kennametal.com

KENNAMETAL®

INNOVATIONS

2024 | 01 | METRIC

Drill Fix PRO™

Indexable Drilling

- Wiper Geometry on All Outboard Inserts
- Optimized Coolant Delivery System
- Robust Toolholder Design
- Cost-Effective and Versatile Indexable Drilling

INNOVATIONS

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
North America	**USA**	English	800 835 3668	na.techsupport@kennametal.com
	Mexico	Spanish	1800 253 0758	na.techsupport@kennametal.com
Africa	**South Africa**	English	+27117489300	na.techsupport@kennametal.com
Europe	**Austria**	German	0223 63181360	eu.techsupport@kennametal.com
	Belgium	English/French	0279 06 540	eu.techsupport@kennametal.com
	Denmark	English	808 89298	na.techsupport@kennametal.com
	Finland	English	0800 919412	na.techsupport@kennametal.com
	France	French	01 60 12 83 00	eu.techsupport@kennametal.com
	Germany	German	06003 8277110	eu.techsupport@kennametal.com
	Israel	English	—	na.techsupport@kennametal.com
	Italy	Italian	028 95 96 212	eu.techsupport@kennametal.com
	Netherlands	English	076 79 95 220	eu.techsupport@kennametal.com
	Norway	English	800 10080	na.techsupport@kennametal.com
	Poland	Polish	616 656 553	eu.techsupport@kennametal.com
	Russia	English	—	eu.techsupport@kennametal.com
	Sweden	English	0207 99246	na.techsupport@kennametal.com
	UK	English	0138 44 08 095	na.techsupport@kennametal.com
	Ukraine	English	—	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.

Service & Sales Centers Around the World

Region	Country	Sales Hotline	Email
North America	**United States**	+1 800 446 7738	FtMill.Service@kennametal.com
	Canada	+1 800 446 7738	toronto.service@kennametal.com
	Mexico	+1 888 402 4963	k-mx.service@kennametal.com
Central/South America	**Argentina**	+54 11 4719 0700	buenos-aires.ventas@kennametal.com
	Brazil	+55 19 3936 9200	bra.marketing@kennametal.com
	Chile	+56 2 2264 1177	kennametalchile@kennametalchile.cl
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
Asia Pacific	**Australia**	+61 800 666 667	k-au.service@kennametal.com
	China	+86 400 889 2135	k-cn.service@kennametal.com
	India	+91 800 103 5138	k-bngl.information@kennametal.com
	Indonesia	+65 6265 9222	k-sg.sales@kennametal.com
	Japan	+81 3 3820 2855	k-jp.service@kennametal.com
	Korea (South)	+82 2 2109 6100	k-kr-service@kennametal.com
	Malaysia	+60 3 5569 9080	k-sg.sales@kennametal.com
	New Zealand	+64 0800 536626	k-nz.service@kennametal.com
	Singapore*	+65 62659222	k-sg.sales@kennametal.com
	Taiwan	+886 4 2350 1920	taiwan.service@kennametal.com
	Thailand	+66 2 642 3455	k-sg.sales@kennametal.com

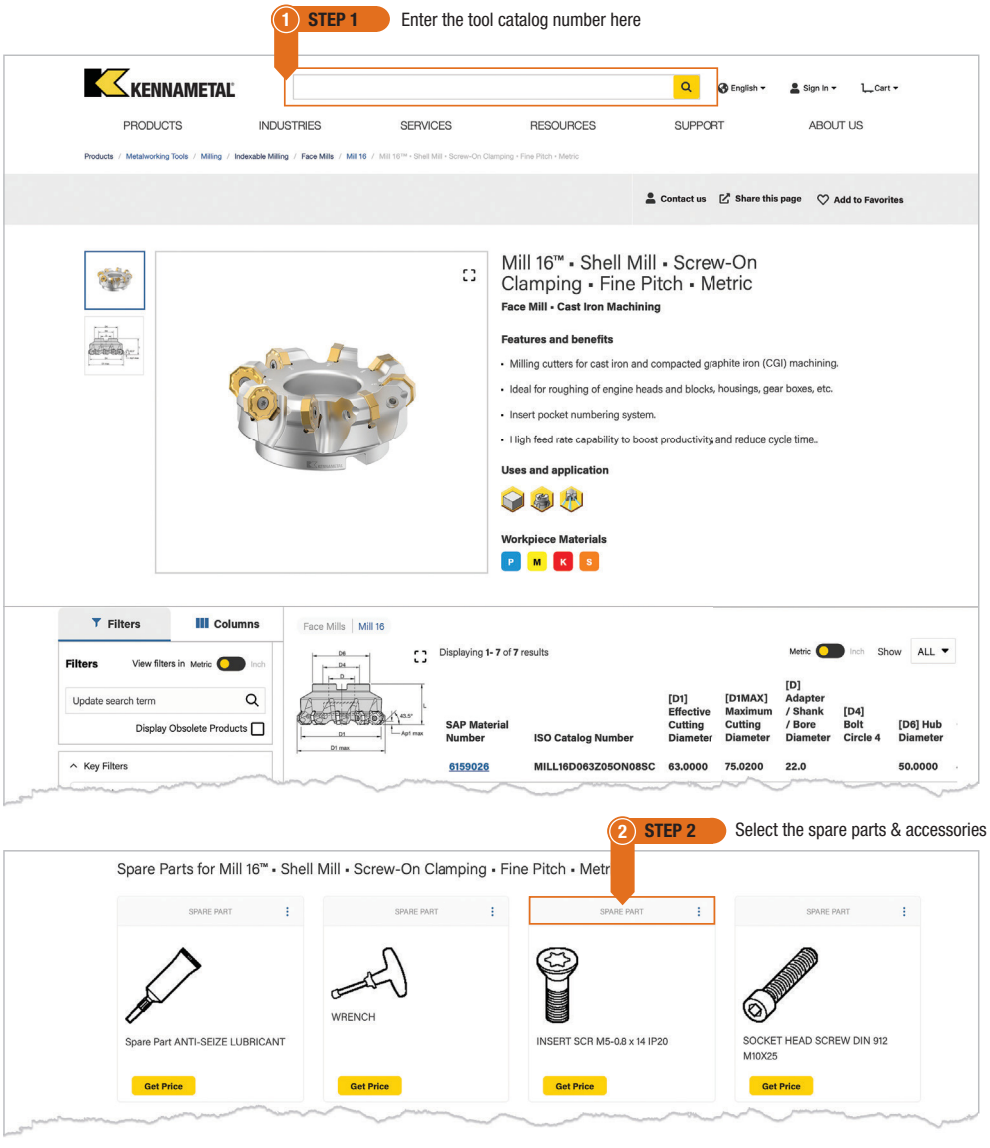
*Vietnam and Philippines individuals should contact the Singapore office.

Visit kennametal.com to find local Authorized Kennametal Distributors.

Spare Parts & Accessories Information

Lost a screw? Have to replace worn-out clamping wedges?
Need to find and re-order those spare parts?

Are you in need of some accessories, like a torque wrench or coolant shower plate? These tools are at your fingertips!
Go to kennametal.com and find what you need in seconds. Enter the catalog number of the corresponding tool, and it will display.



NOVO™

Digitally access spare parts and accessories information to ensure you keep your operation running.

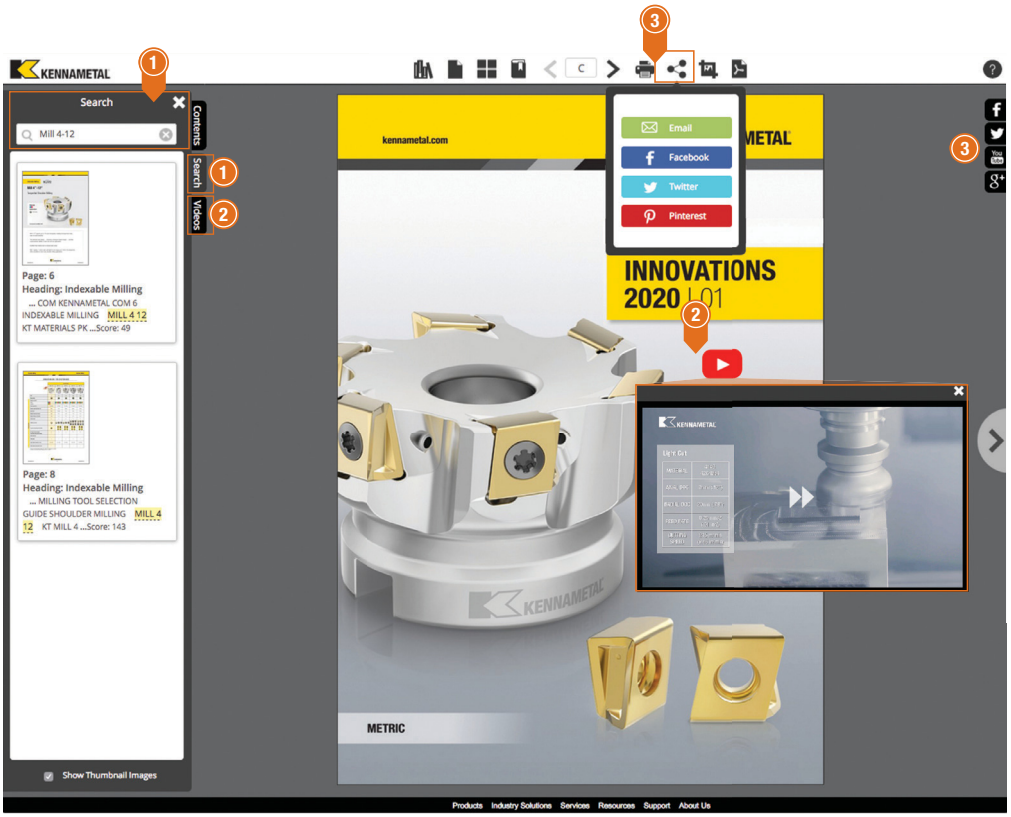
Visit kennametal.com/novo and log into the web app.
It's free!

Online Catalog

Can't find your paper copy of our catalog anymore?
No worries. Go to catalogs.kennametal.com to see what's out there.

Search for what you need, watch a video, and share pages with others, all from one site! Go to **catalogs.kennametal.com**, and if you want to check it out on your mobile device, just download the FREE app for iOS or Android™.

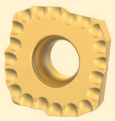
1. Search for what you need
2. Watch videos
3. Share with others



Check out our new catalog app.
Available in the Google Play™ Store or the App Store®.

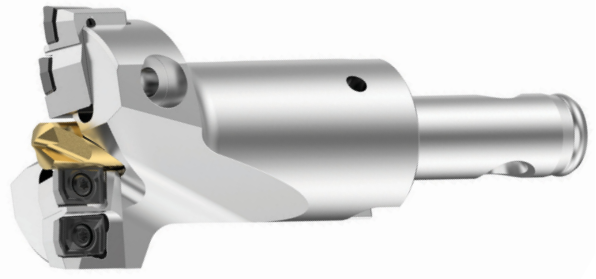
Indexable Drills

Tool Selection Guide • Indexable Drills • Drill Fix PRO™

	PK	MS	LC	PK	MS	LC
	NEW! 	NEW! 	NEW! 	NEW! 	NEW! 	NEW! 
Page	14	14	14	15	15	15
Insert position	Inboard			Outboard		
Workpiece material						
Primary	P K	M S	P	P K	M S	P
Secondary		P N	M S		P N	M S
For long chipping material			✔			✔
Main operation						
Hole tolerance	IT 9–11					
Cutting diameter [D1 min]	12mm					
Cutting diameter [D1 max]	65mm					
Drilling depth L/D1	2–5 x D					
Cutting edges per insert	4					
Coolant						
Connection Style Machine Side (CSMS)						

Indexable Drills

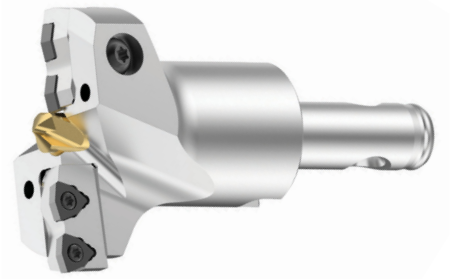
Tool Selection Guide • Indexable Drills • HTS-R

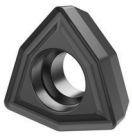
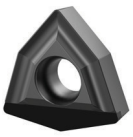


	GD	MD	LD	ST (PCD)
				
Page	kennametal.com	kennametal.com	kennametal.com	kennametal.com
Insert position	Inboard/Outboard			
Workpiece material				
Primary	P K S	P M S	P M K N S	N
Secondary	M N H	K N		
For long chipping material		✔		
Main operation				
Hole tolerance	IT 9–11			
Cutting diameter [D1 min]	40mm			
Cutting diameter [D1 max]	55mm			
Drilling depth L/D1	10 x D			
Cutting edges per insert	2			
Coolant				
Connection Style Machine Side (CSMS)				

Indexable Drills

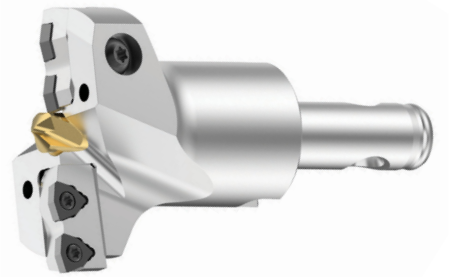
Tool Selection Guide • Indexable Drills • HTS

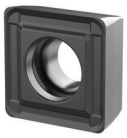
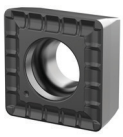
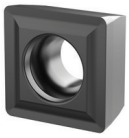


	GD	HP	MD	DS	DFT-ST (PCD)
					
Page	kennametal.com	kennametal.com	kennametal.com	kennametal.com	kennametal.com
Insert position	Inboard/Outboard				
Workpiece material					
Primary	P K	P K	P K	P	N
Secondary	M N S	M N S	M N S	M N S	
For long chipping material				✔	
Main operation					
Hole tolerance	IT 9–11				
Cutting diameter [D1 min]	45mm				
Cutting diameter [D1 max]	270mm				
Drilling depth L/D1	10 x D				
Cutting edges per insert	3–4				
Coolant					
Connection Style Machine Side (CSMS)					

Indexable Drills

Tool Selection Guide • Indexable Drills • HTS



	HP	FP	MD	LP
				
Page	**kennametal.com**	**kennametal.com**	**kennametal.com**	**kennametal.com**
Insert position	Outboard			
Workpiece material				
Primary	P K	P K	P K	P
Secondary	M N S	M N S	M N S	M N S
For long chipping material				✔
Main operation				
Hole tolerance	IT 9–11			
Cutting diameter [D1 min]	45mm			
Cutting diameter [D1 max]	270mm			
Drilling depth L/D1	10 x D			
Cutting edges per insert	3–4			
Coolant				
Connection Style Machine Side (CSMS)				

Indexable Drills

Drill Fix PRO™ • Bodies • Catalog Numbering System

Each character in our catalog number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.

