708	B042A07800CPG	4149250	B052A07800CPG	7,800	.3071	91	53	43	1,3	36	8
	–	4149252	B052A07938CPG	7,938	.3125	91	53	43	1,3	36	8
4150711	B042A08000CPG	4149253	B052A08000CPG	8,000	.3150	91	53	43	1,4	36	8
4150712	B042A08100CPG	4149254	B052A08100CPG	8,100	.3189	103	61	49	1,4	40	10
4150713	B042A08200CPG	4149255	B052A08200CPG	8,200	.3228	103	61	49	1,4	40	10
4150714	B042A08300CPG		–	8,300	.3268	103	61	49	1,4	40	10
	–	4149257	B052A08334CPG	8,334	.3281	103	61	49	1,4	40	10
4150716	B042A08400CPG	4149258	B052A08400CPG	8,400	.3307	103	61	49	1,4	40	10
4150718	B042A08500CPG	4149260	B052A08500CPG	8,500	.3346	103	61	49	1,4	40	10
4150719	B042A08600CPG	4149261	B052A08600CPG	8,600	.3386	103	61	49	1,5	40	10
4150720	B042A08700CPG	4149262	B052A08700CPG	8,700	.3425	103	61	49	1,5	40	10
4150722	B042A08800CPG	4149264	B052A08800CPG	8,800	.3465	103	61	49	1,5	40	10
4150724	B042A09000CPG	4149266	B052A09000CPG	9,000	.3543	103	61	49	1,5	40	10
4150725	B042A09100CPG	4149267	B052A09100CPG	9,100	.3583	103	61	49	1,6	40	10
4150726	B042A09129CPG		–	9,129	.3594	103	61	49	1,6	40	10
4150727	B042A09200CPG	4149269	B052A09200CPG	9,200	.3622	103	61	49	1,6	40	10
4150728	B042A09300CPG	4149270	B052A09300CPG	9,300	.3661	103	61	49	1,6	40	10
4150730	B042A09400CPG	4149272	B052A09400CPG	9,400	.3701	103	61	49	1,6	40	10
4150731	B042A09500CPG	4149273	B052A09500CPG	9,500	.3740	103	61	49	1,6	40	10
4150732	B042A09525CPG		–	9,525	.3750	103	61	49	1,6	40	10
4150733	B042A09600CPG	4149275	B052A09600CPG	9,600	.3780	103	61	49	1,6	40	10
4150734	B042A09700CPG		–	9,700	.3819	103	61	49	1,7	40	10
4150735	B042A09800CPG	4149277	B052A09800CPG	9,800	.3858	103	61	49	1,7	40	10
4150736	B042A09900CPG	4149278	B052A09900CPG	9,900	.3898	103	61	49	1,7	40	10
4150739	B042A10000CPG	4149110	B052A10000CPG	10,000	.3937	103	61	49	1,7	40	10
	–	4149111	B052A10100CPG	10,100	.3976	118	71	56	1,7	45	12
4150741	B042A10200CPG	4149112	B052A10200CPG	10,200	.4016	118	71	56	1,7	45	12
4150742	B042A10300CPG	4149293	B052A10300CPG	10,300	.4055	118	71	56	1,8	45	12
4150744	B042A10400CPG	4149295	B052A10400CPG	10,400	.4094	118	71	56	1,8	45	12
4150745	B042A10500CPG	4149296	B052A10500CPG	10,500	.4134	118	71	56	1,8	45	12
4150746	B042A10600CPG	4149297	B052A10600CPG	10,600	.4173	118	71	56	1,8	45	12
	–	4149298	B052A10700CPG	10,700	.4213	118	71	56	1,8	45	12
4150749	B042A10800CPG	4149300	B052A10800CPG	10,800	.4252	118	71	56	1,9	45	12
4150750	B042A10900CPG	4149301	B052A10900CPG	10,900	.4291	118	71	56	1,9	45	12
4150751	B042A11000CPG	4149302	B052A11000CPG	11,000	.4331	118	71	56	1,9	45	12
4150752	B042A11100CPG	4149303	B052A11100CPG	11,100	.4370	118	71	56	1,9	45	12
4150754	B042A11200CPG	4149305	B052A11200CPG	11,200	.4409	118	71	56	1,9	45	12
4150755	B042A11300CPG		–	11,300	.4449	118	71	56	1,9	45	12
4150757	B042A11500CPG	4149308	B052A11500CPG	11,500	.4528	118	71	56	2,0	45	12
	–	4149310	B052A11600CPG	11,600	.4567	118	71	56	2,0	45	12

(continued)

(B042A/B052A • ~5 x D — continued)





● first choice
○ alternate choice

grade KC7325		grade KC7325		D1 diameter							
order #	catalogue #	order #	catalogue #	mm	in	L	L3	L4 max	L5	LS	D
4150760	B042A11700CPG		–	11,700	.4606	118	71	56	2,0	45	12
4150761	B042A11800CPG	4149312	B052A11800CPG	11,800	.4646	118	71	56	2,0	45	12
4150762	B042A11900CPG		–	11,900	.4685	118	71	56	2,0	45	12
4150764	B042A12000CPG	4149315	B052A12000CPG	12,000	.4724	118	71	56	2,1	45	12
4150765	B042A12100CPG	4149316	B052A12100CPG	12,100	.4764	124	77	60	2,1	45	14
	–	4149317	B052A12200CPG	12,200	.4803	124	77	60	2,1	45	14
	–	4149318	B052A12300CPG	12,300	.4843	124	77	60	2,1	45	14
4150769	B042A12400CPG		–	12,400	.4882	124	77	60	2,1	45	14
4150770	B042A12500CPG	4149321	B052A12500CPG	12,500	.4921	124	77	60	2,2	45	14
4150771	B042A12600CPG		–	12,600	.4961	124	77	60	2,2	45	14
	–	4149323	B052A12700CPG	12,700	.5000	124	77	60	2,2	45	14
4150773	B042A12800CPG	4149324	B052A12800CPG	12,800	.5039	124	77	60	2,2	45	14
4150774	B042A12900CPG		–	12,900	.5079	124	77	60	2,2	45	14
4150775	B042A13000CPG	4149326	B052A13000CPG	13,000	.5118	124	77	60	2,2	45	14
	–	4149328	B052A13100CPG	13,100	.5157	124	77	60	2,3	45	14
4150781	B042A13500CPG	4149332	B052A13500CPG	13,500	.5315	124	77	60	2,3	45	14
4150787	B042A14000CPG	4149338	B052A14000CPG	14,000	.5512	124	77	60	2,4	45	14
	–	4149340	B052A14200CPG	14,200	.5591	133	83	63	2,5	48	16
4150793	B042A14500CPG	4149344	B052A14500CPG	14,500	.5709	133	83	63	2,5	48	16
4150794	B042A14600CPG		–	14,600	.5748	133	83	63	2,5	48	16
4150796	B042A14700CPG		–	14,700	.5787	133	83	63	2,5	48	16
4150799	B042A15000CPG		–	15,000	.5906	133	83	63	2,6	48	16
	–	4149352	B052A15100CPG	15,100	.5945	133	83	63	2,6	48	16
	–	4149360	B052A15800CPG	15,800	.6220	133	83	63	2,7	48	16
4150812	B042A16000CPG	4149363	B052A16000CPG	16,000	.6299	133	83	63	2,8	48	16
4150818	B042A16500CPG	4149369	B052A16500CPG	16,500	.6496	143	93	71	2,9	48	18
4150824	B042A17000CPG		–	17,000	.6693	143	93	71	3,0	48	18
4150830	B042A17500CPG		–	17,500	.6890	143	93	71	3,0	48	18
4150838	B042A18200CPG		–	18,200	.7165	153	101	77	3,2	50	20
	–	4149407	B052A18700CPG	18,700	.7362	153	101	77	3,3	50	20
	–	4149421	B052A20000CPG	20,000	.7874	153	101	77	3,5	50	20

Tolerance • Metric

nominal size range	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 • Metric

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
	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
M	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
	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
K	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
	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
N	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
	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
S	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
	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
H	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
	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

GOdrill™ • B05_CPG Series • Grade KC7325™ • Through Coolant • Drill Diameters 1–20mm • Metric

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
	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
M	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
	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
K	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
	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
N	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
	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
S	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
	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
H	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
	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

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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 2,5–3mm 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 Drills with Through Coolant

- Multipurpose solid carbide drill engineered to deliver superior performance in steel, cast iron, stainless steel, and other 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.
- It's a problem solver that works everywhere.

Kenna Universal Drill-Point Design

- Low thrust. Works well on a variety of machines.
- Excellent centring 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

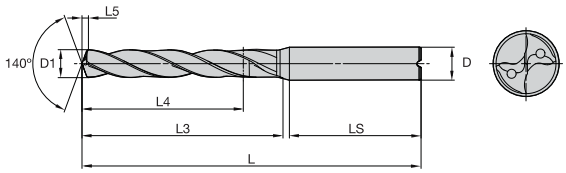
- A multilayer, TiAlN-based coating with high hot hardness enables 30% higher cutting speeds and constant tool life.
- Surface finish ensures chip evacuation when drilling deep holes.

Universal application profile, problem solver, and pilot drill.

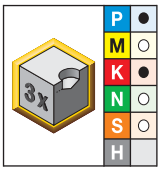
Customisation

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

For standard line items with F-shank, please refer to the Master Catalogue 2018 or to the e-catalogue on kennametal.com.



B976A • ~3 x D



grade KC7315

● first choice
○ alternate choice

order #	catalogue #	D1 diameter mm	D1 diameter in	L	L3	L4 max	L5	LS	D
4042542	B976Z02500	2,500	.0984	50	16	11	0,4	28	3
4042548	B976Z02800	2,800	.1102	50	16	11	0,5	28	3
2878592	B976A03000	3,000	.1181	62	20	14	0,5	36	6
4054494	B976A03175	3,175	.1250	62	20	14	0,5	36	6
2878591	B976A03300	3,300	.1299	62	20	14	0,5	36	6
3528125	B976A03500	3,500	.1378	62	20	14	0,6	36	6
3110544	B976A03600	3,600	.1417	62	20	14	0,6	36	6
2392360	B976A03800	3,800	.1496	66	24	17	0,6	36	6
1913515	B976A04000	4,000	.1575	66	24	17	0,7	36	6
1913516	B976A04200	4,200	.1654	66	24	17	0,7	36	6
2276088	B976A04300	4,300	.1693	66	24	17	0,7	36	6
4054500	B976A04496	4,496	.1770	66	24	17	0,7	36	6
1913517	B976A04500	4,500	.1772	66	24	17	0,7	36	6
1913518	B976A04600	4,600	.1811	66	24	17	0,8	36	6
3528126	B976A04620	4,620	.1819	66	24	17	0,8	36	6
2649364	B976A04763	4,763	.1875	66	28	20	0,8	36	6
1913519	B976A04800	4,800	.1890	66	28	20	0,8	36	6
1913520	B976A05000	5,000	.1969	66	28	20	0,8	36	6
2385356	B976A05100	5,100	.2008	66	28	20	0,8	36	6
1984183	B976A05200	5,200	.2047	66	28	20	0,9	36	6
1988932	B976A05300	5,300	.2087	66	28	20	0,9	36	6
2264538	B976A05400	5,400	.2126	66	28	20	0,9	36	6
1913521	B976A05500	5,500	.2165	66	28	20	0,9	36	6
2224587	B976A05600	5,600	.2205	66	28	20	0,9	36	6
1913522	B976A05700	5,700	.2244	66	28	20	1,0	36	6
1913523	B976A05800	5,800	.2283	66	28	20	1,0	36	6
1913524	B976A06000	6,000	.2362	66	28	20	1,0	36	6
1986773	B976A06200	6,200	.2441	79	34	24	1,0	36	8
2649366	B976A06350	6,350	.2500	79	34	24	1,1	36	8
1913525	B976A06500	6,500	.2559	79	34	24	1,1	36	8
2231776	B976A06600	6,600	.2598	79	34	24	1,1	36	8
3121287	B976A06700	6,700	.2638	79	34	24	1,1	36	8

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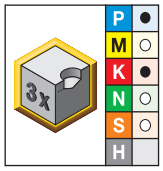

grade KC7315

● first choice
○ alternate choice

order #	catalogue #	D1 diameter mm	D1 diameter in	L	L3	L4 max	L5	LS	D
3528129	B976A06750	6,750	.2657	79	34	24	1,1	36	8
1913526	B976A06800	6,800	.2677	79	34	24	1,1	36	8
1913527	B976A07000	7,000	.2756	79	34	24	1,2	36	8
3110545	B976A07200	7,200	.2835	79	41	29	1,2	36	8
1913528	B976A07400	7,400	.2913	79	41	29	1,3	36	8
1913529	B976A07500	7,500	.2953	79	41	29	1,3	36	8
1913530	B976A07800	7,800	.3071	79	41	29	1,3	36	8
2397689	B976A07900	7,900	.3110	79	41	29	1,3	36	8
2649370	B976A07938	7,938	.3125	79	41	29	1,3	36	8
1913531	B976A08000	8,000	.3150	79	41	29	1,4	36	8
2036154	B976A08100	8,100	.3189	89	47	35	1,4	40	10
2390961	B976A08200	8,200	.3228	89	47	35	1,4	40	10
1913532	B976A08500	8,500	.3346	89	47	35	1,4	40	10
2222651	B976A08600	8,600	.3386	89	47	35	1,5	40	10
1988983	B976A08700	8,700	.3425	89	47	35	1,5	40	10
1913533	B976A08800	8,800	.3465	89	47	35	1,5	40	10
4054510	B976A08839	8,839	.3480	89	47	35	1,5	40	10
1913534	B976A09000	9,000	.3543	89	47	35	1,5	40	10
2224588	B976A09100	9,100	.3583	89	47	35	1,5	40	10
2408308	B976A09200	9,200	.3622	89	47	35	1,6	40	10
1913535	B976A09300	9,300	.3661	89	47	35	1,6	40	10
1913536	B976A09500	9,500	.3740	89	47	35	1,6	40	10
2649374	B976A09525	9,525	.3750	89	47	35	1,6	40	10
2231778	B976A09600	9,600	.3780	89	47	35	1,6	40	10
1961106	B976A09700	9,700	.3819	89	47	35	1,7	40	10
1913537	B976A09800	9,800	.3858	89	47	35	1,7	40	10
1913538	B976A10000	10,000	.3937	89	47	35	1,7	40	10
1913539	B976A10200	10,200	.4016	102	55	40	1,7	45	12
4054512	B976A10262	10,262	.4040	102	55	40	1,8	45	12
3119977	B976A10300	10,300	.4055	102	55	40	1,8	45	12
2649376	B976A10320	10,320	.4063	102	55	40	1,8	45	12
1913540	B976A10500	10,500	.4134	102	55	40	1,8	45	12
1913541	B976A10700	10,700	.4213	102	55	40	1,8	45	12
2388784	B976A10800	10,800	.4252	102	55	40	1,8	45	12
1913542	B976A11000	11,000	.4331	102	55	40	1,9	45	12
2649378	B976A11113	11,113	.4375	102	55	40	1,9	45	12
1913543	B976A11200	11,200	.4409	102	55	40	1,9	45	12
1913544	B976A11500	11,500	.4528	102	55	40	2,0	45	12
1913545	B976A11700	11,700	.4606	102	55	40	2,0	45	12
1913546	B976A12000	12,000	.4724	102	55	40	2,1	45	12
1913547	B976A12500	12,500	.4921	107	60	43	2,1	45	14
1913548	B976A12700	12,700	.5000	107	60	43	2,2	45	14
2227984	B976A12800	12,800	.5039	107	60	43	2,2	45	14
1913549	B976A13000	13,000	.5118	107	60	43	2,2	45	14
1913550	B976A13500	13,500	.5315	107	60	43	2,3	45	14
1913551	B976A13700	13,700	.5394	107	60	43	2,4	45	14
1913552	B976A14000	14,000	.5512	107	60	43	2,4	45	14
2226630	B976A14100	14,100	.5551	115	65	45	2,4	48	16

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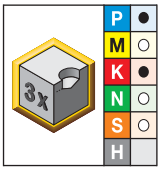


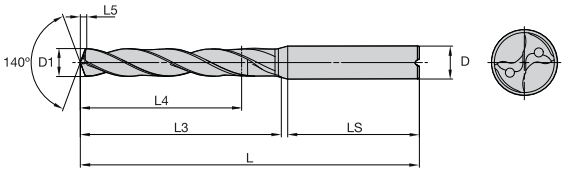
● first choice
○ alternate choice

grade KC7315

order #	catalogue #	D1 diameter mm	D1 diameter in	L	L3	L4 max	L5	LS	D
2404108	**B976A14200**	14,200	.5591	115	65	45	2,5	48	16
2649382	**B976A14288**	14,288	.5625	115	65	45	2,5	48	16
1913553	**B976A14500**	14,500	.5709	115	65	45	2,5	48	16
1913554	**B976A14700**	14,700	.5787	115	65	45	2,5	48	16
1913555	**B976A15000**	15,000	.5906	115	65	45	2,6	48	16
1913556	**B976A15500**	15,500	.6102	115	65	45	2,7	48	16
1913558	**B976A16000**	16,000	.6299	115	65	45	2,8	48	16
2882164	**B976A16200**	16,200	.6378	123	73	51	2,8	48	18
1913559	**B976A16500**	16,500	.6496	123	73	51	2,9	48	18
1913560	**B976A17000**	17,000	.6693	123	73	51	2,9	48	18
2397289	**B976A17100**	17,100	.6732	123	73	51	3,0	48	18
1913562	**B976A18000**	18,000	.7087	123	73	51	3,1	48	18
1913566	**B976A20000**	20,000	.7874	131	79	55	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



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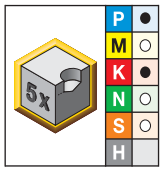


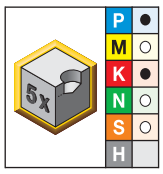
grade KC7315

● first choice
○ alternate choice

order #	catalogue #	D1 diameter mm	D1 diameter in	L	L3	L4 max	L5	LS	D
2425285	B977A03000	3,000	.1181	66	28	23	0,5	36	6
2425288	B977A03100	3,100	.1220	66	28	23	0,5	36	6
4054515	B977A03175	3,175	.1250	66	28	23	0,5	36	6
2425290	B977A03200	3,200	.1260	66	28	23	0,5	36	6
1959665	B977A03300	3,300	.1299	66	28	23	0,5	36	6
2425292	B977A03400	3,400	.1339	66	28	23	0,6	36	6
2425303	B977A03500	3,500	.1378	66	28	23	0,6	36	6
2425304	B977A03600	3,600	.1417	66	28	23	0,6	36	6
2425305	B977A03700	3,700	.1457	66	28	23	0,6	36	6
2425306	B977A03800	3,800	.1496	74	36	29	0,6	36	6
2203489	B977A03900	3,900	.1535	74	36	29	0,6	36	6
2649386	B977A03970	3,970	.1563	74	36	29	0,7	36	6
1913567	B977A04000	4,000	.1575	74	36	29	0,7	36	6
4054518	B977A04039	4,039	.1590	74	36	29	0,7	36	6
2416279	B977A04100	4,100	.1614	74	36	29	0,7	36	6
1913568	B977A04200	4,200	.1654	74	36	29	0,7	36	6
2040680	B977A04300	4,300	.1693	74	36	29	0,7	36	6
2425309	B977A04400	4,400	.1732	74	36	29	0,7	36	6
1913569	B977A04500	4,500	.1772	74	36	29	0,7	36	6
1913570	B977A04600	4,600	.1811	74	36	29	0,8	36	6
2425310	B977A04700	4,700	.1850	74	36	29	0,8	36	6
2649389	B977A04763	4,763	.1875	82	44	35	0,8	36	6
1913571	B977A04800	4,800	.1890	82	44	35	0,8	36	6
2396971	B977A04900	4,900	.1929	82	44	35	0,8	36	6
1913572	B977A05000	5,000	.1969	82	44	35	0,8	36	6
2049487	B977A05100	5,100	.2008	82	44	35	0,8	36	6
1975006	B977A05200	5,200	.2047	82	44	35	0,9	36	6
2202510	B977A05300	5,300	.2087	82	44	35	0,9	36	6

(continued)

(B977A • ~5 x D — continued)



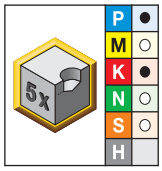
● first choice
○ alternate choice

grade KC7315

order #	catalogue #	D1 diameter mm	D1 diameter in	L	L3	L4 max	L5	LS	D
2425311	B977A05400	5,400	.2126	82	44	35	0,9	36	6
1913573	B977A05500	5,500	.2165	82	44	35	0,9	36	6
2649391	B977A05558	5,558	.2188	82	44	35	0,9	36	6
1959664	B977A05600	5,600	.2205	82	44	35	0,9	36	6
1988931	B977A05700	5,700	.2244	82	44	35	1,0	36	6
1913574	B977A05800	5,800	.2283	82	44	35	1,0	36	6
2228362	B977A05900	5,900	.2323	82	44	35	1,0	36	6
1913575	B977A06000	6,000	.2362	82	44	35	1,0	36	6
2043779	B977A06100	6,100	.2402	91	53	43	1,0	36	8
4132877	B977A06150	6,150	.2421	91	53	43	1,0	36	8
2425323	B977A06200	6,200	.2441	91	53	43	1,0	36	8
2425324	B977A06300	6,300	.2480	91	53	43	1,1	36	8
2383552	B977A06350	6,350	.2500	91	53	43	1,1	36	8
2383778	B977A06400	6,400	.2520	91	53	43	1,1	36	8
1913576	B977A06500	6,500	.2559	91	53	43	1,1	36	8
2425325	B977A06600	6,600	.2598	91	53	43	1,1	36	8
2230539	B977A06700	6,700	.2638	91	53	43	1,1	36	8
1913577	B977A06800	6,800	.2677	91	53	43	1,1	36	8
1959666	B977A06900	6,900	.2717	91	53	43	1,2	36	8
1913578	B977A07000	7,000	.2756	91	53	43	1,2	36	8
2203579	B977A07100	7,100	.2795	91	53	43	1,2	36	8
2658216	B977A07145	7,145	.2813	91	53	43	1,2	36	8
2264019	B977A07200	7,200	.2835	91	53	43	1,2	36	8
1913579	B977A07400	7,400	.2913	91	53	43	1,3	36	8
1913580	B977A07500	7,500	.2953	91	53	43	1,3	36	8
2425330	B977A07600	7,600	.2992	91	53	43	1,3	36	8
1992230	B977A07700	7,700	.3031	91	53	43	1,3	36	8
1913581	B977A07800	7,800	.3071	91	53	43	1,3	36	8
2658218	B977A07938	7,938	.3125	91	53	43	1,3	36	8
1913582	B977A08000	8,000	.3150	91	53	43	1,4	36	8
2244229	B977A08100	8,100	.3189	103	61	49	1,4	40	10
1986652	B977A08200	8,200	.3228	103	61	49	1,4	40	10
2390123	B977A08300	8,300	.3268	103	61	49	1,4	40	10
2236065	B977A08400	8,400	.3307	103	61	49	1,4	40	10
1913583	B977A08500	8,500	.3346	103	61	49	1,4	40	10
2425331	B977A08600	8,600	.3386	103	61	49	1,5	40	10
2203834	B977A08700	8,700	.3425	103	61	49	1,5	40	10
2658221	B977A08733	8,733	.3438	103	61	49	1,5	40	10
1913584	B977A08800	8,800	.3465	103	61	49	1,5	40	10
1971763	B977A08900	8,900	.3504	103	61	49	1,5	40	10
1913585	B977A09000	9,000	.3543	103	61	49	1,5	40	10
2425332	B977A09100	9,100	.3583	103	61	49	1,5	40	10
2218492	B977A09200	9,200	.3622	103	61	49	1,6	40	10
1913586	B977A09300	9,300	.3661	103	61	49	1,6	40	10
2408209	B977A09400	9,400	.3701	103	61	49	1,6	40	10
1913587	B977A09500	9,500	.3740	103	61	49	1,6	40	10
2658224	B977A09525	9,525	.3750	103	61	49	1,6	40	10
2425344	B977A09600	9,600	.3780	103	61	49	1,6	40	10

(continued)

(B977A • ~5 x D — continued)



● first choice
○ alternate choice

grade KC7315

order #	catalogue #	D1 diameter mm	D1 diameter in	L	L3	L4 max	L5	LS	D
1939528	B977A09700	9,700	.3819	103	61	49	1,7	40	10
2658214	B977A09746	9,746	.3837	103	61	49	1,7	40	10
1913588	B977A09800	9,800	.3858	103	61	49	1,7	40	10
2245191	B977A09900	9,900	.3898	103	61	49	1,7	40	10
1913589	B977A10000	10,000	.3937	103	61	49	1,7	40	10
2407294	B977A10100	10,100	.3976	118	71	56	1,7	45	12
1913590	B977A10200	10,200	.4016	118	71	56	1,7	45	12
4054527	B977A10262	10,262	.4040	118	71	56	1,8	45	12
2240351	B977A10300	10,300	.4055	118	71	56	1,8	45	12
2658227	B977A10320	10,320	.4063	118	71	56	1,8	45	12
2425455	B977A10400	10,400	.4094	118	71	56	1,8	45	12
1913591	B977A10500	10,500	.4134	118	71	56	1,8	45	12
1913592	B977A10700	10,700	.4213	118	71	56	1,8	45	12
2658228	B977A10716	10,716	.4219	118	71	56	1,8	45	12
2256918	B977A10800	10,800	.4252	118	71	56	1,8	45	12
2425457	B977A10900	10,900	.4291	118	71	56	1,9	45	12
1913593	B977A11000	11,000	.4331	118	71	56	1,9	45	12
2264020	B977A11100	11,100	.4370	118	71	56	1,9	45	12
2658229	B977A11113	11,113	.4375	118	71	56	1,9	45	12
1913594	B977A11200	11,200	.4409	118	71	56	1,9	45	12
2425456	B977A11300	11,300	.4449	118	71	56	1,9	45	12
2425381	B977A11400	11,400	.4488	118	71	56	2,0	45	12
1913595	B977A11500	11,500	.4528	118	71	56	2,0	45	12
2049488	B977A11800	11,800	.4646	118	71	56	2,0	45	12
1913597	B977A12000	12,000	.4724	118	71	56	2,1	45	12
2384430	B977A12100	12,100	.4764	124	77	60	2,1	45	14
2049489	B977A12200	12,200	.4803	124	77	60	2,1	45	14
2045820	B977A12300	12,300	.4843	124	77	60	2,1	45	14
2425380	B977A12400	12,400	.4882	124	77	60	2,1	45	14
1913598	B977A12500	12,500	.4921	124	77	60	2,2	45	14
2203577	B977A12600	12,600	.4961	124	77	60	2,2	45	14
1913599	B977A12700	12,700	.5000	124	77	60	2,2	45	14
2226662	B977A12900	12,900	.5079	124	77	60	2,2	45	14
1913600	B977A13000	13,000	.5118	124	77	60	2,2	45	14
2401853	B977A13100	13,100	.5157	124	77	60	2,3	45	14
2229138	B977A13300	13,300	.5236	124	77	60	2,3	45	14
4054528	B977A13495	13,495	.5313	124	77	60	2,3	45	14
1913601	B977A13500	13,500	.5315	124	77	60	2,3	45	14
1913602	B977A13700	13,700	.5394	124	77	60	2,4	45	14
2251639	B977A13800	13,800	.5433	124	77	60	2,4	45	14
1913603	B977A14000	14,000	.5512	124	77	60	2,4	45	14
2230406	B977A14200	14,200	.5591	133	83	63	2,5	48	16
1913604	B977A14500	14,500	.5709	133	83	63	2,5	48	16
2043418	B977A14600	14,600	.5748	133	83	63	2,5	48	16
1913605	B977A14700	14,700	.5787	133	83	63	2,5	48	16
1960078	B977A14900	14,900	.5866	133	83	63	2,6	48	16
1913606	B977A15000	15,000	.5906	133	83	63	2,6	48	16
1960079	B977A15100	15,100	.5945	133	83	63	2,6	48	16

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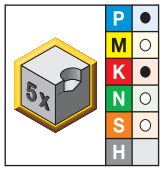
(B977A • ~5 x D — continued)

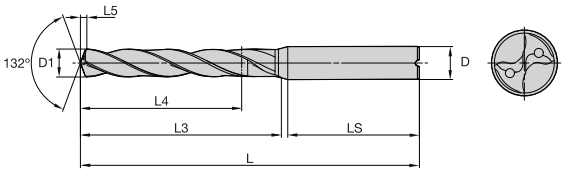


● first choice
○ alternate choice

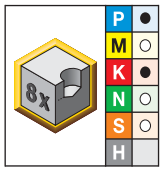
grade KC7315		D1 diameter							
order #	catalogue #	mm	in	L	L3	L4 max	L5	LS	D
1913607	**B977A15500**	15,500	.6102	133	83	63	2,7	48	16
1913609	**B977A16000**	16,000	.6299	133	83	63	2,8	48	16
2416198	**B977A16400**	16,400	.6457	143	93	71	2,8	48	18
1913610	**B977A16500**	16,500	.6496	143	93	71	2,9	48	18
1913611	**B977A17000**	17,000	.6693	143	93	71	2,9	48	18
1913612	**B977A17500**	17,500	.6890	143	93	71	3,0	48	18
2391872	**B977A17700**	17,700	.6969	143	93	71	3,1	48	18
1913613	**B977A18000**	18,000	.7087	143	93	71	3,1	48	18
1913614	**B977A18500**	18,500	.7283	153	101	77	3,2	50	20
1913615	**B977A19000**	19,000	.7480	153	101	77	3,3	50	20
1913616	**B977A19500**	19,500	.7677	153	101	77	3,4	50	20
2386665	**B977A19700**	19,700	.7756	153	101	77	3,4	50	20
1913617	**B977A20000**	20,000	.7874	153	101	77	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



B978A • ~8 x D



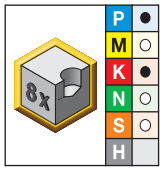
grade KC7315

● first choice
○ alternate choice

order #	catalogue #	D1 diameter mm	D1 diameter in	L	L3	L4 max	L5	LS	D
3782458	B978A03000	3,000	.1181	78	40	33	0,6	36	6
5006833	B978A03800	3,800	.1496	87	49	41	0,8	36	6
2888306	B978A04000	4,000	.1575	87	49	41	0,8	36	6
3858210	B978A04200	4,200	.1654	87	49	41	0,9	36	6
3593089	B978A04500	4,500	.1772	87	49	41	0,9	36	6
2658394	B978A04763	4,763	.1875	94	56	48	1,0	36	6
1913618	B978A05000	5,000	.1969	94	56	48	1,0	36	6
2264933	B978A05100	5,100	.2008	94	56	48	1,1	36	6
2264934	B978A05200	5,200	.2047	94	56	48	1,1	36	6
2264889	B978A05300	5,300	.2087	94	56	48	1,1	36	6
1913619	B978A05500	5,500	.2165	94	56	48	1,1	36	6
2043415	B978A05700	5,700	.2244	94	56	48	1,2	36	6
1913620	B978A06000	6,000	.2362	94	56	48	1,2	36	6
2261701	B978A06100	6,100	.2402	105	67	57	1,3	36	8
2264928	B978A06200	6,200	.2441	105	67	57	1,3	36	8
2658396	B978A06350	6,350	.2500	105	67	57	1,3	36	8
1913621	B978A06500	6,500	.2559	105	67	57	1,4	36	8
2264972	B978A06700	6,700	.2638	105	67	57	1,4	36	8
1913622	B978A06800	6,800	.2677	105	67	57	1,4	36	8
1913623	B978A07000	7,000	.2756	105	67	57	1,5	36	8
1913624	B978A07500	7,500	.2953	110	72	61	1,6	36	8
1913626	B978A08000	8,000	.3150	110	72	61	1,7	36	8
2264953	B978A08100	8,100	.3189	122	80	68	1,7	40	10
2940518	B978A08200	8,200	.3228	122	80	68	1,7	40	10
1913627	B978A08500	8,500	.3346	122	80	68	1,8	40	10
2264954	B978A08600	8,600	.3386	122	80	68	1,8	40	10
2264955	B978A08700	8,700	.3425	122	80	68	1,8	40	10
1913628	B978A09000	9,000	.3543	122	80	68	1,9	40	10
1913629	B978A09500	9,500	.3740	122	80	68	2,0	40	10
2249180	B978A09700	9,700	.3819	122	80	68	2,0	40	10
2050230	B978A09800	9,800	.3858	122	80	68	2,1	40	10
1913630	B978A10000	10,000	.3937	122	80	68	2,1	40	10

(continued)

(B978A • ~8 x D — continued)



● first choice
○ alternate choice

grade KC7315

order #	catalogue #	D1 diameter mm	D1 diameter in	L	L3	L4 max	L5	LS	D
1913631	**B978A10200**	10,200	.4016	141	94	79	2,2	45	12
2264939	**B978A10300**	10,300	.4055	141	94	79	2,2	45	12
1913632	**B978A10500**	10,500	.4134	141	94	79	2,2	45	12
1985985	**B978A10800**	10,800	.4252	141	94	79	2,3	45	12
1913633	**B978A11000**	11,000	.4331	141	94	79	2,3	45	12
2658408	**B978A11113**	11,113	.4375	141	94	79	2,4	45	12
2045616	**B978A11400**	11,400	.4488	141	94	79	2,4	45	12
1913634	**B978A11500**	11,500	.4528	141	94	79	2,4	45	12
2044606	**B978A11800**	11,800	.4646	141	94	79	2,5	45	12
1913635	**B978A12000**	12,000	.4724	141	94	79	2,5	45	12
1913636	**B978A12500**	12,500	.4921	155	108	91	2,7	45	14
2658412	**B978A12700**	12,700	.5000	155	108	91	2,7	45	14
1913637	**B978A13000**	13,000	.5118	155	108	91	2,8	45	14
1913638	**B978A13500**	13,500	.5315	155	108	91	2,9	45	14
1913639	**B978A14000**	14,000	.5512	155	108	91	3,0	45	14
1913640	**B978A14500**	14,500	.5709	171	121	101	3,1	48	16
1913641	**B978A15000**	15,000	.5906	171	121	101	3,2	48	16
2428744	**B978A15300**	15,300	.6024	171	121	101	3,3	48	16
2264901	**B978A15800**	15,800	.6220	171	121	101	3,4	48	16
2658414	**B978A15875**	15,875	.6250	171	121	101	3,4	48	16
1913643	**B978A16000**	16,000	.6299	171	121	101	3,4	48	16
1913644	**B978A16500**	16,500	.6496	185	135	113	3,5	48	18
1913645	**B978A17000**	17,000	.6693	185	135	113	3,6	48	18
1913646	**B978A17500**	17,500	.6890	185	135	113	3,7	48	18
1913647	**B978A18000**	18,000	.7087	185	135	113	3,9	48	18
1913649	**B978A19000**	19,000	.7480	200	148	124	4,1	50	20
1913651	**B978A20000**	20,000	.7874	200	148	124	4,3	50	20

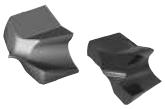
NOTE: The point angle on B978 series is 132°.

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

Kenna Universal™ Drills • B97_Series • Grade KC7315™ • Through Coolant • Drill Diameters 2–20mm • Metric

Material Group		Cutting Speed — vc Range — m/min			Metric Recommended Feed Rate (f) by Diameter									
		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
	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
M	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
	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
K	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
	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
N	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
	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
S	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

	Drill/Insert/Body Series	grade	standard ● first choice ○ alternate choice P	M	K	N	S	H	hole tolerance	First Choice Range: diameter range D1 mm min–max	diameter range D1 inch min–max	drilling depth L/D1
Modular Drills — Economic drilling with high performance and the repeatability of indexable inserts												
KenTIP™ FS: For smaller diameters. Easy front clamping and disposable Inserts												
	KenTIP FS inserts	HPG	KCP15A	●		○				IT9–IT11	8,0–26,0	.315–1.0236	—
		HPL	KCMS15		●								
		HPC	KC7410			●							
	KenTIP FS bodies	SS (Metric)	—							IT9–IT11	8,0 ≤ Ø < 19,999	.315 ≤ Ø < .7873	3 x D–5 x D
		SCF (Metric)	—								8,0 ≤ Ø ≤ 26,00	.315 ≤ Ø ≤ .1.02363	3 x D–5 x D
KSEM™ — For medium to larger diameters. Very robust pocket and regrindable inserts												
	KSEM inserts	HPG	KC7315	●		○				IT9–IT11	12,50–35,00	.4921–1.3780	—
		HPG	KCPM45	●	○						12,50–33,00	.4921–1.2992	
		HPL	KCMS15		●						12,50–32,00	.4921–1.2598	
		FEGM	KCPM40	●	○	○		○			13,00–40,00	.5118–1.5748	
	KSEM bodies	WN/WD (Metric)									12,50 ≤ Ø < 34,00	.4921 ≤ Ø < 1.3386	3 x D–10 x D selected diameters only
KSEM PLUS™ — High-performance drilling for the largest diameters												
	KSEM PLUS heads	A1 Style									30,00 < Ø ≤ 70,00	1.1811 < Ø ≤ 2.7559	selected diameters only
		B1 Style									28,00 < Ø ≤ 62,00	1.1024 < Ø ≤ 2.4409	
	KSEM PLUS centre inserts	HPG	KC7315	●	●	○	○	○			13,00–40,00mm PDD reference only		—
	DFR™ inserts	DFR GD	KCU25	●	○	●	○	○			DFR inserts for A1 heads with FDS28		
		DFR GD	KCU40	●	○	○	○	●			28,00–31,00	1.1024–1.2204	
		DFR MD	KC7140	●	●	○	○	○					
		DFR LD	KC7225	○	○	●	●	○					
	DFT™ inserts	DFT HP	KCU25	●	○	●	○	○			DFT inserts for A1 heads FDS32 and above		
		DFT HP	KCU40	●	○	○	○	●					
		DFT DS	KCU25	●	●					IT9–IT11	31,75–101,40	1.2500–4.0000	
			KCU40	●	○		○	○					
		DFT MD	KC7140	●	●	○	○	○					
	DFC™ inserts (B1 Heads)	DFC HP	KCU25	●	○	●	○	○			DFC inserts for B1 heads, all FDS sizes		
		DFC HP	KCU40	●	○	○	○	●			28,00–101,40	1.1024–4.0000	
		DFC DS	KCU25	●	●								
			KCU40	●	●		○	○					
		DFC MD	KC7140	●	●	○	○	○					
	DPA guide pads (B1 Heads)	DPA	KCU40	●	●	●	●	●			Available for all standard B1 head diameters		
	KSEM PLUS bodies	WD (Metric)									28,00 ≤ Ø ≤ 70,00	1.1024 ≤ Ø ≤ 2.7559	3–10 x D selected diameters only

*Not all intermediate sizes available in First Choice.