DFPR	250	R	5	WB	32	M
Series	Cutting Diameter D1	Hand of Tool	Length to Diamater Ratio	Shank Style	Shank Diameter	Unit of Dimensions
DFPR = Drill Fix PRO	**Metric** = D1 in mm **Inch** = D1 in decimal inch	**R** = Right Hand	**05** = 5 x D	**WB** = Weldon® **SSF** = Flanged Shank with Flats **KM** = Kennametal Modular	**Metric** = D1 in mm **Inch** = D1 in decimal inch	**M** = Metric **Blank** = Inch

Drill Fix PRO • Inserts • Catalog Numbering System

DFPR	04	03	04	LC	I
Series	Size	Thickness	Corner Radius	Geometry/ Application	Insert Location
DFPR = Drill Fix PRO	D (mm/inch) Inboard Inserts **04** = 4,57 / 0.180 **05** = 5,30 / 0.209 **06** = 6,50 / 0.256 **08** = 8,04 / 0.317 **10** = 9,90 / 0.390 **12** = 11,90 / 0.469 **14** = 14,45 / 0.569 **17** = 17,30 / 0.681 **20** = 20,50 / 0.807 D (mm/inch) Outboard Inserts **04** = 4,60 / 0.181 **05** = 5,25 / 0.207 **06** = 6,20 / 0.244 **07** = 7,71 / 0.304 **09** = 9,40 / 0.370 **11** = 11,30 / 0.445 **14** = 13,55 / 0.533 **15** = 15,85 / 0.624 **18** = 18,70 / 0.736	s (mm/inch) **02** = 2,00 / 0.079 **02** = 2,40 / 0.094 **03** = 2,60 / 0.102 **03** = 2,80 / 0.110 **03** = 3,00 / 0.118 **04** = 3,60 / 0.142 **04** = 4,40 / 0.173 **05** = 5,20 / 0.205 **06** = 6,20 / 0.244	Rε (mm/inch) Inboard Inserts **03** = 0,30 / 0.012 **03** = 0,30 / 0.012 **04** = 0,40 / 0.016 **04** = 0,40 / 0.016 **05** = 0,50 / 0.020 **05** = 0,50 / 0.020 **06** = 0,60 / 0.024 **08** = 0,80 / 0.031 **08** = 0,80 / 0.031 Rε (mm/inch) Outboard Inserts **04** = 0,40 / 0.016 **04** = 0,40 / 0.016 **04** = 0,40 / 0.016 **05** = 0,50 / 0.020 **05** = 0,50 / 0.020 **06** = 0,60 / 0.024 **08** = 0,80 / 0.031 **08** = 0,80 / 0.031 **10** = 1,00 / 0.039	**PK** = Steels, Cast Iron **MS** = Stainless Steel, Steels **LC** = Long Chipping Materials	**I** = Inboard **O** = Outboard

KenShape™ MaPACS/MaxPACS

Piloted PCD-Countersinks for CFRP Composite Materials

KenShape MaPACS and MaxPACS Countersinks deliver maximum performance for manual CFRP countersinking applications and are the perfect fit for our aerospace industry customers focusing on rivet hole drilling in composite and stacked materials.

Both, MaPACS and MaxPACS, are designed with one cutting edge to minimize the effort required by the operator. These piloted countersinks deliver excellent hole quality and tool life at a competitive cost per hole. The unique indexable version offers a highly economical solution for customers that don't want to maintain reconditioning infrastructure or prefer a screw-on design.

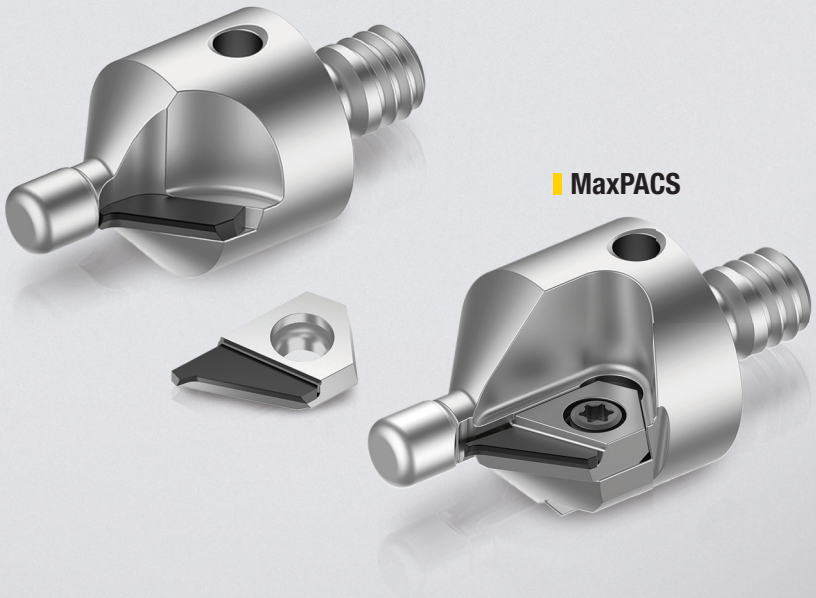
MaPACS/MaxPACS

- **One brazed high-quality PCD cutting edge** means lower thrust force and longer tool life.
- **Lower your cost per hole** with a design allowing up to three regrinds.
- **Complementary to tooling platforms** in aerospace and CFRP for rivet hole drilling.

MaxPACS

- **Easily interchangeable PCD inserts** deliver cost effectiveness with no reconditioning.

MaPACS



MaxPACS

KENNAMETAL®
kennametal.com

LET'S TAKE YOUR MANUFACTURING TO THE NEXT LEVEL

POWERED BY NOVO KENNAMETAL

Drill Fix PRO™

Indexable Drilling

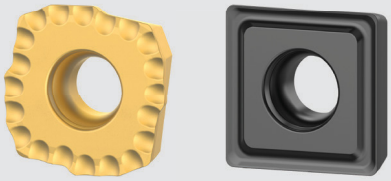
Materials

P M K S

Applications

- Drilling
- Drilling: Inclined Entry
- Drilling: Inclined Exit
- Drilling: Convex
- Drilling: X Offset
- Drilling: Stacked Plate
- Drilling: Blind
- Drilling: Chain Drilling
- Drilling: Cross Hole
- Drilling: Half Cylinder
- Drilling: Corner Drilling

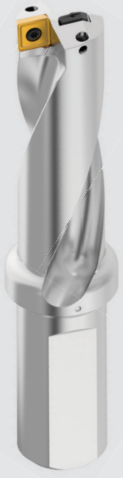
NEW!



Designed for extended tool life and smooth drilling at high metal removal rates.

Our Drill Fix PRO indexable drill comes with a wiper included in every outboard insert and features larger coolant channels for high-volume coolant flow.

Other platform advancements include the versatility of the four-time indexable cutting edges, which offer customers extended application range and cost effectiveness.



Cost-Effective & Versatile Indexable Drilling: Drill Fix PRO™ offers an economic drilling platform that covers a broad spectrum of materials and applications.

Wiper Geometry on All Outboard Inserts: Creating superior surface finish and hole quality.

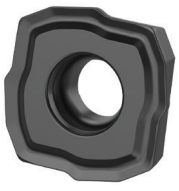
Robust Toolholder Design: Extreme rigidity resulting in less deviations, vibrations, and noise.

Optimized Coolant Delivery System: Large twin coolant channels provide enhanced coolant flow, resulting in superior chip evacuation and increased tool life.

Indexable Drilling of Stainless Steel and High-Temp Alloys with Advanced High-PIMS Grades KCMS35 & KCMS40

- Providing high process reliability with the longest tool life on stainless steels and high-temp alloys.
- Smooth coating surface prevents build up on cutting edges for a consistent machining process.
- Combination of optimum layer adhesion and high depth-of-cut notching resistance enhances tool longevity.
- Lower cost per hole: Up to 100% longer insert life when compared to competitor grades.

MS Geometry



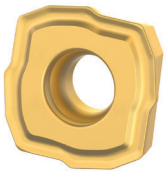
Inboard Insert in KCMS40

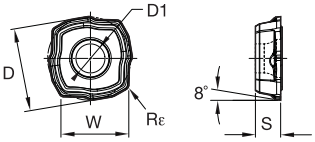
Outboard Insert in KCMS35

Indexable Drilling

Drill Fix PRO™ • Carbide Insert • Inboard • PK Geometry

NEW!



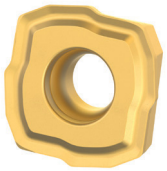


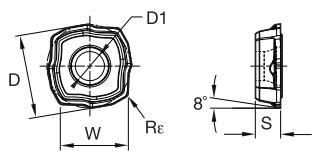
● first choice
○ alternate choice

ISO catalogue number	D1	D	Rε	W	S	KC7140
DFPR040203PKI	2,13	4,57	0,30	3,81	2,0	●
DFPR050203PKI	2,43	5,30	0,30	4,42	2,4	●
DFPR060304PKI	2,54	6,50	0,40	5,37	2,6	●
DFPR080304PKI	2,84	8,04	0,40	6,58	2,8	●
DFPR100305PKI	3,45	9,90	0,50	8,09	3,0	●
DFPR120405PKI	4,85	11,90	0,50	9,83	3,6	●
DFPR140406PKI	5,55	14,45	0,60	12,00	4,4	●
DFPR170508PKI	6,05	17,30	0,80	14,35	5,2	●
DFPR200608PKI	7,55	20,50	0,80	17,08	6,2	●

Drill Fix PRO • Carbide Insert • Inboard • MS Geometry

NEW!



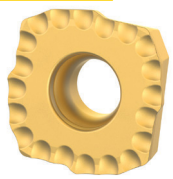


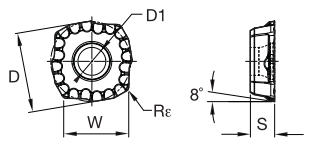
● first choice
○ alternate choice

ISO catalogue number	D1	D	Rε	W	S	KC7140	KCMS40
DFPR040203MSI	2,13	4,57	0,30	3,81	2,0	●	●
DFPR050203MSI	2,43	5,30	0,30	4,42	2,4	●	●
DFPR060304MSI	2,54	6,50	0,40	5,37	2,6	●	●
DFPR080304MSI	2,84	8,04	0,40	6,58	2,8	●	●
DFPR100305MSI	3,45	9,90	0,50	8,09	3,0	●	●
DFPR120405MSI	4,85	11,90	0,50	9,83	3,6	●	●
DFPR140406MSI	5,55	14,45	0,60	12,00	4,4	●	●
DFPR170508MSI	6,05	17,30	0,80	14,35	5,2	●	●
DFPR200608MSI	7,55	20,50	0,80	17,08	6,2	●	●

Drill Fix PRO • Carbide Insert • Inboard • LC Geometry

NEW!





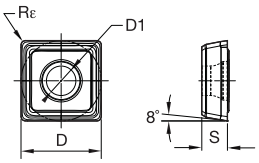
● first choice
○ alternate choice

ISO catalogue number	D1	D	Rε	W	S	KC7140	KCMS40
DFPR040203LCI	2,13	4,57	0,30	3,81	2,0	●	●
DFPR050203LCI	2,43	5,30	0,30	4,42	2,4	●	●
DFPR060304LCI	2,54	6,50	0,40	5,37	2,6	●	●
DFPR080304LCI	2,84	8,04	0,40	6,58	2,8	●	●
DFPR100305LCI	3,45	9,90	0,50	8,09	3,0	●	●
DFPR120405LCI	4,85	11,90	0,50	9,83	3,6	●	●
DFPR140406LCI	5,55	14,45	0,60	12,00	4,4	●	●
DFPR170508LCI	6,05	17,30	0,80	14,35	5,2	●	●
DFPR200608LCI	7,55	20,50	0,80	17,08	6,2	●	●

Indexable Drilling

Drill Fix PRO™ • Carbide Insert • Outboard • PK Geometry

NEW!