KenTIP™ FS

The Perfect Fusion of a Solid Carbide and an Indexable Drill

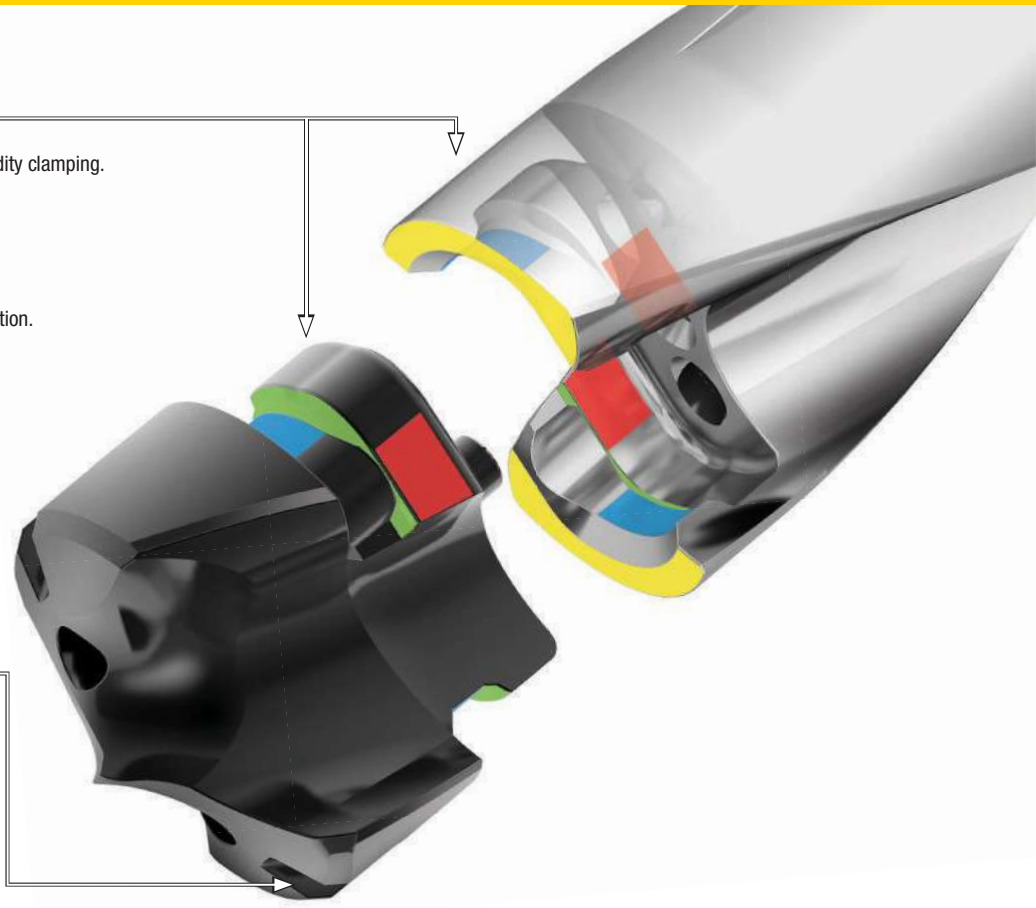
The new modular drill KenTIP FS covers more applications and provides better performance than any other modular system, delivering substantial cost savings and process simplifications on your shop floor.

3-point geometries, 3 high-performance grades, 2 shank styles
3 x D and 5 x D drilling depths.
Applicable in steel and stainless steel, and cast iron.

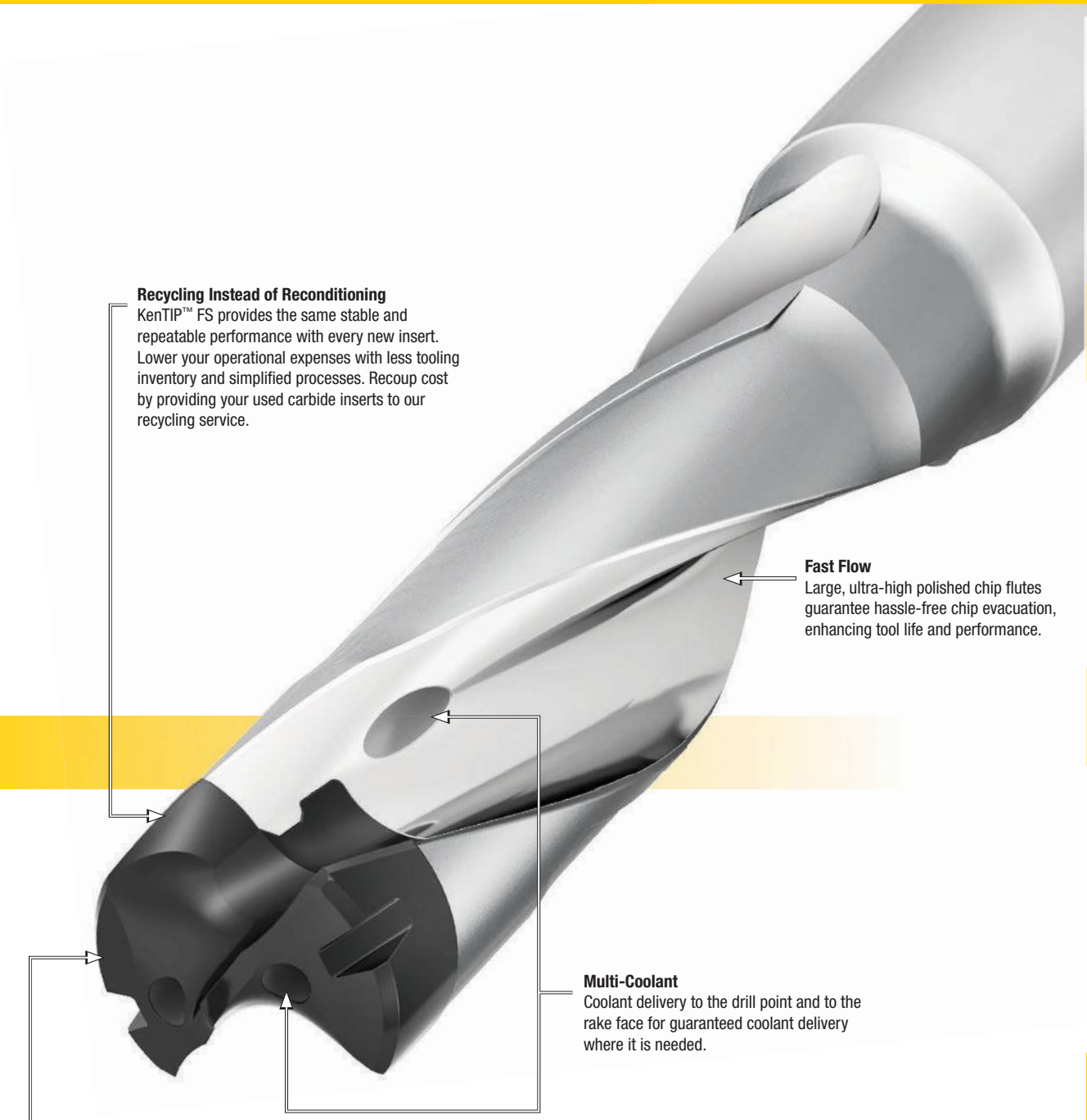
Intelligent Interface

- 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.

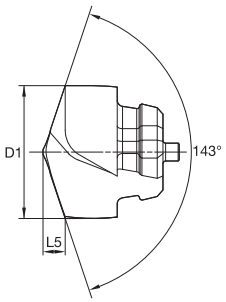
Fast Flow
Large, ultra-high polished chip flutes guarantee hassle-free chip evacuation, enhancing tool life and performance.

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-centring point designs enable excellent hole quality and optimum tool performance.

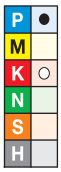
Full Solid Carbide Front
KenTIP FS inserts cover the entire front part of the drill. The coupling is completely protected from chip flow and contact with workpiece.

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



HPG Geometry

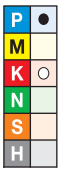
KenTIP FS Inserts • HPG KCP15A • No Internal Coolant Channels



● first choice
○ alternate choice

grade KCP15A

order #	catalogue #	D1 mm	D1 in	L5 mm	L5 in	SSC
6388596	KTFSS08000HPGM	8,000	.3150	1,800	.0709	F
6388611	KTFSS08500HPGM	8,500	.3346	1,890	.0744	G
6388617	KTFSS08700HPGM	8,700	.3425	1,920	.0756	G
6388628	KTFSS09000HPGM	9,000	.3543	2,010	.0791	H
6388642	KTFSS09100HPGM	9,100	.3583	2,030	.0799	H
6388648	KTFSS09300HPGM	9,300	.3661	2,060	.0811	H
6388654	KTFSS09500HPGM	9,500	.3740	2,100	.0827	I
6388670	KTFSS10000HPGM	10,000	.3937	2,220	.0874	J
6388678	KTFSS10200HPGM	10,200	.4016	2,250	.0886	J
6388682	KTFSS10300HPGM	10,300	.4055	2,270	.0894	J
6388686	KTFSS10400HPGM	10,400	.4094	2,290	.0902	J
6388688	KTFSS10490HPGM	10,490	.4130	2,300	.0906	J
6388690	KTFSS10500HPGM	10,500	.4134	2,310	.0909	K
6388692	KTFSS10600HPGM	10,600	.4173	2,330	.0917	K
6388694	KTFSS10700HPGM	10,700	.4213	2,340	.0921	K
6388698	KTFSS10800HPGM	10,800	.4252	2,360	.0929	K
6388702	KTFSS11000HPGM	11,000	.4331	2,430	.0957	L
6388708	KTFSS11200HPGM	11,200	.4409	2,460	.0969	L
6388710	KTFSS11300HPGM	11,300	.4449	2,480	.0976	L
6388712	KTFSS11400HPGM	11,400	.4488	2,500	.0984	L
6388714	KTFSS11500HPGM	11,500	.4528	2,520	.0992	M
6388722	KTFSS11800HPGM	11,800	.4646	2,570	.1012	M
6388728	KTFSS12000HPGM	12,000	.4724	2,640	.1039	N
6388730	KTFSS12100HPGM	12,100	.4764	2,650	.1043	N
6388732	KTFSS12200HPGM	12,200	.4803	2,670	.1051	N
6388734	KTFSS12304HPGM	12,304	.4844	2,690	.1059	N
6388738	KTFSS12474HPGM	12,474	.4911	2,720	.1071	N
6388740	KTFSS12500HPGM	12,500	.4921	2,730	.1075	O
6388742	KTFSS12600HPGM	12,600	.4961	2,740	.1079	O
6388744	KTFSS12700HPGM	12,700	.5000	2,760	.1087	O
6388746	KTFSS12800HPGM	12,800	.5039	2,780	.1094	O
6388751	KTFSS13000HPGM	13,000	.5118	2,850	.1122	P
6388753	KTFSS13096HPGM	13,096	.5156	2,860	.1126	P
6388759	KTFSS13300HPGM	13,300	.5236	2,900	.1142	P
6388767	KTFSS13500HPGM	13,500	.5315	2,930	.1154	Q
6388769	KTFSS13600HPGM	13,600	.5354	2,950	.1161	Q
6388773	KTFSS13800HPGM	13,800	.5433	2,980	.1173	Q
6388775	KTFSS13891HPGM	13,891	.5469	3,000	.1181	Q
6388781	KTFSS14000HPGM	14,000	.5512	3,050	.1201	R
6388784	KTFSS14100HPGM	14,100	.5551	3,070	.1209	R
6388786	KTFSS14200HPGM	14,200	.5591	3,090	.1217	R
6388789	KTFSS14300HPGM	14,300	.5630	3,100	.1220	R
6388792	KTFSS14500HPGM	14,500	.5709	3,140	.1236	S
6388793	KTFSS14600HPGM	14,600	.5748	3,160	.1244	S
6388798	KTFSS14800HPGM	14,800	.5827	3,190	.1256	S
6388800	KTFSS15000HPGM	15,000	.5906	3,260	.1283	T
6388822	KTFSS15100HPGM	15,100	.5945	3,280	.1291	T
6388824	KTFSS15300HPGM	15,300	.6024	3,310	.1303	T
6388829	KTFSS15500HPGM	15,500	.6102	3,340	.1315	T
6388831	KTFSS15700HPGM	15,700	.6181	3,380	.1331	T
6388832	KTFSS15800HPGM	15,800	.6220	3,390	.1335	T
6388420	KTFSS16000HPGM	16,000	.6299	3,480	.1370	U



grade KCP15A

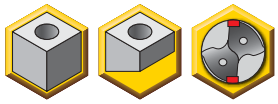
order #	catalogue #	D1 mm	D1 in	L5 mm	L5 in	SSC
6388534	KTFSS16100HPGM	16,100	.6339	3,500	.1378	U
6388536	KTFSS16271HPGM	16,271	.6406	3,530	.1390	U
6388537	KTFSS16300HPGM	16,300	.6417	3,530	.1390	U
6388540	KTFSS16500HPGM	16,500	.6496	3,570	.1406	U
6388542	KTFSS16600HPGM	16,600	.6535	3,580	.1409	U
6388546	KTFSS16700HPGM	16,700	.6575	3,600	.1417	U
6388548	KTFSS16800HPGM	16,800	.6614	3,620	.1425	U
6388552	KTFSS17000HPGM	17,000	.6693	3,660	.1441	V
6388558	KTFSS17200HPGM	17,200	.6772	3,690	.1453	V
6388568	KTFSS17500HPGM	17,500	.6890	3,740	.1472	V
6388570	KTFSS17600HPGM	17,600	.6929	3,760	.1480	V
6388572	KTFSS17700HPGM	17,700	.6969	3,770	.1484	V
6388574	KTFSS17800HPGM	17,800	.7008	3,790	.1492	V
6388579	KTFSS18000HPGM	18,000	.7087	3,890	.1531	W
6388587	KTFSS18300HPGM	18,300	.7205	3,940	.1551	W
6388591	KTFSS18500HPGM	18,500	.7283	3,980	.1567	W
6388593	KTFSS18600HPGM	18,600	.7323	3,990	.1571	W
6388600	KTFSS18800HPGM	18,800	.7402	4,030	.1587	W
6388601	KTFSS18900HPGM	18,900	.7441	4,040	.1591	W
6388603	KTFSS19000HPGM	19,000	.7480	4,070	.1602	X
6388605	KTFSS19050HPGM	19,050	.7500	4,080	.1606	X
6388607	KTFSS19100HPGM	19,100	.7520	4,090	.1610	X
6388609	KTFSS19200HPGM	19,200	.7559	4,100	.1614	X
6388618	KTFSS19300HPGM	19,300	.7598	4,120	.1622	X
6388627	KTFSS19500HPGM	19,500	.7677	4,150	.1634	X
6388643	KTFSS19800HPGM	19,800	.7795	4,200	.1654	X
6388645	KTFSS19845HPGM	19,845	.7813	4,210	.1657	X
6388649	KTFSS20000HPGM	20,000	.7874	4,310	.1697	Y
6388659	KTFSS20500HPGM	20,500	.8071	4,390	.1728	Y
6388673	KTFSS21000HPGM	21,000	.8268	4,480	.1764	Z
6388685	KTFSS21500HPGM	21,500	.8465	4,560	.1795	Z
6388695	KTFSS22000HPGM	22,000	.8661	4,720	.1858	ZA
6388705	KTFSS22500HPGM	22,500	.8858	4,800	.1890	ZA
6388715	KTFSS23000HPGM	23,000	.9055	4,890	.1925	ZB
6388727	KTFSS23500HPGM	23,500	.9252	4,980	.1961	ZB
6388739	KTFSS24000HPGM	24,000	.9449	5,130	.2020	ZC
6388750	KTFSS24500HPGM	24,500	.9646	5,210	.2051	ZC
6388762	KTFSS25000HPGM	25,000	.9843	5,300	.2087	ZD
6388790	KTFSS26000HPGM	26,000	1.0236	5,470	.2154	ZD

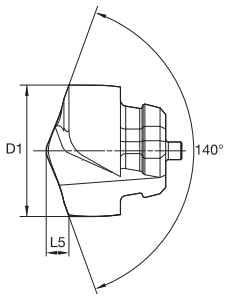
SSC = Pocket Seat Reference. To correspond with the SSC on the toolholder.

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

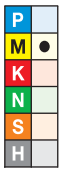
- HPL-point geometry for stainless steels.
- Forms 2 chips per cutting edge for an uninterrupted and smooth chip flow.
- KCMS15™ is an AlTiN PVD monolayer coating.
- Prevents edge build-up, which delivers superior hole quality.
- Very high metal removal rates.
- With internal coolant.



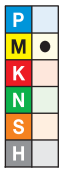


HPL Geometry

KenTIP FS Inserts • HPL KCMS15 • With Internal Coolant Channels



grade KCMS15		D1		L5		
order #	catalogue #	mm	in	mm	in	SSC
6370992	KTFST08000HPLM	8,000	.3150	1,720	.0677	F
6370994	KTFST08100HPLM	8,100	.3189	1,740	.0685	F
6371006	KTFST08500HPLM	8,500	.3346	1,820	.0717	G
6371031	KTFST09000HPLM	9,000	.3543	1,930	.0760	H
6371045	KTFST10000HPLM	10,000	.3937	2,130	.0839	J
6371047	KTFST10200HPLM	10,200	.4016	2,170	.0854	J
6371048	KTFST10300HPLM	10,300	.4055	2,190	.0862	J
6371051	KTFST10500HPLM	10,500	.4134	2,230	.0878	K
6371054	KTFST10800HPLM	10,800	.4252	2,290	.0902	K
6371056	KTFST11000HPLM	11,000	.4331	2,340	.0921	L
6371061	KTFST11500HPLM	11,500	.4528	2,440	.0961	M
6371065	KTFST12000HPLM	12,000	.4724	2,540	.1000	N
6371068	KTFST12500HPLM	12,500	.4921	2,640	.1039	O
6371069	KTFST12700HPLM	12,700	.5000	2,680	.1055	O
6371072	KTFST13000HPLM	13,000	.5118	2,740	.1079	P
6371076	KTFST13500HPLM	13,500	.5315	2,840	.1118	Q
6371080	KTFST14000HPLM	14,000	.5512	2,950	.1161	R
6371084	KTFST14300HPLM	14,300	.5630	3,000	.1181	R
6371086	KTFST14500HPLM	14,500	.5709	3,050	.1201	S
6371089	KTFST15000HPLM	15,000	.5906	3,150	.1240	T
6371112	KTFST15500HPLM	15,500	.6102	3,240	.1276	T
6370906	KTFST16000HPLM	16,000	.6299	3,350	.1319	U
6370916	KTFST16500HPLM	16,500	.6496	3,450	.1358	U
6370920	KTFST17000HPLM	17,000	.6693	3,550	.1398	V



● first choice
○ alternate choice

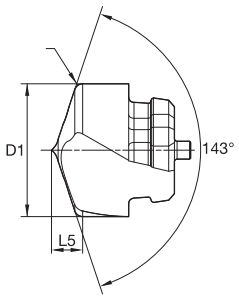
grade KCMS15		D1		L5		
order #	catalogue #	mm	in	mm	in	SSC
6370926	KTFST17500HPLM	17,500	.6890	3,650	.1437	V
6370929	KTFST18000HPLM	18,000	.7087	3,760	.1480	W
6370937	KTFST19000HPLM	19,000	.7480	3,960	.1559	X
6370944	KTFST19253HPLM	19,253	.7580	4,000	.1575	X
6370955	KTFST19500HPLM	19,500	.7677	4,050	.1594	X
6370957	KTFST19845HPLM	19,845	.7813	4,120	.1622	X
6370972	KTFST20000HPLM	20,000	.7874	4,160	.1638	Y
6370975	KTFST20500HPLM	20,500	.8071	4,250	.1673	Y
6370981	KTFST21000HPLM	21,000	.8268	4,360	.1717	Z
6370985	KTFST21500HPLM	21,500	.8465	4,450	.1752	Z
6370988	KTFST22000HPLM	22,000	.8661	4,560	.1795	ZA
6370993	KTFST22500HPLM	22,500	.8858	4,660	.1835	ZA
6370996	KTFST23000HPLM	23,000	.9055	4,760	.1874	ZB
6370999	KTFST23500HPLM	23,500	.9252	4,860	.1913	ZB
6371005	KTFST24000HPLM	24,000	.9449	4,960	.1953	ZC
6371008	KTFST24500HPLM	24,500	.9646	5,060	.1992	ZC
6371011	KTFST25000HPLM	25,000	.9843	5,170	.2035	ZD
6371038	KTFST26000HPLM	26,000	1.0236	5,370	.2114	ZD

SSC = Pocket Seat Reference. To correspond with the SSC on the toolholder.

KenTIP FS HPL 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

- 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.



KenTIP FS Inserts • HPC KC7410 • With Internal Coolant Channels

● first choice
○ alternate choice

grade KC7410		D1		L5		
order #	catalog #	mm	in	mm	in	SSC
6370885	KTFST08000HPCM	8,000	.3150	1,850	.0728	F
6370888	KTFST08500HPCM	8,500	.3346	1,960	.0772	G
6370892	KTFST09000HPCM	9,000	.3543	2,080	.0819	H
6370900	KTFST10000HPCM	10,000	.3937	2,320	.0913	J
6370902	KTFST10200HPCM	10,200	.4016	2,350	.0925	J
6370903	KTFST10300HPCM	10,300	.4055	2,370	.0933	J
6370905	KTFST10500HPCM	10,500	.4134	2,430	.0957	K
6370914	KTFST10800HPCM	10,800	.4252	2,480	.0976	K
6370915	KTFST11000HPCM	11,000	.4331	2,550	.1004	L
6370917	KTFST11100HPCM	11,100	.4370	2,570	.1012	L
6370923	KTFST11500HPCM	11,500	.4528	2,660	.1047	M
6370930	KTFST12000HPCM	12,000	.4724	2,780	.1094	N
6370934	KTFST12500HPCM	12,500	.4921	2,900	.1142	O
6370936	KTFST12700HPCM	12,700	.5000	2,930	.1154	O
6370938	KTFST13000HPCM	13,000	.5118	3,020	.1189	P
6370948	KTFST13500HPCM	13,500	.5315	3,130	.1232	Q
6370958	KTFST14000HPCM	14,000	.5512	3,250	.1280	R
6370976	KTFST14500HPCM	14,500	.5709	3,360	.1323	S
6370995	KTFST15000HPCM	15,000	.5906	3,490	.1374	T
6371010	KTFST15500HPCM	15,500	.6102	3,570	.1406	T
6371016	KTFST15800HPCM	15,800	.6220	3,620	.1425	T
6370147	KTFST16000HPCM	16,000	.6299	3,730	.1469	U
6370353	KTFST16500HPCM	16,500	.6496	3,810	.1500	U
6370355	KTFST16600HPCM	16,600	.6535	3,830	.1508	U

grade KC7410		D1		L5		
order #	catalog #	mm	in	mm	in	SSC
6370357	KTFST17000HPCM	17,000	.6693	3,950	.1555	V
6370360	KTFST17200HPCM	17,200	.6772	3,980	.1567	V
6370363	KTFST17500HPCM	17,500	.6890	4,030	.1587	V
6370368	KTFST18000HPCM	18,000	.7087	4,190	.1650	W
6370381	KTFST18500HPCM	18,500	.7283	4,280	.1685	W
6370384	KTFST19000HPCM	19,000	.7480	4,410	.1736	X
6370390	KTFST20000HPCM	20,000	.7874	4,660	.1835	Y
6370403	KTFST20500HPCM	20,500	.8071	4,740	.1866	Y
6370405	KTFST21000HPCM	21,000	.8268	4,880	.1921	Z
6370407	KTFST21500HPCM	21,500	.8465	4,970	.1957	Z
6370408	KTFST22000HPCM	22,000	.8661	5,130	.2020	ZA
6370411	KTFST22500HPCM	22,500	.8858	5,210	.2051	ZA
6370412	KTFST23000HPCM	23,000	.9055	5,350	.2106	ZB
6370414	KTFST23500HPCM	23,500	.9252	5,430	.2138	ZB
6370416	KTFST24000HPCM	24,000	.9449	5,630	.2217	ZC
6370417	KTFST24500HPCM	24,500	.9646	5,720	.2252	ZC
6370419	KTFST25000HPCM	25,000	.9843	5,870	.2311	ZD
6370425	KTFST26000HPCM	26,000	1.0236	6,030	.2374	ZD

NOTE: SSC = Pocket Seat Reference. To correspond with the SSC on the toolholder.

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 Range — m/min			Metric								
					Recommended Feed Rate per Rev								
		min	Starting Value	max		8,0	10,0	12,0	14,0	16,0	20,0	24,0	26,0
P	0	95	**125**	175	mm/r	0,11–0,22	0,13–0,30	0,15–0,37	0,17–0,41	0,19–0,45	0,24–0,52	0,28–0,60	0,29–0,62
	1	90	**130**	170	mm/r	0,11–0,22	0,13–0,30	0,15–0,37	0,17–0,41	0,19–0,45	0,24–0,52	0,28–0,60	0,29–0,62
	2	100	**140**	180	mm/r	0,11–0,26	0,13–0,34	0,15–0,41	0,17–0,45	0,19–0,49	0,24–0,56	0,28–0,64	0,29–0,62
	3	60	**100**	130	mm/r	0,11–0,31	0,12–0,36	0,14–0,41	0,16–0,44	0,18–0,46	0,23–0,51	0,30–0,56	0,31–0,58
	4	60	**100**	130	mm/r	0,11–0,31	0,12–0,36	0,14–0,41	0,16–0,44	0,18–0,46	0,23–0,51	0,25–0,56	0,26–0,58
	5	60	**80**	100	mm/r	0,1–0,22	0,11–0,28	0,12–0,34	0,14–0,37	0,16–0,40	0,20–0,46	0,24–0,52	0,25–0,54
	6	60	**70**	80	mm/r	0,1–0,22	0,11–0,28	0,12–0,34	0,14–0,37	0,16–0,40	0,20–0,46	0,24–0,52	0,25–0,54
K	1	80	**120**	170	mm/r	0,14–0,34	0,16–0,39	0,19–0,45	0,23–0,50	0,26–0,58	0,30–0,64	0,36–0,76	0,37–0,79
	2	80	**110**	120	mm/r	0,14–0,34	0,16–0,39	0,19–0,45	0,23–0,50	0,26–0,58	0,30–0,64	0,36–0,76	0,37–0,79
	3	50	**80**	100	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	0,32–0,63	0,33–0,66

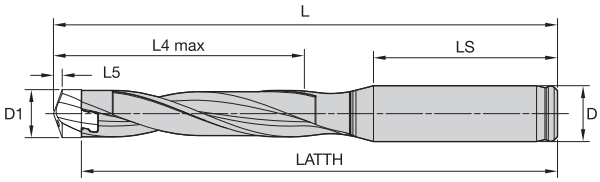
Modular Drill Carbide Insert Blades • KenTIP FS • HPL Geometry • Grade KCMS15™ • With Internal Coolant Channels • Through Coolant • Metric

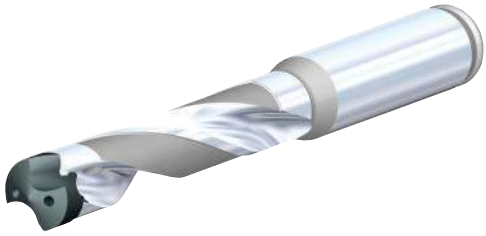
Material Group		Cutting Speed — vc Range — m/min			Metric								
					Recommended Feed Rate per Rev								
		min	Starting Value	max		8,0	10,0	12,0	14,0	16,0	20,0	24,0	26,0
M	1	50	**60**	90	mm/r	0,08–0,15	0,09–0,18	0,11–0,2	0,12–0,22	0,13–0,24	0,16–0,28	0,19–0,32	0,20–0,33
	2	30	**60**	90	mm/r	0,08–0,15	0,09–0,18	0,11–0,2	0,12–0,22	0,13–0,24	0,16–0,28	0,19–0,32	0,20–0,33
	3	20	**50**	60	mm/r	0,08–0,15	0,09–0,18	0,11–0,2	0,12–0,22	0,13–0,24	0,16–0,28	0,19–0,32	0,20–0,33

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

Material Group		Cutting Speed — vc Range — m/min			Metric								
					Recommended Feed Rate per Rev								
		min	Starting Value	max		8,0	10,0	12,0	14,0	16,0	20,0	24,0	26,0
K	1	100	**175**	200	mm/r	0,14–0,34	0,16–0,39	0,19–0,45	0,23–0,5	0,26–0,58	0,3–0,64	0,36–0,76	0,37–0,79
	2	100	**160**	180	mm/r	0,14–0,34	0,16–0,39	0,19–0,45	0,23–0,5	0,26–0,58	0,3–0,64	0,36–0,76	0,37–0,79
	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	0,32–0,63	0,33–0,66

- KenTIP FS toolholder with straight cylindrical round 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.





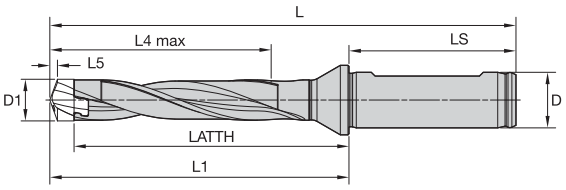
Straight Round Shank (SS Shank)

KenTIP FS Round Shank • 3 x D • Metric

3 x D		D1		D1 max								
order #	catalogue #	mm	in	mm	in	LATTH	L	L4 max	LS	D	SSC	KenTIP wrench
6389366	KTFS080R03SS10M	8,000	.3150	8,499	.3346	76,4	81	26	41	10	F	170.306
6389367	KTFS085R03SS10M	8,500	.3347	8,999	.3543	77,1	82	27	41	10	G	170.306
6389368	KTFS090R03SS10M	9,000	.3544	9,499	.3739	78,8	84	29	41	10	H	170.306
6389369	KTFS095R03SS10M	9,500	.3740	9,999	.3936	79,5	85	30	41	10	I	170.306
6371340	KTFS100R03SS12M	10,000	.3937	10,499	.4133	88,2	94	32	46	12	J	170.307
6371961	KTFS105R03SS12M	10,500	.4134	10,999	.4330	88,9	95	33	46	12	K	170.307
6371962	KTFS110R03SS12M	11,000	.4331	11,499	.4527	90,6	97	35	46	12	L	170.307
6371963	KTFS115R03SS12M	11,500	.4528	11,999	.4724	91,3	98	36	46	12	M	170.307
6371964	KTFS120R03SS14M	12,000	.4725	12,499	.4921	95,0	102	38	46	14	N	170.308
6371965	KTFS125R03SS14M	12,500	.4922	12,999	.5117	95,8	103	39	46	14	O	170.308
6371966	KTFS130R03SS14M	13,000	.5118	13,499	.5314	97,5	105	41	46	14	P	170.308
6371967	KTFS135R03SS14M	13,500	.5315	13,999	.5511	98,2	106	42	46	14	Q	170.308
6371968	KTFS140R03SS16M	14,000	.5512	14,499	.5708	103,9	112	44	49	16	R	170.309
6371969	KTFS145R03SS16M	14,500	.5709	14,999	.5905	104,6	113	45	49	16	S	170.309
6371970	KTFS150R03SS16M	15,000	.5906	15,999	.6299	107,3	116	48	49	16	T	170.309
6371971	KTFS160R03SS16M	16,000	.6300	16,999	.6692	109,7	119	51	49	16	U	170.309
6371972	KTFS170R03SS20M	17,000	.6693	17,999	.7086	117,1	127	54	51	20	V	170.314
6389147	KTFS180R03SS20M	18,000	.7087	18,999	.7480	119,6	130	57	51	20	W	170.314
6389148	KTFS190R03SS20M	19,000	.7481	19,999	.7873	122,0	133	60	51	20	X	170.314

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
SSC = Pocket Seat Reference. To correspond with the SSC on the inserts.

- KenTIP FS Tool Holder with Flanged Cylindrical shank and 0° Flat. Metric Shank.
- KenTIP FS modular drills offer performance commonly achieved with solid carbide drills. The rigid pocket seat allows flexible usage and very high holder tool life.
- KenTIP FS drilling system uses disposable inserts — no reconditioning cost, consistent performance, and significantly reduced tool logistics compared to regrindable drilling solutions.
- MuliCoolant provides an advanced coolant channel layout with four coolant exits in each holder.
- Each Tool body is shipped with related insert wrench.



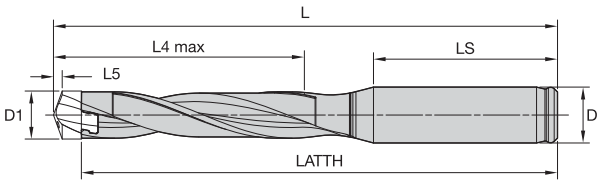
Flanged Shank with Flat (SCF Shank)

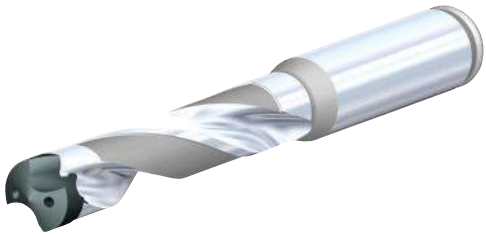
KenTIP FS™ Flanged Shank with Flat • 3 x D • Metric

3 x D		D1		D1 max									
order #	catalogue #	mm	in	mm	in	LATTH	L	L1	L4 max	LS	D	SSC	KenTIP wrench
6389436	KTFS080R03SCF12M	8,000	.3150	8,499	.3346	42,4	92	47	26	45	12	F	170.306
6389437	KTFS085R03SCF12M	8,500	.3347	8,999	.3543	43,1	93	48	27	45	12	G	170.306
6389438	KTFS090R03SCF12M	9,000	.3544	9,499	.3739	44,8	95	50	29	45	12	H	170.306
6389439	KTFS095R03SCF12M	9,500	.3740	9,999	.3936	45,5	96	51	30	45	12	I	170.306
6372514	KTFS100R03SCF16M	10,000	.3937	10,499	.4133	50,2	104	56	32	48	16	J	170.307
6372515	KTFS105R03SCF16M	10,500	.4134	10,999	.4330	50,9	105	57	33	48	16	K	170.307
6372516	KTFS110R03SCF16M	11,000	.4331	11,499	.4527	52,6	107	59	35	48	16	L	170.307
6372517	KTFS115R03SCF16M	11,500	.4528	11,999	.4724	53,3	108	60	36	48	16	M	170.307
6372518	KTFS120R03SCF16M	12,000	.4725	12,499	.4921	55,0	110	62	38	48	16	N	170.308
6372519	KTFS125R03SCF16M	12,500	.4922	12,999	.5117	55,8	111	63	39	48	16	O	170.308
6372520	KTFS130R03SCF16M	13,000	.5118	13,499	.5314	57,5	113	65	41	48	16	P	170.308
6372591	KTFS135R03SCF16M	13,500	.5315	13,999	.5511	58,2	114	66	42	48	16	Q	170.308
6372592	KTFS140R03SCF16M	14,000	.5512	14,499	.5708	59,9	116	68	44	48	16	R	170.309
6372593	KTFS145R03SCF16M	14,500	.5709	14,999	.5905	60,6	117	69	45	48	16	S	170.309
6372594	KTFS150R03SCF20M	15,000	.5906	15,999	.6299	66,3	125	75	48	50	20	T	170.309
6372595	KTFS160R03SCF20M	16,000	.6300	16,999	.6692	68,7	128	78	51	50	20	U	170.309
6372596	KTFS170R03SCF20M	17,000	.6693	17,999	.7086	71,1	131	81	54	50	20	V	170.314
6389279	KTFS180R03SCF25M	18,000	.7087	18,999	.7480	76,6	143	87	57	56	25	W	170.314
6389280	KTFS190R03SCF25M	19,000	.7481	19,999	.7873	79,0	146	90	60	56	25	X	170.314
6389281	KTFS200R03SCF25M	20,000	.7874	20,999	.8267	81,4	149	93	63	56	25	Y	170.314
6389282	KTFS210R03SCF25M	21,000	.8268	21,999	.8661	83,8	152	96	66	56	25	Z	170.314
6389283	KTFS220R03SCF25M	22,000	.8662	22,999	.9054	86,2	155	99	69	56	25	ZA	170.314
6389284	KTFS230R03SCF25M	23,000	.9055	23,999	.9448	88,7	158	102	72	56	25	ZB	170.314
6389285	KTFS240R03SCF25M	24,000	.9449	24,999	.9842	91,1	161	105	75	56	25	ZC	170.314
6389286	KTFS250R03SCF25M	25,000	.9843	26,000	1.0236	93,5	164	108	78	56	25	ZD	170.314

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
SSC = Pocket Seat Reference. To correspond with the SSC on the inserts.

- 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.





Straight Round Shank (SS Shank)

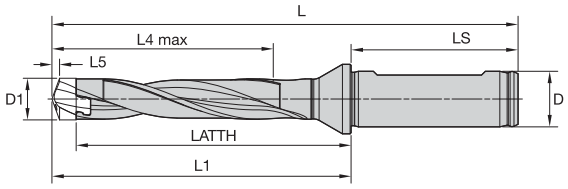
KenTIP FS Round Shank • 5 x D • Metric

5 x D		D1		D1 max								
order #	catalogue #	mm	in	mm	in	LATTH	L	L4 max	LS	D	SSC	KenTIP wrench
6389385	KTFS080R05SS10M	8,000	.3150	8,499	.3346	93,4	98	43	41	10	F	170.306
6389386	KTFS085R05SS10M	8,500	.3347	8,999	.3543	95,1	100	45	41	10	G	170.306
6389387	KTFS090R05SS10M	9,000	.3544	9,499	.3739	97,8	103	48	41	10	H	170.306
6389388	KTFS095R05SS10M	9,500	.3740	9,999	.3936	99,5	105	50	41	10	I	170.306
6371973	KTFS100R05SS12M	10,000	.3937	10,499	.4133	109,2	115	53	46	12	J	170.307
6371974	KTFS105R05SS12M	10,500	.4134	10,999	.4330	110,9	117	55	46	12	K	170.307
6371975	KTFS110R05SS12M	11,000	.4331	11,499	.4527	113,6	120	58	46	12	L	170.307
6371976	KTFS115R05SS12M	11,500	.4528	11,999	.4724	115,3	122	60	46	12	M	170.307
6371977	KTFS120R05SS14M	12,000	.4725	12,499	.4921	120,0	127	63	46	14	N	170.308
6371978	KTFS125R05SS14M	12,500	.4922	12,999	.5117	121,8	129	65	46	14	O	170.308
6371979	KTFS130R05SS14M	13,000	.5118	13,499	.5314	124,5	132	68	46	14	P	170.308
6371980	KTFS135R05SS14M	13,500	.5315	13,999	.5511	126,2	134	70	46	14	Q	170.308
6371981	KTFS140R05SS16M	14,000	.5512	14,499	.5708	132,9	141	73	49	16	R	170.309
6371982	KTFS145R05SS16M	14,500	.5709	14,999	.5905	134,6	143	75	49	16	S	170.309
6371983	KTFS150R05SS16M	15,000	.5906	15,999	.6299	139,3	148	80	49	16	T	170.309
6371984	KTFS160R05SS16M	16,000	.6300	16,999	.6692	143,7	153	85	49	16	U	170.309
6371985	KTFS170R05SS20M	17,000	.6693	17,999	.7086	153,1	163	90	51	20	V	170.314
6389149	KTFS180R05SS20M	18,000	.7087	18,999	.7480	157,6	168	95	51	20	W	170.314
6389150	KTFS190R05SS20M	19,000	.7481	19,999	.7873	162,0	173	100	51	20	X	170.314

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
SSC = Pocket Seat Reference. To correspond with the SSC on the inserts.

- KenTIP FS Tool Holder with Flanged Cylindrical shank and 0° Flat. Metric Shank.
- KenTIP FS modular drills offer performance commonly achieved with solid carbide drills. The rigid pocket seat allows flexible usage and very high holder tool life.
- KenTIP FS drilling system uses disposable inserts — no reconditioning cost, consistent performance, and significantly reduced tool logistics compared to regrindable drilling solutions.
- MuliCoolant 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)



KenTIP FS™ Flanged Shank with Flat • 5 x D • Metric

5 x D		D1		D1 max									KenTIP
order #	catalogue #	mm	in	mm	in	LATTH	L	L1	L4 max	LS	D	SSC	rench
6389440	KTFS080R05SCF12M	8,000	.3150	8,499	.3346	59,4	109	64	43	45	12	F	170.306
6389441	KTFS085R05SCF12M	8,500	.3347	8,999	.3543	61,1	111	66	45	45	12	G	170.306
6389442	KTFS090R05SCF12M	9,000	.3544	9,499	.3739	63,8	114	69	48	45	12	H	170.306
6389443	KTFS095R05SCF12M	9,500	.3740	9,999	.3936	65,5	116	71	50	45	12	I	170.306
6372597	KTFS100R05SCF16M	10,000	.3937	10,499	.4133	71,2	125	77	53	48	16	J	170.307
6372598	KTFS105R05SCF16M	10,500	.4134	10,999	.4330	72,9	127	79	55	48	16	K	170.307
6372599	KTFS110R05SCF16M	11,000	.4331	11,499	.4527	75,6	130	82	58	48	16	L	170.307
6372600	KTFS115R05SCF16M	11,500	.4528	11,999	.4724	77,3	132	84	60	48	16	M	170.307
6372601	KTFS120R05SCF16M	12,000	.4725	12,499	.4921	80,0	135	87	63	48	16	N	170.308
6372602	KTFS125R05SCF16M	12,500	.4922	12,999	.5117	81,8	137	89	65	48	16	O	170.308
6372603	KTFS130R05SCF16M	13,000	.5118	13,499	.5314	84,5	140	92	68	48	16	P	170.308
6372604	KTFS135R05SCF16M	13,500	.5315	13,999	.5511	86,2	142	94	70	48	16	Q	170.308
6372605	KTFS140R05SCF16M	14,000	.5512	14,499	.5708	88,9	145	97	73	48	16	R	170.309
6372606	KTFS145R05SCF16M	14,500	.5709	14,999	.5905	90,6	147	99	75	48	16	S	170.309
6372607	KTFS150R05SCF20M	15,000	.5906	15,999	.6299	98,3	157	107	80	50	20	T	170.309
6372608	KTFS160R05SCF20M	16,000	.6300	16,999	.6692	102,7	162	112	85	50	20	U	170.309
6372609	KTFS170R05SCF20M	17,000	.6693	17,999	.7086	107,1	167	117	90	50	20	V	170.314
6389287	KTFS180R05SCF25M	18,000	.7087	18,999	.7480	114,6	181	125	95	56	25	W	170.314
6389288	KTFS190R05SCF25M	19,000	.7481	19,999	.7873	119,0	186	130	100	56	25	X	170.314
6389289	KTFS200R05SCF25M	20,000	.7874	20,999	.8267	123,4	191	135	105	56	25	Y	170.314
6389290	KTFS210R05SCF25M	21,000	.8268	21,999	.8661	127,8	196	140	110	56	25	Z	170.314
6389311	KTFS220R05SCF25M	22,000	.8662	22,999	.9054	132,2	201	145	115	56	25	ZA	170.314
6389312	KTFS230R05SCF25M	23,000	.9055	23,999	.9448	136,7	206	150	120	56	25	ZB	170.314
6389313	KTFS240R05SCF25M	24,000	.9449	24,999	.9842	141,1	211	155	125	56	25	ZC	170.314
6389314	KTFS250R05SCF25M	25,000	.9843	26,000	1.0236	145,5	216	160	130	56	25	ZD	170.314

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
SSC = Pocket Seat Reference. To correspond with the SSC on the inserts.

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 12,5–35mm (.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 centring 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.

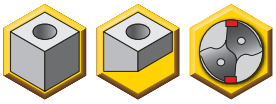
Tailored Grades

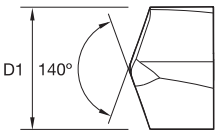
- KC7315™ grade TiAlN-based PVD multilayer coating for high cutting speeds, primarily in steel applications.
- KCPM45™ grade multilayer TiAlN coated, very tough carbide substrate. Improved chipping resistance in demanding machining conditions.
- KCSM15™ grade AlTiN-based PVD coating for the demands of drilling stainless steels.

Drill Body Portfolio

- Standard 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 3 x D.
- Only selected KSEM bodies included in First Choice programme.

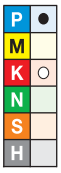
- KSEM KC7315™ HPG cutting edges enable high metal removal rates and superior tool life for steel applications.
- HPG geometry works with low cutting and feed forces and provides very good centring. Reinforced cutting edges and good chip forming improve tool life due to high wear and edge chipping resistance.
- 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.





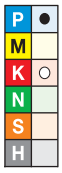
HPG

KSEM Inserts • HPG KC7315



● first choice
○ alternate choice

grade KC7315		D1		
order #	catalogue #	mm	in	SSC
2449924	KSEM1250HPGM	12,500	.4921	C
2499723	KSEM1260HPGM	12,600	.4961	C
2499727	KSEM1300HPGM	13,000	.5118	C
2499730	KSEM1350HPGM	13,500	.5310	C
2499731	KSEM1360HPGM	13,600	.5354	B
2499735	KSEM1400HPGM	14,000	.5512	B
2499611	KSEM1429HPGM	14,290	.5630	B
2499740	KSEM1450HPGM	14,500	.5709	B
2499744	KSEM1500HPGM	15,000	.5906	A
2499843	KSEM1508HPGM	15,080	.5937	A
2499746	KSEM1530HPGM	15,300	.6024	A
2499748	KSEM1550HPGM	15,500	.6102	A
2499749	KSEM1560HPGM	15,600	.6142	A
2499753	KSEM1600HPGM	16,000	.6299	1
2499846	KSEM1609HPGM	16,090	.6340	1
2499757	KSEM1650HPGM	16,500	.6496	1
2499759	KSEM1700HPGM	17,000	.6693	1
2487433	KSEM1750HPGM	17,500	.6890	1
3027980	KSEM1760HPGM	17,600	.6929	1
2499763	KSEM1800HPGM	18,000	.7087	1
2499852	KSEM1826HPGM	18,260	.7189	2
2499765	KSEM1850HPGM	18,500	.7283	2
3097295	KSEM1860HPGM	18,600	.7323	2
2499853	KSEM1865HPGM	18,650	.7340	2
2499767	KSEM1900HPGM	19,000	.7480	2
4050332	KSEM1932HPGM	19,320	.7606	2
2499771	KSEM1950HPGM	19,500	.7677	2
2504223	KSEM1970HPGM	19,700	.7756	2
2450909	KSEM2000HPGM	20,000	.7874	3
2499858	KSEM2024HPGM	20,240	.7969	3



grade KC7315		D1		
order #	catalogue #	mm	in	SSC
2465988	KSEM2050HPGM	20,500	.8071	3
2499775	KSEM2100HPGM	21,000	.8268	3
2887393	KSEM2120HPGM	21,200	.8346	3
2499777	KSEM2150HPGM	21,500	.8460	3
3120318	KSEM2170HPGM	21,700	.8543	3
2499779	KSEM2200HPGM	22,000	.8661	3
2499782	KSEM2250HPGM	22,500	.8858	4
2449518	KSEM2300HPGM	23,000	.9055	4
3016028	KSEM2305HPGM	23,050	.9075	4
2499786	KSEM2400HPGM	24,000	.9449	4
2499787	KSEM2450HPGM	24,500	.9646	5
2499789	KSEM2500HPGM	25,000	.9843	5
2499791	KSEM2550HPGM	25,500	1.0039	5
2499868	KSEM2567HPGM	25,670	1.0106	5
2449473	KSEM2600HPGM	26,000	1.0236	5
2499869	KSEM2619HPGM	26,190	1.0310	6
2494500	KSEM2650HPGM	26,500	1.0433	6
2499870	KSEM2659HPGM	26,590	1.0470	6
2499795	KSEM2700HPGM	27,000	1.0630	6
2499796	KSEM2750HPGM	27,500	1.0827	6
2499798	KSEM2800HPGM	28,000	1.1024	6
2499802	KSEM2900HPGM	29,000	1.1417	7
2499803	KSEM2950HPGM	29,500	1.1614	7
2449475	KSEM3000HPGM	30,000	1.1811	7
2499810	KSEM3100HPGM	31,000	1.2205	8
2499813	KSEM3200HPGM	32,000	1.2598	8
2494501	KSEM3300HPGM	33,000	1.2992	9
2499820	KSEM3400HPGM	34,000	1.3386	9
2466477	KSEM3500HPGM	35,000	1.3780	9

SSC = Pocket Seat Reference. To correspond with the SSC on the toolholder.

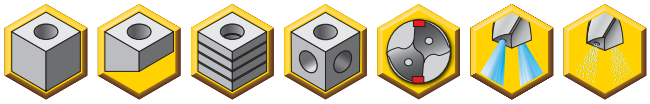
Tolerance HPG • Metric

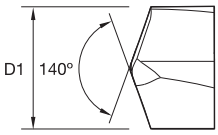
D1 metric	tolerance h8
12,5–18	+0,000/-0,027
>18–30	+0,000/-0,033
>30–40	+0,000/-0,039

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

Material Group		Cutting Speed — vc Range — m/min			Metric						
					Recommended Feed Rate (f) by Diameter						
		min	Starting Value	max		12,5	16,0	20,0	25,4	32,0	35,0
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

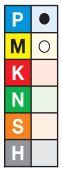
- KSEM KCPM45™ HPG cutting edges provide increased productivity and improved tool life in steel in difficult conditions.
- HPG geometry works with low cutting and feed forces and provides very good centring. Reinforced cutting edges and good chip forming improve tool life due to high wear and edge chipping 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.





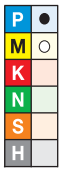

HPG

KSEM Inserts • HPG KCPM45



grade KCPM45		D1		
order #	catalogue #	mm	in	SSC
5626642	KSEM1250HPGM	12,500	.4921	C
5626644	KSEM1300HPGM	13,000	.5118	C
5397387	KSEM1400HPGM	14,000	.5512	B
5626703	KSEM1500HPGM	15,000	.5906	A
5626708	KSEM1600HPGM	16,000	.6299	1
5626710	KSEM1650HPGM	16,500	.6496	1
5626711	KSEM1700HPGM	17,000	.6693	1
5626713	KSEM1750HPGM	17,500	.6890	1
5397474	KSEM1800HPGM	18,000	.7087	1
5397476	KSEM1900HPGM	19,000	.7480	2
5397481	KSEM1950HPGM	19,500	.7677	2
5397483	KSEM2000HPGM	20,000	.7874	3
5397485	KSEM2100HPGM	21,000	.8268	3
5397486	KSEM2200HPGM	22,000	.8661	3

SSC = Pocket Seat Reference. To correspond with the SSC on the toolholder.



● first choice
○ alternate choice

grade KCPM45		D1		
order #	catalogue #	mm	in	SSC
5397488	KSEM2300HPGM	23,000	.9055	4
5397490	KSEM2400HPGM	24,000	.9449	4
5397491	KSEM2500HPGM	25,000	.9843	5
5397497	KSEM2600HPGM	26,000	1.0236	5
5626731	KSEM2650HPGM	26,500	1.0433	6
5397499	KSEM2700HPGM	27,000	1.0630	6
5397500	KSEM2800HPGM	28,000	1.1024	6
5515226	KSEM2900HPGM	29,000	1.1417	7
5397502	KSEM3000HPGM	30,000	1.1811	7
5626740	KSEM3050HPGM	30,500	1.2008	8
5626742	KSEM3100HPGM	31,000	1.2205	8
5397505	KSEM3200HPGM	32,000	1.2598	8
5397506	KSEM3300HPGM	33,000	1.2992	9

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

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

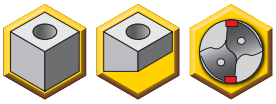
Material Group		Cutting Speed – vc Range – m/min			Metric						
					Recommended Feed Rate (f) by Diameter						
		min	Starting Value	max		12,5	16,0	20,0	25,4	32,0	40,0
P	1	100	**110**	120	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
	2	80	**95**	110	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	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

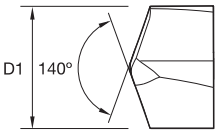
Modular Drill Carbide Insert Blades • KSEM • HPG Geometry • Grade KCPM45 • MQL* • Metric

Material Group		Cutting Speed – vc Range – m/min			Metric						
					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 ≤1.5 x D.

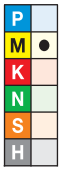
- KSEM KCMS15™ HPL cutting edges provide perfect results and very high productivity in stainless steel.
- HPL geometry forms two chips per cutting edge for an uninterrupted, smooth chip flow. Very high metal removal rates and a reliable drilling process up to 10 x D makes HPL the superior solution for drilling in stainless steels.
- Grade KCMS15 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.



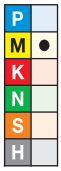


HPL

KSEM Inserts • HPL KCMS15



KCMS15		D1 mm	D1 in	SSC
3380488	KSEM1250HPLM	12,500	.4921	C
3381103	KSEM1300HPLM	13,000	.5118	C
3381104	KSEM1350HPLM	13,500	.5310	C
3381108	KSEM1400HPLM	14,000	.5512	B
3381113	KSEM1450HPLM	14,500	.5709	B
3381114	KSEM1460HPLM	14,600	.5748	A
3381117	KSEM1500HPLM	15,000	.5906	A
3381123	KSEM1600HPLM	16,000	.6299	1
3381126	KSEM1615HPLM	16,150	.6358	1
3381129	KSEM1650HPLM	16,500	.6496	1
3381131	KSEM1700HPLM	17,000	.6693	1
3381134	KSEM1750HPLM	17,500	.6890	1
3381139	KSEM1800HPLM	18,000	.7087	1
3381146	KSEM1900HPLM	19,000	.7480	2
3381152	KSEM1935HPLM	19,350	.7618	2
3381156	KSEM1984HPLM	19,840	.7810	2
3381157	KSEM2000HPLM	20,000	.7874	3
3381158	KSEM2010HPLM	20,100	.7913	3
3381159	KSEM2024HPLM	20,240	.7970	3
3381163	KSEM2100HPLM	21,000	.8268	3



● first choice
○ alternate choice

KCMS15		D1 mm	D1 in	SSC
3381169	KSEM2150HPLM	21,500	.8460	3
3381173	KSEM2200HPLM	22,000	.8661	3
3381181	KSEM2277HPLM	22,770	.8965	4
3381183	KSEM2300HPLM	23,000	.9055	4
3381191	KSEM2400HPLM	24,000	.9449	4
3381616	KSEM2500HPLM	25,000	.9843	5
3381620	KSEM2540HPLM	25,400	1.0000	5
3381626	KSEM2565HPLM	25,650	1.0098	5
3381630	KSEM2600HPLM	26,000	1.0236	5
3381635	KSEM2650HPLM	26,500	1.0433	6
3381640	KSEM2700HPLM	27,000	1.0630	6
3381644	KSEM2800HPLM	28,000	1.1024	6
3381172	KSEM2900HPLM	29,000	1.1417	7
3381180	KSEM3000HPLM	30,000	1.1811	7
3381192	KSEM3200HPLM	32,000	1.2598	8

SSC = Pocket Seat Reference. To correspond with the SSC on the toolholder.

Tolerance HPL • Metric

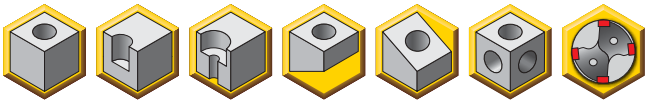
D1 metric	tolerance h8
12,5–18	+0,000/-0,027
>18–30	+0,000/-0,033
>30–40	+0,000/-0,039

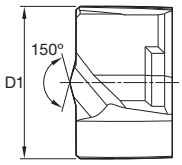
Application Data

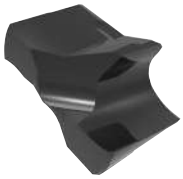
Modular Drill Carbide Insert Blades • KSEM • HPL Geometry • Grade KCMS15 • Through Coolant • Metric

Material Group		Cutting Speed — vc Range — m/min min	Starting Value	max		Metric Recommended Feed Rate (f) by Diameter 12,5	16,0	20,0	25,4	32,0
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
	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
	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

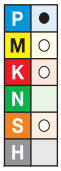
- KSEM FEG flat-bottom inserts create 180° flat holes — only a small cavity remains in the centre of the hole ground. KSEM offers an extraordinarily strong pocket seat for your demanding flat-bottom applications.
- Whether it is a blind hole, a through hole, or if you need to countersink, these inserts are focused on versatility and will support you in many essential drilling applications.
- KSEM FEG inserts feature a small centring 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.







KSEM Inserts • FEG KCPM45



● first choice
○ alternate choice

order number	catalogue number	Grade	D1 mm	D1 in	SSC
6381877	KSEM1300FEGM	KCPM45	13,000	.5118	C
6381879	KSEM1400FEGM	KCPM45	14,000	.5512	B
6381921	KSEM1500FEGM	KCPM45	15,000	.5906	A
5949382	KSEM1600FEGM	KCPM45	16,000	.6299	1
5981500	KSEM1650FEGM	KCPM45	16,500	.6496	1
5981571	KSEM1700FEGM	KCPM45	17,000	.6693	1
5981572	KSEM1750FEGM	KCPM45	17,500	.6890	1
5981573	KSEM1800FEGM	KCPM45	18,000	.7087	1
5981575	KSEM1900FEGM	KCPM45	19,000	.7480	2
5981578	KSEM2000FEGM	KCPM45	20,000	.7874	3
5981579	KSEM2050FEGM	KCPM45	20,500	.8071	3
5981580	KSEM2100FEGM	KCPM45	21,000	.8268	3
5981581	KSEM2150FEGM	KCPM45	21,500	.8465	3
5981582	KSEM2200FEGM	KCPM45	22,000	.8661	3
5981583	KSEM2250FEGM	KCPM45	22,500	.8858	4
5981584	KSEM2300FEGM	KCPM45	23,000	.9055	4
5981585	KSEM2350FEGM	KCPM45	23,500	.9252	4
5981586	KSEM2400FEGM	KCPM45	24,000	.9449	4
5981588	KSEM2500FEGM	KCPM45	25,000	.9843	5
5981591	KSEM2550FEGM	KCPM45	25,500	1.0039	5
5981592	KSEM2600FEGM	KCPM45	26,000	1.0236	5
5981593	KSEM2650FEGM	KCPM45	26,500	1.0433	6
5981594	KSEM2700FEGM	KCPM45	27,000	1.0630	6
5949383	KSEM2800FEGM	KCPM45	28,000	1.1024	6
5981597	KSEM2900FEGM	KCPM45	29,000	1.1417	7
5981598	KSEM2950FEGM	KCPM45	29,500	1.1614	7
5981599	KSEM3000FEGM	KCPM45	30,000	1.1811	7
5981600	KSEM3100FEGM	KCPM45	31,000	1.2205	8

order number	catalogue number	Grade	D1 mm	D1 in	SSC
5981602	KSEM3200FEGM	KCPM45	32,000	1.2598	8
5981603	KSEM3300FEGM	KCPM45	33,000	1.2992	9
5981604	KSEM3400FEGM	KCPM45	34,000	1.3386	9
5981605	KSEM3500FEGM	KCPM45	35,000	1.3780	9
5981606	KSEM3600FEGM	KCPM45	36,000	1.4173	9
5981608	KSEM3800FEGM	KCPM45	38,000	1.4961	10
5981610	KSEM3900FEGM	KCPM45	39,000	1.5354	10
5949384	KSEM4000FEGM	KCPM45	40,000	1.5748	10

SSC = Pocket Seat Reference. To correspond with the SSC on the toolholder.

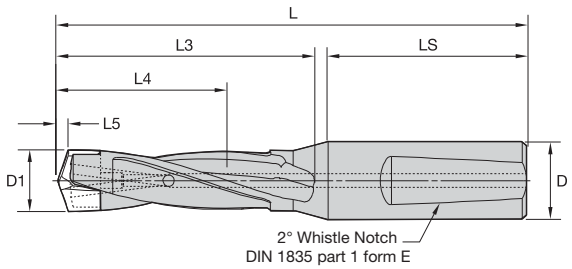
Tolerance FEG • Metric

D1 metric	tolerance k7
12,5–18	+0,001/+ 0,019
>18–30	+0,002/+ 0,023
>30–40	+0,002/+ 0,027

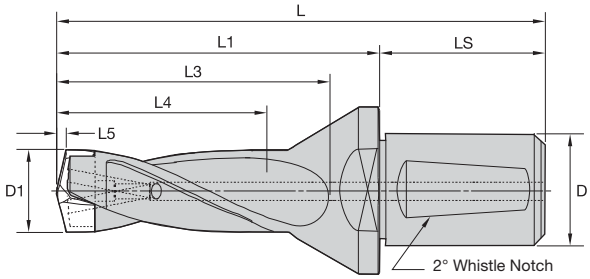
Modular Drill Carbide Insert Blades • KSEM • FEG Geometry • Grade KCPM45™ • Through Coolant • Metric

Material Group		Cutting Speed — vc Range — m/min			Metric						
					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

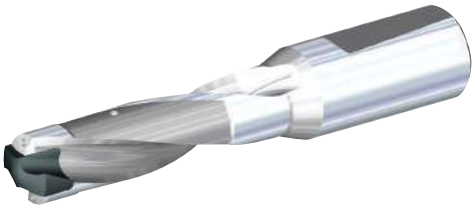
- Use designated insert blade with each drill body.
- Drill shipped with central lock screw and wrench.



for diameters < 16mm, DIN 6535 - HE
for diameters > 16mm, DIN 1835 part 1 form E
Whistle Notch shank D1 ≤ 32mm



Whistle Notch shank with drive D1 ≥ 32mm



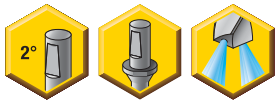
KSEM WN/WD50 Shank • 3 x D • Metric

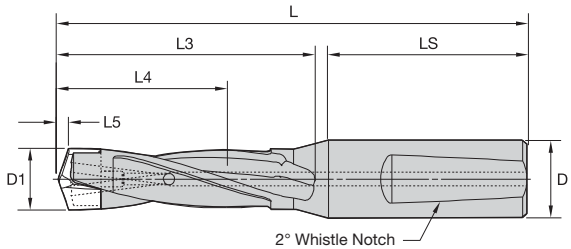
3 x D

order #	catalogue #	D1 mm	D1 in	D1 max mm	D1 max in	L	L3	L1	L4 max	L5	LS	D	SSC	central lock screw
1792295	KSEM140R3WN16M	14,000	.5512	14,500	.5708	111	59	–	42	2,2	48	16	B	364.016
1792298	KSEM150R3WN20M	15,000	.5906	15,500	.6102	122	68	–	48	2,4	50	20	A	364.016
1245980	KSEM160R3WN20M	16,000	.6299	16,500	.6496	122	67	–	48	2,5	50	20	1	364.010
1245986	KSEM165R3WN20M	16,500	.6496	17,000	.6693	130	75	–	54	2,6	50	20	1	364.010
1245991	KSEM170R3WN20M	17,000	.6693	17,500	.6890	130	75	–	54	2,7	50	20	1	364.010
1245995	KSEM175R3WN20M	17,500	.6890	18,000	.7086	130	75	–	54	2,8	50	20	1	364.010
1245999	KSEM180R3WN20M	18,000	.7087	18,000	.7086	130	75	–	54	2,9	50	20	1	364.010
1246003	KSEM185R3WN25M	18,500	.7283	19,000	.7480	144	83	–	60	2,9	56	25	2	364.010
1246007	KSEM190R3WN25M	19,000	.7480	19,500	.7677	144	83	–	60	3,0	56	25	2	364.010
1246011	KSEM195R3WN25M	19,500	.7677	19,999	.7873	144	83	–	60	3,1	56	25	2	364.010
1246014	KSEM200R3WN25M	20,000	.7874	20,500	.8071	153	92	–	60	3,2	56	25	3	364.011
1246022	KSEM210R3WN25M	21,000	.8268	21,500	.8465	153	92	–	66	3,3	56	25	3	364.011
1246031	KSEM220R3WN25M	22,000	.8661	22,000	.8661	153	92	–	66	3,5	56	25	3	364.011
1246034	KSEM225R3WN25M	22,500	.8858	23,000	.9055	161	100	–	72	3,6	56	25	4	364.011
1246041	KSEM235R3WN25M	23,500	.9252	24,000	.9448	161	100	–	72	3,7	56	25	4	364.011
1246046	KSEM240R3WN25M	24,000	.9449	24,000	.9448	161	100	–	72	3,8	56	25	4	364.011
1246051	KSEM245R3WN32M	24,500	.9646	25,000	.9843	174	109	–	78	3,9	60	32	5	364.012
1246055	KSEM250R3WN32M	25,000	.9843	25,500	1.0039	174	109	–	78	3,8	60	32	5	364.012
1246059	KSEM255R3WN32M	25,500	1.0039	26,000	1.0236	174	109	–	78	3,9	60	32	5	364.012
1246063	KSEM260R3WN32M	26,000	1.0236	26,000	1.0236	174	109	–	78	4,0	60	32	5	364.012
1246067	KSEM265R3WN32M	26,500	1.0433	27,000	1.0630	182	117	–	84	4,1	60	32	6	364.012
1246071	KSEM270R3WN32M	27,000	1.0630	27,500	1.0827	182	117	–	84	4,2	60	32	6	364.012
1246079	KSEM280R3WN32M	28,000	1.1024	28,000	1.1023	182	117	–	84	4,3	60	32	6	364.012
1246085	KSEM290R3WN32M	29,000	1.1417	29,500	1.1614	190	125	–	90	4,5	60	32	7	364.013
1246093	KSEM300R3WN32M	30,000	1.1811	30,000	1.1811	190	125	–	90	4,6	60	32	7	364.013
1246102	KSEM310R3WN32M	31,000	1.2205	31,500	1.2402	200	135	–	96	4,8	60	32	8	364.013
1246109	KSEM320R3WN32M	32,000	1.2598	32,000	1.2598	200	135	–	96	4,9	60	32	8	364.013
1749102	KSEM321R3WD50M	32,010	1.2602	33,000	1.2992	220	148	159,00	99	4,9	68	50	9	364.015
1749103	KSEM330R3WD50M	33,000	1.2992	34,000	1.3386	227	148	159,00	99	5,1	68	50	9	364.015
1749106	KSEM340R3WD50M	34,000	1.3386	35,000	1.3780	225	146	157,00	102	5,2	68	50	9	364.015

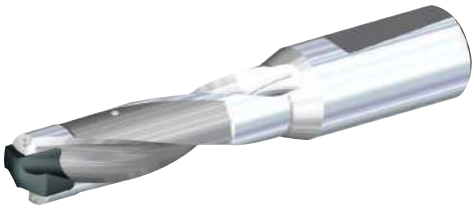
SSC = Pocket Seat Reference. To correspond with the SSC on the inserts.

- Use designated insert blade with each drill body.
- Drill shipped with central lock screw and wrench.





2° Whistle Notch
DIN 1835 part 1 form E
for diameters < 16mm, DIN 6535 - HE
for diameters > 16mm, DIN 1835 part 1 form E
Whistle Notch shank D1 ≤ 32mm



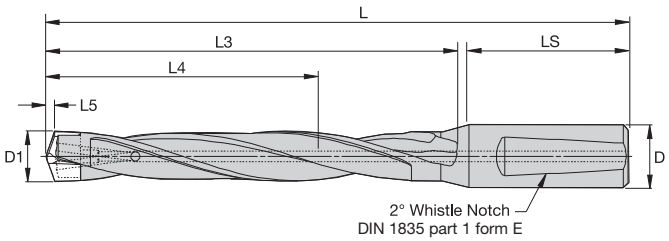
KSEM WN50 Shank • 5 x D • Metric

5 x D

order #	catalogue #	D1 mm	D1 in	D1 max mm	D1 max in	L	L3	L4 max	L5	LS	D	SSC	central lock screw
1772747	KSEM125R5WN16M	12,500	.4921	13,000	.5118	139	87	70	2,0	48	16	C	364.017
1792301	KSEM130R5WN16M	13,000	.5120	13,500	.5310	139	87	70	2,1	48	16	C	364.017
1792323	KSEM135R5WN16M	13,500	.5315	13,500	.5314	139	87	70	2,1	48	16	C	364.017
1792302	KSEM136R5WN16M	13,510	.5319	14,000	.5512	139	87	70	2,2	48	16	B	364.016
1772748	KSEM140R5WN16M	14,000	.5512	14,500	.5708	139	87	70	2,2	48	16	B	364.016
1792325	KSEM145R5WN20M	14,500	.5709	14,500	.5708	154	100	80	2,3	50	20	B	364.016
1792326	KSEM146R5WN20M	14,510	.5713	15,000	.5906	154	100	80	2,3	50	20	A	364.016
1772749	KSEM150R5WN20M	15,000	.5906	15,500	.6102	154	100	80	2,4	50	20	A	364.016
1792328	KSEM155R5WN20M	15,500	.6102	15,874	.6249	154	100	80	2,5	50	20	A	364.016
1245983	KSEM160R5WN20M	16,000	.6299	16,500	.6496	154	99	80	2,5	50	20	1	364.010
1245988	KSEM165R5WN20M	16,500	.6496	17,000	.6693	166	111	90	2,6	50	20	1	364.010
1245993	KSEM170R5WN20M	17,000	.6693	17,500	.6890	166	111	90	2,7	50	20	1	364.010
1245997	KSEM175R5WN20M	17,500	.6890	18,000	.7086	166	112	87	2,9	51	20	1	364.010
1246001	KSEM180R5WN20M	18,000	.7087	18,000	.7086	166	111	90	2,9	50	20	1	364.010
1246005	KSEM185R5WN25M	18,500	.7283	19,000	.7480	184	123	100	2,9	56	25	2	364.010
1246008	KSEM190R5WN25M	19,000	.7490	19,500	.7677	184	124	100	3,1	56	25	2	364.010
1246013	KSEM195R5WN25M	19,500	.7677	19,999	.7873	184	123	100	3,1	56	25	2	364.010
1246017	KSEM200R5WN25M	20,000	.7880	20,500	.8071	197	137	100	3,2	56	25	3	364.011
1246021	KSEM205R5WN25M	20,500	.8071	21,000	.8268	197	137	107	3,3	56	25	3	364.011
1246024	KSEM210R5WN25M	21,000	.8268	21,500	.8465	197	137	106	3,7	56	25	3	364.011
1246028	KSEM215R5WN25M	21,500	.8465	22,000	.8661	197	136	110	3,4	56	25	3	364.011
1246032	KSEM220R5WN25M	22,000	.8661	22,000	.8661	197	136	110	3,5	56	25	3	364.011
1246036	KSEM225R5WN25M	22,500	.8858	23,000	.9055	209	148	120	3,6	56	25	4	364.011
1246040	KSEM230R5WN25M	23,000	.9055	23,500	.9252	209	148	120	3,7	56	25	4	364.011
1246044	KSEM235R5WN25M	23,500	.9252	24,000	.9448	209	148	120	3,7	56	25	4	364.011
1246048	KSEM240R5WN25M	24,000	.9449	24,000	.9448	209	148	120	3,8	56	25	4	364.011
1246053	KSEM245R5WN32M	24,500	.9646	25,000	.9843	226	161	130	3,9	60	32	5	364.012
1246057	KSEM250R5WN32M	25,000	.9843	25,500	1.0039	226	161	130	3,8	60	32	5	364.012
1246065	KSEM260R5WN32M	26,000	1.0236	26,000	1.0236	226	161	130	4,0	60	32	5	364.012
1246069	KSEM265R5WN32M	26,500	1.0433	27,000	1.0630	238	173	140	4,1	60	32	6	364.012
1246073	KSEM270R5WN32M	27,000	1.0630	27,500	1.0827	238	173	140	4,2	60	32	6	364.012
1246077	KSEM275R5WN32M	27,500	1.0827	28,000	1.1023	238	173	140	4,2	60	32	6	364.012
1246081	KSEM280R5WN32M	28,000	1.1024	28,000	1.1023	238	173	140	4,3	60	32	6	364.012
1246083	KSEM285R5WN32M	28,500	1.1220	29,000	1.1417	250	185	150	4,4	60	32	7	364.013
1246088	KSEM290R5WN32M	29,000	1.1417	29,500	1.1614	250	185	150	4,5	60	32	7	364.013
1246092	KSEM295R5WN32M	29,500	1.1614	30,000	1.1811	250	185	150	4,5	60	32	7	364.013
1246095	KSEM300R5WN32M	30,000	1.1811	30,000	1.1811	250	185	150	4,6	60	32	7	364.013
1246099	KSEM305R5WN32M	30,500	1.2008	31,000	1.2205	264	199	160	4,7	60	32	8	364.013
1246103	KSEM310R5WN32M	31,000	1.2205	31,500	1.2402	264	199	160	4,8	60	32	8	364.013
1246107	KSEM315R5WN32M	31,500	1.2402	32,000	1.2598	264	199	160	4,8	60	32	8	364.013
1246112	KSEM320R5WN32M	32,000	1.2598	32,000	1.2598	264	199	160	4,9	60	32	8	364.013

SSC = Pocket Seat Reference. To correspond with the SSC on the inserts.

- Use designated insert blade with each drill body.
- Drill shipped with central lock screw and wrench.



for diameter <16mm DIN 6535 — HE
for diameter >16mm DIN 1835 part 1 form E

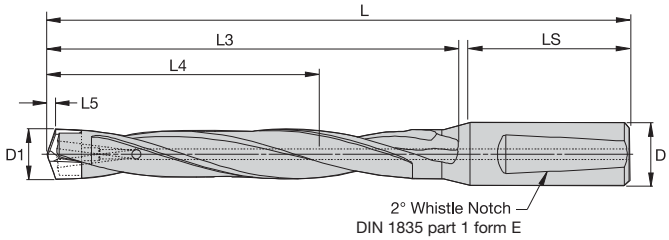
KSEM WN Shank • 7 x D • Metric

7 x D

order #	catalogue #	D1 mm	D1 in	D1 max mm	D1 max in	L	L3	L4 max	L5	LS	D	SSC	central lock screw
1797161	**KSEM140R7WN16M**	14,000	.5512	14,500	.5708	167	115	98	2,2	48	16	B	**364.016**
1797204	**KSEM150R7WN20M**	15,000	.5906	15,500	.6102	186	132	112	2,4	50	20	A	**364.016**
1311193	**KSEM160R7WN20M**	16,000	.6299	16,500	.6496	186	131	112	2,5	50	20	1	**364.010**
1279857	**KSEM170R7WN20M**	17,000	.6693	17,500	.6890	202	147	126	2,7	50	20	1	**364.010**
1279858	**KSEM175R7WN20M**	17,500	.6890	18,000	.7086	202	147	126	2,8	50	20	1	**364.010**
1279859	**KSEM180R7WN20M**	18,000	.7087	18,000	.7086	202	147	126	2,9	50	20	1	**364.010**
1279864	**KSEM190R7WN25M**	19,000	.7480	19,500	.7677	224	163	140	3,0	56	25	2	**364.010**
1279867	**KSEM200R7WN25M**	20,000	.7874	20,500	.8071	241	179	140	3,2	56	25	3	**364.011**
1279872	**KSEM210R7WN25M**	21,000	.8268	21,500	.8465	241	180	154	3,3	56	25	3	**364.011**
1279874	**KSEM220R7WN25M**	22,000	.8661	22,000	.8661	241	180	154	3,5	56	25	3	**364.011**

SSC = Pocket Seat Reference. To correspond with the SSC on the inserts.

- Use designated insert blade with each drill body.
- Drill shipped with central lock screw and wrench.



for diameter <16mm DIN 6535 — HE
for diameter >16mm DIN 1835 part 1 form E

KSEM WN Shank • 10 x D • Metric

10 x D

order #	catalogue #	D1 mm	D1 in	D1 max mm	D1 max in	L	L3	L4 max	L5	LS	D	SSC	central lock screw
1797210	**KSEM140R10WN16M**	14,000	.5512	14,500	.5708	210	158	140	2,2	48	16	B	**364.016**
1551609	**KSEM160R10WN20M**	16,000	.6299	16,500	.6496	234	179	160	2,5	50	20	1	**364.010**
1551833	**KSEM175R10WN20M**	17,500	.6890	18,000	.7086	251	196	175	2,8	50	20	1	**364.010**
1551834	**KSEM180R10WN20M**	18,000	.7087	18,000	.7086	256	201	180	2,9	50	20	1	**364.010**
1551836	**KSEM190R10WN25M**	19,000	.7480	19,500	.7677	274	213	190	3,0	56	25	2	**364.010**
1551838	**KSEM200R10WN25M**	20,000	.7874	20,500	.8071	297	236	200	3,2	56	25	3	**364.011**
1551840	**KSEM220R10WN25M**	22,000	.8661	22,000	.8661	307	246	220	3,5	56	25	3	**364.011**

SSC = Pocket Seat Reference. To correspond with the SSC on the inserts.

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 28–70mm (1.102–4") from 3–10 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™ A1 Heads
Economic, high-performance drilling.