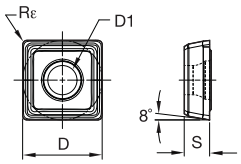


● first choice
○ alternate choice

P		●	●	●	●			
M								
K		●	●	●	○			
N								
S								
H								
						KCPK10	KCU25	KCU40	KC7140
ISO catalogue number	D1	D	Rε	S					
DFPR040204PKO	2,13	4,60	0,40	2,00		●	●	●	●
DFPR050204PKO	2,43	5,25	0,40	2,40		●	●	●	●
DFPR060304PKO	2,54	6,20	0,40	2,60		●	●	●	●
DFPR070305PKO	2,84	7,71	0,50	2,80		●	●	●	●
DFPR090305PKO	3,45	9,40	0,50	3,00		●	●	●	●
DFPR110406PKO	4,85	11,30	0,60	3,60		●	●	●	●
DFPR140408PKO	5,55	13,55	0,80	4,40		●	●	●	●
DFPR150508PKO	6,05	15,85	0,80	5,20		●	●	●	●
DFPR180610PKO	7,55	18,70	1,00	6,20		●	●	●	●

Drill Fix PRO • Carbide Insert • Outboard • MS Geometry

NEW!

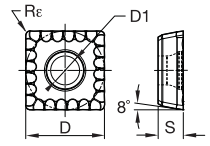


● first choice
○ alternate choice

P		○	○	○	○			
M		○	●	○	●			
K								
N		○	○	○	○			
S		○	●	○	●			
H								
						KCU40	KCMS35	KC7140	KCMS40
ISO catalogue number	D1	D	Rε	S					
DFPR040204MSO	2,13	4,60	0,40	2,00		●	●	●	●
DFPR050204MSO	2,43	5,25	0,40	2,40		●	●	●	●
DFPR060304MSO	2,54	6,20	0,40	2,60		●	●	●	●
DFPR070305MSO	2,84	7,71	0,50	2,80		●	●	●	●
DFPR090305MSO	3,45	9,40	0,50	3,00		●	●	●	●
DFPR110406MSO	4,85	11,30	0,60	3,60		●	●	●	●
DFPR140408MSO	5,55	13,55	0,80	4,40		●	●	●	●
DFPR150508MSO	6,05	15,85	0,80	5,20		●	●	●	●
DFPR180610MSO	7,55	18,70	1,00	6,20		●	●	●	●

Drill Fix PRO • Carbide Insert • Outboard • LC Geometry

NEW!



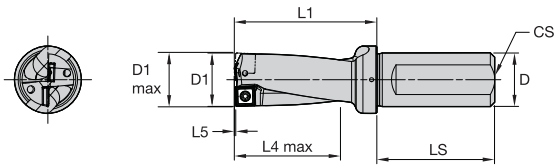
● first choice
○ alternate choice

P		○	●				
M		○	○				
K							
N							
S		○	○				
H							
						KCU40	KCMS35
ISO catalogue number	D1	D	Rε	S			
DFPR040204LCO	2,13	4,60	0,40	2,00		●	●
DFPR050204LCO	2,43	5,25	0,40	2,40		●	●
DFPR060304LCO	2,54	6,20	0,40	2,60		●	●
DFPR070305LCO	2,84	7,71	0,50	2,80		●	●
DFPR090305LCO	3,45	9,40	0,50	3,00		●	●
DFPR110406LCO	4,85	11,30	0,60	3,60		●	●
DFPR140408LCO	5,55	13,55	0,80	4,40		●	●
DFPR150508LCO	6,05	15,85	0,80	5,20		●	●
DFPR180610LCO	7,55	18,70	1,00	6,20		●	●

Indexable Drilling

Drill Fix PRO™ • Drill Body • 2 x D • WB Shank • Metric

NEW!



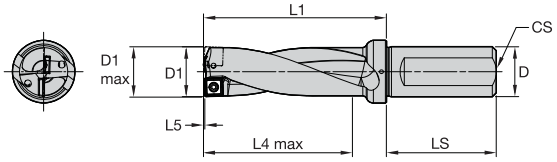
order number	ISO catalogue number	D1	D1 max	L5	L1	L4 max	LS	D	CS	insert 1 outside	insert 2 inside
7034765	DFPR120R2WB20M	12,00	12,50	0,32	45,00	24,00	50,00	20,00	1/8-27 NPT	DFPR040204__O	DFPR040203__I
7034766	DFPR125R2WB20M	12,50	13,00	0,36	46,00	25,00	50,00	20,00	1/8-27 NPT	DFPR040204__O	DFPR040203__I
7034767	DFPR130R2WB20M	13,00	13,50	0,40	47,00	26,00	50,00	20,00	1/8-27 NPT	DFPR040204__O	DFPR040203__I
7034768	DFPR135R2WB20M	13,50	14,00	0,44	47,00	27,00	50,00	20,00	1/8-27 NPT	DFPR040204__O	DFPR040203__I
7034769	DFPR140R2WB20M	14,00	14,50	0,36	48,00	28,00	50,00	20,00	1/8-27 NPT	DFPR050204__O	DFPR050203__I
7034770	DFPR145R2WB20M	14,50	15,00	0,40	49,00	29,00	50,00	20,00	1/8-27 NPT	DFPR050204__O	DFPR050203__I
7034801	DFPR150R2WB20M	15,00	15,50	0,44	49,00	30,00	50,00	20,00	1/8-27 NPT	DFPR050204__O	DFPR050203__I
7034802	DFPR155R2WB20M	15,50	16,00	0,48	50,00	31,00	50,00	20,00	1/8-27 NPT	DFPR050204__O	DFPR050203__I
7034803	DFPR160R2WB20M	16,00	16,50	0,52	51,00	32,00	50,00	20,00	1/8-27 NPT	DFPR050204__O	DFPR050203__I
7034132	DFPR165R2WB20M	16,50	17,00	0,21	53,00	33,00	50,00	20,00	1/8-27 NPT	DFPR060304__O	DFPR060304__I
7034133	DFPR170R2WB20M	17,00	17,50	0,26	53,00	34,00	50,00	20,00	1/8-27 NPT	DFPR060304__O	DFPR060304__I
7034134	DFPR175R2WB25M	17,50	18,00	0,30	55,00	35,00	56,00	25,00	1/4-18 NPT	DFPR060304__O	DFPR060304__I
7034135	DFPR180R2WB25M	18,00	18,50	0,35	56,00	36,00	56,00	25,00	1/4-18 NPT	DFPR060304__O	DFPR060304__I
7034136	DFPR185R2WB25M	18,50	19,00	0,39	57,00	37,00	56,00	25,00	1/4-18 NPT	DFPR060304__O	DFPR060304__I
7034137	DFPR190R2WB25M	19,00	19,50	0,43	57,00	38,00	56,00	25,00	1/4-18 NPT	DFPR060304__O	DFPR060304__I
7034138	DFPR195R2WB25M	19,50	20,00	0,48	58,00	39,00	56,00	25,00	1/4-18 NPT	DFPR060304__O	DFPR060304__I
7030338	DFPR200R2WB25M	20,00	21,00	0,50	59,00	40,00	56,00	25,00	1/4-18 NPT	DFPR070305__O	DFPR080304__I
7030339	DFPR210R2WB25M	21,00	22,00	0,58	60,00	42,00	56,00	25,00	1/4-18 NPT	DFPR070305__O	DFPR080304__I
7030340	DFPR220R2WB25M	22,00	23,00	0,67	62,00	44,00	56,00	25,00	1/4-18 NPT	DFPR070305__O	DFPR080304__I
7030351	DFPR230R2WB25M	23,00	24,00	0,76	62,24	46,00	56,00	25,00	1/4-18 NPT	DFPR070305__O	DFPR080304__I
7030352	DFPR240R2WB25M	24,00	25,00	0,84	64,16	48,00	56,00	25,00	1/4-18 NPT	DFPR070305__O	DFPR080304__I
7034139	DFPR250R2WB25M	25,00	26,00	0,35	67,00	50,00	56,00	25,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7034140	DFPR260R2WB32M	26,00	27,00	0,44	76,00	52,00	60,00	32,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7034141	DFPR270R2WB32M	27,00	28,00	0,52	78,00	54,00	60,00	32,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7034142	DFPR280R2WB32M	28,00	29,00	0,61	79,00	56,00	60,00	32,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7034143	DFPR290R2WB32M	29,00	30,00	0,70	81,00	58,00	60,00	32,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7034144	DFPR300R2WB32M	30,00	31,00	0,79	82,00	60,00	60,00	32,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7030353	DFPR310R2WB40M	31,00	32,00	0,40	88,00	62,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030354	DFPR320R2WB40M	32,00	33,00	0,48	89,00	64,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030355	DFPR330R2WB40M	33,00	34,00	0,93	91,00	66,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030356	DFPR340R2WB40M	34,00	35,00	1,02	92,00	68,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030357	DFPR350R2WB40M	35,00	36,00	1,11	94,00	70,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030358	DFPR360R2WB40M	36,00	37,00	1,19	95,00	72,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030359	DFPR370R2WB40M	37,00	38,00	1,28	97,00	74,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030569	DFPR380R2WB40M	38,00	39,00	0,91	103,00	76,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030570	DFPR390R2WB40M	39,00	40,00	0,99	104,00	78,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030571	DFPR400R2WB40M	40,00	41,00	1,08	106,00	80,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030573	DFPR410R2WB40M	41,00	42,00	1,16	107,00	82,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030574	DFPR420R2WB40M	42,00	43,00	1,25	110,00	84,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030575	DFPR430R2WB40M	43,00	44,00	1,33	111,00	86,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030576	DFPR440R2WB40M	44,00	45,00	1,42	113,00	88,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030577	DFPR450R2WB50M	45,00	46,00	1,50	122,00	90,00	80,00	50,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030578	DFPR460R2WB50M	46,00	47,00	1,20	122,00	92,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030579	DFPR470R2WB50M	47,00	48,00	1,28	124,00	94,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030580	DFPR480R2WB50M	48,00	49,00	1,36	125,00	96,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030581	DFPR490R2WB50M	49,00	50,00	1,44	127,00	98,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030582	DFPR500R2WB50M	50,00	51,00	1,52	130,00	100,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030584	DFPR510R2WB50M	51,00	52,00	1,60	131,00	102,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030585	DFPR520R2WB50M	52,00	53,00	1,69	133,00	104,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030586	DFPR530R2WB50M	53,00	54,00	1,77	134,00	106,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030587	DFPR540R2WB50M	54,00	55,00	1,85	136,00	108,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030715	DFPR550R2WB50M	55,00	56,00	1,37	144,00	110,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030716	DFPR560R2WB50M	56,00	57,00	1,45	146,00	112,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030717	DFPR570R2WB50M	57,00	58,00	1,53	147,00	114,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030718	DFPR580R2WB50M	58,00	59,00	1,61	149,00	116,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030719	DFPR590R2WB50M	59,00	60,00	1,70	153,00	118,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030720	DFPR600R2WB50M	60,00	61,00	1,78	155,00	120,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030721	DFPR610R2WB50M	61,00	62,00	1,86	157,00	122,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030722	DFPR620R2WB50M	62,00	63,00	1,94	159,00	124,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030723	DFPR630R2WB50M	63,00	64,00	2,02	161,00	126,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030724	DFPR640R2WB50M	64,00	65,00	2,10	163,00	128,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030725	DFPR650R2WB50M	65,00	66,00	2,19	165,00	130,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I

117–119	120	10	124

Indexable Drilling

Drill Fix PRO™ • Drill Body • 3 x D • WB Shank • Metric

NEW!