KSEM PLUS B1 Heads
High-performance drilling in difficult conditions.

KSEM PLUS Pilot Insert

- Very high feed rates, comparable to modular drills.
- Very long tool life of KSEM PLUS centre inserts and modular heads due to better chip flow.
- No precentring 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.

Tailored Grades

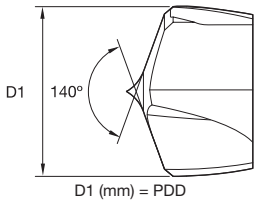
Centre Inserts

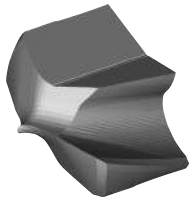
- KC7315™ grade — TiAlN-based PVD grade for superior performance in steel and stainless steel applications.

Drill Fix™ Lateral Inserts

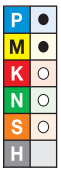
- KCU25™ grade — high metal removal rates, advanced TiCN-Al-CVD coating, and superior tool life in stable working conditions.
- KCU40™ grade — multilayered TiAlN-PVD coating with high wear resistance and reliability in most materials at medium cutting speeds.
- KC7140™ grade — TiCN-based, PVD-coated alloyed carbide for machining alloyed steel and stainless steel on KSEM PLUS systems.

- 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.




HPGM

KSEM PLUS Centre Inserts



grade KC7315

● first choice
○ alternate choice

order #	catalogue #	D1 mm	D1 in	SSC
3660154	KSEMP1300HPGM	13,000	.5118	C
3690478	KSEMP1400HPGM	14,000	.5512	B
3690479	KSEMP1500HPGM	15,000	.5906	A
3690480	KSEMP1600HPGM	16,000	.6299	1
3690481	KSEMP1700HPGM	17,000	.6693	1
3690482	KSEMP1800HPGM	18,000	.7087	1
3690713	KSEMP1900HPGM	19,000	.7480	2
3660156	KSEMP2000HPGM	20,000	.7874	3
3690714	KSEMP2100HPGM	21,000	.8268	3
3690715	KSEMP2200HPGM	22,000	.8661	3
3690716	KSEMP2300HPGM	23,000	.9055	4
3690717	KSEMP2400HPGM	24,000	.9449	4
3690718	KSEMP2500HPGM	25,000	.9843	5
3690719	KSEMP2600HPGM	26,000	1.0236	5
3690720	KSEMP2700HPGM	27,000	1.0630	6
3690721	KSEMP2800HPGM	28,000	1.1024	6
3690722	KSEMP2900HPGM	29,000	1.1417	7
3690723	KSEMP3000HPGM	30,000	1.1811	7
3690724	KSEMP3100HPGM	31,000	1.2205	8
3690725	KSEMP3200HPGM	32,000	1.2598	8
3690726	KSEMP3300HPGM	33,000	1.2992	9
3660157	KSEMP3400HPGM	34,000	1.3386	9
5515220	KSEMP3500HPGM	35,000	1.3780	9
5515221	KSEMP3600HPGM	36,000	1.4173	9
5515222	KSEMP3700HPGM	37,000	1.4567	10
5515223	KSEMP3800HPGM	38,000	1.4961	10
5515224	KSEMP3900HPGM	39,000	1.5354	10
5515225	KSEMP4000HPGM	40,000	1.5748	10

SSC = Pocket Seat Reference. To correspond with the SSC on the toolholder.

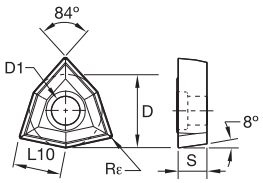
Tolerance HPG • Inch

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

Tolerance HPG • Metric

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

- Use HP geometry for efficient drilling in normal chipping steel applications, as well as for ductile irons and high-temp alloys.



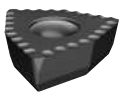
● first choice
○ alternate choice

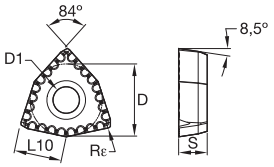
P		●	●
M		○	○
K		●	○
N		○	○
S		○	●
H			

DFT-HP

catalogue number	L10	D	D1	S	Rε	KCU25	KCU40
DFT05T308D32HP	5,29	8,00	3,40	3,75	0,80	5067487	5066193
DFT05T308D33HP	5,29	8,00	3,40	3,75	0,80	5067488	5066195
DFT06T308D36HP	6,62	10,00	4,40	3,75	0,80	5067489	5066196
DFT06T308D39HP	6,62	10,00	4,40	3,75	0,80	5067520	5066197
DFT06T308D44HP	6,62	10,00	4,40	3,75	0,80	5067522	5066198
DFT070408D45HP	7,94	12,00	4,40	4,75	0,80	5067523	5066199
DFT070408D50HP	7,94	12,00	4,40	4,75	0,80	5067524	5066220
DFT090508D56HP	9,92	15,00	5,50	5,25	0,80	5067526	5066221
DFT090508D63HP	9,92	15,00	5,50	5,25	0,80	5067527	5066222

- Use DS geometry when drilling in long chipping, softer steels, or other applications where long chips are a challenge.
- DS will also provide excellent chip control when drilling with reduced feed rates and cutting speeds.





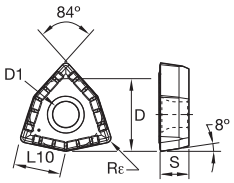
● first choice
○ alternate choice

P		●	●
M		●	○
K			
N			○
S			○
H			

DFT • DS

catalogue number	L10	D	D1	S	Rε	KCU25	KCU40
DFT05T308D32DS	5,29	8,00	3,40	3,75	0,80	6573311	6025825
DFT05T308D33DS	5,29	8,00	3,40	3,75	0,80	6573312	6025826
DFT06T308D36DS	6,62	10,00	4,40	3,75	0,80	6573313	6025827
DFT06T308D39DS	6,62	10,00	4,40	3,75	0,80	6573314	6025828
DFT06T308D44DS	6,62	10,00	4,40	3,75	0,80	6573315	6025829
DFT070408D45DS	7,94	12,00	4,40	4,75	0,80	6573316	6025830
DFT070408D50DS	7,94	12,00	4,40	4,75	0,80	6573317	6025891
DFT090508D56DS	9,92	15,00	5,50	5,25	0,80	6573318	6025892
DFT090508D63DS	9,92	15,00	5,50	5,25	0,80	6573319	6025893

- Use MD geometry in stainless steel.
- MD is also recommended when drilling in unstable conditions on longer chipping materials when working at higher feed rates.



● first choice
○ alternate choice

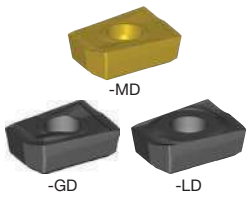
P		●
M		●
K		○
N		○
S		○
H		

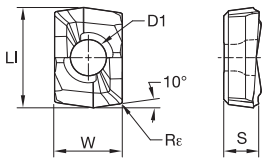
DFT-MD

catalogue number	L10	D	D1	S	Rε	KC7140
DFT05T308D32MD	5,29	8,00	3,40	3,75	0,80	**3648430**
DFT05T308D33MD	5,29	8,00	3,40	3,75	0,80	**3669000**
DFT06T308D36MD	6,62	10,00	4,40	3,75	0,80	**3648428**
DFT06T308D39MD	6,62	10,00	4,40	3,75	0,80	**3669001**
DFT06T308D44MD	6,62	10,00	4,40	3,75	0,80	**3669002**
DFT070408D45MD	7,94	12,00	4,40	4,75	0,80	**3648474**
DFT070408D50MD	7,94	12,00	4,40	4,75	0,80	**3669083**
DFT090508D56MD	9,92	15,00	5,50	5,25	0,80	**3648478**
DFT090508D63MD	9,92	15,00	5,50	5,25	0,80	**3669084**

KSEM PLUS A1 Heads • Drill Fix™ DFR™ Inserts

- Rectangular shaped Drill Fix DFR cutting inserts offer the highest feed rates for smaller sized KSEM PLUS systems on A1 heads.
- Two indexable cutting edges.





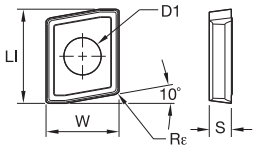
● first choice
○ alternate choice

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

DFR-GD, -MD, -LD

catalogue number	LI	W	D1	S	Rε	KC7140	KC7225	KCU25	KCU40
DFR040304D28LD	10,76	7,26	2,85	3,78	0,40	–	**4054681**	–	–
DFR040304D28GD	10,76	7,26	2,85	3,79	0,40	–	–	**5067486**	**5066192**
DFR040304D28MD	10,76	7,26	2,85	3,79	0,40	**4054680**	–	–	–

- Use HP geometry for efficient drilling in normal chipping steel applications, as well as for ductile irons and high-temp alloys.



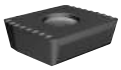
● first choice
○ alternate choice

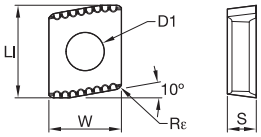
P		●	●
M		○	○
K		●	○
N		○	●
S		○	●
H			

DFC-HP

catalogue number	LI	W	D1	S	Rε	KCU25	KCU40
DFC040310D28HP	10,00	7,60	2,85	3,18	1,00	**5118327**	**5118452**
DFC05T312D32HP	12,00	9,40	3,40	3,75	1,20	**5118328**	**5118453**
DFC06T312D36HP	16,00	12,40	4,40	3,75	1,20	**5118329**	**5118454**
DFC070416D45HP	18,00	14,50	4,40	4,75	1,60	**5118450**	**5118455**
DFC090520D56HP	24,00	19,00	5,50	5,25	2,00	**5118451**	**5118456**

- Use DS geometry when drilling in long chipping, softer steels, or other applications where long chips are a challenge.
- DS will also provide excellent chip control when drilling with reduced feed rates and cutting speeds.





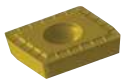
● first choice
○ alternate choice

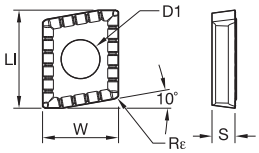
P		●	●
M		●	○
K			
N			○
S			○
H			

DFC-DS

catalogue number	LI	W	D1	S	Rε	KCU25	KCU40
DFC040310D28DS	10,00	7,60	2,85	3,18	1,00	**6573276**	**6025895**
DFC05T312D32DS	12,00	9,40	3,40	3,75	1,20	**6573277**	**6025896**
DFC06T312D36DS	16,00	12,40	4,40	3,75	1,20	**6573278**	**6025897**
DFC070416D45DS	18,00	14,50	4,40	4,75	1,60	**6573279**	**6025898**
DFC090520D56DS	24,00	19,00	5,50	5,25	2,00	**6573280**	**6025899**

- Use MD geometry in stainless steel.
- MD is also recommended when drilling in unstable conditions on longer chipping materials when working at higher feed rates.





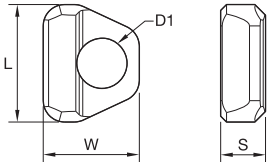
● first choice
○ alternate choice

P		●
M		●
K		○
N		○
S		○
H		

DFC-MD

catalogue number	LI	W	D1	S	Rε	KC7140
DFC040310D28MD	10,00	7,60	2,85	3,18	1,00	**5118457**
DFC05T312D32MD	12,00	9,40	3,40	3,75	1,20	**5118458**
DFC06T312D36MD	16,00	12,40	4,40	3,75	1,20	**5118459**
DFC070416D45MD	18,00	14,50	4,40	4,75	1,60	**5118460**
DFC090520D56MD	24,00	19,00	5,50	5,25	2,00	**5118461**

- Carbide guide pads for use with KSEM PLUS B1 style heads.



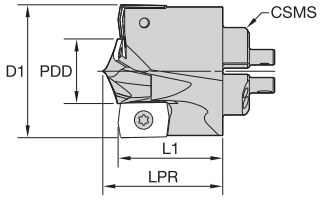
● first choice
○ alternate choice

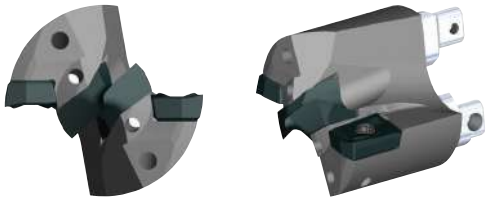
P		●
M		●
K		●
N		●
S		●
H		

DPA Guiding Pads

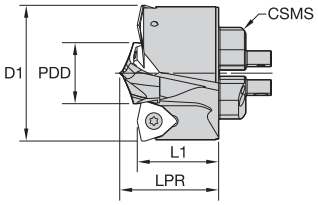
catalogue number	L	W	D1	S	KCU40
DPA07T3D25	8,60	7,00	2,85	3,50	**5118324**
DPA09T4D32	11,00	9,00	3,40	4,20	**5118325**
DPA13T5D50	16,00	13,00	4,40	5,20	**5118326**

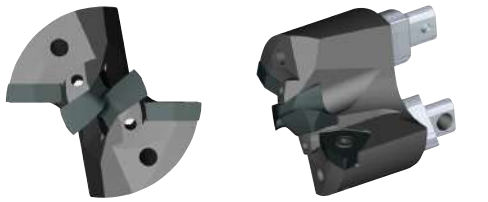
- To ensure 100% system stability, KSEM inserts used for KSEM PLUS should not be reground.
- KSEM PLUS heads are shipped with all insert screws.
- KSEM PLUS heads are shipped with two wrenches, one for the KSEM insert and one to be used for the DFT™/DFR™ inserts as well as for the assembly of the body 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

KSEM PLUS A1 Heads

order number	ISO catalogue number	ANSI catalogue number	D1 mm	D1 in	PDD mm	PDD in	LPR mm	LPR in	L1 mm	L1 in	CSMS system size	outboard insert
4047824	**KSEMP3000FDS28A1M**	**KSEMP3000FDS28A1M**	30,00	1.181	16,00	.6299	25,2	.992	22,0	.866	FDS28	DFR040304D28GD
3794291	**KSEMP3200FDS32A1M**	**KSEMP3200FDS32A1M**	32,00	1.260	15,00	.5906	23,0	.907	20,0	.787	FDS32	DFT05T308D32..
3742210	**KSEMP3300FDS32A1M**	**KSEMP3300FDS32A1M**	33,00	1.299	16,00	.6299	23,2	.913	20,0	.787	FDS32	DFT05T308D33..
3793949	**KSEMP3320FDS32A1M**	**KSEMP3320FDS32A1M**	33,20	1.307	16,00	.6299	23,2	.913	20,0	.787	FDS32	DFT05T308D33..
3794917	**KSEMP3334FDS32A1M**	**KSEMP1313FDS32A1**	33,35	1.313	17,00	.6693	23,4	.920	20,0	.787	FDS32	DFT05T308D33..
3794292	**KSEMP3400FDS32A1M**	**KSEMP3400FDS32A1M**	34,00	1.339	17,00	.6693	23,4	.920	20,0	.787	FDS32	DFT05T308D33..
3794393	**KSEMP3500FDS32A1M**	**KSEMP3500FDS32A1M**	35,00	1.378	18,00	.7087	23,6	.928	20,0	.787	FDS32	DFT05T308D33..
3794394	**KSEMP3600FDS36A1M**	**KSEMP3600FDS36A1M**	36,00	1.417	13,00	.5118	22,7	.893	20,0	.787	FDS36	DFT06T308D36..
3794395	**KSEMP3700FDS36A1M**	**KSEMP3700FDS36A1M**	37,00	1.457	14,00	.5512	22,9	.900	20,0	.787	FDS36	DFT06T308D36..
3794427	**KSEMP3750FDS36A1M**	**KSEMP3750FDS36A1M**	37,50	1.476	15,00	.5906	23,0	.907	20,0	.787	FDS36	DFT06T308D36..
3794396	**KSEMP3800FDS36A1M**	**KSEMP3800FDS36A1M**	38,00	1.496	15,00	.5906	23,0	.907	20,0	.787	FDS36	DFT06T308D36..
3794397	**KSEMP3900FDS36A1M**	**KSEMP3900FDS36A1M**	39,00	1.535	16,00	.6299	23,2	.913	20,0	.787	FDS36	DFT06T308D39..
3793950	**KSEMP3920FDS36A1M**	**KSEMP3920FDS36A1M**	39,20	1.543	16,00	.6299	23,2	.913	20,0	.787	FDS36	DFT06T308D39..
3794921	**KSEMP3970FDS36A1M**	**KSEMP1563FDS36A1**	39,70	1.563	17,00	.6693	23,4	.920	20,0	.787	FDS36	DFT06T308D39..

(continued)

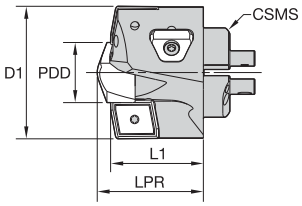
TURNING
FIRST CHOICE
MILLING
FIRST CHOICE
HOLEMAKING
FIRST CHOICE
TOOLING SYSTEMS
FIRST CHOICE

(KSEM PLUS A1 Heads — continued)

order number	ISO catalogue number	ANSI catalogue number	D1 mm	D1 in	PDD mm	PDD in	LPR mm	LPR in	L1 mm	L1 in	CSMS system size	outboard insert
3794398	KSEMP4000FDS40A1M	KSEMP4000FDS40A1M	40,00	1.575	17,00	.6693	28,6	1.125	25,0	.984	FDS40	DFT06T308D39..
3794399	KSEMP4100FDS40A1M	KSEMP4100FDS40A1M	41,00	1.614	18,00	.7087	28,8	1.132	25,0	.984	FDS40	DFT06T308D39..
3794400	KSEMP4200FDS40A1M	KSEMP4200FDS40A1M	42,00	1.654	19,00	.7480	28,9	1.139	25,0	.984	FDS40	DFT06T308D39..
3794401	KSEMP4300FDS40A1M	KSEMP4300FDS40A1M	43,00	1.693	20,00	.7874	29,1	1.146	25,0	.984	FDS40	DFT06T308D39..
3794402	KSEMP4400FDS40A1M	KSEMP4400FDS40A1M	44,00	1.732	21,00	.8268	29,3	1.153	25,0	.984	FDS40	DFT06T308D44..
3794403	KSEMP4500FDS45A1M	KSEMP4500FDS45A1M	45,00	1.772	18,00	.7087	28,8	1.132	25,0	.984	FDS45	DFT070408D45..
3794404	KSEMP4600FDS45A1M	KSEMP4600FDS45A1M	46,00	1.811	19,00	.7480	28,9	1.139	25,0	.984	FDS45	DFT070408D45..
3794406	KSEMP4800FDS45A1M	KSEMP4800FDS45A1M	48,00	1.890	21,00	.8268	29,3	1.153	25,0	.984	FDS45	DFT070408D45..
3742211	KSEMP5000FDS50A1M	KSEMP5000FDS50A1M	50,00	1.969	23,00	.9055	34,8	1.372	30,0	1.181	FDS50	DFT070408D50..
3794408	KSEMP5100FDS50A1M	KSEMP5100FDS50A1M	51,00	2.008	24,00	.9449	35,0	1.379	30,0	1.181	FDS50	DFT070408D50..
3794409	KSEMP5200FDS50A1M	KSEMP5200FDS50A1M	52,00	2.047	25,00	.9843	35,2	1.386	30,0	1.181	FDS50	DFT070408D50..
3794413	KSEMP5600FDS56A1M	KSEMP5600FDS56A1M	56,00	2.205	20,00	.7874	34,3	1.351	30,0	1.181	FDS56	DFT090508D56..
3794415	KSEMP5800FDS56A1M	KSEMP5800FDS56A1M	58,00	2.284	22,00	.8661	34,7	1.365	30,0	1.181	FDS56	DFT090508D56..
3794417	KSEMP6000FDS56A1M	KSEMP6000FDS56A1M	60,00	2.362	24,00	.9449	35,0	1.379	30,0	1.181	FDS56	DFT090508D56..
3794419	KSEMP6200FDS56A1M	KSEMP6200FDS56A1M	62,00	2.441	26,00	1.0236	35,4	1.392	30,0	1.181	FDS56	DFT090508D56..
3794421	KSEMP6400FDS63A1M	KSEMP6400FDS63A1M	64,00	2.520	28,00	1.1024	41,9	1.650	36,0	1.417	FDS63	DFT090508D63..
3794422	KSEMP6500FDS63A1M	KSEMP6500FDS63A1M	65,00	2.559	29,00	1.1417	42,1	1.657	36,0	1.417	FDS63	DFT090508D63..
3742212	KSEMP7000FDS63A1M	KSEMP7000FDS63A1M	70,00	2.756	34,00	1.3386	43,0	1.692	36,0	1.471	FDS63	DFT090508D63..

NOTE: Find the complete KSEM PLUS B1 product overview and assembly pages in the current Kennametal Master Catalogue.

- 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.



2 x DFC
diameter: 28–70,34mm

KSEM PLUS B1 Heads

order number	ISO catalogue number	ANSI catalogue number	D1 mm	D1 in	PDD mm	PDD in	LPR mm	LPR in	L1 mm	L1 in	CSMS system size	outboard insert
5115736	**KSEMP2800FDS28B1M**	**KSEMP2800FDS28B1M**	28,00	1.102	14,00	.5512	28,1	1.105	25,0	.984	FDS28	DFC040310D28
5116010	**KSEMP3000FDS28B1M**	**KSEMP3000FDS28B1M**	30,00	1.181	16,00	.6299	28,4	1.118	25,0	.984	FDS28	DFC040310D28
5116011	**KSEMP3017FDS28B1M**	**KSEMP1188FDS28B1**	30,18	1.188	17,00	.6693	28,6	1.125	25,0	.984	FDS28	DFC040310D28
5116013	**KSEMP3100FDS28B1M**	**KSEMP3100FDS28B1M**	31,00	1.220	17,00	.6693	28,6	1.125	25,0	.984	FDS28	DFC040310D28
5116015	**KSEMP3200FDS32B1M**	**KSEMP3200FDS32B1M**	32,00	1.260	15,00	.5906	28,2	1.111	25,0	.984	FDS32	DFC05T312D32
5116016	**KSEMP3300FDS32B1M**	**KSEMP3300FDS32B1M**	33,00	1.299	16,00	.6299	28,4	1.118	25,0	.984	FDS32	DFC05T312D32
5116019	**KSEMP3400FDS32B1M**	**KSEMP3400FDS32B1M**	34,00	1.339	17,00	.6693	28,6	1.125	25,0	.984	FDS32	DFC05T312D32
5116031	**KSEMP3500FDS32B1M**	**KSEMP3500FDS32B1M**	35,00	1.378	18,00	.7087	28,8	1.132	25,0	.984	FDS32	DFC05T312D32
5116032	**KSEMP3600FDS36B1M**	**KSEMP3600FDS36B1M**	36,00	1.417	13,00	.5118	27,9	1.098	25,0	.984	FDS36	DFC06T312D36
5116035	**KSEMP3750FDS36B1M**	**KSEMP3750FDS36B1M**	37,50	1.476	15,00	.5906	28,2	1.111	25,0	.984	FDS36	DFC06T312D36

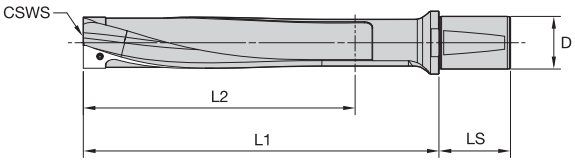
(continued)

(KSEM PLUS B1 Heads — continued)

order number	ISO catalogue number	ANSI catalogue number	D1 mm	D1 in	PDD mm	PDD in	LPR mm	LPR in	L1 mm	L1 in	CSMS system size	outboard insert
5116036	**KSEMP3800FDS36B1M**	**KSEMP3800FDS36B1M**	38,00	1.496	15,00	.5906	28,2	1.111	25,0	.984	FDS36	DFC06T312D36
5116038	**KSEMP3900FDS36B1M**	**KSEMP3900FDS36B1M**	39,00	1.535	16,00	.6299	28,4	1.118	25,0	.984	FDS36	DFC06T312D36
5116041	**KSEMP4000FDS40B1M**	**KSEMP4000FDS40B1M**	40,00	1.575	17,00	.6693	33,8	1.330	30,0	1.181	FDS40	DFC06T312D36
5116044	**KSEMP4200FDS40B1M**	**KSEMP4200FDS40B1M**	42,00	1.654	19,00	.7480	34,1	1.344	30,0	1.181	FDS40	DFC06T312D36
5116045	**KSEMP4300FDS40B1M**	**KSEMP4300FDS40B1M**	43,00	1.693	20,00	.7874	34,3	1.351	30,0	1.181	FDS40	DFC06T312D36
5116046	**KSEMP4400FDS40B1M**	**KSEMP4400FDS40B1M**	44,00	1.732	21,00	.8268	34,5	1.358	30,0	1.181	FDS40	DFC06T312D36
5116098	**KSEMP4500FDS45B1M**	**KSEMP4500FDS45B1M**	45,00	1.772	18,00	.7087	34,0	1.337	30,0	1.181	FDS45	DFC070416D45
5116099	**KSEMP4600FDS45B1M**	**KSEMP4600FDS45B1M**	46,00	1.811	19,00	.7480	34,1	1.344	30,0	1.181	FDS45	DFC070416D45
5116112	**KSEMP4800FDS45B1M**	**KSEMP4800FDS45B1M**	48,00	1.890	21,00	.8268	34,5	1.358	30,0	1.181	FDS45	DFC070416D45
5116113	**KSEMP4900FDS45B1M**	**KSEMP4900FDS45B1M**	49,00	1.929	22,00	.8661	34,7	1.365	30,0	1.181	FDS45	DFC070416D45
5116114	**KSEMP5000FDS50B1M**	**KSEMP5000FDS50B1M**	50,00	1.969	23,00	.9055	40,0	1.577	35,0	1.378	FDS50	DFC070416D45
5116117	**KSEMP5200FDS50B1M**	**KSEMP5200FDS50B1M**	52,00	2.047	25,00	.9843	40,4	1.590	35,0	1.378	FDS50	DFC070416D45
5116122	**KSEMP5600FDS56B1M**	**KSEMP5600FDS56B1M**	56,00	2.205	20,00	.7874	39,5	1.556	35,0	1.378	FDS56	DFC090520D56
5116125	**KSEMP5800FDS56B1M**	**KSEMP5800FDS56B1M**	58,00	2.283	22,00	.8661	39,9	1.570	35,0	1.378	FDS56	DFC090520D56
5116127	**KSEMP6000FDS56B1M**	**KSEMP6000FDS56B1M**	60,00	2.362	24,00	.9449	40,2	1.584	35,0	1.378	FDS56	DFC090520D56
5116130	**KSEMP6200FDS56B1M**	**KSEMP6200FDS56B1M**	62,00	2.441	26,00	1.0236	40,6	1.597	35,0	1.378	FDS56	DFC090520D56

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 and assembly pages in current Kennametal Master Catalogue.

- Order KSEM PLUS heads according to the connection coupling size (CSWS).
- Order KSEM PLUS heads separately.
- Wrench will be shipped with KSEM PLUS head.
- Custom solution for cast iron application with twisted flutes available.



KSEM PLUS WD Shanks • 3 x D • Metric

3 x D

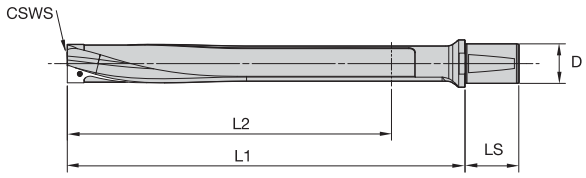
order #	catalogue #	CSWS system size	D	L1	L2	LS	clamp screw
4000409	WD32FDS28128M	FDS28	32	128	71	58	193.537
3950219	WD32FDS32146M	FDS32	32	146	85	58	193.523
3950220	WD32FDS36166M	FDS36	32	166	97	58	193.524
3872075	WD50FDS40183M	FDS40	50	183	107	68	193.524
3872079	WD50FDS45206M	FDS45	50	206	122	68	193.525
3950221	WD50FDS50228M	FDS50	50	228	135	68	193.525
3950222	WD50FDS56259M	FDS56	50	259	156	68	193.526
3950333	WD50FDS63289M	FDS63	50	289	174	68	193.526

KSEM PLUS WD Shanks • 5 x D • Metric

5 x D

order #	catalogue #	CSWS system size	D	L1	L2	LS	clamp screw
4051136	WD32FDS28190M	FDS28	32	190	133	58	193.537
3794428	WD32FDS32216M	FDS32	32	216	155	58	193.523
3794430	WD32FDS36244M	FDS36	32	244	175	58	193.524
3794443	WD50FDS40271M	FDS40	50	271	195	68	193.524
3794446	WD50FDS45304M	FDS45	50	304	220	68	193.525
3794449	WD50FDS50338M	FDS50	50	338	245	68	193.525
3794451	WD50FDS56383M	FDS56	50	383	280	68	193.526
3794454	WD50FDS63429M	FDS63	50	429	314	68	193.526

- Order KSEM PLUS heads according to the connection coupling size (CSWS).
- Order KSEM PLUS heads separately.
- Wrench will be shipped with KSEM PLUS head.
- Custom solution for cast iron application with twisted flutes available.



KSEM PLUS WD Shanks • 8 x D • Metric

8 x D

order #	catalogue #	CSWS system size	D	L1	L2	LS	clamp screw
3742293	WD32FDS32321M	FDS32	32	321	260	58	193.523
3794431	WD32FDS36361M	FDS36	32	361	292	58	193.524
3794444	WD50FDS40403M	FDS40	50	403	327	68	193.524
3794447	WD50FDS45451M	FDS45	50	451	367	68	193.525
3742294	WD50FDS50503M	FDS50	50	503	410	68	193.525
3794452	WD50FDS56569M	FDS56	50	569	466	68	193.526

KSEM PLUS WD Shanks • 10 x D • Metric

10 x D

order #	catalogue #	CSWS system size	D	L1	L2	LS	clamp screw
3794429	WD32FDS32391M	FDS32	32	391	330	58	193.523
3794432	WD32FDS36439M	FDS36	32	439	370	58	193.524
3794445	WD50FDS40491M	FDS40	50	491	415	68	193.524

KSEM PLUS Carbide Insert Recommendations

Material Group	Outboard/ Inboard	Insert Style	Grade	Comments
P	O	DFR-GD	KCU25, KCU40	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		
		DFC-/DFT-DS	KCU40	Reduce feed rate by 10% to further improve chip formation in long-chipping steels and low carbon steel.
	I	KSEMP-HPG	KC7315	Must use KSEMP center inserts in P-materials to avoid excessive wear on head & inserts.
M	O	DFR-MD	KC7140	Recommended outboard insert style for working in all M-materials.
		DFC-/DFT-MD		
		DFC-/DFT-DS	KCU40	Reduce feed rate by 20% to further improve chip formation and/or run with lower power consumption.
	I	KSEMP-HPG	KC7315	Recommended inboard insert style for working in all M-materials.
		KSEM-PC	KC7315	For unstable conditions in stainless steel, use KSEM PC inserts.
		KSEM-HPL	KC7320	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	Recommended insert styles for working in all K-Materials.
		DFC-/DFT-HP		
	I	KSEM-HPCCL	KC7140	
N	O	DFR-GD	KC7225	Recommended outboard insert styles for working in all non-ferrous materials.
		DFC-/DFT-HP	KCU40	
		DFC-/DFT-DS	KCU40	Reduce feed rate by 15% for diameters <56mm and up to 50% for larger diameters to improve chip formation.
		DFR/DFT-ST	KD1425	Use PCD tipped outboard when working with CFRP, CFRP/metal stacks and plastics (N3, N5, and N6).
	I	KSEMP-HPG	KC7315	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	Recommended outboard insert style for working in all S-materials.
		DFC-/DFT-HP	KCU40	
		DFC-/DFT-DS	KCU40	Reduce feed rate by 20% to further improve chip formation and/or run with lower power consumption.
	I	KSEM-PC	KC7315	If center breakage is an issue in S-materials, use KSEM PC insert inboard.

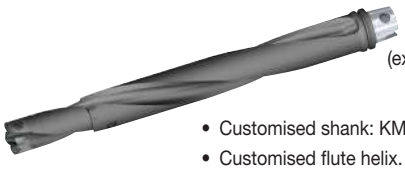
Modular Drill • KSEM PLUS™ • Metric • A1 and B1 Style

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... 56,00–70
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

Application	Workpiece Shape	A1 Head	B1 Head
Flat Face		✓	✓
Cored Hole		✗	✓
Stacked Plates		✗	✓
Angled Exit (exit only!)		✓ <3°	✓ max 15°
Angled Entrance		✓ <3°	✓ <3°
Cross Holes		✗	✓ max 50% of D1

KSEM PLUS Customised Solution Capabilities:

- Intermediate head Ø.
- Custom head to use reground KSEM inserts.
- Heads for cross holes Ø = d1.



(example)

- Customised shank: KM™, HSK, VDI, ISO taper, etc.
- Customised flute helix.
- Step drill.

- Drill body up to L1 = 20 x D and total length of 1250mm.

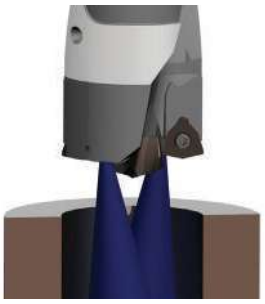
Mounting DPA Guiding Pads on B1 Heads

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.

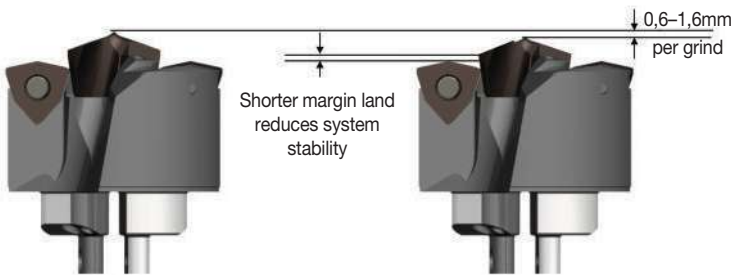
NOTE: For best results with slanted exits and in cross hole drilling, we recommend guiding pads adjustment results in an undersize of A = 30 µm (edge of guiding pads to cutting edges).

Coolant Recommendations



Internal coolant is recommended for optimum chip flow and tool life.

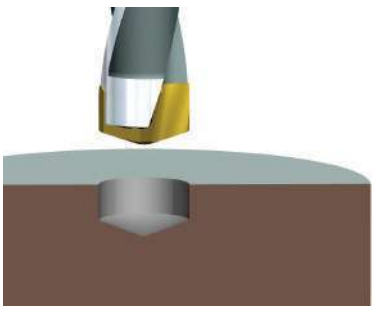
KSEM PLUS Piloting Insert SHOULD NOT Be Reground:



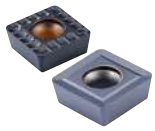
Only new KSEM PLUS inserts will provide consistency and process security on a KSEM PLUS modular drill system. If you want to regrind, refer to our custom solution A1 and B1 heads.

NOTE: Reground KSEM PLUS inserts can be used in KSEM drills.

Piloting Instructions:



1. KSEM….PC Pilot drill Ø equal KSEMP Ø PDD
2. Drill 1mm deep from full diameter

	Drill/Insert/Body Series	grade	standard ● first choice ○ alternate choice P	M	K	N	S	H	hole tolerance	First Choice Range: diameter range D1 mm min–max	D1 inch min–max	drilling depth L/D1
Indexable Drills — Lowest cost per hole in short holes and larger diameters												
DFR™ Indexable Drill — Soft cutting and improved tool life for the smaller diameter range												
	**DFR™** Indexable Drill Body	**WD** (metric)							IT9–IT11	12,5–25,0	.4921–.9450	2 x D 3 x D
	**DFR™** Inserts	**DFR LD**	**KC7140**	●	●	○	○	○				
		DFR GD	**KCU25**	●	○	●						
		DFR GD	**KCU40**	●	○	○	○	●	○	12,5–25,4	.4921–1.0000	—
		DFR MD		●	●	○	○	○				
		DFR LD		○	●	●	●	●	○			
DFSP™ Indexable Drill — Most economical using square inserts for a wide range of diameters												
	**DFSP** Indexable Drill Body	**WD** (metric)							IT9–IT11		.7100–2.1650	2 x D 3 x D
	**DFSP** Outboard Inserts	**SP X (R)HP**	**KC7140**	●	●	○	○	○				
		SP X MD		●	●	○	○	○				
		SP X (R)HP	**KCU40**	●	●	●	○	●				
		SP X MD		●	●	●	○	●				
		SP X FP		●	●	●	○	●				
		SP X LP		●	○		○	○		14,0–56,0	.5630–2.1650	—
		SP X (R) HP	**KCU25**	●	○	●	○	○				
		SP X MD		●	○	●	○	○				
		SP X FP		●	○	●	○	○				
	**DFT** Inboard Inserts for DFSP	**DFT HP**	**KC7140**	●	●	○	○	○				
		DFT MD		●	●	○	○	○				
		DFT DS	**KCU40**	●	○		○	○				
		DFT HP	**KMF**				●			18,0–56,0	.7100–2.1650	—

*Not all intermediate sizes available in First Choice.

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 and 3 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 centres to reach tolerance optimisation.
- Same insert size is used in each pocket, reducing inventory costs.

Versatility

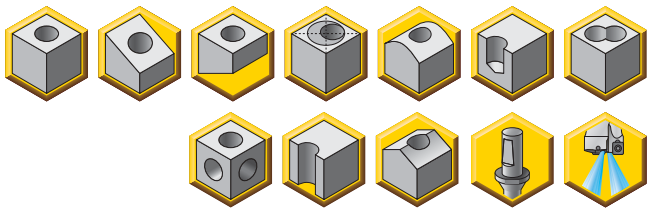
- Diameter range covering 12,5–24mm (.500–1.000").
- 2 x D and 3 x D ratios as standard.
- Multiple insert grades and geometries available.
- Use where feed rates are the limiting factor.
- Apply in straight holes, inclined entries and exits, interrupted cuts, and rough or welded entry surfaces.
- Eccentric chuck available as standard.

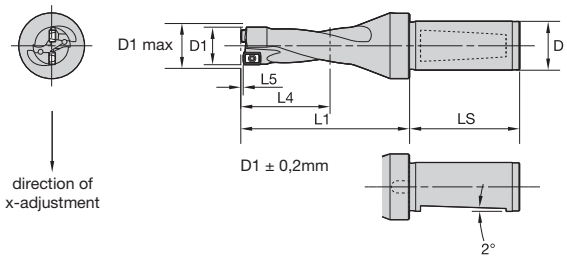
Low cutting forces provide long tool body life and high stability at the smallest diameters.