order number	ISO catalogue number	D1	D1 max	L5	L1	L4 max	LS	D	CS	insert 1 outside	insert 2 inside
7034804	DFPR120R3WB20M	12,00	12,50	0,32	57,00	36,00	50,00	20,00	1/8-27 NPT	DFPR040204__O	DFPR040203__I
7034805	DFPR125R3WB20M	12,50	13,00	0,36	58,50	37,50	50,00	20,00	1/8-27 NPT	DFPR040204__O	DFPR040203__I
7034806	DFPR130R3WB20M	13,00	13,50	0,40	60,00	39,00	50,00	20,00	1/8-27 NPT	DFPR040204__O	DFPR040203__I
7034807	DFPR135R3WB20M	13,50	14,00	0,44	60,50	40,50	50,00	20,00	1/8-27 NPT	DFPR040204__O	DFPR040203__I
7034808	DFPR140R3WB20M	14,00	14,50	0,36	62,00	42,00	50,00	20,00	1/8-27 NPT	DFPR050204__O	DFPR050203__I
7034809	DFPR145R3WB20M	14,50	15,00	0,40	63,50	43,50	50,00	20,00	1/8-27 NPT	DFPR050204__O	DFPR050203__I
7034810	DFPR150R3WB20M	15,00	15,50	0,44	64,00	45,00	50,00	20,00	1/8-27 NPT	DFPR050204__O	DFPR050203__I
7034811	DFPR155R3WB20M	15,50	16,00	0,48	65,50	46,50	50,00	20,00	1/8-27 NPT	DFPR050204__O	DFPR050203__I
7034812	DFPR160R3WB20M	16,00	16,50	0,52	67,00	48,00	50,00	20,00	1/8-27 NPT	DFPR050204__O	DFPR050203__I
7034145	DFPR165R3WB20M	16,50	17,00	0,21	69,50	49,50	50,00	20,00	1/8-27 NPT	DFPR060304__O	DFPR060304__I
7034146	DFPR170R3WB20M	17,00	17,50	0,26	70,00	51,00	50,00	20,00	1/8-27 NPT	DFPR060304__O	DFPR060304__I
7034147	DFPR175R3WB25M	17,50	18,00	0,30	72,50	52,50	56,00	25,00	1/4-18 NPT	DFPR060304__O	DFPR060304__I
7034148	DFPR180R3WB25M	18,00	18,50	0,35	74,00	54,00	56,00	25,00	1/4-18 NPT	DFPR060304__O	DFPR060304__I
7034149	DFPR185R3WB25M	18,50	19,00	0,39	75,50	55,50	56,00	25,00	1/4-18 NPT	DFPR060304__O	DFPR060304__I
7034150	DFPR190R3WB25M	19,00	19,50	0,43	76,00	57,00	56,00	25,00	1/4-18 NPT	DFPR060304__O	DFPR060304__I
7034151	DFPR195R3WB25M	19,50	20,00	0,48	77,50	58,50	56,00	25,00	1/4-18 NPT	DFPR060304__O	DFPR060304__I
7030360	DFPR200R3WB25M	20,00	21,00	0,50	79,00	60,00	56,00	25,00	1/4-18 NPT	DFPR070305__O	DFPR080304__I
7030361	DFPR210R3WB25M	21,00	22,00	0,58	81,00	63,00	56,00	25,00	1/4-18 NPT	DFPR070305__O	DFPR080304__I
7030362	DFPR220R3WB25M	22,00	23,00	0,67	84,00	66,00	56,00	25,00	1/4-18 NPT	DFPR070305__O	DFPR080304__I
7030363	DFPR230R3WB25M	23,00	24,00	0,75	86,00	69,00	56,00	25,00	1/4-18 NPT	DFPR070305__O	DFPR080304__I
7030364	DFPR240R3WB25M	24,00	25,00	0,84	89,00	72,00	56,00	25,00	1/4-18 NPT	DFPR070305__O	DFPR080304__I
7034152	DFPR250R3WB25M	25,00	26,00	0,35	92,00	75,00	56,00	25,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7034153	DFPR260R3WB32M	26,00	27,00	0,44	102,00	78,00	60,00	32,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7034154	DFPR270R3WB32M	27,00	28,00	0,52	105,00	81,00	60,00	32,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7034155	DFPR280R3WB32M	28,00	29,00	0,61	107,00	84,00	60,00	32,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7034156	DFPR290R3WB32M	29,00	30,00	0,70	110,00	87,00	60,00	32,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7034157	DFPR300R3WB32M	30,00	31,00	0,79	112,00	90,00	60,00	32,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7030365	DFPR310R3WB40M	31,00	32,00	0,40	119,00	93,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030366	DFPR320R3WB40M	32,00	33,00	0,48	121,00	96,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030367	DFPR330R3WB40M	33,00	34,00	0,93	124,00	99,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030368	DFPR340R3WB40M	34,00	35,00	1,02	126,00	102,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030369	DFPR350R3WB40M	35,00	36,00	1,11	129,00	105,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030370	DFPR360R3WB40M	36,00	37,00	1,19	131,00	108,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030381	DFPR370R3WB40M	37,00	38,00	1,28	134,00	111,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030588	DFPR380R3WB40M	38,00	39,00	0,91	141,00	114,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030589	DFPR390R3WB40M	39,00	40,00	0,99	143,00	117,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030590	DFPR400R3WB40M	40,00	41,00	1,08	146,00	120,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030604	DFPR410R3WB40M	41,00	42,00	1,16	148,00	123,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030605	DFPR420R3WB40M	42,00	43,00	1,25	152,00	126,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030606	DFPR430R3WB40M	43,00	44,00	1,33	154,00	129,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030607	DFPR440R3WB40M	44,00	45,00	1,42	157,00	132,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030608	DFPR450R3WB50M	45,00	46,00	1,50	167,00	135,00	80,00	50,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030609	DFPR460R3WB50M	46,00	47,00	1,20	168,00	138,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030610	DFPR470R3WB50M	47,00	48,00	1,28	171,00	141,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030611	DFPR480R3WB50M	48,00	49,00	1,36	173,00	144,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030612	DFPR490R3WB50M	49,00	50,00	1,40	176,00	147,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030613	DFPR500R3WB50M	50,00	51,00	1,52	180,00	150,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030614	DFPR510R3WB50M	51,00	52,00	1,60	182,00	153,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030615	DFPR520R3WB50M	52,00	53,00	1,69	185,00	156,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030617	DFPR530R3WB50M	53,00	54,00	1,77	187,00	159,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030618	DFPR540R3WB50M	54,00	55,00	1,85	190,00	162,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030726	DFPR550R3WB50M	55,00	56,00	1,37	199,00	165,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030727	DFPR560R3WB50M	56,00	57,00	1,45	202,00	168,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030729	DFPR570R3WB50M	57,00	58,00	1,53	204,00	171,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030730	DFPR580R3WB50M	58,00	59,00	1,61	207,00	174,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030751	DFPR590R3WB50M	59,00	60,00	1,70	212,00	177,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030752	DFPR600R3WB50M	60,00	61,00	1,78	215,00	180,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030753	DFPR610R3WB50M	61,00	62,00	1,86	218,00	183,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030754	DFPR620R3WB50M	62,00	63,00	1,94	221,00	186,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030755	DFPR630R3WB50M	63,00	64,00	2,02	224,00	189,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030756	DFPR640R3WB50M	64,00	65,00	2,10	227,00	192,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030757	DFPR650R3WB50M	65,00	66,00	2,19	230,00	195,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I

			
117–119	120	10	124

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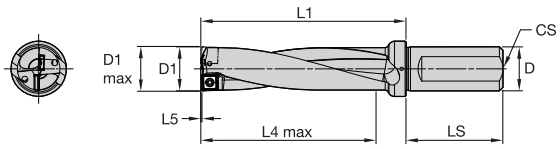

order number	ISO catalogue number	D1	D1 max	L5	L1	L4 max	LS	D	CS	insert 1 outside	insert 2 inside
7034813	DFPR120R4WB20M	12,00	12,50	0,32	69,00	48,00	50,00	20,00	1/8-27 NPT	DFPR040204__O	DFPR040203__I
7034814	DFPR125R4WB20M	12,50	13,00	0,36	71,00	50,00	50,00	20,00	1/8-27 NPT	DFPR040204__O	DFPR040203__I
7034815	DFPR130R4WB20M	13,00	13,50	0,40	73,00	52,00	50,00	20,00	1/8-27 NPT	DFPR040204__O	DFPR040203__I
7034816	DFPR135R4WB20M	13,50	14,00	0,44	74,00	54,00	50,00	20,00	1/8-27 NPT	DFPR040204__O	DFPR040203__I
7034817	DFPR140R4WB20M	14,00	14,50	0,36	76,00	56,00	50,00	20,00	1/8-27 NPT	DFPR050204__O	DFPR050203__I
7034818	DFPR145R4WB20M	14,50	15,00	0,40	78,00	58,00	50,00	20,00	1/8-27 NPT	DFPR050204__O	DFPR050203__I
7034819	DFPR150R4WB20M	15,00	15,50	0,44	79,00	60,00	50,00	20,00	1/8-27 NPT	DFPR050204__O	DFPR050203__I
7034820	DFPR155R4WB20M	15,50	16,00	0,48	81,00	62,00	50,00	20,00	1/8-27 NPT	DFPR050204__O	DFPR050203__I
7034831	DFPR160R4WB20M	16,00	16,50	0,52	83,00	64,00	50,00	20,00	1/8-27 NPT	DFPR050204__O	DFPR050203__I
7034158	DFPR165R4WB20M	16,50	17,00	0,21	86,00	66,00	50,00	20,00	1/8-27 NPT	DFPR060304__O	DFPR060304__I
7034159	DFPR170R4WB20M	17,00	17,50	0,26	87,00	68,00	50,00	20,00	1/8-27 NPT	DFPR060304__O	DFPR060304__I
7034160	DFPR175R4WB25M	17,50	18,00	0,30	90,00	70,00	56,00	25,00	1/4-18 NPT	DFPR060304__O	DFPR060304__I
7034161	DFPR180R4WB25M	18,00	18,50	0,35	92,00	72,00	56,00	25,00	1/4-18 NPT	DFPR060304__O	DFPR060304__I
7034162	DFPR185R4WB25M	18,50	19,00	0,39	94,00	74,00	56,00	25,00	1/4-18 NPT	DFPR060304__O	DFPR060304__I
7034163	DFPR190R4WB25M	19,00	19,50	0,43	95,00	76,00	56,00	25,00	1/4-18 NPT	DFPR060304__O	DFPR060304__I
7034164	DFPR195R4WB25M	19,50	20,00	0,48	97,00	78,00	56,00	25,00	1/4-18 NPT	DFPR060304__O	DFPR060304__I
7030382	DFPR200R4WB25M	20,00	21,00	0,50	99,00	80,00	56,00	25,00	1/4-18 NPT	DFPR070305__O	DFPR080304__I
7030383	DFPR210R4WB25M	21,00	22,00	0,58	102,00	84,00	56,00	25,00	1/4-18 NPT	DFPR070305__O	DFPR080304__I
7030384	DFPR220R4WB25M	22,00	23,00	0,67	106,00	88,00	56,00	25,00	1/4-18 NPT	DFPR070305__O	DFPR080304__I
7030385	DFPR230R4WB25M	23,00	24,00	0,76	109,00	92,00	56,00	25,00	1/4-18 NPT	DFPR070305__O	DFPR080304__I
7030386	DFPR240R4WB25M	24,00	25,00	0,84	113,00	96,00	56,00	25,00	1/4-18 NPT	DFPR070305__O	DFPR080304__I
7034165	DFPR250R4WB25M	25,00	26,00	0,35	117,00	100,00	56,00	25,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7034166	DFPR260R4WB32M	26,00	27,00	0,44	128,00	104,00	60,00	32,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7034167	DFPR270R4WB32M	27,00	28,00	0,52	132,00	108,00	60,00	32,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7034168	DFPR280R4WB32M	28,00	29,00	0,61	135,00	112,00	60,00	32,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7034169	DFPR290R4WB32M	29,00	30,00	0,70	139,00	116,00	60,00	32,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7034170	DFPR300R4WB32M	30,00	31,00	0,79	142,00	120,00	60,00	32,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7030387	DFPR310R4WB40M	31,00	32,00	0,40	150,00	124,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030388	DFPR320R4WB40M	32,00	33,00	0,48	153,00	128,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030389	DFPR330R4WB40M	33,00	34,00	0,93	157,00	132,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030390	DFPR340R4WB40M	34,00	35,00	1,02	160,00	136,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030411	DFPR350R4WB40M	35,00	36,00	1,11	164,00	140,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030412	DFPR360R4WB40M	36,00	37,00	1,19	167,00	144,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030413	DFPR370R4WB40M	37,00	38,00	1,28	171,00	148,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030619	DFPR380R4WB40M	38,00	39,00	0,91	179,00	152,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030620	DFPR390R4WB40M	39,00	40,00	0,99	182,00	156,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030631	DFPR400R4WB40M	40,00	41,00	1,08	186,00	160,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030632	DFPR410R4WB40M	41,00	42,00	1,16	189,00	164,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030633	DFPR420R4WB40M	42,00	43,00	1,25	194,00	168,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030634	DFPR430R4WB40M	43,00	44,00	1,33	197,00	172,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030635	DFPR440R4WB40M	44,00	45,00	1,42	201,00	176,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030636	DFPR450R4WB50M	45,00	46,00	1,50	212,00	180,00	80,00	50,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030637	DFPR460R4WB50M	46,00	47,00	1,20	214,00	184,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030638	DFPR470R4WB50M	47,00	48,00	1,28	218,00	188,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030639	DFPR480R4WB50M	48,00	49,00	1,36	221,00	192,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030640	DFPR490R4WB50M	49,00	50,00	1,44	225,00	196,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030642	DFPR500R4WB50M	50,00	51,00	1,52	230,00	200,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030643	DFPR510R4WB50M	51,00	52,00	1,60	233,00	204,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030644	DFPR520R4WB50M	52,00	53,00	1,69	237,00	208,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030645	DFPR530R4WB50M	53,00	54,00	1,77	240,00	212,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030646	DFPR540R4WB50M	54,00	55,00	1,85	244,00	216,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030758	DFPR550R4WB50M	55,00	56,00	1,37	254,00	220,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030759	DFPR560R4WB50M	56,00	57,00	1,45	258,00	224,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030760	DFPR570R4WB50M	57,00	58,00	1,53	261,00	228,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030761	DFPR580R4WB50M	58,00	59,00	1,61	265,00	232,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030762	DFPR590R4WB50M	59,00	60,00	1,70	271,00	236,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030763	DFPR600R4WB50M	60,00	61,00	1,78	275,00	240,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030764	DFPR610R4WB50M	61,00	62,00	1,86	279,00	244,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030765	DFPR620R4WB50M	62,00	63,00	1,94	283,00	248,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030766	DFPR630R4WB50M	63,00	64,00	2,02	287,00	252,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030767	DFPR640R4WB50M	64,00	65,00	2,10	291,00	256,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030768	DFPR650R4WB50M	65,00	66,00	2,19	295,00	260,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I

117–119	120	10	124

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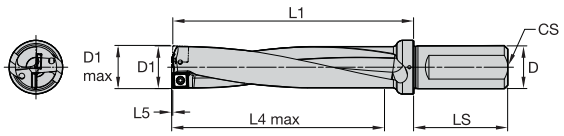

order number	ISO catalogue number	D1	D1 max	L5	L1	L4 max	LS	D	CS	insert 1 outside	insert 2 inside
7034832	DFPR120R5WB20M	12,00	12,50	0,03	81,00	60,00	50,00	20,00	1/8-27 NPT	DFPR040204__O	DFPR040203__I
7034833	DFPR125R5WB20M	12,50	13,00	0,36	83,50	62,50	50,00	20,00	1/8-27 NPT	DFPR040204__O	DFPR040203__I
7034834	DFPR130R5WB20M	13,00	13,50	0,04	86,00	65,00	50,00	20,00	1/8-27 NPT	DFPR040204__O	DFPR040203__I
7034835	DFPR135R5WB20M	13,50	14,00	0,44	87,50	67,50	50,00	20,00	1/8-27 NPT	DFPR040204__O	DFPR040203__I
7034836	DFPR140R5WB20M	14,00	14,50	0,36	90,00	70,00	50,00	20,00	1/8-27 NPT	DFPR050204__O	DFPR050203__I
7034837	DFPR145R5WB20M	14,50	15,00	0,40	92,50	72,50	50,00	20,00	1/8-27 NPT	DFPR050204__O	DFPR050203__I
7034838	DFPR150R5WB20M	15,00	15,50	0,44	94,00	75,00	50,00	20,00	1/8-27 NPT	DFPR050204__O	DFPR050203__I
7034839	DFPR155R5WB20M	15,50	16,00	0,48	96,50	77,50	50,00	20,00	1/8-27 NPT	DFPR050204__O	DFPR050203__I
7034840	DFPR160R5WB20M	16,00	16,50	0,99	99,00	80,00	50,00	20,00	1/8-27 NPT	DFPR050204__O	DFPR050203__I
7034201	DFPR165R5WB20M	16,50	17,00	0,21	102,50	82,50	50,00	20,00	1/8-27 NPT	DFPR060304__O	DFPR060304__I
7034202	DFPR170R5WB20M	17,00	17,50	0,26	104,00	85,00	50,00	20,00	1/8-27 NPT	DFPR060304__O	DFPR060304__I
7034203	DFPR175R5WB25M	17,50	18,00	0,30	107,50	87,50	56,00	25,00	1/4-18 NPT	DFPR060304__O	DFPR060304__I
7034204	DFPR180R5WB25M	18,00	18,50	0,35	110,00	90,00	56,00	25,00	1/4-18 NPT	DFPR060304__O	DFPR060304__I
7034205	DFPR185R5WB25M	18,50	19,00	0,39	112,50	92,50	56,00	25,00	1/4-18 NPT	DFPR060304__O	DFPR060304__I
7034206	DFPR190R5WB25M	19,00	19,50	0,43	114,00	95,00	56,00	25,00	1/4-18 NPT	DFPR060304__O	DFPR060304__I
7034207	DFPR195R5WB25M	19,50	20,00	0,48	116,50	97,50	56,00	25,00	1/4-18 NPT	DFPR060304__O	DFPR060304__I
7030414	DFPR200R5WB25M	20,00	21,00	0,26	119,00	100,00	56,00	25,00	1/4-18 NPT	DFPR070305__O	DFPR080304__I
7030415	DFPR210R5WB25M	21,00	22,00	0,58	123,00	105,00	56,00	25,00	1/4-18 NPT	DFPR070305__O	DFPR080304__I
7030416	DFPR220R5WB25M	22,00	23,00	0,67	128,00	110,00	56,00	25,00	1/4-18 NPT	DFPR070305__O	DFPR080304__I
7030417	DFPR230R5WB25M	23,00	24,00	0,76	132,00	115,00	56,00	25,00	1/4-18 NPT	DFPR070305__O	DFPR080304__I
7030418	DFPR240R5WB25M	24,00	25,00	0,84	137,00	120,00	56,00	25,00	1/4-18 NPT	DFPR070305__O	DFPR080304__I
7034208	DFPR250R5WB25M	25,00	26,00	0,35	142,00	125,00	56,00	25,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7034209	DFPR260R5WB32M	26,00	27,00	0,44	154,00	130,00	60,00	32,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7034210	DFPR270R5WB32M	27,00	28,00	0,52	159,00	135,00	60,00	32,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7034211	DFPR280R5WB32M	28,00	29,00	0,61	163,00	140,00	60,00	32,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7034212	DFPR290R5WB32M	29,00	30,00	0,70	168,00	145,00	60,00	32,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7034213	DFPR300R5WB32M	30,00	31,00	0,79	172,00	150,00	60,00	32,00	1/4-18 NPT	DFPR090305__O	DFPR100305__I
7030419	DFPR310R5WB40M	31,00	32,00	0,40	181,00	155,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030420	DFPR320R5WB40M	32,00	33,00	0,48	185,00	160,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030421	DFPR330R5WB40M	33,00	34,00	0,93	190,00	165,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030422	DFPR340R5WB40M	34,00	35,00	1,02	194,00	170,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030423	DFPR350R5WB40M	35,00	36,00	1,11	199,00	175,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030424	DFPR360R5WB40M	36,00	37,00	1,19	203,00	180,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030425	DFPR370R5WB40M	37,00	38,00	1,28	208,00	185,00	70,00	40,00	1/4-18 NPT	DFPR110406__O	DFPR120405__I
7030647	DFPR380R5WB40M	38,00	39,00	0,91	217,00	190,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030649	DFPR390R5WB40M	39,00	40,00	0,99	221,00	195,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030650	DFPR400R5WB40M	40,00	41,00	1,08	226,00	200,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030652	DFPR410R5WB40M	41,00	42,00	1,16	230,00	205,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030653	DFPR420R5WB40M	42,00	43,00	1,25	236,00	210,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030654	DFPR430R5WB40M	43,00	44,00	1,33	240,00	215,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030655	DFPR440R5WB40M	44,00	45,00	1,42	245,00	220,00	70,00	40,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030656	DFPR450R5WB50M	45,00	46,00	1,50	257,00	225,00	80,00	50,00	1/4-18 NPT	DFPR140408__O	DFPR140406__I
7030657	DFPR460R5WB50M	46,00	47,00	1,20	260,00	230,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030658	DFPR470R5WB50M	47,00	48,00	1,28	265,00	235,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030659	DFPR480R5WB50M	48,00	49,00	1,36	269,00	240,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030660	DFPR490R5WB50M	49,00	50,00	1,44	274,00	245,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030661	DFPR500R5WB50M	50,00	51,00	1,52	280,00	250,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030662	DFPR510R5WB50M	51,00	52,00	1,60	284,00	255,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030663	DFPR520R5WB50M	52,00	53,00	1,69	289,00	260,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030664	DFPR530R5WB50M	53,00	54,00	1,77	293,00	265,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030665	DFPR540R5WB50M	54,00	55,00	1,85	298,00	270,00	80,00	50,00	1/4-18 NPT	DFPR150508__O	DFPR170508__I
7030769	DFPR550R5WB50M	55,00	56,00	1,37	309,00	275,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030781	DFPR560R5WB50M	56,00	57,00	1,45	314,00	280,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030782	DFPR570R5WB50M	57,00	58,00	1,53	318,00	285,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030783	DFPR580R5WB50M	58,00	59,00	1,61	323,00	290,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030784	DFPR590R5WB50M	59,00	60,00	1,70	330,00	295,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030785	DFPR600R5WB50M	60,00	61,00	1,78	335,00	300,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030786	DFPR610R5WB50M	61,00	62,00	1,86	340,00	305,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030787	DFPR620R5WB50M	62,00	63,00	1,94	345,00	310,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030788	DFPR630R5WB50M	63,00	64,00	2,02	350,00	315,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030789	DFPR640R5WB50M	64,00	65,00	2,10	355,00	320,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I
7030790	DFPR650R5WB50M	65,00	66,00	2,19	360,00	325,00	80,00	50,00	1/4-18 NPT	DFPR180610__O	DFPR200608__I

117–119	120	10	124

Indexable Drilling

Drill Fix PRO™ Tool Diameter Tolerance Table

Tolerance • Metric

L/D	2 L/D	3 L/D	4 L/D	5 L/D
Dia., mm	Hole tolerance, mm			
12,00–23,99	+0,00 / +0,15	+0,00 / +0,20	+0,00 / +0,25	+0,00 / +0,30
24,00–39,99	+0,00 / +0,20	+0,00 / +0,25	+0,00 / +0,30	+0,00 / +0,35
40,00–65,00	+0,00 / +0,25	+0,00 / +0,30	+0,00 / +0,35	+0,00 / +0,40

Drill Fix PRO • Application Data • Speed Vc in m/min and Feed fz in mm/rev

MG = Material Group
CC = Cutting Condition
S = Stable
U = Unstable
I = Interrupted
IP = Insert Position
O = Outboard
I = Inboard
GEO = Insert Geometry

					Ø 12–13,99mm			Ø 14–16,49mm			Ø 16,5–19,99mm					
MG	**CC**	**IP**	**GEO**	**Grade**	**Min**	**Vc m/min Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**
P0																
	S	O	LC	**KCMS35**	310	**335**	360	0,05	**0,08**	0,10	0,05	**0,09**	0,12	0,05	**0,09**	0,13
	S	I	LC	**KCMS40**	310	**335**	360	0,05	**0,08**	0,10	0,05	**0,09**	0,12	0,05	**0,09**	0,13
	U	O	LC	**KCMS35**	200	**220**	240	0,04	**0,06**	0,07	0,04	**0,07**	0,08	0,04	**0,07**	0,09
	U	I	LC	**KCMS40**	200	**220**	240	0,04	**0,06**	0,07	0,04	**0,07**	0,08	0,04	**0,07**	0,09
	I	O	LC	**KCMS35**	125	**135**	145	0,04	**0,05**	0,06	0,04	**0,06**	0,07	0,04	**0,06**	0,08
	I	I	LC	**KCMS40**	125	**135**	145	0,04	**0,05**	0,06	0,04	**0,06**	0,07	0,04	**0,06**	0,08
P1																
	S	O	PK	**KCPK10**	310	**335**	360	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	S	I	PK	**KC7140**	310	**335**	360	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	U	O	PK	**KCU25**	200	**220**	240	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	U	I	PK	**KC7140**	200	**220**	240	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	I	O	PK	**KCU40**	125	**135**	145	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
	I	I	PK	**KC7140**	125	**135**	145	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
P2																
	S	O	PK	**KCPK10**	310	**335**	360	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	S	I	PK	**KC7140**	310	**335**	360	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	U	O	PK	**KCU25**	200	**220**	240	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	U	I	PK	**KC7140**	200	**220**	240	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	I	O	PK	**KCU40**	125	**135**	145	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
	I	I	PK	**KC7140**	125	**135**	145	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
P3																
	S	O	PK	**KCPK10**	260	**290**	320	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	S	I	PK	**KC7140**	260	**290**	320	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	U	O	PK	**KCU25**	170	**190**	210	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	U	I	PK	**KC7140**	170	**190**	210	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	I	O	PK	**KCU40**	105	**120**	135	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
	I	I	PK	**KC7140**	105	**120**	135	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
P4																
	S	O	PK	**KCPK10**	220	**260**	300	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	S	I	PK	**KC7140**	220	**260**	300	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	U	O	PK	**KCU25**	145	**170**	195	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	U	I	PK	**KC7140**	145	**170**	195	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	I	O	PK	**KCU40**	90	**105**	120	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
	I	I	PK	**KC7140**	90	**105**	120	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
P5																
	S	O	PK	**KCU25**	180	**200**	220	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	S	I	PK	**KC7140**	180	**200**	220	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	U	O	PK	**KCU40**	115	**130**	145	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	U	I	PK	**KC7140**	115	**130**	145	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	I	O	PK	**KC7140**	70	**80**	90	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
	I	I	PK	**KC7140**	70	**80**	90	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
P6																
	S	O	PK	**KCU25**	180	**200**	220	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	S	I	PK	**KC7140**	180	**200**	220	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	U	O	PK	**KCU40**	115	**130**	145	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	U	I	PK	**KC7140**	115	**130**	145	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	I	O	PK	**KC7140**	70	**80**	90	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
	I	I	PK	**KC7140**	70	**80**	90	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12