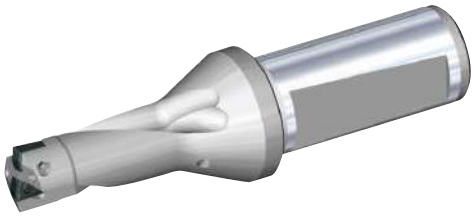
Reliability

- 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.

- Drill shipped with insert screws and Torx wrench.







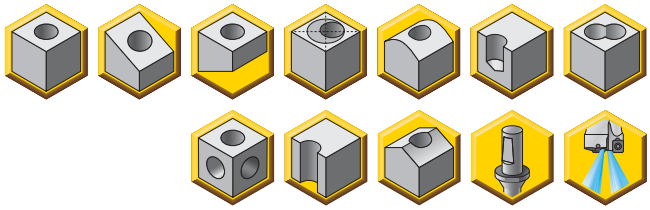
WD Shank • 2 x D • Metric

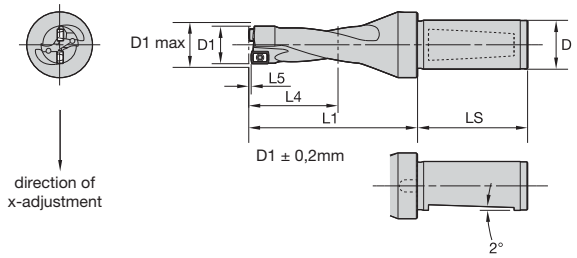
D 20								
order #	catalogue #	D1	D1 max	L1	L4 max	L5	LS	gage insert
1608363	**DFR125R2WD20M**	12,50	13,50	47,4	25,0	0,5	45	DFR0202..
1608364	**DFR127R2WD20M**	12,70	13,70	47,8	25,4	0,5	45	DFR0202..
1608365	**DFR130R2WD20M**	13,00	14,00	48,4	26,0	0,5	45	DFR0202..
1608366	**DFR135R2WD20M**	13,50	14,50	49,4	27,0	0,5	45	DFR0202..
1608367	**DFR140R2WD20M**	14,00	15,00	50,4	28,0	0,5	45	DFR0202..
1608368	**DFR145R2WD20M**	14,50	15,50	53,4	29,0	0,5	45	DFR0202..
1608369	**DFR150R2WD20M**	15,00	16,00	54,4	30,0	0,5	45	DFR0202..
1608370	**DFR155R2WD20M**	15,50	16,50	55,4	31,0	0,5	45	DFR0202..
1608391	**DFR160R2WD20M**	16,00	17,00	56,4	32,0	0,5	45	DFR0202..

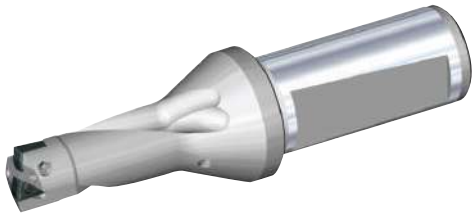
WARNING
During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.

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

- Drill shipped with insert screws and Torx wrench.







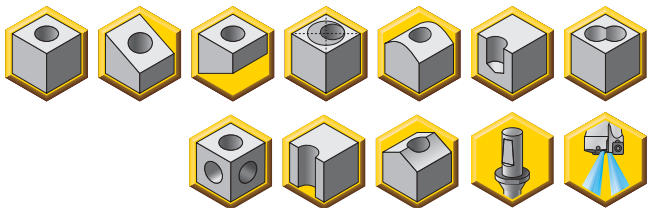
WD Shank • 2 x D • Metric

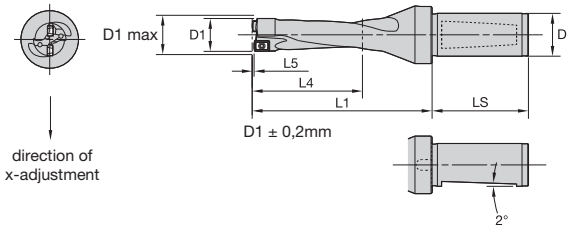
D 32								
order #	catalogue #	D1	D1 max	L1	L4 max	L5	LS	gage insert
1754251	DFR165R2WD32M	16,50	17,50	62,4	33,0	0,6	58	DFR0302..
1810334	DFR170R2WD32M	17,00	18,00	63,4	34,0	0,6	58	DFR0302..
1810335	DFR175R2WD32M	17,50	18,50	64,4	35,0	0,6	58	DFR0302..
1810336	DFR180R2WD32M	18,00	19,00	65,4	36,0	0,6	58	DFR0302..
1810337	DFR185R2WD32M	18,50	19,50	66,4	37,0	0,6	58	DFR0302..
1799693	DFR190R2WD32M	19,00	20,00	67,4	38,0	0,6	58	DFR0302..
1810338	DFR195R2WD32M	19,50	20,50	68,4	39,0	0,6	58	DFR0302..
1810339	DFR200R2WD32M	20,00	21,00	72,4	40,0	0,6	58	DFR0302..
1810340	DFR205R2WD32M	20,50	21,50	73,6	41,0	0,8	58	DFR0403..
1810341	DFR210R2WD32M	21,00	22,00	74,6	42,0	0,8	58	DFR0403..
1810342	DFR220R2WD32M	22,00	23,00	76,6	44,0	0,8	58	DFR0403..
1810363	DFR230R2WD32M	23,00	24,00	78,6	46,0	0,8	58	DFR0403..
1810364	DFR240R2WD32M	24,00	25,00	80,6	48,0	0,8	58	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

- Drill shipped with insert screws and Torx wrench.





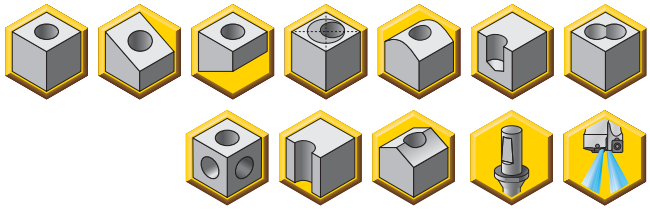
WD Shank • 3 x D • Metric

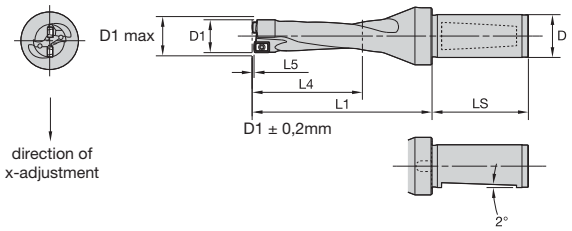
D 20								
order #	catalogue #	D1	D1 max	L1	L4 max	L5	LS	gage insert
1608392	DFR125R3WD20M	12,50	13,50	59,9	37,5	0,5	45	DFR0202..
1608393	DFR127R3WD20M	12,70	13,70	60,5	38,1	0,5	45	DFR0202..
1608394	DFR130R3WD20M	13,00	14,00	61,4	39,0	0,5	45	DFR0202..
1608395	DFR135R3WD20M	13,50	14,50	62,9	40,5	0,5	45	DFR0202..
1608396	DFR140R3WD20M	14,00	15,00	64,4	42,0	0,5	45	DFR0202..
1608397	DFR145R3WD20M	14,50	15,50	67,9	43,5	0,5	45	DFR0202..
1608398	DFR150R3WD20M	15,00	16,00	69,4	45,0	0,5	45	DFR0202..
1608399	DFR155R3WD20M	15,50	16,50	70,9	46,5	0,5	45	DFR0202..
1608400	DFR160R3WD20M	16,00	17,00	72,4	48,0	0,5	45	DFR0202..

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

- Drill shipped with insert screws and Torx wrench.





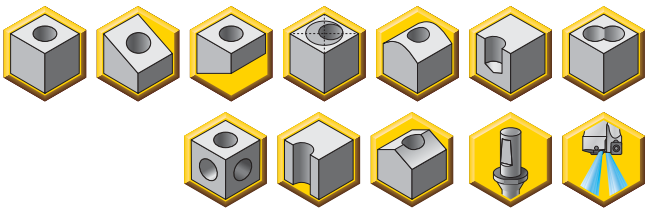
WD Shank • 3 x D • Metric

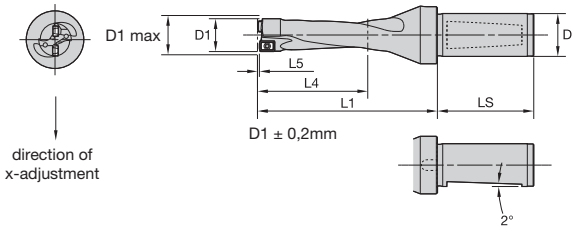
D 25								
order #	catalogue #	D1	D1 max	L1	L4 max	L5	LS	gage insert
2498749	DFR175R3WD25M	17,50	18,50	81,9	52,5	0,6	45	DFR0302..
2498750	DFR180R3WD25M	18,00	19,00	83,4	54,0	0,6	45	DFR0302..
2498751	DFR185R3WD25M	18,50	19,50	84,9	55,5	0,6	45	DFR0302..
2498752	DFR190R3WD25M	19,00	20,00	86,4	57,0	0,6	45	DFR0302..
2499003	DFR195R3WD25M	19,50	20,50	87,9	58,5	0,6	45	DFR0302..
2499004	DFR200R3WD25M	20,00	21,00	92,4	60,0	0,6	45	DFR0302..
2499005	DFR205R3WD25M	20,50	21,50	94,1	61,5	0,8	45	DFR0403..
1799056	DFR210R3WD25M	21,00	22,00	95,6	63,0	0,8	45	DFR0403..
1799059	DFR220R3WD25M	22,00	23,00	98,6	66,0	0,8	45	DFR0403..
2499006	DFR230R3WD25M	23,00	24,00	101,6	69,0	0,8	45	DFR0403..
2499007	DFR240R3WD25M	24,00	25,00	104,6	72,0	0,8	45	DFR0403..

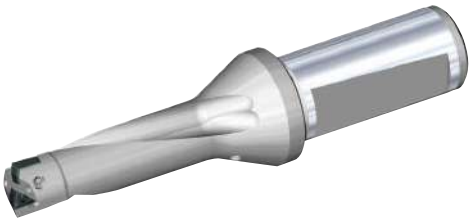
WARNING
During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.

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

- Drill shipped with insert screws and Torx wrench.







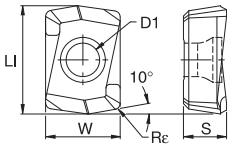
WD Shank • 3 x D • Metric

order #	catalogue #	D 32 D1	D1 max	L1	L4 max	L5	LS	gage insert
1810365	**DFR165R3WD32M**	16,50	17,50	78,9	49,5	0,6	58	DFR0302..
1798962	**DFR170R3WD32M**	17,00	18,00	80,4	51,0	0,6	58	DFR0302..
1810366	**DFR175R3WD32M**	17,50	18,50	81,9	52,5	0,6	58	DFR0302..
1799053	**DFR180R3WD32M**	18,00	19,00	83,4	54,0	0,6	58	DFR0302..
1810367	**DFR185R3WD32M**	18,50	19,50	84,9	55,5	0,6	58	DFR0302..
1810368	**DFR190R3WD32M**	19,00	20,00	86,4	57,0	0,6	58	DFR0302..
1810369	**DFR195R3WD32M**	19,50	20,50	87,9	58,5	0,6	58	DFR0302..
1799055	**DFR200R3WD32M**	20,00	21,00	92,4	60,0	0,6	58	DFR0302..
1810370	**DFR205R3WD32M**	20,50	21,50	94,1	61,5	0,8	58	DFR0403..
1810371	**DFR210R3WD32M**	21,00	22,00	95,6	63,0	0,8	58	DFR0403..
1799695	**DFR220R3WD32M**	22,00	23,00	98,6	66,0	0,8	58	DFR0403..
1810372	**DFR230R3WD32M**	23,00	24,00	101,6	69,0	0,8	58	DFR0403..
1810373	**DFR240R3WD32M**	24,00	25,00	104,6	72,0	0,8	58	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

- General purpose chipbreaker geometry preferred on ductile and normal chipping materials.
- Preferred on outboard position.



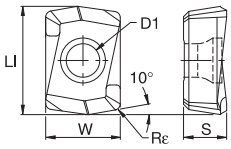
● first choice
○ alternate choice

		KCU25	KCU40
P		●	●
M		○	○
K		●	○
N			○
S			●
H			○

DFR-GD

catalogue number	LI	W	D1	S	Rε	KCU25	KCU40
DFR020204GD	7,12	4,90	2,30	2,79	0,40	**5066798**	**5065554**
DFR030204GD	8,71	6,00	2,50	2,88	0,40	**5067312**	**5065558**
DFR040304GD	10,76	7,38	2,85	3,79	0,40	**5067314**	**5065661**

- Positive chipbreaker geometry preferred for unstable cutting on longer chipping materials at high feed rates.



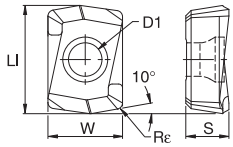
● first choice
○ alternate choice

		KCU40
P		●
M		●
K		○
N		○
S		●
H		

DFR-MD

catalogue number	LI	W	D1	S	Rε	KCU40
DFR020204MD	7,12	4,90	2,30	2,79	0,40	**5065556**
DFR030204MD	8,71	6,00	2,50	2,88	0,40	**5065559**
DFR040304MD	10,76	7,38	2,85	3,79	0,40	**5065662**

- High positive chipbreaker geometry preferred on ductile and normal chipping materials at medium feed rates.
- Preferred on inboard position.



● first choice
○ alternate choice

		KCU40	KC7140
P		○	●
M		●	●
K		●	○
N		●	○
S		●	○
H		○	

DFR-LD

catalogue number	LI	W	D1	S	Rε	KCU40	KC7140
DFR020204LD	7,12	4,90	2,30	2,79	0,40	**5065552**	**1730321**
DFR030204LD	8,71	6,00	2,50	2,86	0,40	**5065557**	**5533632**
DFR040304LD	10,76	7,38	2,85	3,76	0,40	**5065660**	**5533633**

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
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

All geometry/grade combinations are not part of our First Choice offering. Please refer to the current Kennametal Master Catalogue for the complete offering.

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

All geometry/grade combinations are not part of our First Choice offering. Please refer to the current Kennametal Master Catalogue for the complete offering.

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
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

All geometry/grade combinations are not part of our First Choice offering. Please refer to the current Kennametal Master Catalogue for the complete offering.

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 and 3 x D. Like the DFS platform, the DFSP platform combines the economically squared outboard insert with the superior centring 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.

Versatility

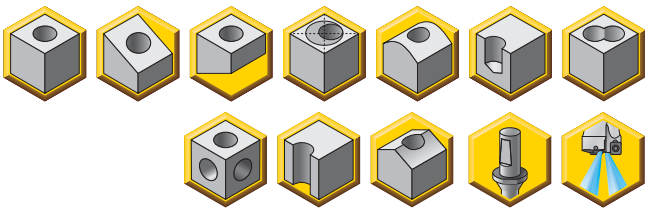
- Use where speed and economy are prime considerations.
- Use DFSP drills in straight holes, inclined entries and exits, interrupted cuts, and rough or welded entry surfaces.
- Use X-offset on turning machines to adjust the drill diameter and eliminate the need for specials in many applications, and on machining centres to reach tolerance optimisation.
- Eccentric chuck available as standard.
- Quick and easy insert grade and/or geometry change to address material and application changes.

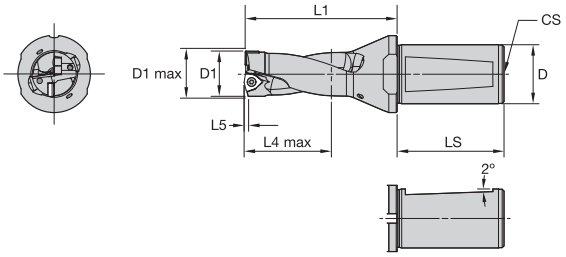
Boost your productivity even further with the latest Beyond™ insert grades.

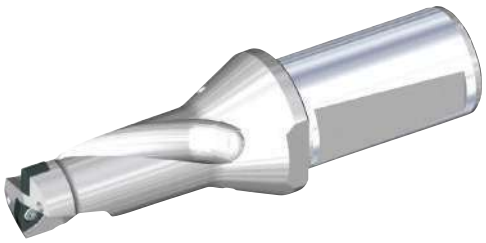
Reliability

- 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.

- DFSP combines the economical squared outboard insert with the superior centring capabilities of the trigon inboard insert.
- Drill shipped with insert screws and Torx wrench.







WD Shank • 2 x D • Metric

order #	catalogue #	D1	D1 max	L1	L4 max	L5	LS	gage insert outside	gage insert inside
	D 20								
5689537	**DFSP140R2WD20M**	14,00	15,00	50,0	28,0	0,3	45	SPGX0502..	DFTX202..
5689539	**DFSP145R2WD20M**	14,50	15,50	53,0	29,0	0,4	45	SPGX0502..	DFTX202..
5689541	**DFSP150R2WD20M**	15,00	16,00	54,0	30,0	0,4	45	SPGX0502..	DFTX202..
5689543	**DFSP155R2WD20M**	15,50	16,50	55,0	31,0	0,4	45	SPGX0502..	DFTX202..
5689545	**DFSP160R2WD20M**	16,00	17,00	56,0	32,0	0,4	45	SPGX0502..	DFTX202..

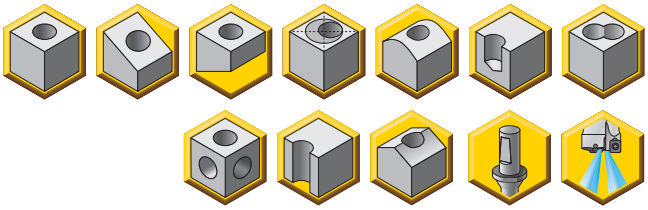
NOTE for D1 max: Diameter can be adjusted. It is highly recommended to not adjust the diameter more than +1mm.

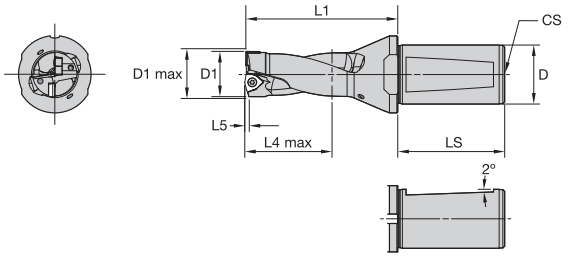
Spare Parts

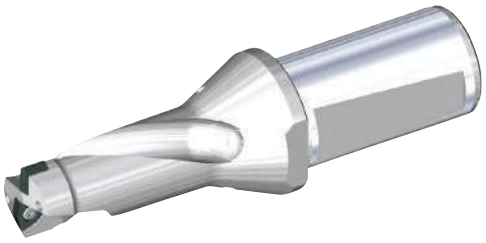
diameter range	gage insert inside	inboard insert screw	tightening torque Nm	gage insert outside	outboard insert screw	tightening torque Nm	Torx driver	Torx size
14.00–17.00	DFTX202..	**193.281**	0,6	SPGX0502..	**193.281**	0,6	**170.370**	T6

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.

- DFSP combines the economical squared outboard insert with the superior centring capabilities of the trigon inboard insert.
- Drill shipped with insert screws and Torx wrench.







WD Shank • 2 x D • Metric

D 32										
order #	catalogue #	D1	D1 max	L1	L4 max	L5	LS	CS	gage insert outside	gage insert inside
5689546	DFSP165R2WD32M	16,50	17,50	62,0	33,0	0,5	58	–	SPGX0502..	DFTX202..
5689548	DFSP170R2WD32M	17,00	18,00	63,0	34,0	0,5	58	–	SPGX0502..	DFTX202..
5689549	DFSP175R2WD32M	17,50	18,50	64,0	35,0	0,5	58	–	SPGX0603..	DFT0303..
5689550	DFSP180R2WD32M	18,00	19,00	65,0	36,0	0,5	58	–	SPGX0603..	DFT0303..
5689551	DFSP185R2WD32M	18,50	19,50	66,0	37,0	0,6	58	–	SPGX0603..	DFT0303..
5689552	DFSP190R2WD32M	19,00	20,00	67,0	38,0	0,6	58	–	SPGX0603..	DFT0303..
5689553	DFSP195R2WD32M	19,50	20,50	68,0	39,0	0,6	58	–	SPGX0603..	DFT0303..
5689554	DFSP200R2WD32M	20,00	21,00	72,0	40,0	0,6	58	–	SPGX0603..	DFT0303..
5689555	DFSP210R2WD32M	21,00	22,00	74,0	42,0	0,7	58	–	SPGX0603..	DFT0303..
5689556	DFSP220R2WD32M	22,00	23,00	76,0	44,0	0,5	58	–	SPGX0703..	DFT05T3..
5689557	DFSP230R2WD32M	23,00	24,00	78,0	46,0	0,6	58	–	SPGX0703..	DFT05T3..
5692319	DFSP240R2WD32M	24,00	25,00	80,0	48,0	0,6	58	R1/4	SPGX0703..	DFT05T3..
5692320	DFSP250R2WD32M	25,00	26,00	83,0	50,0	0,7	58	R1/4	SPGX0703..	DFT05T3..
5692321	DFSP260R2WD32M	26,00	27,00	86,0	52,0	0,7	58	R1/4	SPPX09T3..	DFT05T3..
5692322	DFSP265R2WD32M	26,50	27,50	87,0	53,0	0,7	58	R1/4	SPPX09T3..	DFT05T3..
5692323	DFSP270R2WD32M	27,00	28,00	89,0	54,0	0,8	58	R1/4	SPPX09T3..	DFT05T3..
5692324	DFSP280R2WD32M	28,00	29,00	91,0	56,0	0,8	58	R1/4	SPPX09T3..	DFT05T3..
5692325	DFSP290R2WD32M	29,00	30,00	94,0	58,0	0,9	58	R1/4	SPPX09T3..	DFT05T3..
5692326	DFSP300R2WD32M	30,00	31,00	97,0	60,0	0,9	58	R1/4	SPPX09T3..	DFT05T3..
5692327	DFSP310R2WD32M	31,00	32,00	100,0	62,0	0,9	58	R1/4	SPPX09T3..	DFT05T3..
5692329	DFSP320R2WD32M	32,00	33,00	103,0	64,0	1,0	58	R1/4	SPPX09T3..	DFT05T3..
5692330	DFSP330R2WD32M	33,00	34,00	105,0	66,0	0,9	58	R1/4	SPPX1204..	DFT06T3..
5692331	DFSP340R2WD32M	34,00	35,00	108,0	68,0	0,9	58	R1/4	SPPX1204..	DFT06T3..
5692332	DFSP350R2WD32M	35,00	36,00	111,0	70,0	1,0	58	R1/4	SPPX1204..	DFT06T3..
5692333	DFSP360R2WD32M	36,00	37,00	114,0	72,0	1,0	58	R1/4	SPPX1204..	DFT06T3..
5692334	DFSP370R2WD32M	37,00	38,00	117,0	74,0	1,1	58	R1/4	SPPX1204..	DFT06T3..
5692335	DFSP375R2WD32M	37,50	38,50	118,0	75,0	1,1	58	R1/4	SPPX1204..	DFT06T3..
5692336	DFSP380R2WD32M	38,00	39,00	119,0	76,0	1,1	58	R1/4	SPPX1204..	DFT06T3..
5692337	DFSP390R2WD32M	39,00	40,00	122,0	78,0	1,2	58	R1/4	SPPX1204..	DFT06T3..
5692338	DFSP400R2WD32M	40,00	41,00	125,0	80,0	1,2	58	R1/4	SPPX1204..	DFT06T3..
5692339	DFSP410R2WD32M	41,00	42,00	128,0	82,0	1,2	58	R1/4	SPPX1204..	DFT0704..
5692340	DFSP420R2WD32M	42,00	43,00	131,0	84,0	1,3	58	R1/4	SPPX1204..	DFT0704..
5692341	DFSP430R2WD32M	43,00	44,00	133,0	86,0	1,3	58	R1/4	SPPX1204..	DFT0704..
5692342	DFSP440R2WD32M	44,00	45,00	135,0	88,0	1,4	58	R1/4	SPPX15T5..	DFT0704..

NOTE for D1 max: Diameter can be adjusted. It is highly recommended to not adjust the diameter more than +1mm.

(continued)

(WD Shank • 2 x D • Metric — continued)

Spare Parts



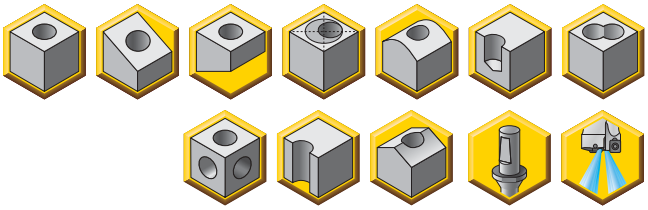


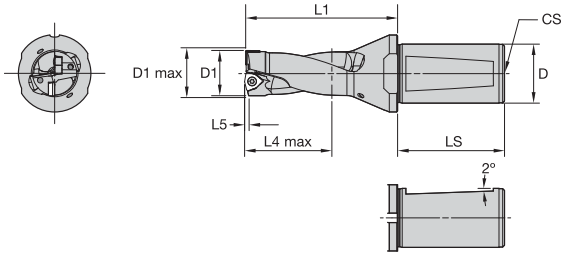
diameter range	gage insert inside	inboard insert screw	tightening torque Nm	gage insert outside	outboard insert screw	tightening torque Nm	Torx driver	Torx size
14.00–17.00	DFTX202..	**193.281**	0,6	SPGX0502..	**193.281**	0,6	**170.370**	T6
17.50–21.00	DFT0303..	**MS1152**	0,9	SPGX0603..	**MS1152**	0,9	**170.023**	T7
22.00–25.00	DFT05T3..	**193.491**	2,1	SPGX0703..	**192.432**	1,3	**170.028**	T8
26.00–32.00	DFT05T3..	**191.924**	2,1	SPPX09T3..	**191.924**	2,1	**170.024**	T9
33.00–40.00	DFT06T3..	**191.916**	4	SPPX1204..	**191.916**	4	**170.025**	T15
41.00–43.00	DFT0704..	**191.916**	3	SPPX1204..	**191.916**	3	**170.025**	T15
44.00–48.00	DFT0704..	**191.698**	3	SPPX15T5..	**192.433**	3	**170.025**	T15

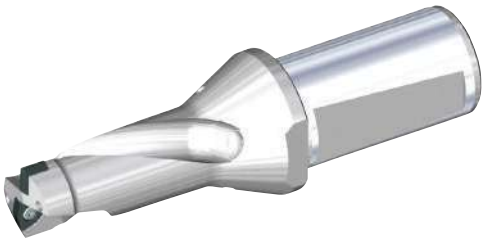
NOTE: To ensure proper clamping, two different screws for inserts with different threads for diameter ranges 22–25,5mm and 41–48mm are necessary. Both screws have the same Torx size.

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.

- DFSP combines the economical squared outboard insert with the superior centring capabilities of the trigon inboard insert.
- Drill shipped with insert screws and Torx wrench.





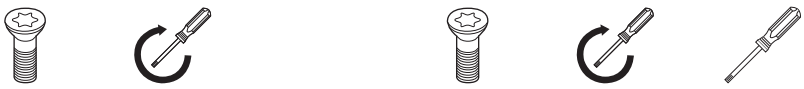


WD Shank • 2 x D • Metric

D 40										
order #	catalogue #	D1	D1 max	L1	L4 max	L5	LS	CS	gage insert outside	gage insert inside
5692343	**DFSP450R2WD40M**	45,00	46,00	137,0	90,0	1,4	68	R1/4	SPPX15T5..	DFT0704..
5692344	**DFSP460R2WD40M**	46,00	47,00	140,0	92,0	1,5	68	R1/4	SPPX15T5..	DFT0704..
5692345	**DFSP470R2WD40M**	47,00	48,00	142,0	94,0	1,5	68	R1/4	SPPX15T5..	DFT0704..
5692346	**DFSP480R2WD40M**	48,00	49,00	144,0	96,0	1,5	68	R1/4	SPPX15T5..	DFT0704..
5692347	**DFSP490R2WD40M**	49,00	50,00	146,0	98,0	1,4	68	R1/4	SPPX15T5..	DFT0905..
5692348	**DFSP500R2WD40M**	50,00	51,00	148,0	100,0	1,5	68	R1/4	SPPX15T5..	DFT0905..
5692349	**DFSP505R2WD40M**	50,50	51,50	148,0	100,0	1,5	68	R1/4	SPPX15T5..	DFT0905..
5692350	**DFSP510R2WD40M**	51,00	52,00	150,0	102,0	1,6	68	R1/4	SPPX15T5..	DFT0905..
5692351	**DFSP520R2WD40M**	52,00	53,00	152,0	104,0	1,6	68	R1/4	SPPX15T5..	DFT0905..
5692352	**DFSP530R2WD40M**	53,00	54,00	154,0	106,0	1,7	68	R1/4	SPPX15T5..	DFT0905..
5692353	**DFSP540R2WD40M**	54,00	55,00	156,0	108,0	1,7	68	R1/4	SPPX15T5..	DFT0905..

NOTE for D1 max: Diameter can be adjusted. It is highly recommended to not adjust the diameter more than +1mm.

Spare Parts



diameter range	gage insert inside	inboard insert screw	tightening torque Nm	gage insert outside	outboard insert screw	tightening torque Nm	Torx driver	Torx size
44.00–48.00	DFT0704..	**191.698**	3	SPPX15T5..	**192.433**	3	**170.025**	T15
49.00–55.00	DFT0905..	**192.433**	6	SPPX15T5..	**192.433**	6	**170.025**	T15

NOTE: To ensure proper clamping, two different screws for inserts with different threads for diameter ranges 22–25,5mm and 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.

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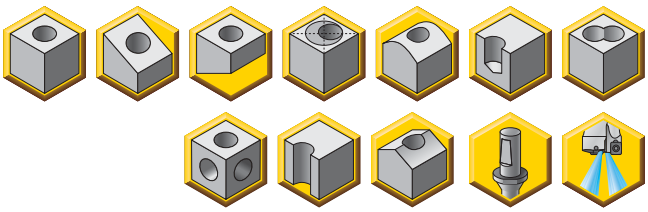
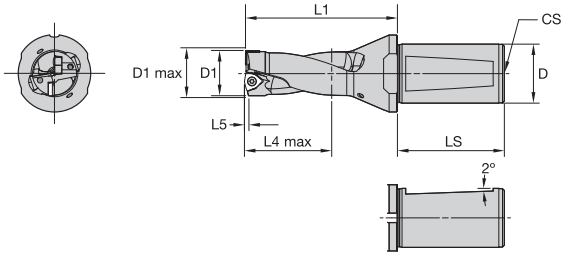
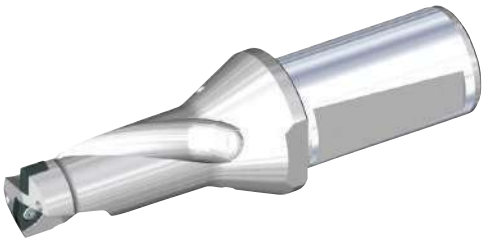
- Drill shipped with insert screws and Torx wrench.





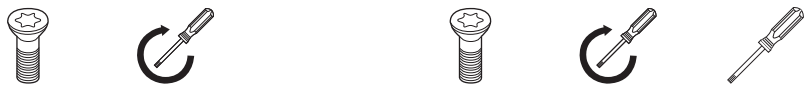


WD Shank • 2 x D • Metric

D 50 order #	catalogue #	D1	D1 max	L1	L4 max	L5	LS	CS	gage insert outside	gage insert inside
5692354	**DFSP550R2WD50M**	55,00	56,00	158,0	110,0	1,8	68	R1/4	SPPX15T5..	DFT0905..

NOTE for D1 max: Diameter can be adjusted. It is highly recommended to not adjust the diameter more than +1mm.

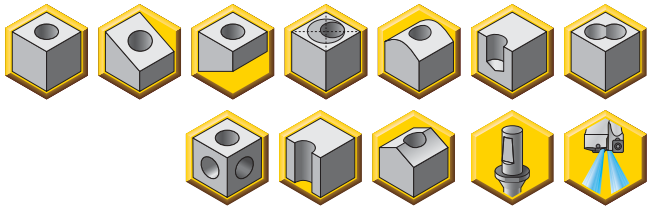
Spare Parts

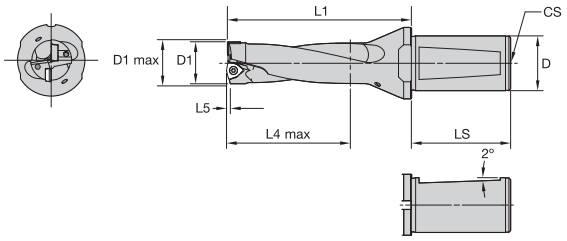


diameter range	gage insert inside	inboard insert screw	tightening torque Nm	gage insert outside	outboard insert screw	tightening torque Nm	Torx driver	Torx size
49.00–55.00	DFT0905..	**192.433**	6	SPPX15T5..	**192.433**	6	**170.025**	T15

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.

- DFSP combines the economical squared outboard insert with the superior centring capabilities of the trigon inboard insert.
- Drill shipped with insert screws and Torx wrench.





WD Shank • 3 x D • Metric

D												
20	32	40	50									
order # catalogue #	order # catalogue #	order # catalogue #	order # catalogue #	D1	D1 max	L1	L4 max	L5	LS	CS	gage insert outside	gage insert inside
5689630 DFSP140R3WD20M	–	–	–	14,00	15,00	64,0	42,0	0,3	45	–	SPGX0502..	DFTX202..
5689631 DFSP145R3WD20M	–	–	–	14,50	15,50	67,5	43,5	0,4	45	–	SPGX0502..	DFTX202..
5689632 DFSP150R3WD20M	–	–	–	15,00	16,00	69,0	45,0	0,4	45	–	SPGX0502..	DFTX202..
5689633 DFSP155R3WD20M	–	–	–	15,50	16,50	70,5	46,5	0,4	45	–	SPGX0502..	DFTX202..
5689634 DFSP160R3WD20M	–	–	–	16,00	17,00	72,0	48,0	0,4	45	–	SPGX0502..	DFTX202..
–	5689635 DFSP165R3WD32M	–	–	16,50	17,50	78,5	49,5	0,5	58	–	SPGX0502..	DFTX202..
–	5689636 DFSP170R3WD32M	–	–	17,00	18,00	80,0	51,0	0,5	58	–	SPGX0502..	DFTX202..
–	5689637 DFSP175R3WD32M	–	–	17,50	18,50	81,5	52,5	0,5	58	–	SPGX0603..	DFT0303..
–	5689638 DFSP180R3WD32M	–	–	18,00	19,00	83,0	54,0	0,5	58	–	SPGX0603..	DFT0303..
–	5689639 DFSP185R3WD32M	–	–	18,50	19,50	84,5	55,5	0,6	58	–	SPGX0603..	DFT0303..
–	5689640 DFSP190R3WD32M	–	–	19,00	20,00	86,0	57,0	0,6	58	–	SPGX0603..	DFT0303..
–	5689641 DFSP195R3WD32M	–	–	19,50	20,50	87,5	58,5	0,6	58	–	SPGX0603..	DFT0303..
–	5689642 DFSP200R3WD32M	–	–	20,00	21,00	92,0	60,0	0,6	58	–	SPGX0603..	DFT0303..
–	5689643 DFSP210R3WD32M	–	–	21,00	22,00	95,0	63,0	0,7	58	–	SPGX0603..	DFT0303..
–	5689644 DFSP220R3WD32M	–	–	22,00	23,00	98,0	66,0	0,5	58	–	SPGX0703..	DFT05T3..
–	5689645 DFSP230R3WD32M	–	–	23,00	24,00	101,0	69,0	0,6	58	–	SPGX0703..	DFT05T3..
–	5691861 DFSP240R3WD32M	–	–	24,00	25,00	104,0	72,0	0,6	58	R1/4	SPGX0703..	DFT05T3..
–	5691862 DFSP250R3WD32M	–	–	25,00	26,00	108,0	75,0	0,7	58	R1/4	SPGX0703..	DFT05T3..
–	5691863 DFSP260R3WD32M	–	–	26,00	27,00	112,0	78,0	0,7	58	R1/4	SPPX09T3..	DFT05T3..
–	5691864 DFSP265R3WD32M	–	–	26,50	27,50	113,5	79,5	0,7	58	R1/4	SPPX09T3..	DFT05T3..

NOTE for D1 max: Diameter can be adjusted. It is highly recommended to not adjust the diameter more than +1mm.

(continued)

(WD Shank • 3 x D • Metric — continued)

D												
20	32	40	50	D1		L1		L5	LS	CS	gage insert outside	gage insert inside
order # catalogue #	order # catalogue #	order # catalogue #	order # catalogue #	D1	max	L4	max					
–	5691865 DFSP270R3WD32M	–	–	27,00	28,00	116,0	81,0	0,8	58	R1/4	SPPX09T3..	DFT05T3..
–	5691866 DFSP280R3WD32M	–	–	28,00	29,00	119,0	84,0	0,8	58	R1/4	SPPX09T3..	DFT05T3..
–	5691867 DFSP290R3WD32M	–	–	29,00	30,00	123,0	87,0	0,9	58	R1/4	SPPX09T3..	DFT05T3..
–	5691868 DFSP300R3WD32M	–	–	30,00	31,00	127,0	90,0	0,9	58	R1/4	SPPX09T3..	DFT05T3..
–	5691869 DFSP310R3WD32M	–	–	31,00	32,00	131,0	93,0	0,9	58	R1/4	SPPX09T3..	DFT05T3..
–	5691870 DFSP320R3WD32M	–	–	32,00	33,00	135,0	96,0	1,0	58	R1/4	SPPX09T3..	DFT05T3..
–	5691871 DFSP330R3WD32M	–	–	33,00	34,00	138,0	99,0	0,9	58	R1/4	SPPX1204..	DFT06T3..
–	5691872 DFSP340R3WD32M	–	–	34,00	35,00	142,0	102,0	0,9	58	R1/4	SPPX1204..	DFT06T3..
–	5691873 DFSP350R3WD32M	–	–	35,00	36,00	146,0	105,0	1,0	58	R1/4	SPPX1204..	DFT06T3..
–	5691874 DFSP360R3WD32M	–	–	36,00	37,00	150,0	108,0	1,0	58	R1/4	SPPX1204..	DFT06T3..
–	5691875 DFSP370R3WD32M	–	–	37,00	38,00	154,0	111,0	1,1	58	R1/4	SPPX1204..	DFT06T3..
–	5691876 DFSP375R3WD32M	–	–	37,50	38,50	155,5	112,5	1,1	58	R1/4	SPPX1204..	DFT06T3..
–	5691877 DFSP380R3WD32M	–	–	38,00	39,00	157,0	114,0	1,1	58	R1/4	SPPX1204..	DFT06T3..
–	5691878 DFSP390R3WD32M	–	–	39,00	40,00	161,0	117,0	1,2	58	R1/4	SPPX1204..	DFT06T3..
–	5691879 DFSP400R3WD32M	–	–	40,00	41,00	165,0	120,0	1,2	58	R1/4	SPPX1204..	DFT06T3..
–	5691880 DFSP410R3WD32M	–	–	41,00	42,00	169,0	123,0	1,2	58	R1/4	SPPX1204..	DFT0704..
–	5691881 DFSP420R3WD32M	–	–	42,00	43,00	173,0	126,0	1,3	58	R1/4	SPPX1204..	DFT0704..
–	5691882 DFSP430R3WD32M	–	–	43,00	44,00	176,0	129,0	1,3	58	R1/4	SPPX1204..	DFT0704..
–	5691883 DFSP440R3WD32M	–	–	44,00	45,00	179,0	132,0	1,4	58	R1/4	SPPX15T5..	DFT0704..
–	–	5691884 DFSP450R3WD40M	–	45,00	46,00	182,0	135,0	1,4	68	R1/4	SPPX15T5..	DFT0704..
–	–	5691885 DFSP460R3WD40M	–	46,00	47,00	186,0	138,0	1,5	68	R1/4	SPPX15T5..	DFT0704..
–	–	5691886 DFSP470R3WD40M	–	47,00	48,00	189,0	141,0	1,5	68	R1/4	SPPX15T5..	DFT0704..
–	–	5691887 DFSP480R3WD40M	–	48,00	49,00	192,0	144,0	1,5	68	R1/4	SPPX15T5..	DFT0704..
–	–	5691888 DFSP490R3WD40M	–	49,00	50,00	195,0	147,0	1,4	68	R1/4	SPPX15T5..	DFT0905..
–	–	5691889 DFSP500R3WD40M	–	50,00	51,00	198,0	150,0	1,5	68	R1/4	SPPX15T5..	DFT0905..
–	–	5691900 DFSP505R3WD40M	–	50,50	51,50	199,5	151,5	1,5	68	R1/4	SPPX15T5..	DFT0905..
–	–	5691901 DFSP510R3WD40M	–	51,00	52,00	201,0	153,0	1,6	68	R1/4	SPPX15T5..	DFT0905..
–	–	5691902 DFSP520R3WD40M	–	52,00	53,00	204,0	156,0	1,6	68	R1/4	SPPX15T5..	DFT0905..
–	–	5691903 DFSP530R3WD40M	–	53,00	54,00	207,0	159,0	1,7	68	R1/4	SPPX15T5..	DFT0905..
–	–	5691904 DFSP540R3WD40M	–	54,00	55,00	210,0	162,0	1,7	68	R1/4	SPPX15T5..	DFT0905..
–	–	–	5691905 DFSP550R3WD50M	55,00	56,00	213,0	165,0	1,8	68	R1/4	SPPX15T5..	DFT0905..

(continued)

(WD Shank • 3 x D • Metric — continued)

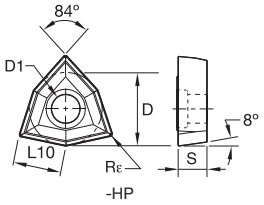
Spare Parts


diameter range	gage insert inside	inboard insert screw	tightening torque Nm	gage insert outside	outboard insert screw	tightening torque Nm	Torx driver	Torx size
14.00–17.00	DFTX202..	**193.281**	0,6	SPGX0502..	**193.281**	0,6	**170.370**	T6
17.50–21.00	DFT0303..	**MS1152**	0,9	SPGX0603..	**MS1152**	0,9	**170.023**	T7
22.00–25.00	DFT05T3..	**193.491**	2,1	SPGX0703..	**192.432**	1,3	**170.028**	T8
26.00–32.00	DFT05T3..	**191.924**	2,1	SPPX09T3..	**191.924**	2,1	**170.024**	T9
33.00–40.00	DFT06T3..	**191.916**	3	SPPX1204..	**191.916**	3	**170.025**	T15
41.00–43.00	DFT0704..	**191.916**	3	SPPX1204..	**191.916**	3	**170.025**	T15
44.00–48.00	DFT0704..	**191.698**	3	SPPX15T5..	**192.433**	3	**170.025**	T15
49.00–55.00	DFT0905..	**192.433**	3	SPPX15T5..	**192.433**	3	**170.025**	T15

NOTE: To ensure proper clamping, two different screws for DFT™ inserts with different threads for diameter ranges 22–25mm and 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.

- High positive chipbreaker geometry preferred on ductile and normal chipping materials.



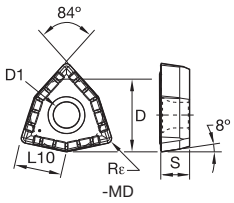
● first choice
○ alternate choice

P		●	
M		●	
K		○	
N		○	●
S		○	
H			

DFT-HP

catalogue number	L10	D	D1	S	Rε	KC7140	KMF
DFTX20204HP	3,31	5,00	2,25	2,45	0,40	**5692807**	–
DFT030204HP	3,97	6,00	2,25	2,45	0,40	**2045293**	**1982315**
DFT030304HP	3,97	6,00	2,65	2,95	0,40	**2045294**	**1982316**
DFT05T308HP	5,29	8,00	3,50	3,75	0,80	**1804829**	**1804784**
DFT06T308HP	6,62	10,00	4,40	3,75	0,80	**1804830**	**1804785**
DFT070408HP	7,94	12,00	4,40	4,75	0,80	**1804832**	**1804790**
DFT090508HP	9,92	15,00	5,50	5,25	0,85	**1805013**	**1804791**
DFT110508HP	11,64	17,60	5,85	4,88	0,80	**5588935**	–

- Positive chipbreaker geometry preferred for unstable cutting on longer chipping materials at high feed rates.



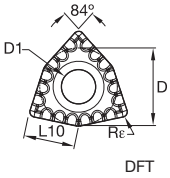
● first choice
○ alternate choice

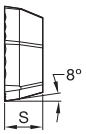
P		●
M		●
K		○
N		○
S		○
H		

DFT-MD

catalogue number	L10	D	D1	S	Rε	KC7140
DFTX20204MD	3,31	5,00	2,25	2,45	0,40	**5692808**
DFT030204MD	3,97	6,00	2,25	2,45	0,40	**1713517**
DFT030304MD	3,97	6,00	2,65	2,95	0,40	**1713515**
DFT05T308MD	5,29	8,00	3,40	3,75	0,80	**1713513**
DFT06T308MD	6,62	10,00	4,40	3,75	0,80	**1713512**
DFT070408MD	7,94	12,00	4,40	4,75	0,80	**1713440**
DFT090508MD	9,92	15,00	5,50	5,25	0,80	**1713203**
DFT110508MD	11,64	17,60	5,85	4,88	0,80	**5588937**

- 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.





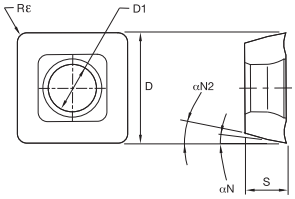
● first choice
○ alternate choice

P		●
M		○
K		
N		○
S		○
H		

DFT-DS

catalogue number	L10	D	D1	S	Rε	KCU40
DFTX20204DS	3,31	5,00	2,25	2,45	0,40	**6025821**
DFT030304DS	3,97	6,00	2,65	2,95	0,40	**6025669**
DFT05T308DS	5,29	8,00	3,40	3,75	0,80	**6025823**
DFT06T308DS	6,62	10,00	4,40	3,75	0,80	**6026363**
DFT070408DS	7,94	12,00	4,40	4,75	0,80	**6025665**
DFT090508DS	9,92	15,00	5,50	5,25	0,80	**6025894**

- Four cutting edge insert.



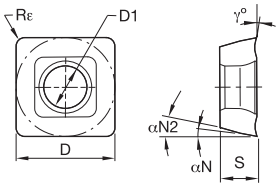
● first choice
○ alternate choice

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

SP..X..MD

catalogue number	D	D1	S	Rε	γ°	αN	αN2	KCU25	KCU40	KC7140
SPGX050204MD	5,56	2,25	2,38	0,40	16	7	11	**5692728**	**5692800**	**5692802**
SPGX060304MD	6,35	2,65	3,18	0,40	20	7	11	**5534254**	**5534149**	**4047829**
SPGX070304MD	7,94	2,85	3,18	0,40	16	7	11	**5534257**	**5534232**	**4047830**
SPGX070308MD	7,94	2,85	3,18	0,80	16	7	11	**4040133**	**4042934**	**–**
SPPX09T308MD	9,53	3,60	3,97	0,80	16	7	11	**5534260**	**5534235**	**–**
SPPX09T310MD	9,53	3,60	3,97	1,00	16	7	11	**4040138**	**4042937**	**–**
SPPX120408MD	12,70	4,60	4,76	0,80	16	7	11	**5534263**	**5534238**	**4047832**
SPPX120412MD	12,70	4,60	4,76	1,20	16	7	11	**4040139**	**4042940**	**–**
SPPX15T508MD	15,73	5,50	5,95	0,80	16	7	11	**5534266**	**5534251**	**4047843**
SPPX15T512MD	15,73	5,50	5,95	1,20	16	7	11	**4040142**	**4042943**	**–**

- Four cutting edge insert.
- Positive chipbreaker geometry preferred for stable cutting on most materials at high feed rates.
- Additional inserts with increased corner radius to support usage with Beyond™ grades.



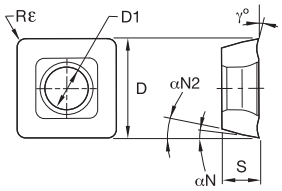
● first choice
○ alternate choice

P	●	●
M	○	●
K	●	●
N	○	○
S	○	●
H		

SP..X..FP

catalogue number	D	D1	S	Rε	γ°	αN	αN2	KCU25	KCU40
SPGX060304FP	6,35	2,65	3,18	0,40	6	7	11	**5534252**	**5534147**
SPGX070304FP	7,94	2,85	3,18	0,40	6	7	11	**5534255**	**5534230**
SPGX070308FP	7,94	2,85	3,18	0,80	6	7	11	**4042840**	**4042933**
SPPX09T308FP	9,53	3,60	3,97	0,80	6	7	11	**5534258**	**5534233**
SPPX09T310FP	9,53	3,60	3,97	1,00	6	7	11	**4042841**	**4042936**
SPPX120408FP	12,70	4,60	4,76	0,80	6	7	11	**5534261**	**5534236**
SPPX120412FP	12,70	4,60	4,76	1,20	6	7	11	**4042913**	**4042939**
SPPX15T508FP	15,73	5,50	5,95	0,80	6	7	11	**5534264**	**5534239**
SPPX15T512FP	15,73	5,50	5,95	1,20	6	7	11	**4042914**	**4042942**

- Four cutting edge insert.
- High positive chipbreaker geometry preferred on ductile and normal chipping materials.
- Additional inserts with increased corner radius to support usage with Beyond™ grades.



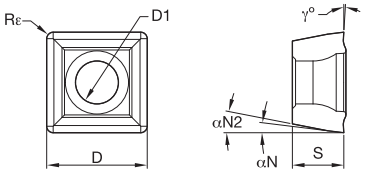
SP..X..(R)HP

● first choice
○ alternate choice

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

catalogue number	D	D1	S	Rε	γ°	αN	αN2	KCU25	KCU40	KC7140
SPGX050204HP	5,56	2,25	2,38	0,40	10	7	11	5692727	5692729	5692801
SPGX060304RHP	6,35	2,65	3,18	0,40	10	7	11	5534253	5534148	1848593
SPGX070304RHP	7,94	2,85	3,18	0,40	10	7	11	5534256	5534231	1848597
SPGX070308HP	7,94	2,85	3,18	0,80	10	7	11	4040135	4042935	–
SPPX09T308RHP	9,53	3,60	3,97	0,80	10	7	11	5534259	5534234	1848601
SPPX09T310HP	9,53	3,60	3,97	1,00	10	7	11	4042842	4042938	–
SPPX120408RHP	12,70	4,60	4,76	0,80	10	7	11	5534262	5534237	1848605
SPPX120412HP	12,70	4,60	4,76	1,20	10	7	11	4040141	4042941	–
SPPX15T508RHP	15,73	5,50	5,95	0,80	10	7	11	5534265	5534250	3774906
SPPX15T512HP	15,73	5,50	5,95	1,20	10	7	11	4042915	4042944	–

- 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.



SP..X..LP

● first choice
○ alternate choice

P	●
M	○
K	
N	○
S	○
H	

catalogue number	D	D1	S	Rε	γ°	αN	αN2	KCU40
SPGX050204LP	5,42	2,25	2,38	0,40	4	7	11	6025822
SPGX060304LP	6,35	2,65	3,18	0,40	4	7	11	6026364
SPPX070304LP	7,80	2,85	3,18	0,40	4	7	11	6025670
SPPX09T308LP	9,38	3,60	3,97	0,80	4	7	11	6025824
SPPX120408LP	12,56	4,60	4,76	0,80	4	7	11	6025666
SPPX15T508LP	15,73	5,50	5,95	0,80	4	7	11	6025667

Drill Fix™ DFSP™ • 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	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
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
			I	HP	KCU40										
		I	O	HP	KCU40	130	**135**	150	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
			I	HP	KCU40										
	1	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										
		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										
		I	O	HP	KCU40	130	**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										
	2	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										
		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										
		I	O	HP	KCU40	130	**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										
	3	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
			I	HP	KC7140										
		I	O	HP	KCU40	110	**120**	140	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	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										
		U	O	HP	KCU25	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										
		I	O	HP	KCU40	90	**110**	140	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										
	5	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
			I	HP	KC7140										
		I	O	HP	KC7140	70	**85**	100	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										
	6	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
			I	HP	KC7140										
		I	O	HP	KC7140	70	**85**	100	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										
M	1	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										
		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										
		I	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
			I	MD	KC7140										
	2	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										
		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										
		I	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
			I	MD	KC7140										
	3	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										
		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										
		I	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
			I	MD	KC7140										

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Drill Fix™ DFSP™ • 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	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										
		I	O	FP	KC7140	80	**100**	125	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										
	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										
		I	O	HP	KC7140	80	**100**	120	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										
	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										
		I	O	HP	KC7140	80	**100**	120	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										
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										
		I	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										
	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										
		I	O	HP	KCU40	175	**250**	325	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										
	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										
		I	O	HP	KCU40	150	**250**	350	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										
	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										
		I	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										
	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										
		I	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										
	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										
		I	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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Drill Fix™ DFSP™ • 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	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
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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KENNAMETAL

thread size range min–max	shank/dimension	hole		chamfer		helix angle	coolant		series		
		through	blind	type	form		flood	through			
High-Performance Spiral-Point Taps for Through Holes											
M3–M18	DIN 371, 374, 376	•		plug	D	L15°	•		HP Taps HSS-E-PM	T620	
Multipurpose Spiral-Point Taps for Through Holes											
M3–M24	DIN 371, 374, 376	•		plug	B	0°	•		GOtap™ HSS-E	T820	
High-Performance Spiral-Flute Taps for Blind Holes											
M3–M18	DIN 371, 374, 376		•	semi-bottoming	C	45°	•		HP Taps HSS-E-PM	T630	
M5–M18	DIN 371, 374, 376		•	semi-bottoming	C	45°		•	HP Taps HSS-E-PM	T631	
Multipurpose Spiral-Flute Taps for Blind Holes											
M3–M20	DIN 371, 374, 376		•	semi-bottoming	C	45°	•		GOtap HSS-E	T830	
M3–M24	DIN 371, 374, 376		•	semi-bottoming	C	45°	•		GOtap HSS-E	T838	
High-Performance Straight-Flute Taps for Through and Blind Holes for Short-Chipping Materials											
M4–M20	DIN 371, 376	•	•	semi-bottoming	C	0°	•		HP Taps HSS-E-PM	T640	
M5–M20	DIN 371, 376		•	semi-bottoming	C	0°		•	HP Taps HSS-E-PM	T641	

	● first choice ○ alternate choice P M K N S H	grade/ coating		page(s)	recommended cutting parameters
	● ● ○ ○	KP6525 KM6515		C106	C118
	● ○ ● ○	KSP32 KSP39		C107	C118
	● ● ○ ○	KP6525 KM6515		C110	C118
	● ● ○ ○	KP6525 KM6515		C111	C118
	● ○ ● ○	KSP32 KSP39		C112	C118
	● ○ ● ○	KSP32 KSP39		C113	C118
	● ●	KP6525		C116	C118
	● ●	KP6525		C117	C118

Spiral-Point Taps for Through Holes

High-Performance Taps for Through-Hole Applications

- Steel and steel alloys.
- Stainless steel.
- Cast iron.
- Nickel- and cobalt-based alloys.
- Titanium and titanium alloys.
- Aluminium.
- Hard steel.

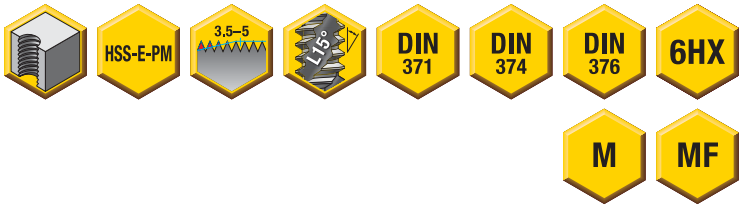
High-Performance Beyond™ HSS-E-PM Taps

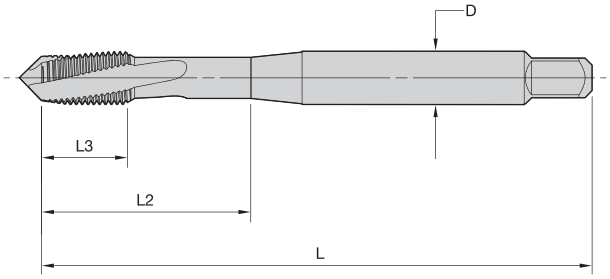
- Left-hand spiral flute for optimal chip evacuation ahead of the tap.
- Higher strength and wider range of applications versus solid carbide taps.
- Higher tapping speed capability and longer tool life than conventional HSS-E taps.
- Can be used on either conventional or synchronous tapping machines.

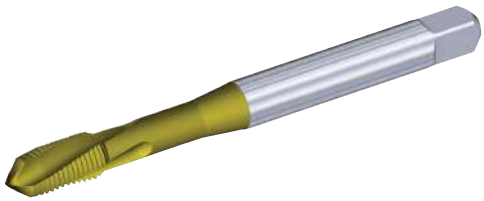
Multipurpose HSS-E GOtap™ Taps

- Optimised 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.

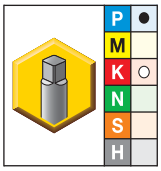
- KM6515 TiN + CrC/C for tapping stainless steel.
- KP6525 TiCN + TiN for tapping steel.

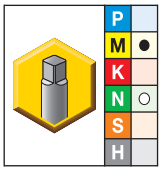






T620 • DIN 371, 374, and 376 • Form D Plug Chamfer • Metric • For Steel and Stainless Steel





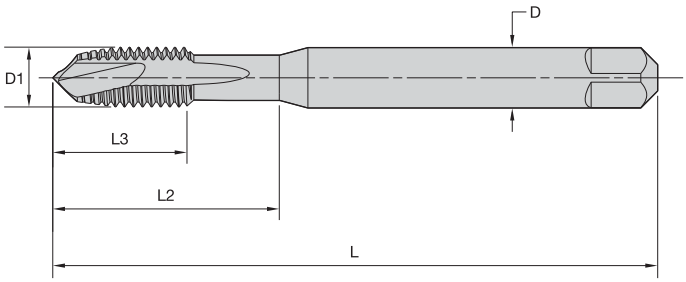
● first choice
○ alternate choice

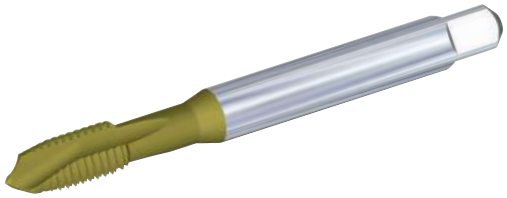
KP6525		KM6515									
order #	catalogue #	order #	catalogue #	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
3868174	T620M030X050R6HX-D1	3868079	T620M030X050R6HX-D1	M3 X 0,5	56	8	18	3,5	2	DIN 371	6HX
3868175	T620M040X070R6HX-D1	3868080	T620M040X070R6HX-D1	M4 X 0,7	63	10	21	4,5	2	DIN 371	6HX
3868176	T620M050X080R6HX-D1	3868081	T620M050X080R6HX-D1	M5 X 0,8	70	10	25	6,0	2	DIN 371	6HX
3868177	T620M060X100R6HX-D1	3868082	T620M060X100R6HX-D1	M6 X 1	80	10	30	6,0	3	DIN 371	6HX
3868178	T620M080X125R6HX-D1	3868093	T620M080X125R6HX-D1	M8 X 1,25	90	13	35	8,0	3	DIN 371	6HX
3868216	T620MF100X100R6HX-D4	3868111	T620MF100X100R6HX-D4	M10 X 1	90	10	35	7,0	3	DIN 374	6HX
3868217	T620MF100X125R6HX-D4		—	M10 X 1,25	100	15	39	7,0	3	DIN 374	6HX
3868179	T620M100X150R6HX-D1	3868094	T620M100X150R6HX-D1	M10 X 1,5	100	15	39	10,0	3	DIN 371	6HX
3868219	T620MF120X150R6HX-D4	3868114	T620MF120X150R6HX-D4	M12 X 1,5	100	15	39	9,0	3	DIN 374	6HX
3868180	T620M120X175R6HX-D6	3868095	T620M120X175R6HX-D6	M12 X 1,75	110	18	44	9,0	3	DIN 376	6HX
3868221	T620MF140X150R6HX-D4	3868116	T620MF140X150R6HX-D4	M14 X 1,5	100	15	47	11,0	4	DIN 374	6HX
3868181	T620M140X200R6HX-D6	3868096	T620M140X200R6HX-D6	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
3868222	T620MF160X150R6HX-D4	3868117	T620MF160X150R6HX-D4	M16 X 1,5	100	15	46	12,0	4	DIN 374	6HX
3868182	T620M160X200R6HX-D6	3868097	T620M160X200R6HX-D6	M16 X 2	110	20	51	12,0	4	DIN 376	6HX
3868223	T620MF180X150R6HX-D4	3868118	T620MF180X150R6HX-D4	M18 X 1,5	110	15	50	14,0	4	DIN 374	6HX

Shank Tolerance

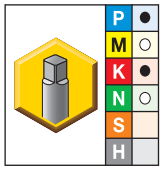
D	tolerance h6
12–18	+0, -0,011
20–30	+0, -0,013
32–36	+0, -0,016

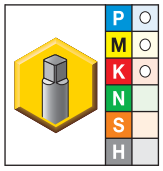
- KSP32 TiCN/TiN
- KSP39 oxide





T820 • DIN 371, 374, and 376 • Form B Plug Chamfer • Metric





● first choice
○ alternate choice

KSP32		KSP39									
order #	catalogue #	order #	catalogue #	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
5417220	T820M030X050R6H-D1	5417221	T820M030X050R6H-D1	M3 X 0,5	56	8	18	3,5	2	DIN 371	6H
5417224	T820M040X070R6H-D1	5417225	T820M040X070R6H-D1	M4 X 0,7	63	11	21	4,5	2	DIN 371	6H
5417228	T820M050X080R6H-D1	5417229	T820M050X080R6H-D1	M5 X 0,8	70	12	25	6,0	2	DIN 371	6H
5417232	T820M060X100R6H-D1	5417233	T820M060X100R6H-D1	M6 X 1	80	12	30	6,0	3	DIN 371	6H
5417240	T820M080X125R6H-D1	5417241	T820M080X125R6H-D1	M8 X 1,25	90	15	35	8,0	3	DIN 371	6H
–		5479781	T820MF100X100R6H-D4	M10 X 1	90	15	35	7,0	3	DIN 374	6H
–		5417246	T820MF100X125R6H-D4	M10 X 1,25	100	18	39	7,0	3	DIN 374	6H
5417244	T820M100X150R6H-D1	5417245	T820M100X150R6H-D1	M10 X 1,5	100	18	39	10,0	3	DIN 371	6H
–		5479782	T820MF120X100R6H-D4	M12 X 1	100	21	39	9,0	3	DIN 374	6H
–		5417253	T820MF120X125R6H-D4	M12 X 1,25	100	21	39	9,0	3	DIN 374	6H
–		5417254	T820MF120X150R6H-D4	M12 X 1,5	100	21	39	9,0	3	DIN 374	6H
5417251	T820M120X175R6H-D6	5417252	T820M120X175R6H-D6	M12 X 1,75	110	21	44	9,0	3	DIN 376	6H
–		5479783	T820MF140X100R6H-D4	M14 X 1	100	21	47	11,0	3	DIN 374	6H
–		5417258	T820MF140X125R6H-D4	M14 X 1,25	100	21	47	11,0	3	DIN 374	6H
–		5417259	T820MF140X150R6H-D4	M14 X 1,5	100	21	47	11,0	3	DIN 374	6H
5417256	T820M140X200R6H-D6	5417257	T820M140X200R6H-D6	M14 X 2	110	24	52	11,0	3	DIN 376	6H
–		5479784	T820MF160X100R6H-D4	M16 X 1	100	21	46	12,0	3	DIN 374	6H
–		5417263	T820MF160X150R6H-D4	M16 X 1,5	100	21	46	12,0	3	DIN 374	6H
5417261	T820M160X200R6H-D6	5417262	T820M160X200R6H-D6	M16 X 2	110	24	51	12,0	3	DIN 376	6H
–		5417267	T820MF180X150R6H-D4	M18 X 1,5	110	21	50	14,0	3	DIN 374	6H
–		5479785	T820MF180X200R6H-D4	M18 X 2	125	30	58	14,0	3	DIN 374	6H
5417265	T820M180X250R6H-D6	5417266	T820M180X250R6H-D6	M18 X 2,5	125	30	58	14,0	3	DIN 376	6H
5417268	T820M200X250R6H-D6	5417269	T820M200X250R6H-D6	M20 X 2,5	140	30	64	16,0	3	DIN 376	6H
–		5417270	T820M220X250R6H-D6	M22 X 2,5	140	30	70	18,0	3	DIN 376	6H
–		5417271	T820M240X300R6H-D6	M24 X 3	160	36	77	18,0	3	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

Spiral-Flute Taps for Blind Holes

High-Performance Taps for Blind-Hole Applications

- Steel and steel alloys.
- Stainless steel.
- Cast iron.
- Nickel- and cobalt-based alloys.
- Titanium and titanium alloys.
- Aluminium.
- Hard steel.

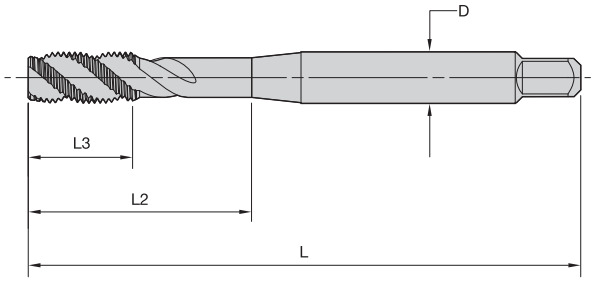
High-Performance Beyond™ HSS-E-PM Taps

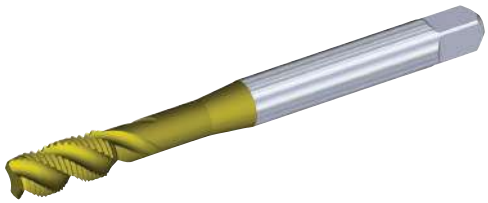
- Right-hand spiral flutes with the flute form and helix angle optimised for material-specific applications.
- Higher strength and wider range of applications versus solid carbide taps.
- Higher tapping speed capability and longer tool life than conventional HSS-E taps.
- Can be used on either conventional or synchronous tapping machines with rigid or synchronous tap holders.

Multipurpose HSS-E GOtap™ Taps

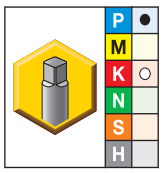
- Advanced spiral-flute geometry designed for free cutting action and efficient chip evacuation in blind holes.
- Manufactured with high vanadium HSS-E material for exceptional wear characteristics and longer tool life.
- Advanced PVD coatings to reduce tapping torque, resulting in high-quality thread finish and longer tool life.
- For use in both synchronous and non-synchronous machines, including rigid, synchronous, and tension/compression tap holders.

- KM6515 TiN + CrC/C for stainless steel.
- KP6525 TiCN + TiN for steel.

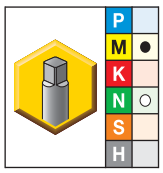




T630 • DIN 371, 374, and 376 • Form C Semi-Bottoming Chamfer • Metric • For Steel and Stainless Steel • Rigid and Synchronous Holders



KP6525



KM6515

● first choice
○ alternate choice

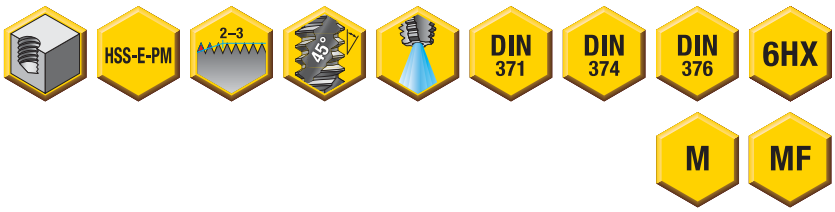
order #	catalogue #	order #	catalogue #	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
3868571	T630M030X050R6HX-D1	3868825	T630M030X050R6HX-D1	M3 X 0,5	56	8	18	3,5	3	DIN 371	6HX
3868572	T630M040X070R6HX-D1	3868826	T630M040X070R6HX-D1	M4 X 0,7	63	10	21	4,5	3	DIN 371	6HX
3868923	T630M050X080R6HX-D1	3868827	T630M050X080R6HX-D1	M5 X 0,8	70	10	25	6,0	3	DIN 371	6HX
3868924	T630M060X100R6HX-D1	3868828	T630M060X100R6HX-D1	M6 X 1	80	10	30	6,0	3	DIN 371	6HX
3868925	T630M080X125R6HX-D1	3868829	T630M080X125R6HX-D1	M8 X 1,25	90	13	35	8,0	3	DIN 371	6HX
3868943	T630MF100X100R6HX-D4	3868857	T630MF100X100R6HX-D4	M10 X 1	90	10	35	7,0	3	DIN 374	6HX
3868944	T630MF100X125R6HX-D4	3868858	T630MF100X125R6HX-D4	M10 X 1,25	100	15	39	7,0	3	DIN 374	6HX
3868926	T630M100X150R6HX-D1	3868830	T630M100X150R6HX-D1	M10 X 1,5	100	15	39	10,0	3	DIN 371	6HX
3868946	T630MF120X150R6HX-D4	3868860	T630MF120X150R6HX-D4	M12 X 1,5	100	15	39	9,0	4	DIN 374	6HX
3868927	T630M120X175R6HX-D6	3868831	T630M120X175R6HX-D6	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
3868948	T630MF140X150R6HX-D4	3868862	T630MF140X150R6HX-D4	M14 X 1,5	100	15	47	11,0	4	DIN 374	6HX
3868928	T630M140X200R6HX-D6	3868832	T630M140X200R6HX-D6	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
3868949	T630MF160X150R6HX-D4	3868863	T630MF160X150R6HX-D4	M16 X 1,5	100	15	46	12,0	4	DIN 374	6HX
3868929	T630M160X200R6HX-D6	3868843	T630M160X200R6HX-D6	M16 X 2	110	20	51	12,0	4	DIN 376	6HX
3868950	T630MF180X150R6HX-D4	3868864	T630MF180X150R6HX-D4	M18 X 1,5	110	15	50	14,0	4	DIN 374	6HX
3868930	T630M180X250R6HX-D6	3868844	T630M180X250R6HX-D6	M18 X 2,5	125	25	58	14,0	4	DIN 376	6HX

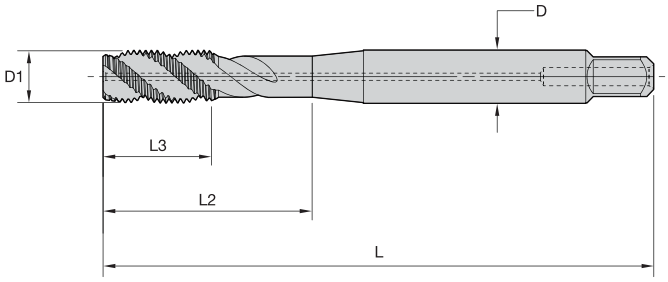
NOTE: Suggested for use in rigid and synchronous holders.

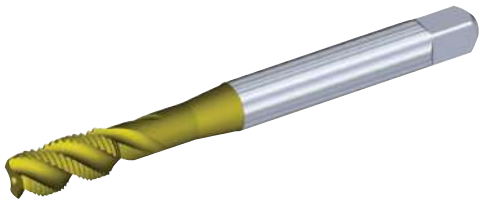
Shank Tolerance

D	tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–16	+0, -0,011

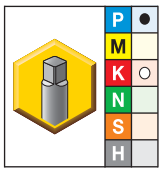
- KM6515 TiN + CrC/C for stainless steel.
- KP6525 TiCN + TiN for steel.



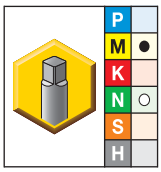




T631 • DIN 371, 374, and 376 • Form C Semi-Bottoming Chamfer • Through Coolant • Metric • For Steel and Stainless Steel • Rigid and Synchronous Holders



KP6525



KM6515

● first choice
○ alternate choice

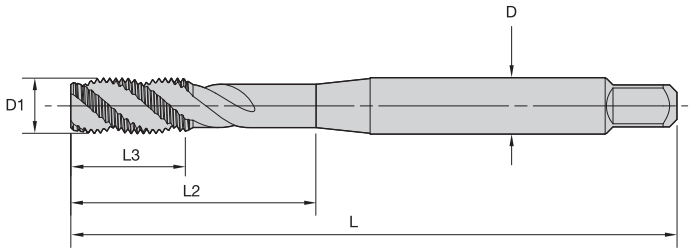
order #	catalogue #	order #	catalogue #	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
3868976	T631M050X080R6HX-D1	4026180	T631M050X080R6HX-D1	M5 X 0,8	70	10	25	6,0	3	DIN 371	6HX
3868977	T631M060X100R6HX-D1	4026181	T631M060X100R6HX-D1	M6 X 1	80	10	30	6,0	3	DIN 371	6HX
3868978	T631M080X125R6HX-D1	4026182	T631M080X125R6HX-D1	M8 X 1,25	90	13	35	8,0	3	DIN 371	6HX
3869004	T631MF100X100R6HX-D4	4026232	T631MF100X100R6HX-D4	M10 X 1	90	10	35	7,0	3	DIN 374	6HX
3869005	T631MF100X125R6HX-D4	4026233	T631MF100X125R6HX-D4	M10 X 1,25	100	15	39	7,0	3	DIN 374	6HX
3868979	T631M100X150R6HX-D1	4026223	T631M100X150R6HX-D1	M10 X 1,5	100	15	39	10,0	3	DIN 371	6HX
3869006	T631MF120X125R6HX-D4	4026234	T631MF120X125R6HX-D4	M12 X 1,25	100	15	39	9,0	4	DIN 374	6HX
3869007	T631MF120X150R6HX-D4	4026235	T631MF120X150R6HX-D4	M12 X 1,5	100	15	39	9,0	4	DIN 374	6HX
3868980	T631M120X175R6HX-D6	4026224	T631M120X175R6HX-D6	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
3869008	T631MF140X125R6HX-D4	4026236	T631MF140X125R6HX-D4	M14 X 1,25	100	15	47	11,0	4	DIN 374	6HX
3869009	T631MF140X150R6HX-D4	4026237	T631MF140X150R6HX-D4	M14 X 1,5	100	15	47	11,0	4	DIN 374	6HX
3868981	T631M140X200R6HX-D6	4026225	T631M140X200R6HX-D6	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
3869010	T631MF160X150R6HX-D4	4026238	T631MF160X150R6HX-D4	M16 X 1,5	100	15	46	12,0	4	DIN 374	6HX
3868982	T631M160X200R6HX-D6	4026226	T631M160X200R6HX-D6	M16 X 2	110	20	51	12,0	4	DIN 376	6HX
3869011	T631MF180X150R6HX-D4	4026239	T631MF180X150R6HX-D4	M18 X 1,5	110	15	50	14,0	4	DIN 374	6HX
3868993	T631M180X250R6HX-D6	4026227	T631M180X250R6HX-D6	M18 X 2,5	125	25	58	14,0	4	DIN 376	6HX

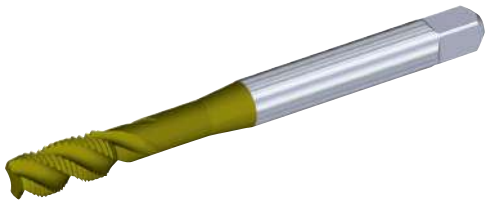
NOTE: Suggested for use in rigid and synchronous holders.