Indexable Drilling

Drill Fix PRO™ • Application Data • Speed Vc in m/min and Feed fz in mm/rev

MG = Material Group
CC = Cutting Condition
S = Stable
U = Unstable
I = Interrupted
IP = Insert Position
O = Outboard
I = Inboard
GEO = Insert Geometry

					Ø 20–24,49mm						Ø 25–30,49mm			Ø 30,5–37,49mm		
MG	**CC**	**IP**	**GEO**	**Grade**	**Min**	**Vc m/min Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**
P0																
	S	O	LC	**KCMS35**	310	**335**	360	0,05	**0,1**	0,14	0,06	**0,11**	0,16	0,07	**0,13**	0,18
	S	I	LC	**KCMS40**	310	**335**	360	0,05	**0,1**	0,14	0,06	**0,11**	0,16	0,07	**0,13**	0,18
	U	O	LC	**KCMS35**	200	**220**	240	0,04	**0,07**	0,10	0,05	**0,08**	0,11	0,06	**0,10**	0,13
	U	I	LC	**KCMS40**	200	**220**	240	0,04	**0,07**	0,10	0,05	**0,08**	0,11	0,06	**0,10**	0,13
	I	O	LC	**KCMS35**	125	**135**	145	0,04	**0,07**	0,08	0,05	**0,08**	0,10	0,06	**0,09**	0,11
	I	I	LC	**KCMS40**	125	**135**	145	0,04	**0,07**	0,08	0,05	**0,08**	0,10	0,06	**0,09**	0,11
P1																
	S	O	PK	**KCPK10**	310	**335**	360	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	S	I	PK	**KC7140**	310	**335**	360	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	U	O	PK	**KCU25**	200	**220**	240	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	U	I	PK	**KC7140**	200	**220**	240	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	I	O	PK	**KCU40**	125	**135**	145	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17
	I	I	PK	**KC7140**	125	**135**	145	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17
P2																
	S	O	PK	**KCPK10**	310	**335**	360	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	S	I	PK	**KC7140**	310	**335**	360	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	U	O	PK	**KCU25**	200	**220**	240	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	U	I	PK	**KC7140**	200	**220**	240	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	I	O	PK	**KCU40**	125	**135**	145	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17
	I	I	PK	**KC7140**	125	**135**	145	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17
P3																
	S	O	PK	**KCPK10**	260	**290**	320	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	S	I	PK	**KC7140**	260	**290**	320	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	U	O	PK	**KCU25**	170	**190**	210	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	U	I	PK	**KC7140**	170	**190**	210	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	I	O	PK	**KCU40**	105	**120**	135	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17
	I	I	PK	**KC7140**	105	**120**	135	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17
P4																
	S	O	PK	**KCPK10**	220	**260**	300	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	S	I	PK	**KC7140**	220	**260**	300	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	U	O	PK	**KCU25**	145	**170**	195	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	U	I	PK	**KC7140**	145	**170**	195	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	I	O	PK	**KCU40**	90	**105**	120	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17
	I	I	PK	**KC7140**	90	**105**	120	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17
P5																
	S	O	PK	**KCU25**	180	**200**	220	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	S	I	PK	**KC7140**	180	**200**	220	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	U	O	PK	**KCU40**	115	**130**	145	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	U	I	PK	**KC7140**	115	**130**	145	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	I	O	PK	**KC7140**	70	**80**	90	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17
	I	I	PK	**KC7140**	70	**80**	90	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17
P6																
	S	O	PK	**KCU25**	180	**200**	220	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	S	I	PK	**KC7140**	180	**200**	220	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	U	O	PK	**KCU40**	115	**130**	145	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	U	I	PK	**KC7140**	115	**130**	145	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	I	O	PK	**KC7140**	70	**80**	90	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17
	I	I	PK	**KC7140**	70	**80**	90	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17

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					Ø 37,5–45,49mm						Ø 45,5–54,49mm			Ø 54,5–65mm		
MG	**CC**	**IP**	**GEO**	**Grade**	**Min**	**Vc m/min Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**
P0																
	S	O	LC	**KCMS35**	310	**335**	360	0,07	**0,14**	0,20	0,08	**0,15**	0,21	0,08	**0,16**	0,23
	S	I	LC	**KCMS40**	310	**335**	360	0,07	**0,14**	0,20	0,08	**0,15**	0,21	0,08	**0,16**	0,23
	U	O	LC	**KCMS35**	200	**220**	240	0,06	**0,10**	0,14	0,06	**0,11**	0,15	0,06	**0,12**	0,16
	U	I	LC	**KCMS40**	200	**220**	240	0,06	**0,10**	0,14	0,06	**0,11**	0,15	0,06	**0,12**	0,16
	I	O	LC	**KCMS35**	125	**135**	145	0,06	**0,09**	0,12	0,06	**0,10**	0,13	0,06	**0,11**	0,14
	I	I	LC	**KCMS40**	125	**135**	145	0,06	**0,09**	0,12	0,06	**0,10**	0,13	0,06	**0,11**	0,14
P1																
	S	O	PK	**KCPK10**	310	**335**	360	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	S	I	PK	**KC7140**	310	**335**	360	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	U	O	PK	**KCU25**	200	**220**	240	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	U	I	PK	**KC7140**	200	**220**	240	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	I	O	PK	**KCU40**	125	**135**	145	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22
	I	I	PK	**KC7140**	125	**135**	145	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22
P2																
	S	O	PK	**KCPK10**	310	**335**	360	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	S	I	PK	**KC7140**	310	**335**	360	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	U	O	PK	**KCU25**	200	**220**	240	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	U	I	PK	**KC7140**	200	**220**	240	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	I	O	PK	**KCU40**	125	**135**	145	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22
	I	I	PK	**KC7140**	125	**135**	145	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22
P3																
	S	O	PK	**KCPK10**	260	**290**	320	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	S	I	PK	**KC7140**	260	**290**	320	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	U	O	PK	**KCU25**	170	**190**	210	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	U	I	PK	**KC7140**	170	**190**	210	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	I	O	PK	**KCU40**	105	**120**	135	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22
	I	I	PK	**KC7140**	105	**120**	135	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22
P4																
	S	O	PK	**KCPK10**	220	**260**	300	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	S	I	PK	**KC7140**	220	**260**	300	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	U	O	PK	**KCU25**	145	**170**	195	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	U	I	PK	**KC7140**	145	**170**	195	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	I	O	PK	**KCU40**	90	**105**	120	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22
	I	I	PK	**KC7140**	90	**105**	120	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22
P5																
	S	O	PK	**KCU25**	180	**200**	220	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	S	I	PK	**KC7140**	180	**200**	220	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	U	O	PK	**KCU40**	115	**130**	145	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	U	I	PK	**KC7140**	115	**130**	145	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	I	O	PK	**KC7140**	70	**80**	90	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22
	I	I	PK	**KC7140**	70	**80**	90	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22
P6																
	S	O	PK	**KCU25**	180	**200**	220	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	S	I	PK	**KC7140**	180	**200**	220	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	U	O	PK	**KCU40**	115	**130**	145	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	U	I	PK	**KC7140**	115	**130**	145	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	I	O	PK	**KC7140**	70	**80**	90	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22
	I	I	PK	**KC7140**	70	**80**	90	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22

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					Ø 12–13,99mm			Ø 14–16,49mm			Ø 16,5–19,99mm					
MG	**CC**	**IP**	**GEO**	**Grade**	**Min**	**Vc m/min Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**
M1																
	S	O	MS	**KCMS35**	150	**190**	230	0,05	**0,08**	0,10	0,05	**0,09**	0,12	0,05	**0,10**	0,14
	S	I	MS	**KCMS40**	150	**190**	230	0,05	**0,08**	0,10	0,05	**0,09**	0,12	0,05	**0,10**	0,14
	U	O	MS	**KCMS40**	100	**125**	150	0,04	**0,06**	0,07	0,04	**0,07**	0,08	0,04	**0,07**	0,10
	U	I	MS	**KCMS40**	100	**125**	150	0,04	**0,06**	0,07	0,04	**0,07**	0,08	0,04	**0,07**	0,10
	I	O	MS	**KCMS40**	60	**75**	90	0,04	**0,05**	0,06	0,04	**0,06**	0,07	0,04	**0,07**	0,08
	I	I	MS	**KCMS40**	60	**75**	90	0,04	**0,05**	0,06	0,04	**0,06**	0,07	0,04	**0,07**	0,08
M2																
	S	O	MS	**KCMS35**	150	**180**	210	0,05	**0,08**	0,10	0,05	**0,09**	0,12	0,05	**0,10**	0,14
	S	I	MS	**KCMS40**	150	**180**	210	0,05	**0,08**	0,10	0,05	**0,09**	0,12	0,05	**0,10**	0,14
	U	O	MS	**KCMS40**	100	**120**	140	0,04	**0,06**	0,07	0,04	**0,07**	0,08	0,04	**0,07**	0,10
	U	I	MS	**KCMS40**	100	**120**	140	0,04	**0,06**	0,07	0,04	**0,07**	0,08	0,04	**0,07**	0,10
	I	O	MS	**KCMS40**	60	**75**	90	0,04	**0,05**	0,06	0,04	**0,06**	0,07	0,04	**0,07**	0,08
	I	I	MS	**KCMS40**	60	**75**	90	0,04	**0,05**	0,06	0,04	**0,06**	0,07	0,04	**0,07**	0,08
M3																
	S	O	MS	**KCMS35**	100	**130**	160	0,04	**0,07**	0,09	0,04	**0,08**	0,10	0,04	**0,09**	0,12
	S	I	MS	**KCMS40**	100	**130**	160	0,04	**0,07**	0,09	0,04	**0,08**	0,10	0,04	**0,09**	0,12
	U	O	MS	**KCMS40**	65	**85**	105	0,03	**0,05**	0,06	0,03	**0,06**	0,07	0,03	**0,06**	0,08
	U	I	MS	**KCMS40**	65	**85**	105	0,03	**0,05**	0,06	0,03	**0,06**	0,07	0,03	**0,06**	0,08
	I	O	MS	**KCMS40**	40	**55**	70	0,03	**0,05**	0,05	0,03	**0,05**	0,06	0,03	**0,06**	0,07
	I	I	MS	**KCMS40**	40	**55**	70	0,03	**0,05**	0,05	0,03	**0,05**	0,06	0,03	**0,06**	0,07

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					Ø 20–24,49mm			Ø 25–30,49mm			Ø 30,5–37,49mm					
MG	**CC**	**IP**	**GEO**	**Grade**	**Min**	**Vc m/min Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**
M1																
	S	O	MS	**KCMS35**	150	**190**	230	0,05	**0,10**	0,15	0,06	**0,11**	0,16	0,07	**0,13**	0,18
	S	I	MS	**KCMS40**	150	**190**	230	0,05	**0,10**	0,15	0,06	**0,11**	0,16	0,07	**0,13**	0,18
	U	O	MS	**KCMS40**	100	**125**	150	0,04	**0,08**	0,11	0,05	**0,08**	0,11	0,06	**0,10**	0,13
	U	I	MS	**KCMS40**	100	**125**	150	0,04	**0,08**	0,11	0,05	**0,08**	0,11	0,06	**0,10**	0,13
	I	O	MS	**KCMS40**	60	**75**	90	0,04	**0,07**	0,09	0,05	**0,08**	0,10	0,06	**0,09**	0,11
	I	I	MS	**KCMS40**	60	**75**	90	0,04	**0,07**	0,09	0,05	**0,08**	0,10	0,06	**0,09**	0,11
M2																
	S	O	MS	**KCMS35**	150	**180**	210	0,05	**0,10**	0,15	0,06	**0,11**	0,16	0,07	**0,13**	0,18
	S	I	MS	**KCMS40**	150	**180**	210	0,05	**0,10**	0,15	0,06	**0,11**	0,16	0,07	**0,13**	0,18
	U	O	MS	**KCMS40**	100	**120**	140	0,04	**0,08**	0,11	0,05	**0,08**	0,11	0,06	**0,10**	0,13
	U	I	MS	**KCMS40**	100	**120**	140	0,04	**0,08**	0,11	0,05	**0,08**	0,11	0,06	**0,10**	0,13
	I	O	MS	**KCMS40**	60	**75**	90	0,04	**0,07**	0,09	0,05	**0,08**	0,10	0,06	**0,09**	0,11
	I	I	MS	**KCMS40**	60	**75**	90	0,04	**0,07**	0,09	0,05	**0,08**	0,10	0,06	**0,09**	0,11
M3																
	S	O	MS	**KCMS35**	100	**130**	160	0,04	**0,09**	0,13	0,05	**0,10**	0,14	0,06	**0,11**	0,15
	S	I	MS	**KCMS40**	100	**130**	160	0,04	**0,09**	0,13	0,05	**0,10**	0,14	0,06	**0,11**	0,15
	U	O	MS	**KCMS40**	65	**85**	105	0,03	**0,07**	0,09	0,04	**0,07**	0,10	0,05	**0,08**	0,11
	U	I	MS	**KCMS40**	65	**85**	105	0,03	**0,07**	0,09	0,04	**0,07**	0,10	0,05	**0,08**	0,11
	I	O	MS	**KCMS40**	40	**55**	70	0,03	**0,06**	0,08	0,04	**0,07**	0,08	0,05	**0,07**	0,09
	I	I	MS	**KCMS40**	40	**55**	70	0,03	**0,06**	0,08	0,04	**0,07**	0,08	0,05	**0,07**	0,09