Shank Tolerance

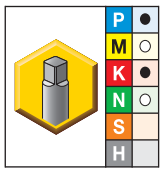
D	tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–16	+0, -0,011

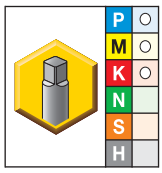
- KSP32 TiCN/TiN
- KSP39 oxide





T830 • DIN 371, 374, and 376 • Form C Semi-Bottoming Chamfer • Metric • Rigid and Synchronous Holders





● first choice
○ alternate choice

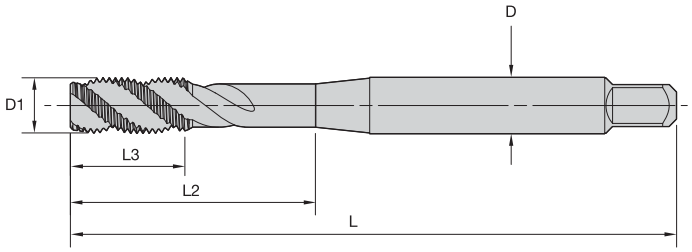
KSP32		KSP39									
order #	catalogue #	order #	catalogue #	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
5417280	T830M030X050R6H-D1	5417281	T830M030X050R6H-D1	M3 X 0,5	56	8	18	3,5	2	DIN 371	6H
5417284	T830M040X070R6H-D1	5417285	T830M040X070R6H-D1	M4 X 0,7	63	11	21	4,5	3	DIN 371	6H
5417287	T830M050X080R6H-D1	5417288	T830M050X080R6H-D1	M5 X 0,8	70	12	25	6,0	3	DIN 371	6H
5417290	T830M060X100R6H-D1	5417291	T830M060X100R6H-D1	M6 X 1	80	12	30	6,0	3	DIN 371	6H
5417294	T830M080X125R6H-D1	5417295	T830M080X125R6H-D1	M8 X 1,25	90	15	35	8,0	3	DIN 371	6H
–		5417302	T830MF100X125R6H-D4	M10 X 1,25	100	18	39	7,0	3	DIN 374	6H
5417299	T830M100X150R6H-D1	–		M10 X 1,5	100	18	39	10,0	3	DIN 371	6G
–		5417300	T830M100X150R6H-D1	M10 X 1,5	100	18	39	10,0	3	DIN 371	6H
–		5417309	T830MF120X125R6H-D4	M12 X 1,25	100	21	39	9,0	3	DIN 374	6H
–		5417311	T830MF120X150R6H-D4	M12 X 1,5	100	21	39	9,0	3	DIN 374	6H
5417307	T830M120X175R6H-D6	5417308	T830M120X175R6H-D6	M12 X 1,75	110	21	44	9,0	3	DIN 376	6H
–		5417316	T830MF140X150R6H-D4	M14 X 1,5	100	21	47	11,0	3	DIN 374	6H
5417313	T830M140X200R6H-D6	5417314	T830M140X200R6H-D6	M14 X 2	110	24	52	11,0	3	DIN 376	6H
–		5417319	T830MF160X150R6H-D4	M16 X 1,5	100	21	46	12,0	3	DIN 374	6H
–		5417318	T830M160X200R6H-D6	M16 X 2	110	24	51	12,0	3	DIN 376	6H
–		5417332	T830MF180X150R6H-D4	M18 X 1,5	110	21	50	14,0	4	DIN 374	6H
–		5417331	T830M180X250R6H-D6	M18 X 2,5	125	30	58	14,0	4	DIN 376	6H
–		5417333	T830M200X250R6H-D6	M20 X 2,5	140	30	64	16,0	4	DIN 376	6H

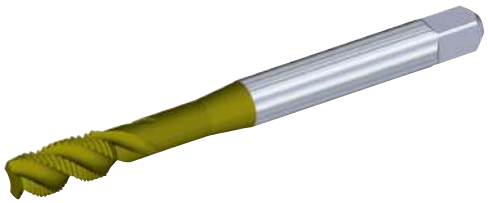
NOTE: Suggested for use in rigid and synchronous holders.

Shank Tolerance

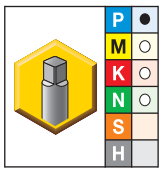
D mm	tolerance h9
1–3	+0, -0,025
>3–6	+0, -0,030
>6–10	+0, -0,036
>10–18	+0, -0,043
>18–30	+0, -0,052

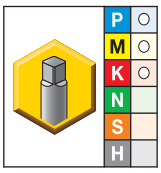
- KSU31 TiN
- KSP39 oxide





T838 • DIN 371, 374, and 376 • Form C Semi-Bottoming Chamfer • Metric • Tension/Compression Holders





● first choice
○ alternate choice

KSU31		KSP39									
order #	catalogue #	order #	catalogue #	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
6172970	T838M030X050R6H-D1	6172969	T838M030X050R6H-D1	M3 X 0,5	56	5	19	3,5	3	DIN 371	6H
6173002	T838M040X070R6H-D1	6173001	T838M040X070R6H-D1	M4 X 0,7	63	7	21	4,5	3	DIN 371	6H
6173004	T838M050X080R6H-D1	6173003	T838M050X080R6H-D1	M5 X 0,8	70	8	26	6,0	3	DIN 371	6H
6173010	T838M060X100R6H-D1	6173009	T838M060X100R6H-D1	M6 X 1	80	10	30	6,0	3	DIN 371	6H
6173016	T838MF080X100R6H-D4	6173015	T838MF080X100R6H-D4	M8 X 1	90	13	37	6,0	3	DIN 374	6H
6173018	T838M080X125R6H-D1	6173017	T838M080X125R6H-D1	M8 X 1,25	90	13	37	8,0	3	DIN 371	6H
6173024	T838MF100X100R6H-D4	6173023	T838MF100X100R6H-D4	M10 X 1	90	15	40	7,0	3	DIN 374	6H
6173026	T838MF100X125R6H-D4	6173025	T838MF100X125R6H-D4	M10 X 1,25	100	15	44	7,0	3	DIN 374	6H
6173028	T838M100X150R6H-D1	6173027	T838M100X150R6H-D1	M10 X 1,5	100	15	41	10,0	3	DIN 371	6H
6173052	T838MF120X100R6H-D4	6173051	T838MF120X100R6H-D4	M12 X 1	100	13	50	9,0	3	DIN 374	6H
6173054	T838MF120X125R6H-D4	6173053	T838MF120X125R6H-D4	M12 X 1,25	100	13	50	9,0	3	DIN 374	6H
6173056	T838MF120X150R6H-D4	6173055	T838MF120X150R6H-D4	M12 X 1,5	100	13	50	9,0	3	DIN 374	6H
6173058	T838M120X175R6H-D6	6173057	T838M120X175R6H-D6	M12 X 1,75	110	18	55	9,0	3	DIN 376	6H
6173062	T838MF140X125R6H-D4	6173061	T838MF140X125R6H-D4	M14 X 1,25	100	15	41	11,0	4	DIN 374	6H
6173064	T838MF140X150R6H-D4	6173063	T838MF140X150R6H-D4	M14 X 1,5	100	15	41	11,0	4	DIN 374	6H
6173066	T838M140X200R6H-D6	6173065	T838M140X200R6H-D6	M14 X 2	110	20	50	11,0	3	DIN 376	6H
6173069	T838MF160X150R6H-D4	6173068	T838MF160X150R6H-D4	M16 X 1,5	100	15	45	12,0	4	DIN 374	6H
6173111	T838M160X200R6H-D6	6173070	T838M160X200R6H-D6	M16 X 2	110	20	55	12,0	4	DIN 376	6H
6173113	T838MF180X150R6H-D4	6173112	T838MF180X150R6H-D4	M18 X 1,5	110	17	55	14,0	4	DIN 374	6H
6173117	T838M180X250R6H-D6	6173116	T838M180X250R6H-D6	M18 X 2,5	125	25	61	14,0	4	DIN 376	6H
6173133	T838M200X250R6H-D6	6173132	T838M200X250R6H-D6	M20 X 2,5	140	25	65	16,0	4	DIN 376	6H
6173139	T838M220X250R6H-D6	6173138	T838M220X250R6H-D6	M22 X 2,5	140	25	66	18,0	4	DIN 376	6H
6173145	T838M240X300R6H-D6	6173144	T838M240X300R6H-D6	M24 X 3	160	30	77	18,0	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

Straight-Flute Taps for Through and Blind Holes in Short Chipping Materials

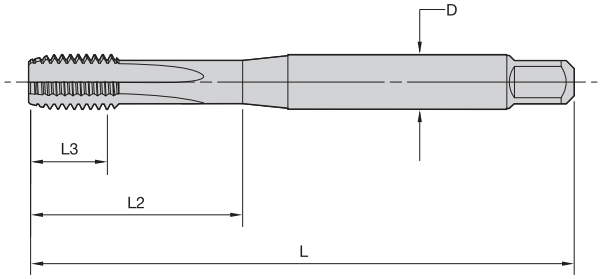
High-Performance Taps for Through-Hole and Blind-Hole Applications

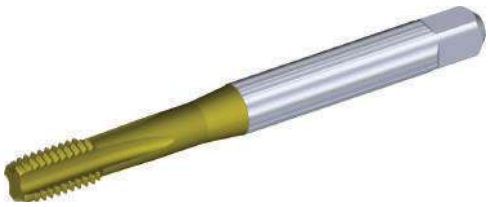
- Cast iron.
- Cast aluminium.

High-Performance Beyond™ HSS-E-PM Taps

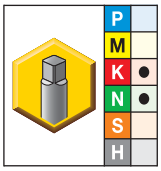
- Straight-flute design for through- and blind-hole tapping in cast iron and cast aluminium.
- Higher strength and wider range of applications versus solid carbide taps.
- Higher tapping speed capability and longer tool life than conventional HSS-E taps.
- Can be used on either conventional or synchronous tapping machines with rigid or synchronous tap holders.

- KP6525 TiCN + TiN for cast iron and cast aluminium.





T640 • DIN 371 and 376 • Form C Semi-Bottoming Chamfer • Metric • For Cast Iron and Cast Aluminium



KP6525

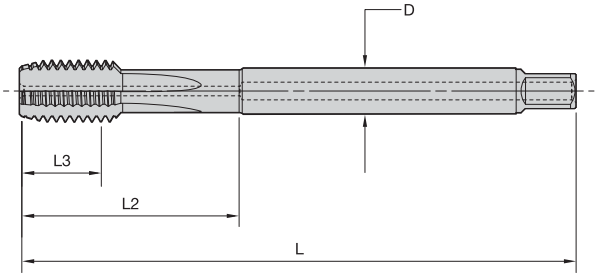
● first choice
○ alternate choice

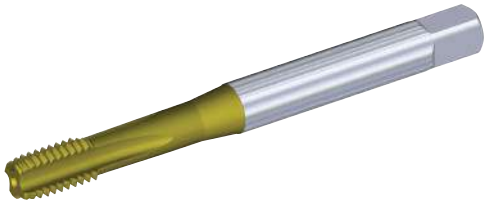
order #	catalogue #	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
4035459	T640M040X070R6HX-D1	M4 X 0,7	63	10	21	4,5	3	DIN 371	6HX
4035460	T640M050X080R6HX-D1	M5 X 0,8	70	10	25	6,0	3	DIN 371	6HX
4035461	T640M060X100R6HX-D1	M6 X 1	80	10	30	6,0	4	DIN 371	6HX
4035462	T640M080X125R6HX-D1	M8 X 1,25	90	13	35	8,0	4	DIN 371	6HX
4035463	T640M100X150R6HX-D1	M10 X 1,5	100	15	39	10,0	4	DIN 371	6HX
4035464	T640M120X175R6HX-D6	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
4035465	T640M140X200R6HX-D6	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
4035466	T640M160X200R6HX-D6	M16 X 2	110	20	51	12,0	4	DIN 376	6HX
4035467	T640M180X250R6HX-D6	M18 X 2,5	125	25	58	14,0	4	DIN 376	6HX
4035468	T640M200X250R6HX-D6	M20 X 2,5	140	25	64	16,0	4	DIN 376	6HX

Shank Tolerance

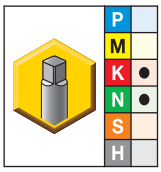
D	tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–16	+0, -0,011

- KP6525 TiCN + TiN for cast iron and cast aluminium.





T641 • DIN 371 and 376 • Form C Semi-Bottoming Chamfer • Through Coolant • Metric • For Cast Iron and Cast Aluminium



KP6525

● first choice
○ alternate choice

order #	catalogue #	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
4035525	T641M050X080R6HX-D1	M5 X 0,8	70	10	25	6,0	3	DIN 371	6HX
4035526	T641M060X100R6HX-D1	M6 X 1	80	10	30	6,0	4	DIN 371	6HX
4035527	T641M080X125R6HX-D1	M8 X 1,25	90	13	35	8,0	4	DIN 371	6HX
4035528	T641M100X150R6HX-D1	M10 X 1,5	100	15	39	10,0	4	DIN 371	6HX
4035529	T641M120X175R6HX-D6	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
4035530	T641M140X200R6HX-D6	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
4035531	T641M160X200R6HX-D6	M16 X 2	110	20	51	12,0	4	DIN 376	6HX
4035532	T641M180X250R6HX-D6	M18 X 2,5	125	25	58	14,0	4	DIN 376	6HX
4035533	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 • 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	KP6525	14	**21**	32
	2	T620	KP6525	17	**25**	36	T630	KP6525	12	**18**	26
	3	T620	KP6525	12	**15**	20	T630	KP6525	8	**11**	14
	5	T620	KP6525	12	**15**	20	T630	KP6525	8	**11**	14
M	1	T620	KM6515	12	**15**	20	T630	KM6515	8	**11**	14
	2	T620	KM6515	9	**12**	16	T630	KM6515	6	**8**	11
	3	T620	KM6515	8	**10**	13	T630	KM6515	5	**7**	9
K	1	T640	KP6525	27	**35**	46	T640	KP6525	19	**25**	32
	2	T640	KP6525	23	**30**	39	T640	KP6525	16	**21**	27
	3	T640	KP6525	19	**25**	33	T640	KP6525	13	**18**	23
N	2	T640	KP6525	30	**45**	59	T640	KP6525	21	**32**	41
	4	T640	KP6525	7	**10**	15	T640	KP6525	5	**7**	11
S	1	T620	KM6525	8	**12**	18	T630	KP6525	6	**8**	13

NOTE: Increase speed by up to 25% when using coolant taps (T631 and T641).

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	KSP32 KSP39	23 11	**30** **15**	38 19	T830 T838 T830 T838	KSP32 KSU31 KSP39 KSU30	15 15 7 7	**21** **21** **11** **11**	30 30 15 15
	2	T820	KSP32 KSP39	18 11	**24** **14**	30 18	T830, T838 T830, T838	KSP32, KSU31 KSU30, KSP39	12 7	**17** **10**	24 14
	3	T820	KSP32 KSP39	17 9	**22** **12**	28 15	T830, T838 T830, T838	KSP32, KSU31 KSU30, KSP39	11 6	**15** **8**	22 12
M	1	T820	KSP32 KSP39	14 8	**18** **10**	23 13	T830, T838 T830, T838	KSP32, KSU31 KSU30, KSP39	9 5	**13** **7**	18 10
	3	T820	KSP32 KSP39	11 7	**15** **9**	19 11	T830, T838 T830, T838	KSP32, KSU31 KSU30, KSP39	7 4	**11** **6**	15 9
K	2	T820	KSP32 KSP39	16 9	**21** **12**	26 15	T830, T838 T830, T838	KSP32, KSU31 KSU30, KSP39	10 6	**15** **8**	21 12
N	1	T820	KSP32 KSP39	37 20	**49** **27**	61 34	T830, T838 T830, T838	KSP32, KSU31 KSU30, KSP39	24 19	**34** **19**	39 27
	2	T820	KSP32 KSP39	30 16	**40** **21**	50 26	T830 T830	KSP32 KSP32	20 10	**28** **15**	40 21
	4	T820	KSP32 KSP39	37 20	**49** **27**	61 33	T830 T830	KSP32 KSU30	24 13	**34** **19**	49 27

M

D mm	P mm	Ø mm
M 1	0,25	0,75
1,1	0,25	0,85
1,2	0,25	0,95
1,4	0,3	1,1
1,6	0,35	1,25
1,7	0,35	1,35
1,8	0,35	1,45
2	0,4	1,6
2,2	0,45	1,75
2,3	0,4	1,9
2,5	0,45	2,05
2,6	0,45	2,15
3	0,5	2,5
3,5	0,6	2,9
4	0,7	3,3
4,5	0,75	3,7
5	0,8	4,2
5,5	0,9	4,6
6	1	5
7	1	6
8	1,25	6,8
9	1,25	7,8
10	1,5	8,5
11	1,5	9,5
12	1,75	10,2
14	2	12
16	2	14
18	2,5	15,5
20	2,5	17,5
22	2,5	19,5
24	3	21
27	3	24
30	3,5	26,5
33	3,5	29,5
36	4	32
39	4	35
42	4,5	37,5
45	4,5	40,5
48	5	43
52	5	47
56	5,5	50,5
60	5,5	54,5
64	6	58
68	6	62

MF

D mm		P mm	Ø mm
M 2,5	x	0,35	2,15
2,6	x	0,35	2,25
3	x	0,35	2,65
3,5	x	0,35	3,15
4	x	0,35	3,65
4	x	0,5	3,5
5	x	0,5	4,5
6	x	0,5	5,5
6	x	0,75	5,2
7	x	0,75	6,2
8	x	0,75	7,2
8	x	1	7
9	x	0,75	8,2
9	x	1	8
10	x	0,75	9,2
10	x	1	9
10	x	1,25	8,8
11	x	1	10
12	x	1	11
12	x	1,25	10,8
12	x	1,5	10,5
14	x	1	13
14	x	1,25	12,8
14	x	1,5	12,5
15	x	1	14
16	x	1	15
16	x	1,5	14,5
18	x	1	17
18	x	1,5	16,5
18	x	2	16
20	x	1	19
20	x	1,5	18,5
20	x	2	18
22	x	1	21
22	x	1,5	20,5
22	x	2	20
24	x	1	23
24	x	1,5	22,5
24	x	2	22
25	x	1,5	23,5
26	x	1,5	24,5
27	x	1,5	25,5
27	x	2	25
28	x	1,5	26,5
28	x	2	26
30	x	1,5	28,5
30	x	2	28
32	x	1,5	30,5
32	x	2	30
33	x	1,5	31,5
33	x	2	31
34	x	1,5	32,5

D mm		P mm	Ø mm
M 35	x	1,5	33,5
36	x	1,5	34,5
36	x	2	34
36	x	3	33
38	x	1,5	36,5
39	x	1,5	37,5
39	x	2	37
39	x	3	36
40	x	1,5	38,5
40	x	2	38
42	x	1,5	40,5
42	x	2	40
42	x	3	39
45	x	1,5	43,5
45	x	2	43
45	x	3	42
48	x	1,5	46,5
48	x	2	46
48	x	3	45
50	x	1,5	48,5
50	x	2	48
52	x	1,5	50,5
52	x	2	50
52	x	3	49
56	x	3	53
56	x	4	52
60	x	4	56
64	x	3	61
64	x	4	60
68	x	4	64
70	x	3	67
70	x	4	66
72	x	3	69
72	x	4	68
72	x	6	66
76	x	3	73
76	x	4	72
76	x	6	70
80	x	4	76
80	x	6	74
85	x	3	82
85	x	4	81
90	x	3	87
90	x	4	86
90	x	6	84
95	x	6	89
100	x	4	96
100	x	6	94
110	x	6	104
115	x	3	112
120	x	4	116
120	x	6	114

Tooling Systems

Tooling Systems

Hydraulic Chucks D2–D7

Shrink Fit Toolholders D8–D11

Shell Mill Adaptors D12–D18

Hydraulic Chucks

HydroForce™

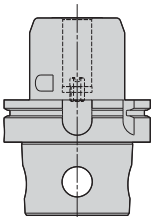
For any application, providing an unparalleled combination of accuracy and clamping force.

Optimum performance for round-tool applications.

Activation of the chuck is achieved by turning the piston screw, which pressurises the hydraulic fluid and exerts force on a thin-walled membrane along the length of the clamping bore.

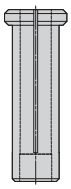
This highly concentric clamping force not only holds the tool shank more securely, but also produces a dampening effect that reduces vibration and helps eliminate micro-cracking on cutting edges.

Portfolio

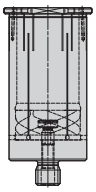


HydroForce™

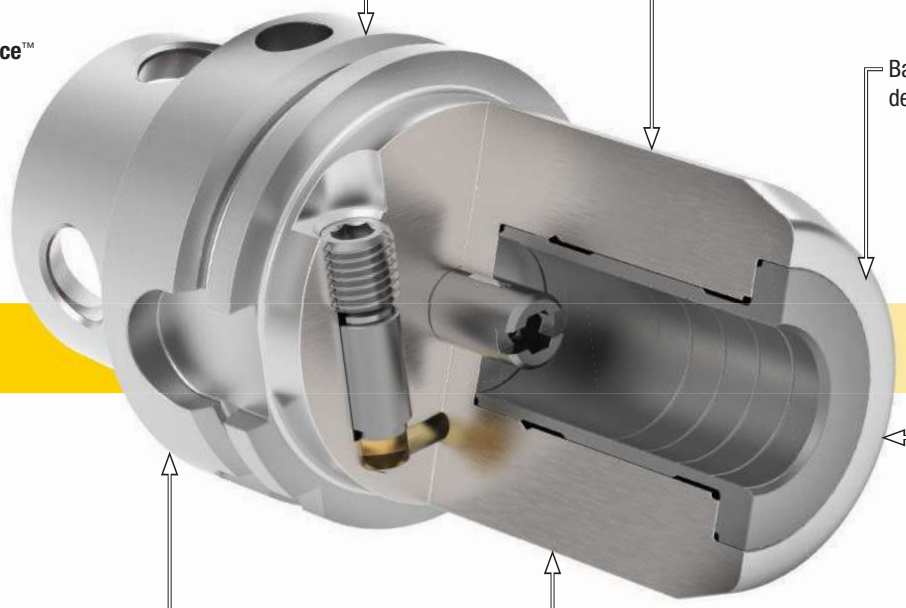
Accessories

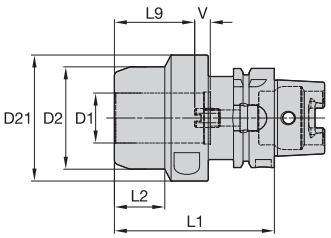


Reducer sleeves



HydroForce Safe-Lock™ reducer sleeves with pullout protection.


Highest clamping force in the industry.
Diameter 20 and 32mm: Runout of 3 µm or less at 2.5x diameter overhang [6 µm for diameter 50mm].
HydroForce™
Balanced G2.5 at 25.000 RPM, delivering precision.
3 clamping bore sizes for all applications. 20, 32, and 50mm.
3x higher clamping force than High-Performance Line.
Short projection length and 40% thicker front wall enabling high cutting parameters and optimum surface quality.

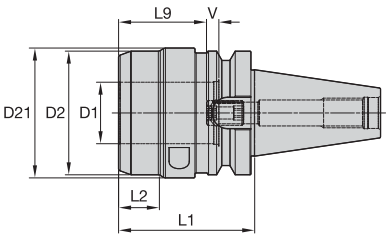


Metric

CSMS	order number	catalogue number	D1	D2	D21	L1	L2	L9	V	actuation wrench	wrench size actuation screw	wrench size stop screw	kg
HSK63A													
	5520975	**HSK63AHCTHT20090M**	20	53	–	90	64	41	10	**170.135**	5 mm	5 mm	1,54
	6048237	**HSK63AHCTHT32100M**	32	65	80	100	32	51	10	**170.136**	6 mm	6 mm	2,25
HSK100A													
	5520976	**HSK100AHCTHT20090M**	20	65	–	90	61	41	10	**170.135**	5 mm	5 mm	3,38
	5520977	**HSK100AHCTHT32100M**	32	80	–	100	71	51	10	**170.136**	6 mm	6 mm	4,29

NOTE: Do not overtorque actuation screw. Tighten by hand until stop is felt.
Supplied with stop screw.
Actuation wrench must be ordered separately.
For diameter D1 32mm, use an L-shape Allen wrench with side length of approximately 200mm.

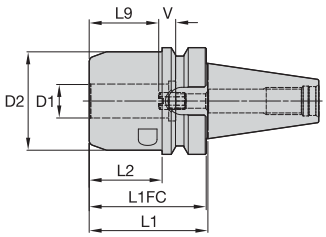
HydroForce™ High-Torque Line • BT AD



Metric

CSMS	order number	catalogue number	D1	D2	D21	L1	L2	L9	V	actuation wrench	wrench size actuation screw	wrench size stop screw	kg
BT40													
	5520971	**BT40HCTHT20070M**	20	58	–	70	43	41	10	**170.135**	5 mm	5 mm	1,67
	6048257	**BT40HCTHT32080M**	32	80	–	80	80	51	10	**170.136**	6 mm	6 mm	2,31
BT50													
	5520972	**BT50HCTHT32090M**	32	80	–	90	52	51	10	**170.136**	6 mm	6 mm	5,08

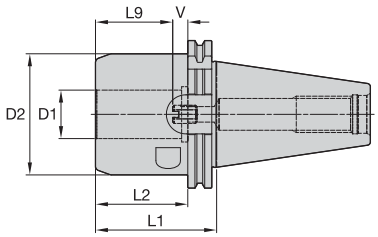
NOTE: Do not overtorque actuation screw. Tighten by hand until stop is felt.
Supplied with stop screw.
Actuation wrench must be ordered separately.
For diameter D1 32mm, use an L-shape Allen wrench with side length of approximately 200mm.



Metric

CSMS	order number	catalogue number	D1	D2	L1	L1FC	L2	L9	V	actuation wrench	wrench size actuation screw	wrench size stop screw	kg
BTKV40													
	5520993	**BTKV40HCTHT20070M**	20	58	70	69	43	41	10	**170.135**	5 mm	5 mm	1,68
	6048259	**BTKV40HCTHT32080M**	32	80	80	79	79	51	10	**170.136**	6 mm	6 mm	2,32
BTKV50													
	5520994	**BTKV50HCTHT32090M**	32	80	90	89	52	51	10	**170.136**	6 mm	6 mm	5,13

NOTE: Do not overtorque actuation screw. Tighten by hand until stop is felt.
Supplied with stop screw.
Actuation wrench must be ordered separately.
For diameter D1 32mm, use an L-shape Allen wrench with side length of approximately 200mm.

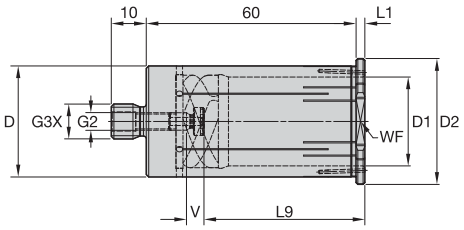


Metric

CSMS	order number	catalogue number	D1	D2	L1	L2	L9	V	actuation wrench	wrench size actuation screw	wrench size stop screw	kg
DV40												
	5520973	**DV40HCTHT20070M**	20	58	70	51	41	10	**170.135**	5 mm	5 mm	1,58
	6048255	**DV40HCTHT32080M**	32	80	80	80	51	10	**170.136**	6 mm	6 mm	2,31
DV50												
	5520974	**DV50HCTHT32080M**	32	80	80	61	51	10	**170.136**	6 mm	6 mm	4,45

NOTE: Do not overtorque actuation screw. Tighten by hand until stop is felt.
Supplied with stop screw.
Actuation wrench must be ordered separately.
For diameter D1 32mm, use an L-shape Allen wrench with side length of approximately 200mm.

- One-piece design with slot configuration to seal coolant.
- Cutting tool must be cylindrical and have the Safe-Lock™ grooves on the shank.
- Sleeve must be screwed completely into the hydraulic chuck until shoulder mates against the hydraulic chuck front face.
- Cutting tool shank holding requirement at least to L9 dimension.

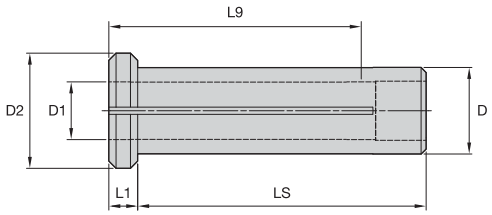


Metric

order number	catalogue number	D1	D	D2	L1	L9	V	G3X	G2	WF
5998607	**32MHCSFC120M**	12	32	36	2,5	41	4	M12	M6	32
5998608	**32MHCSFC140M**	14	32	36	2,5	41	4	M12	M6	32
5998609	**32MHCSFC160M**	16	32	36	2,5	44	4	M12	M6	32
5998610	**32MHCSFC200M**	20	32	36	2,5	46	4	M12	M6	32
5998751	**32MHCSFC250M**	25	32	36	2,5	47	4	M12	M6	32

NOTE: Inserting the cutting tool less than the gripping length (L9) of the sleeve can permanently damage the sleeve and hydraulic chuck.
Recommended to clean coolant holes periodically with air.

- One-piece design with slot configuration to seal coolant.
- Cutting tool must be cylindrical and have a through hole when using coolant.
- Sleeve must be inserted completely into the hydraulic chuck until shoulder mates against the hydraulic chuck front face.
- Cutting tools must be in full contact with the sleeve bore length (L9).

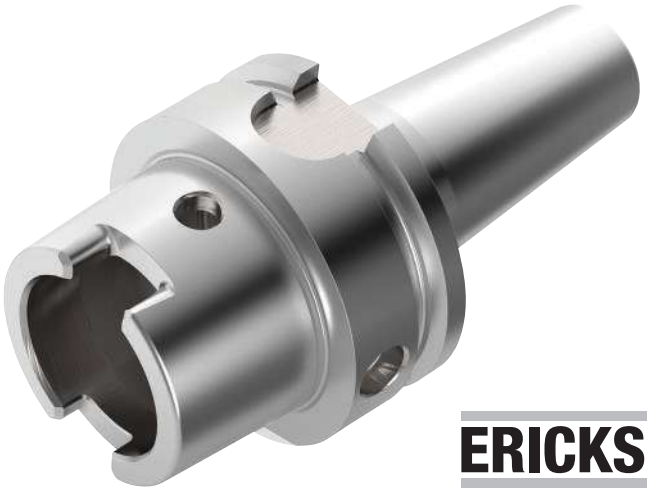


Metric with Metric Bores

CSMS	order number	catalogue number	D1	D	D2	L1	L9	LS
20M								
	3026648	**20MHC030M**	3	20	25	4	28	50
	3026649	**20MHC040M**	4	20	25	4	28	50
	3026650	**20MHC050M**	5	20	25	4	28	50
	3026651	**20MHC060M**	6	20	25	4	36	50
	3026652	**20MHC070M**	7	20	25	4	37	50
	3026653	**20MHC080M**	8	20	25	4	37	50
	3026654	**20MHC090M**	9	20	25	4	38	50
	3026655	**20MHC100M**	10	20	25	4	40	50
	3026656	**20MHC110M**	11	20	25	4	40	50
	3026657	**20MHC120M**	12	20	25	4	45	50
	3026658	**20MHC130M**	13	20	25	4	45	50
	3026659	**20MHC140M**	14	20	25	4	45	50
	3026660	**20MHC150M**	15	20	25	4	45	50
	3026661	**20MHC160M**	16	20	25	4	48	50
32M								
	3026675	**32MHC060M**	6	32	36	4	37	60
	3026676	**32MHC070M**	7	32	36	4	37	60
	3026677	**32MHC080M**	8	32	36	4	37	60
	3026678	**32MHC090M**	9	32	36	4	37	60
	3026679	**32MHC100M**	10	32	36	4	40	60
	3026680	**32MHC110M**	11	32	36	4	41	60
	3026681	**32MHC120M**	12	32	36	4	45	60
	3026682	**32MHC130M**	13	32	36	4	45	60
	3026683	**32MHC140M**	14	32	36	4	46	60
	3026684	**32MHC150M**	15	32	36	4	46	60
	3026685	**32MHC160M**	16	32	36	4	48	60
	3026686	**32MHC170M**	17	32	36	4	48	60
	3026687	**32MHC180M**	18	32	36	4	49	60
	3026691	**32MHC190M**	19	32	36	4	49	60
	3026688	**32MHC200M**	20	32	36	4	50	60
	3026689	**32MHC220M**	22	32	36	4	51	60
	3026690	**32MHC250M**	25	32	36	4	57	60

NOTE: Inserting the cutting tool less than the full gripping length (L9) of the sleeve can permanently damage the sleeve and hydraulic chuck. Full length of the gripping bore needs to be maintained to achieve maximum accuracy, safety, and coolant sealing feature.

Shrink Fit Toolholders

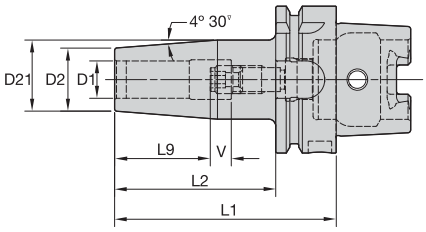


ERICKSON™

ERICKSON™ Shrink Fit toolholders allow for high-precision, high productivity machining in demanding conditions while providing optimum value.

They offer stability and low runout, leading to excellent surface finish, dimensional accuracy, and lower overall production times.

- Broad selection of back end connection types (HSK63A, HSK100A, BT40, BT50, and PSC63).
- Balanced to G2.5 @ 25,000 RPM.
- Compatible with steel and carbide shanks.
- Runout accuracy <3 µm at 3 x D for extended tool life and consistent surface finishing.
- Through coolant capability.

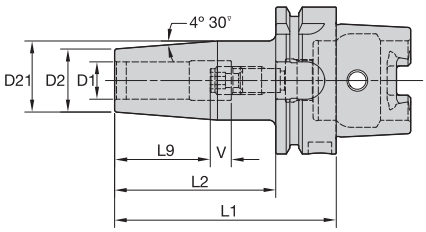


TTGL • Metric

order number	catalogue number	D1	D2	D21	L1	L2	L9	V	stop screw	wrench size stop screw	kg
6199621	HSK63ATTGL03080M	3	10	–	80	54	–	–	–	–	0,71
6199622	HSK63ATTGL04080M	4	10	–	80	54	–	–	–	–	0,71
6199623	HSK63ATTGL06080M	6	21	27	80	54	26	10	TTSS05014M	2.5 mm	0,84
6199624	HSK63ATTGL08080M	8	21	27	80	54	26	10	TTSS06014M	3 mm	0,83
6199625	HSK63ATTGL10085M	10	24	32	85	59	32	10	TTSS08014M	4 mm	0,91
6199626	HSK63ATTGL12090M	12	24	32	90	64	37	10	TTSS10014M	5 mm	0,93
6199627	HSK63ATTGL14090M	14	27	34	90	64	37	10	TTSS10014M	5 mm	0,98
6199628	HSK63ATTGL16095M	16	27	34	95	69	40	10	TTSS12014M	6 mm	1,00
6199629	HSK63ATTGL18095M	18	33	42	95	69	40	10	TTSS12014M	6 mm	1,17
6199630	HSK63ATTGL20100M	20	33	42	100	74	42	10	TTSS16014M	8 mm	1,20
6199631	HSK63ATTGL25115M	25	44	53	115	89	48	10	TTSS16014M	8 mm	1,78

NOTE: For technical information, visit kennametal.com.

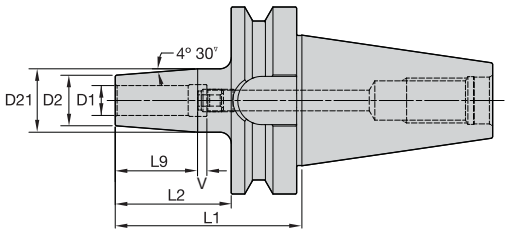
HSK100A Shank Tools



TTGL • Metric

order number	catalogue number	D1	D2	D21	L1	L2	L9	V	stop screw	wrench size stop screw	kg
6201850	HSK100ATTGL06085M	6	21	27	85	56	26	10	TTSS05014M	2.5 mm	2,20
6201871	HSK100ATTGL08085M	8	21	27	85	56	26	10	TTSS06014M	3 mm	2,20
6201872	HSK100ATTGL10090M	10	24	32	90	61	32	10	TTSS08014M	4 mm	2,28
6201873	HSK100ATTGL12095M	12	24	32	95	66	37	10	TTSS10014M	5 mm	2,30
6201874	HSK100ATTGL14095M	14	27	34	95	66	37	10	TTSS10014M	5 mm	2,35
6201875	HSK100ATTGL16100M	16	27	34	100	71	40	10	TTSS12014M	6 mm	2,37
6201876	HSK100ATTGL18100M	18	33	42	100	71	40	10	TTSS12014M	6 mm	2,55
6201877	HSK100ATTGL20105M	20	33	42	105	76	42	10	TTSS16014M	8 mm	2,58
6201878	HSK100ATTGL25115M	25	44	53	115	86	48	10	TTSS16014M	8 mm	3,11

NOTE: For technical information, visit kennametal.com.

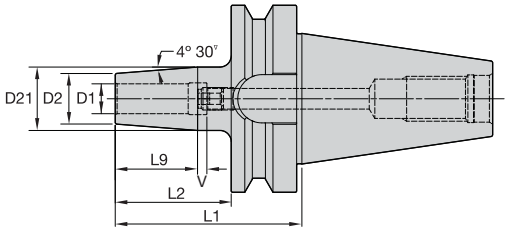


TTGL • Metric

order number	catalogue number	D1	D2	D21	L1	L2	L9	V	stop screw	wrench size stop screw	kg
6201779	BT40TTGL06090M	6	21	27	90	63	26	10	TTSS05014M	2.5 mm	1,23
6201780	BT40TTGL08090M	8	21	27	90	63	26	10	TTSS06014M	3 mm	1,23
6201831	BT40TTGL10090M	10	24	32	90	63	32	10	TTSS08014M	4 mm	1,29
6201832	BT40TTGL12090M	12	24	32	90	63	37	10	TTSS10014M	5 mm	1,28
6201834	BT40TTGL14090M	14	27	34	90	63	37	10	TTSS10014M	5 mm	1,33
6201835	BT40TTGL16090M	16	27	34	90	63	40	10	TTSS12014M	6 mm	1,30
6201836	BT40TTGL18090M	18	33	42	90	63	40	10	TTSS12014M	6 mm	1,46
6201837	BT40TTGL20090M	20	33	42	90	63	42	10	TTSS16014M	8 mm	1,43
6201838	BT40TTGL25100M	25	44	53	100	73	48	10	TTSS16014M	8 mm	1,88

NOTE: For technical information, visit kennametal.com.

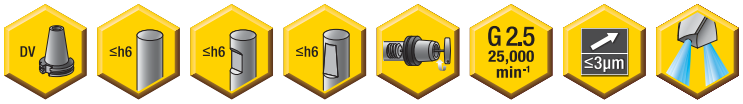
BT50 Shank Tools

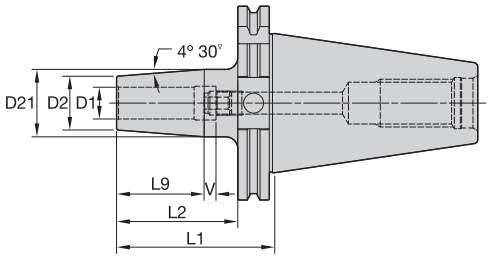


TTGL • Metric

order number	catalogue number	D1	D2	D21	L1	L2	L9	V	stop screw	wrench size stop screw	kg
6201430	BT50TTGL06100M	6	21	27	100	62	26	10	TTSS05014M	2.5 mm	3,91
6201441	BT50TTGL08100M	8	21	27	100	62	26	10	TTSS06014M	3 mm	3,91
6201442	BT50TTGL10100M	10	24	32	100	62	32	10	TTSS08014M	4 mm	3,97
6201443	BT50TTGL12100M	12	24	32	100	62	37	10	TTSS10014M	5 mm	3,95
6201444	BT50TTGL14100M	14	27	34	100	62	37	10	TTSS10014M	5 mm	4,00
6201445	BT50TTGL16100M	16	27	34	100	62	40	10	TTSS12014M	6 mm	3,98
6201446	BT50TTGL18100M	18	33	42	100	62	40	10	TTSS12014M	6 mm	4,13
6201447	BT50TTGL20100M	20	33	42	100	62	42	10	TTSS16014M	8 mm	4,10
6201448	BT50TTGL25100M	25	44	53	100	62	48	10	TTSS16014M	8 mm	4,37

NOTE: For technical information, visit kennametal.com.