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					Ø 37,5–45,49mm						Ø 45,5–54,49mm			Ø 54,5–65mm		
MG	**CC**	**IP**	**GEO**	**Grade**	**Min**	**Vc m/min Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**
M1																
	S	O	MS	**KCMS35**	150	**190**	230	0,07	**0,14**	0,20	0,08	**0,15**	0,22	0,08	**0,16**	0,24
	S	I	MS	**KCMS40**	150	**190**	230	0,07	**0,14**	0,20	0,08	**0,15**	0,22	0,08	**0,16**	0,24
	U	O	MS	**KCMS40**	100	**125**	150	0,06	**0,10**	0,14	0,06	**0,11**	0,15	0,06	**0,12**	0,17
	U	I	MS	**KCMS40**	100	**125**	150	0,06	**0,10**	0,14	0,06	**0,11**	0,15	0,06	**0,12**	0,17
	I	O	MS	**KCMS40**	60	**75**	90	0,06	**0,09**	0,12	0,06	**0,10**	0,13	0,06	**0,11**	0,14
	I	I	MS	**KCMS40**	60	**75**	90	0,06	**0,09**	0,12	0,06	**0,10**	0,13	0,06	**0,11**	0,14
M2																
	S	O	MS	**KCMS35**	150	**180**	210	0,07	**0,14**	0,20	0,08	**0,15**	0,22	0,08	**0,16**	0,24
	S	I	MS	**KCMS40**	150	**180**	210	0,07	**0,14**	0,20	0,08	**0,15**	0,22	0,08	**0,16**	0,24
	U	O	MS	**KCMS40**	100	**120**	140	0,06	**0,10**	0,14	0,06	**0,11**	0,15	0,06	**0,12**	0,17
	U	I	MS	**KCMS40**	100	**120**	140	0,06	**0,10**	0,14	0,06	**0,11**	0,15	0,06	**0,12**	0,17
	I	O	MS	**KCMS40**	60	**75**	90	0,06	**0,09**	0,12	0,06	**0,10**	0,13	0,06	**0,11**	0,14
	I	I	MS	**KCMS40**	60	**75**	90	0,06	**0,09**	0,12	0,06	**0,10**	0,13	0,06	**0,11**	0,14
M3																
	S	O	MS	**KCMS35**	100	**130**	160	0,06	**0,12**	0,17	0,07	**0,13**	0,19	0,07	**0,14**	0,20
	S	I	MS	**KCMS40**	100	**130**	160	0,06	**0,12**	0,17	0,07	**0,13**	0,19	0,07	**0,14**	0,20
	U	O	MS	**KCMS40**	65	**85**	105	0,05	**0,09**	0,12	0,05	**0,10**	0,13	0,05	**0,10**	0,14
	U	I	MS	**KCMS40**	65	**85**	105	0,05	**0,09**	0,12	0,05	**0,10**	0,13	0,05	**0,10**	0,14
	I	O	MS	**KCMS40**	40	**55**	70	0,05	**0,08**	0,10	0,05	**0,09**	0,11	0,05	**0,09**	0,12
	I	I	MS	**KCMS40**	40	**55**	70	0,05	**0,08**	0,10	0,05	**0,09**	0,11	0,05	**0,09**	0,12

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					Ø 12–13,99mm						Ø 14–16,49mm			Ø 16,5–19,99mm		
MG	**CC**	**IP**	**GEO**	**Grade**	**Min**	**Vc m/min Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**
K1																
	S	O	PK	**KCPK10**	200	**250**	300	0,07	**0,13**	0,18	0,08	**0,14**	0,20	0,08	**0,15**	0,22
	S	I	PK	**KC7140**	200	**250**	300	0,07	**0,13**	0,18	0,08	**0,14**	0,20	0,08	**0,15**	0,22
	U	O	PK	**KCU25**	130	**165**	200	0,05	**0,09**	0,12	0,06	**0,11**	0,14	0,06	**0,11**	0,15
	U	I	PK	**KC7140**	130	**165**	200	0,05	**0,09**	0,12	0,06	**0,11**	0,14	0,06	**0,11**	0,15
	I	O	PK	**KCU40**	80	**100**	120	0,05	**0,08**	0,11	0,06	**0,10**	0,12	0,06	**0,10**	0,13
	I	I	PK	**KC7140**	80	**100**	120	0,05	**0,08**	0,11	0,06	**0,10**	0,12	0,06	**0,10**	0,13
K2																
	S	O	PK	**KCPK10**	180	**220**	260	0,07	**0,13**	0,18	0,08	**0,14**	0,20	0,08	**0,15**	0,22
	S	I	PK	**KC7140**	180	**220**	260	0,07	**0,13**	0,18	0,08	**0,14**	0,20	0,08	**0,15**	0,22
	U	O	PK	**KCU25**	120	**145**	170	0,05	**0,09**	0,12	0,06	**0,11**	0,14	0,06	**0,11**	0,15
	U	I	PK	**KC7140**	120	**145**	170	0,05	**0,09**	0,12	0,06	**0,11**	0,14	0,06	**0,11**	0,15
	I	O	PK	**KCU40**	70	**90**	110	0,05	**0,08**	0,11	0,06	**0,10**	0,12	0,06	**0,10**	0,13
	I	I	PK	**KC7140**	70	**90**	110	0,05	**0,08**	0,11	0,06	**0,10**	0,12	0,06	**0,10**	0,13
K3																
	S	O	PK	**KCPK10**	180	**220**	260	0,07	**0,13**	0,18	0,08	**0,14**	0,20	0,08	**0,15**	0,22
	S	I	PK	**KC7140**	180	**220**	260	0,07	**0,13**	0,18	0,08	**0,14**	0,20	0,08	**0,15**	0,22
	U	O	PK	**KCU25**	120	**145**	170	0,05	**0,09**	0,12	0,06	**0,11**	0,14	0,06	**0,11**	0,15
	U	I	PK	**KC7140**	120	**145**	170	0,05	**0,09**	0,12	0,06	**0,11**	0,14	0,06	**0,11**	0,15
	I	O	PK	**KCU40**	70	**90**	110	0,05	**0,08**	0,11	0,06	**0,10**	0,12	0,06	**0,10**	0,13
	I	I	PK	**KC7140**	70	**90**	110	0,05	**0,08**	0,11	0,06	**0,10**	0,12	0,06	**0,10**	0,13

Indexable Drilling

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GEO = Insert Geometry

					Ø 20–24,49mm			Ø 25–30,49mm			Ø 30,5–37,49mm					
MG	**CC**	**IP**	**GEO**	**Grade**	**Min**	**Vc m/min Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**
K1																
	S	O	PK	**KCPK10**	200	**250**	300	0,09	**0,17**	0,24	0,09	**0,19**	0,28	0,10	**0,21**	0,31
	S	I	PK	**KC7140**	200	**250**	300	0,09	**0,17**	0,24	0,09	**0,19**	0,28	0,10	**0,21**	0,31
	U	O	PK	**KCU25**	130	**165**	200	0,07	**0,12**	0,17	0,07	**0,14**	0,19	0,08	**0,15**	0,22
	U	I	PK	**KC7140**	130	**165**	200	0,07	**0,12**	0,17	0,07	**0,14**	0,19	0,08	**0,15**	0,22
	I	O	PK	**KCU40**	80	**100**	120	0,07	**0,11**	0,15	0,07	**0,12**	0,17	0,08	**0,14**	0,18
	I	I	PK	**KC7140**	80	**100**	120	0,07	**0,11**	0,15	0,07	**0,12**	0,17	0,08	**0,14**	0,18
K2																
	S	O	PK	**KCPK10**	180	**220**	260	0,09	**0,17**	0,24	0,09	**0,19**	0,28	0,10	**0,21**	0,31
	S	I	PK	**KC7140**	180	**220**	260	0,09	**0,17**	0,24	0,09	**0,19**	0,28	0,10	**0,21**	0,31
	U	O	PK	**KCU25**	120	**145**	170	0,07	**0,12**	0,17	0,07	**0,14**	0,19	0,08	**0,15**	0,22
	U	I	PK	**KC7140**	120	**145**	170	0,07	**0,12**	0,17	0,07	**0,14**	0,19	0,08	**0,15**	0,22
	I	O	PK	**KCU40**	70	**90**	110	0,07	**0,11**	0,15	0,07	**0,12**	0,17	0,08	**0,14**	0,18
	I	I	PK	**KC7140**	70	**90**	110	0,07	**0,11**	0,15	0,07	**0,12**	0,17	0,08	**0,14**	0,18
K3																
	S	O	PK	**KCPK10**	180	**220**	260	0,09	**0,17**	0,24	0,09	**0,19**	0,28	0,10	**0,21**	0,31
	S	I	PK	**KC7140**	180	**220**	260	0,09	**0,17**	0,24	0,09	**0,19**	0,28	0,10	**0,21**	0,31
	U	O	PK	**KCU25**	120	**145**	170	0,07	**0,12**	0,17	0,07	**0,14**	0,19	0,08	**0,15**	0,22
	U	I	PK	**KC7140**	120	**145**	170	0,07	**0,12**	0,17	0,07	**0,14**	0,19	0,08	**0,15**	0,22
	I	O	PK	**KCU40**	70	**90**	110	0,07	**0,11**	0,15	0,07	**0,12**	0,17	0,08	**0,14**	0,18
	I	I	PK	**KC7140**	70	**90**	110	0,07	**0,11**	0,15	0,07	**0,12**	0,17	0,08	**0,14**	0,18

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					Ø 37,5–45,49mm			Ø 45,5–54,49mm			Ø 54,5–65mm					
MG	**CC**	**IP**	**GEO**	**Grade**	**Min**	**Vc m/min Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**
K1																
	S	O	PK	**KCPK10**	200	**250**	300	0,11	**0,23**	0,34	0,11	**0,24**	0,36	0,12	**0,26**	0,40
	S	I	PK	**KC7140**	200	**250**	300	0,11	**0,23**	0,34	0,11	**0,24**	0,36	0,12	**0,26**	0,40
	U	O	PK	**KCU25**	130	**165**	200	0,09	**0,17**	0,24	0,09	**0,18**	0,25	0,10	**0,19**	0,28
	U	I	PK	**KC7140**	130	**165**	200	0,09	**0,17**	0,24	0,09	**0,18**	0,25	0,10	**0,19**	0,28
	I	O	PK	**KCU40**	80	**100**	120	0,09	**0,15**	0,20	0,09	**0,16**	0,22	0,10	**0,17**	0,24
	I	I	PK	**KC7140**	80	**100**	120	0,09	**0,15**	0,20	0,09	**0,16**	0,22	0,10	**0,17**	0,24
K2																
	S	O	PK	**KCPK10**	180	**220**	260	0,11	**0,23**	0,34	0,11	**0,24**	0,36	0,12	**0,26**	0,40
	S	I	PK	**KC7140**	180	**220**	260	0,11	**0,23**	0,34	0,11	**0,24**	0,36	0,12	**0,26**	0,40
	U	O	PK	**KCU25**	120	**145**	170	0,09	**0,17**	0,24	0,09	**0,18**	0,25	0,10	**0,19**	0,28
	U	I	PK	**KC7140**	120	**145**	170	0,09	**0,17**	0,24	0,09	**0,18**	0,25	0,10	**0,19**	0,28
	I	O	PK	**KCU40**	70	**90**	110	0,09	**0,15**	0,20	0,09	**0,16**	0,22	0,10	**0,17**	0,24
	I	I	PK	**KC7140**	70	**90**	110	0,09	**0,15**	0,20	0,09	**0,16**	0,22	0,10	**0,17**	0,24
K3																
	S	O	PK	**KCPK10**	180	**220**	260	0,11	**0,23**	0,34	0,11	**0,24**	0,36	0,12	**0,26**	0,40
	S	I	PK	**KC7140**	180	**220**	260	0,11	**0,23**	0,34	0,11	**0,24**	0,36	0,12	**0,26**	0,40
	U	O	PK	**KCU25**	120	**145**	170	0,09	**0,17**	0,24	0,09	**0,18**	0,25	0,10	**0,19**	0,28
	U	I	PK	**KC7140**	120	**145**	170	0,09	**0,17**	0,24	0,09	**0,18**	0,25	0,10	**0,19**	0,28
	I	O	PK	**KCU40**	70	**90**	110	0,09	**0,15**	0,20	0,09	**0,16**	0,22	0,10	**0,17**	0,24
	I	I	PK	**KC7140**	70	**90**	110	0,09	**0,15**	0,20	0,09	**0,16**	0,22	0,10	**0,17**	0,24