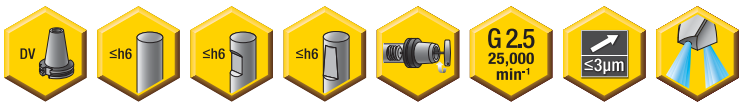


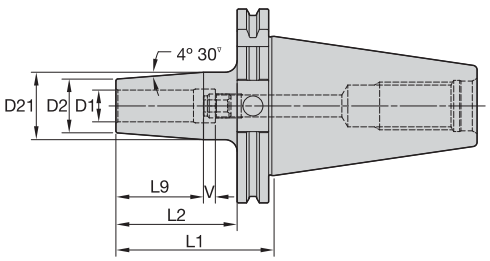
TTGL • Metric

order number	catalogue number	D1	D2	D21	L1	L2	L9	V	stop screw	wrench size stop screw	kg
6201356	DV40TTGL06080M	6	21	27	80	61	26	10	TTSS05014M	2.5 mm	1,06
6201357	DV40TTGL08080M	8	21	27	80	61	26	10	TTSS06014M	3 mm	1,05
6201358	DV40TTGL10080M	10	24	32	80	61	32	10	TTSS08014M	4 mm	1,07
6201359	DV40TTGL12080M	12	24	32	80	61	37	10	TTSS10014M	5 mm	1,10
6201360	DV40TTGL14080M	14	27	34	80	61	37	10	TTSS10014M	5 mm	1,15
6201421	DV40TTGL16080M	16	27	34	80	61	40	10	TTSS12014M	6 mm	1,13
6201424	DV40TTGL18080M	18	33	42	80	61	40	10	TTSS12014M	6 mm	1,27
6201425	DV40TTGL20080M	20	33	42	80	61	42	10	TTSS16014M	8 mm	1,24
6201426	DV40TTGL25100M	25	44	53	100	81	48	10	TTSS16014M	8 mm	1,80

NOTE: For technical information, visit kennametal.com.

DV50 Shank Tools



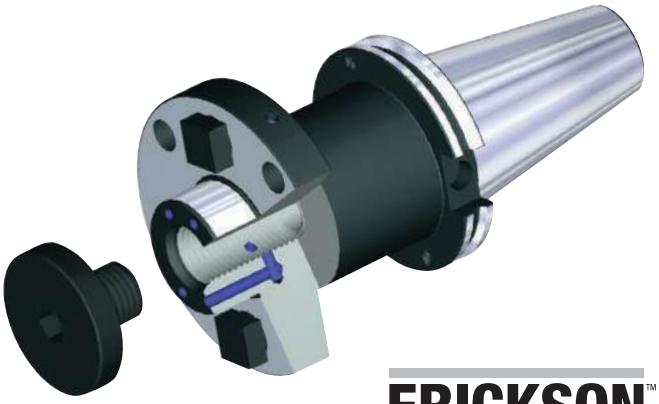


TTGL • Metric

order number	catalogue number	D1	D2	D21	L1	L2	L9	V	stop screw	wrench size stop screw	kg
6201839	DV50TTGL06080M	6	21	27	80	61	26	10	TTSS05014M	2.5 mm	2,89
6201840	DV50TTGL08080M	8	21	27	80	61	26	10	TTSS06014M	3 mm	2,89
6201841	DV50TTGL10080M	10	24	32	80	61	32	10	TTSS08014M	4 mm	2,95
6201842	DV50TTGL12080M	12	24	32	80	61	37	10	TTSS10014M	5 mm	2,93
6201843	DV50TTGL14080M	14	27	34	80	61	37	10	TTSS10014M	5 mm	2,98
6201844	DV50TTGL16080M	16	27	34	80	61	40	10	TTSS12014M	6 mm	2,96
6201845	DV50TTGL18080M	18	33	42	80	61	40	10	TTSS12014M	6 mm	3,10
6201846	DV50TTGL20080M	20	33	42	80	61	42	10	TTSS16014M	8 mm	3,08
6201847	DV50TTGL25100M	25	44	53	100	81	48	10	TTSS16014M	8 mm	3,68

NOTE: For technical information, visit kennametal.com.

Shell Mill Adaptors with Through Coolant

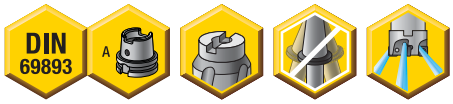


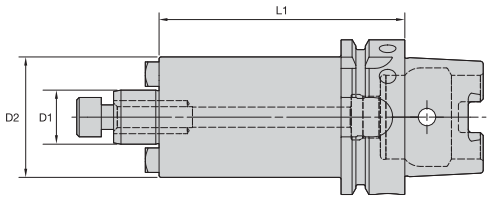
ERICKSON™

Through coolant shell mill adaptors are designed to deliver coolant directly to the cutting edge where it is most effective in extending insert life.

Through coolant shell mill adaptors are capable of high-pressure/high-volume coolant supplies, which are perfect for high-performance milling and lowering overall manufacturing costs.

- Broad selection of back end connection types: HSK63A, HSK100A, DV40, DV50, BT30, BT40, and BT50.
- Coolant design for maximum coolant flow channeled directly to the cutting edge or through the centre of the tool.
- Expanded range of smaller mounting diameters defined by “SM2” in the catalogue numbers to support high-performance smaller diameter milling cutters.
- Drive keys upgraded to high-strength material, allowing for high torque capability.
- Supplied with drive keys and locking screws.

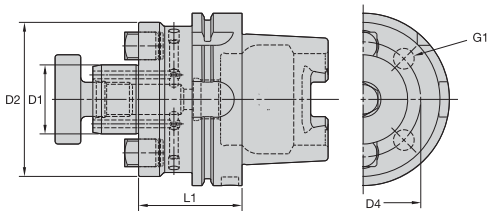


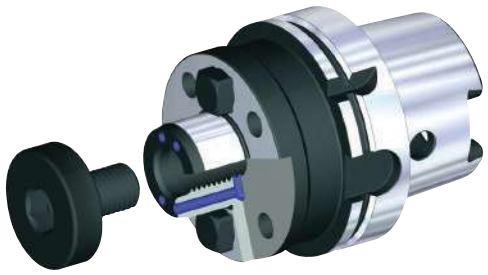


SMC Cap MM-HSK Form A

order number	catalogue number	D1	D2	L1	lock screw	lock screw maximum torque (Nm)	drive key	wrench size lock screw	kg
3872681	HSK63ASMC16050M	16	44	50	MS1294	45	KDK16M	6 mm	0,95
3872683	HSK63ASMC22050M	22	49	50	MS1234	60	KDK22M	8 mm	1,05
3872685	HSK63ASMC22100M	22	49	100	MS1234	60	KDK22M	8 mm	1,77
3872686	HSK63ASMC22160M	22	49	160	MS1234	60	KDK22M	8 mm	2,63

NOTE: Do not overtighten lock screw.
Supplied with lock screw and drive keys.
Lock screw wrench not included.

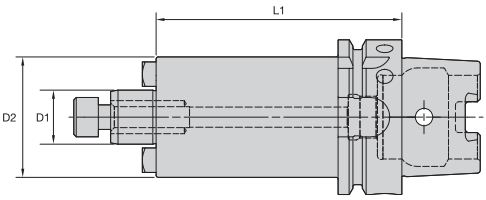




SMC Lock MM-HSK Form A

order number	catalogue number	D1	D2	D4	G1	L1	lock screw	lock screw maximum torque (Nm)	drive key	wrench size lock screw	kg
3872687	HSK63ASMC27060M	27	60	–	–	60	KLSS27M	80	KDK27M	10 mm	1,42
3872688	HSK63ASMC27100M	27	60	–	–	100	KLSS27M	80	KDK27M	10 mm	2,11
3872690	HSK63ASMC32060M	32	78	–	–	60	KLSS32M	95	KDK32M	14 mm	1,77
3872691	HSK63ASMC32100M	32	78	–	–	100	KLSS32M	95	KDK32M	14 mm	2,59
3872693	HSK63ASMC40060M	40	89	67	M12X1.75	60	KLSS40M	100	KDK40M	17 mm	2,14

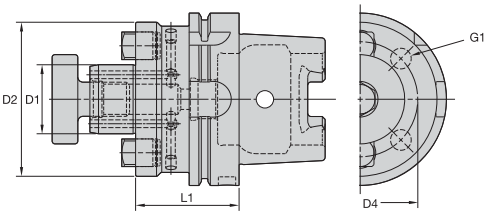
NOTE: Do not overtighten lock screw.
Supplied with lock screw and drive keys.
Lock screw wrench not included.



SMC Cap MM-HSK Form A

order number	catalogue number	D1	D2	L1	lock screw	lock screw maximum torque (Nm)	drive key	wrench size lock screw	kg
3872498	**HSK100ASMC16160M**	16	44	160	**MS1294**	45	**KDK16M**	6 mm	3,48

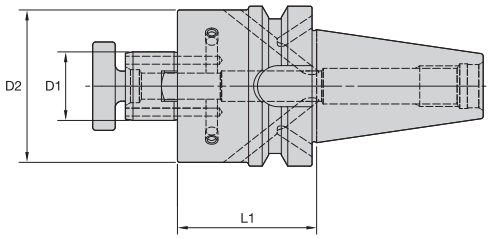
NOTE: Do not overtighten lock screw.
Supplied with lock screw and drive keys.
Lock screw wrench not included.



SMC Lock MM-HSK Form A

order number	catalogue number	D1	D2	D4	G1	L1	lock screw	lock screw maximum torque (Nm)	drive key	wrench size lock screw	kg
3872503	**HSK100ASMC27100M**	27	60	–	–	100	**KLSS27M**	80	**KDK27M**	10 mm	3,65
3872504	**HSK100ASMC27160M**	27	60	–	–	160	**KLSS27M**	80	**KDK27M**	10 mm	4,93
3872505	**HSK100ASMC32050M**	32	78	–	–	50	**KLSS32M**	95	**KDK32M**	14 mm	3,00
3872510	**HSK100ASMC40160M**	40	89	67	M12X1.75	160	**KLSS40M**	100	**KDK40M**	17 mm	8,14
3872514	**HSK100ASMC60070M**	60	129	102	M16X2	70	**–**	95	**KDK60M**	–	5,53

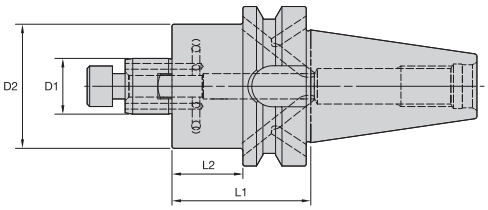
NOTE: Do not overtighten lock screw.
Supplied with lock screw and drive keys.
Lock screw wrench not included.



SMC Lock MM-BT Form B/AD

order number	catalogue number	D1	D2	L1	lock screw	lock screw maximum torque (Nm)	drive key	wrench size lock screw	kg
3752244	**BT40BSMC27055M**	27	60	55	**KLSS27M**	80	**KDK22M**	10 mm	1,68
3752245	**BT40BSMC27100M**	27	60	100	**KLSS27M**	80	**KDK22M**	10 mm	2,63

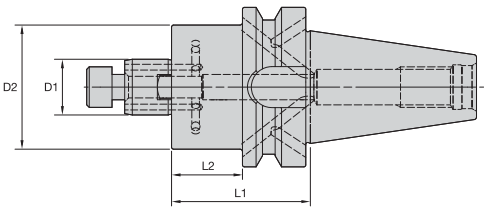
NOTE: Do not overtighten lock screw.
Supplied with lock screw and drive keys.
Lock screw wrench not included.



SMC Cap MM-BT Form B/AD

order number	catalogue number	D1	D2	L1	L2	lock screw	lock screw maximum torque (Nm)	drive key	wrench size lock screw	kg
3752232	**BT40BSM2C16050M**	16	38	50	23	**MS1294**	45	**KDK16M**	6 mm	1,16
3752234	**BT40BSM2C16075M**	16	38	75	48	**MS1294**	45	**KDK16M**	6 mm	1,37
3752238	**BT40BSM2C22055M**	22	42	55	28	**MS1234**	95	**KDK22SM2M**	8 mm	1,30
3752241	**BT40BSM2C22100M**	22	42	100	73	**MS1234**	95	**KDK22SM2M**	8 mm	1,75
3752239	**BT40BSMC22100M**	22	49	100	73	**MS1234**	95	**KDK22M**	8 mm	2,03

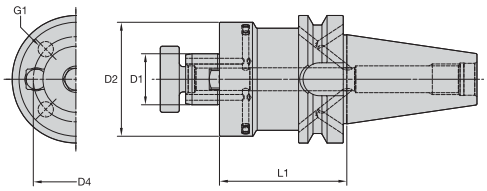
NOTE: Do not overtighten lock screw.
Supplied with lock screw and drive keys.
Lock screw wrench not included.



SMC Cap MM-BT Form B/AD

order number	catalogue number	D1	D2	L1	L2	lock screw	lock screw maximum torque (Nm)	drive key	wrench size lock screw	kg
3750034	**BT50BSM2C16100M**	16	38	100	62	**MS1294**	45	**KDK16M**	6 mm	4,04
3750038	**BT50BSM2C22045M**	22	42	45	7	**MS1234**	95	**KDK22SM2M**	8 mm	3,63
3750040	**BT50BSM2C22100M**	22	42	100	62	**MS1234**	95	**KDK22SM2M**	8 mm	4,12

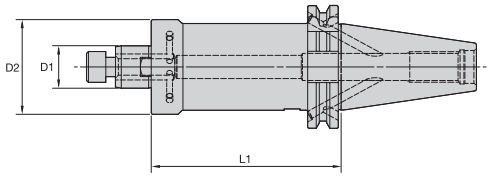
NOTE: Do not overtighten lock screw.
Supplied with lock screw and drive keys.
Lock screw wrench not included.



SMC Lock MM-BT Form B/AD

order number	catalogue number	D1	D2	D4	G1	L1	lock screw	lock screw maximum torque (Nm)	drive key	kg
3750043	**BT50BSMC27045M**	27	60	–	–	45	**KLSS27M**	80	**KDK27M**	3,76
3750044	**BT50BSMC27100M**	27	60	–	–	100	**KLSS27M**	80	**KDK27M**	4,86
3750046	**BT50BSMC32045M**	32	78	–	–	45	**KLSS32M**	95	**KDK32M**	3,94
3750047	**BT50BSMC32100M**	32	78	–	–	100	**KLSS32M**	95	**KDK32M**	5,87

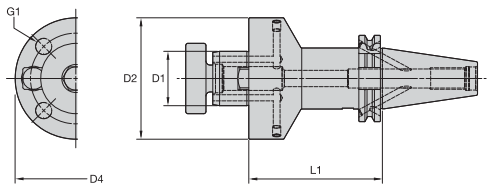
NOTE: Do not overtighten lock screw.
Supplied with lock screw and drive keys.
Lock screw wrench not included.



SMC Cap MM-DV Form B/AD

order number	catalogue number	D1	D2	L1	lock screw	lock screw maximum torque (Nm)	drive key	wrench size lock screw	kg
3767816	**DV40BSM2C16035M**	16	38	35	**MS1294**	45	**KDK16M**	6 mm	0,96
3767818	**DV40BSM2C16100M**	16	38	100	**MS1294**	45	**KDK16M**	6 mm	1,49
3767820	**DV40BSM2C22035M**	22	42	35	**MS1234**	95	**KDK22SM2M**	8 mm	1,00
3767822	**DV40BSM2C22100M**	22	42	100	**MS1234**	95	**KDK22SM2M**	8 mm	1,65
3767819	**DV40BSMC22035M**	22	49	35	**MS1234**	95	**KDK22M**	8 mm	1,06
3767821	**DV40BSMC22100M**	22	49	100	**MS1234**	95	**KDK22M**	8 mm	1,81

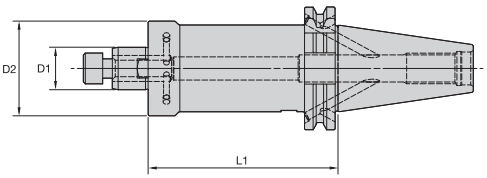
NOTE: Do not overtighten lock screw.
Supplied with lock screw and drive keys.
Lock screw wrench not included.



SMC Lock MM-DV Form B/AD

order number	catalogue number	D1	D2	L1	G1	D4	lock screw	lock screw maximum torque (Nm)	drive key	wrench size lock screw	kg
3767833	**DV40BSMC27035M**	27	50,0	35	–	–	**KLSS27M**	80	**SMK27M**	10 mm	1,14
3767835	**DV40BSMC32050M**	32	78,0	50	–	–	**KLSS32M**	95	**KDK32M**	14 mm	1,77

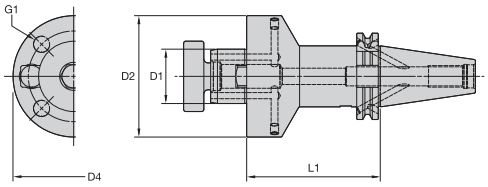
NOTE: Do not overtighten lock screw.
Supplied with lock screw and drive keys.
Lock screw wrench not included.



SMC Cap MM-DV Form B/AD

order number	catalogue number	D1	D2	L1	lock screw	lock screw maximum torque (Nm)	drive key	wrench size lock screw	kg
3767846	**DV50BSM2C22100M**	22	42	100	**MS1234**	95	**KDK22SM2M**	8 mm	3,31
3767847	**DV50BSMC22150M**	22	49	150	**MS1234**	95	**KDK22M**	8 mm	4,26

NOTE: Do not overtighten lock screw.
Supplied with lock screw and drive keys.
Lock screw wrench not included.



SMC Lock MM-DV Form B/AD

order number	catalogue number	D1	D2	L1	G1	D4	lock screw	lock screw maximum torque (Nm)	drive key	wrench size lock screw	kg
3767849	**DV50BSMC27035M**	27	60,0	35	–	–	**KLSS27M**	80	**KDK27M**	10 mm	2,98
3767853	**DV50BSMC32100M**	32	78,0	100	–	–	**KLSS32M**	95	**KDK32M**	14 mm	5,17
3767855	**DV50BSMC40050M**	40	89,3	50	M12X1.75	66,7	**KLSS40M**	100	**KDK40M**	17 mm	4,18
3767856	**DV50BSMC40100M**	40	89,3	100	M12X1.75	66,7	**KLSS40M**	100	**KDK40M**	17 mm	5,76

NOTE: Do not overtighten lock screw.
Supplied with lock screw and drive keys.
Lock screw wrench not included.

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drive size	1/4" bit 25mm length	order number	1/4" bit extended length	order number	screw driver	order number	Flag-Type Screw Driver	order number	Allen key	order number	T-Handle Screw Driver	order number
hex 1,5	–	–	–	–	170.270	**1126021**	–	–	170.000	**1138273**	–	–
hex 2,0	–	–	–	–	170.222	**1191006**	–	–	170.001	**1138280**	–	–
hex 2,5	170.179	**1138851**	–	–	170.224	**1138870**	–	–	170.002	**1138297**	–	–
hex 3,0	170.180	**1150198**	BTQSW3L90	**6205876**	170.225	**1138879**	–	–	170.003	**1138307**	THW3M	**2229285**
hex 3,5	–	–	–	–	–	–	–	–	–	–	THW35M	**1931555**
hex 3,5/Torx 15,0	–	–	–	–	–	–	FT1535	**1021609**	–	–	–	–
hex 4,0/Torx 15,0	–	–	–	–	–	–	FT154	**1021611**	–	–	–	–
hex 4,0	170.181	**1138857**	–	–	170.226	**1191007**	–	–	170.004	**1138315**	THW4M	**1931556**
hex 5,0	–	–	–	–	–	–	–	–	170.005	**1138323**	170.135	**1138748**
hex 6,0	–	–	–	–	–	–	–	–	170.006	**1138331**	170.136	**1138755**
hex 8,0	–	–	–	–	170.229	**1191010**	–	–	170.008	**1135984**	–	–
hex 9,0	–	–	–	–	–	–	–	–	170.009	**2272577**	–	–
hex 10,0	–	–	–	–	–	–	–	–	–	–	–	–
hex 12,0	–	–	–	–	–	–	–	–	–	–	–	–
hex 5/64	–	–	–	–	–	–	–	–	–	–	KW078	**1022575**
hex 3/32	–	–	–	–	–	–	–	–	–	–	KW093	**1022581**
hex 7/64	–	–	–	–	–	–	–	–	–	–	KW109	**1022537**
hex 1/8	–	–	–	–	–	–	–	–	–	–	–	–
hex 5/32	–	–	–	–	–	–	–	–	–	–	KW156	**1022565**
hex 3/16	–	–	–	–	–	–	–	–	–	–	KW187	**1022579**
hex 7/32	–	–	–	–	–	–	–	–	–	–	–	–
Torx 5	–	–	–	–	–	–	FT5	**1021589**	KT5	**1099677**	–	–
Torx 6	BT6	**1962981**	–	–	DT6	**1022463**	FT6	**1126361**	KT6	**1022691**	–	–
Torx 7	BT7	**1963853**	–	–	DT7	**1022485**	FT7	**1021591**	KT7	**1022693**	–	–
Torx 8	BT8	**1963855**	–	–	DT8	**1022487**	FT8	**1021593**	KT8	**1022695**	–	–
Torx 9	BT9	**1963854**	–	–	DT9	**1022489**	FT9	**1020533**	KT9	**1022697**	–	–
Torx 10	BT10	**1963856**	–	–	DT10	**1022491**	FT10	**1099651**	KT10	**1022699**	–	–
Torx 10/15	–	–	–	–	–	–	FT1015	**1099652**	–	–	–	–
Torx 15	170.182	**2261642**	170.177	**1138829**	DT15	**1022493**	FT15	**1021605**	KT15	**1022701**	TT15	**1022315**
Torx 15	–	–	BTQT15L90	**6205877**	–	–	–	–	–	–	–	–
Torx 20	170.176	**1138822**	BTQT20L90	**6205878**	–	–	FT20	**1021607**	KT20	**1022703**	TT20	**1022317**
Torx 25	–	–	170.259	**1994579**	–	–	–	–	KT25	**1022725**	TT25	**1022519**
Torx 25	–	–	BTQT25L90	**6205879**	–	–	–	–	–	–	–	–
Torx 27	170.256	**1984243**	170.257	**1985840**	–	–	–	–	KT27	**1022727**	–	–
Torx 30	–	–	–	–	–	–	–	–	KT30	**1099676**	TT30	**1022521**
Torx 40	–	–	–	–	–	–	–	–	–	–	–	–
Torx 45	–	–	–	–	–	–	–	–	KT45	**1018227**	–	–
Torx Plus 7	–	–	–	–	DT7IP	**3644073**	–	–	–	–	–	–
Torx Plus 8	–	–	–	–	DT8IP	**2388424**	–	–	K8IP	**2388488**	TTP8	**1931553**
Torx Plus 9	–	–	–	–	DT9IP	**2269913**	–	–	K9IP	**1985786**	TTP9	**1985792**
Torx Plus 10	–	–	–	–	DT10IP	**2388425**	–	–	K10IP	**2388489**	TTP10	**2504383**
Torx Plus 15	–	–	BTQTP15L90	**6205880**	DT15IP	**2269914**	–	–	K15IP	**1867353**	TTP15	**1931554**
Torx Plus 20	–	–	BTQTP20L90	**6205891**	DT20IP	**2388427**	–	–	K20IP	**2388491**	TTP20	**1994291**
Torx Plus 25	BT25IP	**2244316**	BTQTP25L90	**6205892**	DT25IP	**2269915**	–	–	K25IP	**2050113**	TTP25	**4064258**
Torx Plus 27	BT27IP	**2244317**	BTE27IP	**2244319**	–	–	–	–	K27IP	**1985787**	TTP27	**1985793**
Torx Plus 30	–	–	–	–	DT30IP	**2388426**	–	–	K30IP	**2388490**	–	–


Torque-Controlled Wrenches • 0,6–5,4 Nm (5.3–47.8 in. lbs.)

Order Number	Catalogue Number	Drive Size	Description
3641463	DTQ0615	–	Torque Control Wrench Handle 0.6–1.5 Nm
3641464	DTQ1530	–	Torque Control Wrench Handle 1.5–3.0 Nm
3641465	DTQ3054	–	Torque Control Wrench Handle 3.0–5.4 Nm
3641466	BTQT6	T6	Blade for screw driver
3641467	BTQT7	T7	Blade for screw driver
3641468	BTQT8	T8	Blade for screw driver
3641469	BTQT9	T9	Blade for screw driver
3641470	BTQT10	T10	Blade for screw driver
3641471	BTQT15	T15	Blade for screw driver
3641472	BTQT20	T20	Blade for screw driver
3641473	BTQT25	T25	Blade for screw driver
3641474	BTQ6IP	Torx Plus 6	Blade for screw driver
3641475	BTQ7IP	Torx Plus 7	Blade for screw driver
3641476	BTQ8IP	Torx Plus 8	Blade for screw driver
3641477	BTQ9IP	Torx Plus 9	Blade for screw driver
3641478	BTQ10IP	Torx Plus 10	Blade for screw driver
3641479	BTQ15IP	Torx Plus 15	Blade for screw driver
3641481	BTQW3M	hex 3mm	Blade for screw driver
3641480	DTQCAP	–	Cover Cap


Torque-Controlled Wrenches • 5–14 Nm (3.7–10.3 in. lbs.)

Order Number	Catalogue Number	Drive Size	Description
6197561	DTQ50140	hex 1/4"	T-handle torque wrench, adjustable 5–14 Nm
6205876	BTQSW3L90	hex 3mm	Bit Hex 3mm L = 90mm
6205877	BTQT15L90	T15	Bit Torx 15 L = 90mm
6205878	BTQT20L90	T20	Bit Torx 20 L = 90mm
6205879	BTQT25L90	T25	Bit Torx 25 L = 90mm
6205880	BTQTP15L90	Torx Plus 15	Bit Torx Plus 15 L = 90mm
6205891	BTQTP20L90	Torx Plus 20	Bit Torx Plus 20 L = 90mm
6205892	BTQTP25L90	Torx Plus 25	Bit Torx Plus 25 L = 90mm

Bit Adaptor

Order Number	Catalogue Number	Drive Size	Description
1963869	DRIVER	hex 1/4"	Bit Adaptor suitable for standard and extended length 1/4" drive bits

Turning Icons

 Through Coolant	 Turning	 Profiling	 Facing	 Chamfering
 Back Boring	 Grooving	 Cut-Off	 I.D. Turning	 I.D. Chamfering
 I.D. Facing	 I.D. Grooving	 I.D. Face Grooving	 Deep Grooving	

Indexable Milling Icons

 Counterboring	 Spiral Circular	 Face Milling	 Helical Milling	 Plunge Milling
 Plunge Milling: Ball Nose	 Ramping: Blank	 Slotting: Square End	 Side Milling/ Shoulder Milling: Square End	 Side Milling/ Shoulder Milling: Eased Chamfer
 Slotting: Shoulder	 3D Profiling with Square End Mill	 Pocketing	 Shank: Cylindrical Plain	 Shank: Cylindrical Weldon®
 Shank: Cylindrical Weldon 2 Flat	 Shank: Screw-On	 Shell Mill Shank	 Milling: Through Coolant	

Solid End Milling Icons

 Plunge Milling	 Plunge Milling: Ball Nose	 Ramping: Blank	 Ramping: Up to 3°	 Slotting: Ball Nose
 Slotting: Ball Nose with AP Dimensions	 Slotting: Square End	 Slotting: Square End with AP Dimension	 Trochoidal Milling	 Side Milling/Shoulder Milling: Ball Nose
 Side Milling/ Shoulder Milling: Ball Nose with AE/AP Dimensions	 Side Milling/ Shoulder Milling: Square End	 Side Milling/ Shoulder Milling: Square End with AE/AP Dimensions	 3D Profiling	 Corner Style: Ball Nose
 Corner Style: Corner Chamfer	 Corner Style: Corner Radius	 Corner Style: Square End	 Shank: Cylindrical Plain	 Shank: Cylindrical Weldon®
 Shank: Safe-Lock™	 Duo-Lock™ Connection	 Helix Angle: 20°	 Helix Angle: 30°	 Helix Angle: 38°
 Helix Angle: 43°	 Helix Angle: 45°	 Helix Angle: 37°/39°	 Balance (G 2.5/25,000)	 DIN Number 6527
 DIN Number 6528	 Through Coolant	 Tool Dimensions: Flute Configuration: X (Variable)	 Tool Dimensions: Flute Configuration: 2	 Tool Dimensions: Flute Configuration: 3
 Tool Dimensions: Flute Configuration: 4	 Tool Dimensions: Flute Configuration: 5	 Tool Dimensions: Flute Configuration: 6		

Holemaking Icons

 Drilling	 Drilling: Inclined Entry	 Drilling: Inclined Exit	 Drilling: Exit Offset	 Drilling: Stacked Plates
 Drilling: Convex	 Drilling: Blind Hole	 Drilling: Chain	 Drilling: Cross Hole	 Drilling: Half Cylinder
 Drilling: Corner Drilling 45°	 Drilling Depth: 3 x D	 Drilling Depth: 5 x D	 Drilling Depth: 7 x D	 Drilling Depth: 8 x D
 Drilling Depth: 10 x D	 Shank: Cylindrical Plain ≤h6	 Shank: Cylindrical Whistle Notch 2°	 Shank: Cylindrical Whistle Notch with Drive and Flange	 Helix Angle: 30º
 DIN Number 6537	 DIN Number 6535	 Drilling: No Coolant	 Through Coolant: Radial: Drilling	 Through Coolant: Radial: Indexable Drilling
 Flood Coolant: Drilling	 Through Coolant: MQL (Minimum Quantity Lubricant): Drilling	 Tool Dimensions: 2 Flute/2 Margin/ Coolant	 Tool Dimensions: 2 Flute/2 Margin/ No Coolant	 Tool Dimensions: 2 Flute/4 Margin/ Coolant

Tapping Icons

Tapping: Through Hole	Tapping: Blind Hole	Threading: Blind Hole	HSS-E: High-Speed Steel with Cobalt Alloy for Materials with Higher Hardness	HSS-E-PM: High-Speed Steel with Cobalt Alloy for Materials with Higher Hardness (PM = Powder Metal Steel)
Square Shank	Chamfer Form C (2–3)	Chamfer Form D (3.5–5)	Plug Chamfer Form B (3–5)	Tapping Helix Angle: 0°
Tapping Helix Angle: L15°	Tapping Helix Angle: 45°	Multipurpose Taps: Spiral Point	Tension/ Compression	DIN Number 371
DIN Number 374	DIN Number 376	Flood Coolant: Tapping	Through Coolant: Axial: Tapping	Manufacturer's Specs: ISO 2
Manufacturer's Specs: ISO 3	Class of Fit: 6H	Class of Fit: 6HX	Class of Fit: 6G	ISO Metric Coarse Thread
ISO Metric Fine Thread				

Tooling Systems Icons

Shank: Cylindrical Plain ≤h6	Shank: Cylindrical Weldon® ≤h6	Shank: Cylindrical Whistle Notch ≤h6	Shank: SK BT JIS B 6339	Shank: SK DV DIN 69871
Shank — SK BT Taper Face Contact	Shank — HSK DIN 69893 Form A	Shank — HSK DIN 69893 Form A	Shank: Shell Mill	Shank: Safe-Lock™ ≤h6
Axial Adjustments: End	Balanced-by-Design	Balance G 2.5/25,000	Balance — G 2.5@ 25,000 min-1	DIN Number 69893
Accuracy — 3µm or Less	Drilling — Through Coolant	Milling — Through Coolant	Through Coolant: 100 bar	Through Coolant: 1500 psi
Through Coolant: Through Adaptor Face				

KENNAMETAL

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

material group	description	content	tensile strength RM (MPa)*	hardness (HB)	hardness (HRC)	material number
P0	Low-Carbon Steels, Long Chipping	C <0,25%	<530	<125	–	–
P1	Low-Carbon Steels, Short Chipping, Free Machining	C <0,25%	<530	<125	–	C15, Ck22, ST37-2, S235JR, 9SMnPb28, GS38
P2	Medium- and High-Carbon Steels	C >0,25%	>530	<220	<25	ST52, S355JR, C35, GS60, Cf53
P3	Alloy Steels and Tool Steels	C >0,25%	600–850	<330	<35	16MnCr5, Ck45, 21CrMoV5-7, 38SMn28
P4	Alloy Steels and Tool Steels	C >0,25%	850–1400	340–450	35–48	100Cr6, 30CrNiMo8, 42CrMo4, C70W2, S6525, X120Mn12
P5	Ferritic, Martensitic, and PH Stainless Steels	–	600–900	<330	<35	100Cr6, 30CrNiMo8, 42CrMo4, C70W2, S6525, X120Mn12
P6	High-Strength Ferritic, Martensitic, and PH Stainless Steels	–	900–1350	350–450	35–48	X102CrMo17, G-X120Cr29
M1	Austenitic Stainless Steel	–	<600	130–200	–	X5CrNi 18 10, X2CrNiMo 17 13 2, G-X25CrNiSi18 9, X15CrNiSi 20 12
M2	High-Strength Austenitic Stainless and Cast Stainless Steels	–	600–800	150–230	<25	X2CrNiMo 13 4, X5NiCr 32 21, X5CrNiNb 18 10, G-X15CrNi 25-20
M3	Duplex Stainless Steel	–	<800	135–275	<30	X8CrNiMo27 5, X2CrNiMoN22 5 3, X20CrNiSi25 4, G-X40CrNiSi27 4
K1	Grey Cast Iron	–	125–500	120–290	<32	GG15, GG25, GG30, GG40, GTW40
K2	Low- and Medium-Strength Ductile Irons (Nodular Irons) and Compacted Graphite Irons (CGI)	–	<600	130–260	<28	GGG40, GTS35
K3	High-Strength Ductile Irons and Austempered Ductile Iron (ADI)	–	>600	180–350	<43	GGG60, GTW55, GTS65
N1	Wrought Aluminium	–	–	–	–	AlMg1, Al99.5, AlCuMg1, AlCuBiPb, AlMgSi1, ALMgSiPb
N2	Low-Silicon Aluminium Alloys and Magnesium Alloys	Si <12,2%	–	–	–	GAlSiCu4, GDAlSi10Mg
N3	High-Silicon Aluminium Alloys and Magnesium Alloys	Si >12,2%	–	–	–	G-ALSi12, G-AlSi17Cu4, G-AlSi21CuNiMg
N4	Copper-, Brass-, Zinc-Based on Machinability Index Range of 70–100	–	–	–	–	CuZn40, Ms60, G-CuSn5ZnPb, CuZn37, CuSi3Mn
N5	Nylon, Plastics, Rubbers, Phenolics, Resins, Fibreglass	–	–	–	–	Lexan®, Hostalen™, Polystyrol, Makrolon®
N6	Carbon, Graphite Composites, CFRP	–	–	–	–	CFK, GFK
N7	Metal Matrix Composites (MMC)	–	–	–	–	–
S1	Iron-Based, Heat-Resistant Alloys	–	500–1200	160–260	25–48	X1NiCrMoCu32 28 7, X12NiCrSi36 16, X5NiCrAlTi31 20, X40CoCrNi20 20
S2	Cobalt-Based, Heat-Resistant Alloys	–	1000–1450	250–450	25–48	Haynes® 188, Stellite® 6,21,31
S3	Nickel-Based, Heat-Resistant Alloys	–	600–1700	160–450	<48	INCONEL® 690, INCONEL 625, Hastelloy®, NIMONIC® 75
S4	Titanium and Titanium Alloys	–	900–1600	300–400	33–48	Ti1, TiAl5Sn2, TiAl6V4, TiAl4Mo4Sn2
H1	Hardened Materials	–	–	–	44–48	GX260NiCr42, GX330NiCr42, GX300CrNiSi952, GX300CrMo153, Hardox® 400
H2	Hardened Materials	–	–	–	48–55	–
H3	Hardened Materials	–	–	–	56–60	–
H4	Hardened Materials	–	–	–	>60	–
C1	CFRP, CFRP/CFRP	–	–	–	–	–
C2	CFRP/Non-Ferrous	–	–	–	–	–
C3	CFRP/High Temp	–	–	–	–	–
C4	CFRP/Stainless Steel	–	–	–	–	–
C5	CFRP/Non-Ferrous/High-Temp	–	–	–	–	–

METALCUTTING SAFETY

IMPORTANT SAFETY INSTRUCTIONS

Read before using the tools in this catalogue!

Projectile and Fragmentation Hazards:

Modern metalcutting operations involve high spindle and cutter speeds and high temperatures and cutting forces. Hot metal chips may fly off the workpiece during metalcutting. Although cutting tools are designed and manufactured to withstand high cutting forces and temperatures, they can sometimes fragment, particularly if they are subjected to over-stress, severe impact, or other abuse.

To avoid injury:

- Always wear appropriate personal protective equipment, including safety goggles, when operating metalcutting machines or working nearby.
- Always make sure all machine guards are in place.

Breathing and Skin Contact Hazards:

Grinding carbide or other advanced cutting tool materials produces dust or mist containing metallic particles. Breathing this dust or mist — especially over an extended period — can cause temporary or permanent lung disease or make existing medical conditions worse. Contact with this dust or mist can irritate eyes, skin, and mucous membranes and may make existing skin conditions worse.

To avoid injury:

- Always wear breathing protection and safety goggles when grinding.
- Provide ventilation control and collect and properly dispose of dust, mist, or sludge from grinding.
- Avoid skin contact with dust or mist.

For more information, read the applicable Material Safety Data Sheet provided by Kennametal and consult General Industry Safety and Health Regulations, Part 1910, Title 29 of the Code of Federal Regulations.

These safety instructions are general guidelines. Many variables affect machining operations. It is impossible to cover every specific situation. The technical information included in this catalogue and recommendations on machining practices may not apply to your particular operation. For more information, consult the Kennametal Metalcutting Safety booklet, available free from Kennametal at 724 539 5747 or fax 724 539 5439. For specific product safety and environmental questions, contact our Corporate Environmental Health and Safety Office at 724 539 5066 or fax 724 539 5372.

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