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GEO = Insert Geometry

					Ø 12–13,99mm						Ø 14–16,49mm			Ø 16,5–19,99mm		
MG	**CC**	**IP**	**GEO**	**Grade**	**Min**	**Vc m/min Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**
N1																
	S	O	MS	**KCMS35**	350	**500**	650	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	S	I	MS	**KCMS40**	350	**500**	650	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	U	O	MS	**KCMS35**	300	**425**	550	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	U	I	MS	**KCMS40**	300	**425**	550	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	I	O	MS	**KCMS40**	210	**300**	390	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
	I	I	MS	**KCMS40**	210	**300**	390	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
N2																
	S	O	MS	**KCMS35**	300	**400**	500	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	S	I	MS	**KCMS40**	300	**400**	500	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	U	O	MS	**KCMS35**	250	**335**	420	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	U	I	MS	**KCMS40**	250	**335**	420	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	I	O	MS	**KCMS40**	180	**240**	300	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
	I	I	MS	**KCMS40**	180	**240**	300	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
N3																
	S	O	MS	**KCMS35**	300	**400**	500	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	S	I	MS	**KCMS40**	300	**400**	500	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	U	O	MS	**KCMS35**	250	**335**	420	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	U	I	MS	**KCMS40**	250	**335**	420	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	I	O	MS	**KCMS40**	180	**240**	300	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
	I	I	MS	**KCMS40**	180	**240**	300	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
N4																
	S	O	MS	**KCMS35**	300	**400**	500	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	S	I	MS	**KCMS40**	300	**400**	500	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	U	O	MS	**KCMS35**	250	**335**	420	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	U	I	MS	**KCMS40**	250	**335**	420	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	I	O	MS	**KCMS40**	180	**240**	300	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
	I	I	MS	**KCMS40**	180	**240**	300	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
N5																
	S	O	MS	**KCMS35**	300	**400**	500	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	S	I	MS	**KCMS40**	300	**400**	500	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	U	O	MS	**KCMS35**	250	**335**	420	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	U	I	MS	**KCMS40**	250	**335**	420	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	I	O	MS	**KCMS40**	180	**240**	300	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
	I	I	MS	**KCMS40**	180	**240**	300	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
N6																
	S	O	MS	**KCMS35**	400	**450**	500	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	S	I	MS	**KCMS40**	400	**450**	500	0,06	**0,11**	0,16	0,07	**0,13**	0,18	0,07	**0,14**	0,20
	U	O	MS	**KCMS35**	340	**380**	420	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	U	I	MS	**KCMS40**	340	**380**	420	0,05	**0,08**	0,11	0,06	**0,10**	0,13	0,06	**0,10**	0,14
	I	O	MS	**KCMS40**	240	**270**	300	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
	I	I	MS	**KCMS40**	240	**270**	300	0,05	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12

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					Ø 20–24,49mm						Ø 25–30,49mm			Ø 30,5–37,49mm		
MG	**CC**	**IP**	**GEO**	**Grade**	**Min**	**Vc m/min Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**
N1																
	S	O	MS	**KCMS35**	350	**500**	650	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	S	I	MS	**KCMS40**	350	**500**	650	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	U	O	MS	**KCMS35**	300	**425**	550	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	U	I	MS	**KCMS40**	300	**425**	550	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	I	O	MS	**KCMS40**	210	**300**	390	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17
	I	I	MS	**KCMS40**	210	**300**	390	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17
N2																
	S	O	MS	**KCMS35**	300	**400**	500	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	S	I	MS	**KCMS40**	300	**400**	500	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	U	O	MS	**KCMS35**	250	**335**	420	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	U	I	MS	**KCMS40**	250	**335**	420	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	I	O	MS	**KCMS40**	180	**240**	300	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17
	I	I	MS	**KCMS40**	180	**240**	300	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17
N3																
	S	O	MS	**KCMS35**	300	**400**	500	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	S	I	MS	**KCMS40**	300	**400**	500	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	U	O	MS	**KCMS35**	250	**335**	420	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	U	I	MS	**KCMS40**	250	**335**	420	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	I	O	MS	**KCMS40**	180	**240**	300	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17
	I	I	MS	**KCMS40**	180	**240**	300	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17
N4																
	S	O	MS	**KCMS35**	300	**400**	500	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	S	I	MS	**KCMS40**	300	**400**	500	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	U	O	MS	**KCMS35**	250	**335**	420	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	U	I	MS	**KCMS40**	250	**335**	420	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	I	O	MS	**KCMS40**	180	**240**	300	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17
	I	I	MS	**KCMS40**	180	**240**	300	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17
N5																
	S	O	MS	**KCMS35**	300	**400**	500	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	S	I	MS	**KCMS40**	300	**400**	500	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	U	O	MS	**KCMS35**	250	**335**	420	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	U	I	MS	**KCMS40**	250	**335**	420	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	I	O	MS	**KCMS40**	180	**240**	300	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17
	I	I	MS	**KCMS40**	180	**240**	300	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17
N6																
	S	O	MS	**KCMS35**	400	**450**	500	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	S	I	MS	**KCMS40**	400	**450**	500	0,08	**0,15**	0,22	0,08	**0,17**	0,25	0,09	**0,19**	0,28
	U	O	MS	**KCMS35**	340	**380**	420	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	U	I	MS	**KCMS40**	340	**380**	420	0,06	**0,11**	0,15	0,06	**0,12**	0,18	0,07	**0,14**	0,20
	I	O	MS	**KCMS40**	240	**270**	300	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17
	I	I	MS	**KCMS40**	240	**270**	300	0,06	**0,10**	0,13	0,06	**0,11**	0,15	0,07	**0,12**	0,17

Indexable Drilling

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MG = Material Group
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S = Stable
U = Unstable
I = Interrupted
IP = Insert Position
O = Outboard
I = Inboard
GEO = Insert Geometry

					Ø 37,5–45,49mm						Ø 45,5–54,49mm			Ø 54,5–65mm		
MG	**CC**	**IP**	**GEO**	**Grade**	**Min**	**Vc m/min Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**
N1																
	S	O	MS	**KCMS35**	350	**500**	650	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	S	I	MS	**KCMS40**	350	**500**	650	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	U	O	MS	**KCMS35**	300	**425**	550	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	U	I	MS	**KCMS40**	300	**425**	550	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	I	O	MS	**KCMS40**	210	**300**	390	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22
	I	I	MS	**KCMS40**	210	**300**	390	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22
N2																
	S	O	MS	**KCMS35**	300	**400**	500	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	S	I	MS	**KCMS40**	300	**400**	500	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	U	O	MS	**KCMS35**	250	**335**	420	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	U	I	MS	**KCMS40**	250	**335**	420	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	I	O	MS	**KCMS40**	180	**240**	300	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22
	I	I	MS	**KCMS40**	180	**240**	300	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22
N3																
	S	O	MS	**KCMS35**	300	**400**	500	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	S	I	MS	**KCMS40**	300	**400**	500	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	U	O	MS	**KCMS35**	250	**335**	420	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	U	I	MS	**KCMS40**	250	**335**	420	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	I	O	MS	**KCMS40**	180	**240**	300	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22
	I	I	MS	**KCMS40**	180	**240**	300	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22
N4																
	S	O	MS	**KCMS35**	300	**400**	500	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	S	I	MS	**KCMS40**	300	**400**	500	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	U	O	MS	**KCMS35**	250	**335**	420	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	U	I	MS	**KCMS40**	250	**335**	420	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	I	O	MS	**KCMS40**	180	**240**	300	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22
	I	I	MS	**KCMS40**	180	**240**	300	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22
N5																
	S	O	MS	**KCMS35**	300	**400**	500	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	S	I	MS	**KCMS40**	300	**400**	500	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	U	O	MS	**KCMS35**	250	**335**	420	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	U	I	MS	**KCMS40**	250	**335**	420	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	I	O	MS	**KCMS40**	180	**240**	300	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22
	I	I	MS	**KCMS40**	180	**240**	300	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22
N6																
	S	O	MS	**KCMS35**	400	**450**	500	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	S	I	MS	**KCMS40**	400	**450**	500	0,10	**0,21**	0,31	0,10	**0,22**	0,33	0,11	**0,24**	0,36
	U	O	MS	**KCMS35**	340	**380**	420	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	U	I	MS	**KCMS40**	340	**380**	420	0,08	**0,15**	0,22	0,08	**0,16**	0,23	0,09	**0,17**	0,25
	I	O	MS	**KCMS40**	240	**270**	300	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22
	I	I	MS	**KCMS40**	240	**270**	300	0,08	**0,14**	0,19	0,08	**0,14**	0,20	0,09	**0,16**	0,22

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O = Outboard
I = Inboard
GEO = Insert Geometry

					Ø 12–13,99mm						Ø 14–16,49mm			Ø 16,5–19,99mm		
MG	**CC**	**IP**	**GEO**	**Grade**	**Min**	**Vc m/min Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**
S1																
	S	O	MS	**KCMS35**	**60**	**70**	80	0,05	**0,07**	0,08	0,05	**0,08**	0,10	0,05	**0,09**	0,11
	S	I	MS	**KCMS40**	**60**	**70**	80	0,05	**0,07**	0,08	0,05	**0,08**	0,10	0,05	**0,09**	0,11
	U	O	MS	**KCMS40**	**40**	**45**	50	0,04	**0,05**	0,06	0,04	**0,06**	0,07	0,04	**0,06**	0,08
	U	I	MS	**KCMS40**	**40**	**45**	50	0,04	**0,05**	0,06	0,04	**0,06**	0,07	0,04	**0,06**	0,08
	I	O	MS	**KCMS40**	**25**	**33**	40	0,04	**0,05**	0,05	0,04	**0,05**	0,06	0,04	**0,06**	0,07
	I	I	MS	**KCMS40**	**25**	**33**	40	0,04	**0,05**	0,05	0,04	**0,05**	0,06	0,04	**0,06**	0,07
S2																
	S	O	MS	**KCMS35**	**50**	**60**	70	0,05	**0,07**	0,08	0,05	**0,08**	0,10	0,05	**0,09**	0,11
	S	I	MS	**KCMS40**	**50**	**60**	70	0,05	**0,07**	0,08	0,05	**0,08**	0,10	0,05	**0,09**	0,11
	U	O	MS	**KCMS40**	**30**	**40**	50	0,04	**0,05**	0,06	0,04	**0,06**	0,07	0,04	**0,06**	0,08
	U	I	MS	**KCMS40**	**30**	**40**	50	0,04	**0,05**	0,06	0,04	**0,06**	0,07	0,04	**0,06**	0,08
	I	O	MS	**KCMS40**	**25**	**33**	40	0,04	**0,05**	0,05	0,04	**0,05**	0,06	0,04	**0,06**	0,07
	I	I	MS	**KCMS40**	**25**	**33**	40	0,04	**0,05**	0,05	0,04	**0,05**	0,06	0,04	**0,06**	0,07
S3																
	S	O	MS	**KCMS35**	**70**	**80**	90	0,05	**0,07**	0,08	0,05	**0,08**	0,10	0,05	**0,09**	0,11
	S	I	MS	**KCMS40**	**70**	**80**	90	0,05	**0,07**	0,08	0,05	**0,08**	0,10	0,05	**0,09**	0,11
	U	O	MS	**KCMS40**	**50**	**60**	70	0,04	**0,05**	0,06	0,04	**0,06**	0,07	0,04	**0,06**	0,08
	U	I	MS	**KCMS40**	**50**	**60**	70	0,04	**0,05**	0,06	0,04	**0,06**	0,07	0,04	**0,06**	0,08
	I	O	MS	**KCMS40**	**30**	**35**	40	0,04	**0,05**	0,05	0,04	**0,05**	0,06	0,04	**0,06**	0,07
	I	I	MS	**KCMS40**	**30**	**35**	40	0,04	**0,05**	0,05	0,04	**0,05**	0,06	0,04	**0,06**	0,07
S4																
	S	O	MS	**KCMS35**	**70**	**80**	90	0,05	**0,07**	0,08	0,05	**0,08**	0,10	0,05	**0,09**	0,11
	S	I	MS	**KCMS40**	**70**	**80**	90	0,05	**0,07**	0,08	0,05	**0,08**	0,10	0,05	**0,09**	0,11
	U	O	MS	**KCMS40**	**45**	**55**	65	0,04	**0,05**	0,06	0,04	**0,06**	0,07	0,04	**0,06**	0,08
	U	I	MS	**KCMS40**	**45**	**55**	65	0,04	**0,05**	0,06	0,04	**0,06**	0,07	0,04	**0,06**	0,08
	I	O	MS	**KCMS40**	**30**	**40**	50	0,04	**0,05**	0,05	0,04	**0,05**	0,06	0,04	**0,06**	0,07
	I	I	MS	**KCMS40**	**30**	**40**	50	0,04	**0,05**	0,05	0,04	**0,05**	0,06	0,04	**0,06**	0,07

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O = Outboard
I = Inboard
GEO = Insert Geometry

					Ø 20–24,49mm			Ø 25–30,49mm			Ø 30,5–37,49mm					
MG	**CC**	**IP**	**GEO**	**Grade**	**Min**	**Vc m/min Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**
S1																
	S	O	MS	**KCMS35**	**60**	**70**	80	0,05	**0,09**	0,12	0,06	**0,10**	0,13	0,07	**0,11**	0,14
	S	I	MS	**KCMS40**	**60**	**70**	80	0,05	**0,09**	0,12	0,06	**0,10**	0,13	0,07	**0,11**	0,14
	U	O	MS	**KCMS40**	**40**	**45**	50	0,04	**0,07**	0,08	0,05	**0,07**	0,09	0,06	**0,08**	0,10
	U	I	MS	**KCMS40**	**40**	**45**	50	0,04	**0,07**	0,08	0,05	**0,07**	0,09	0,06	**0,08**	0,10
	I	O	MS	**KCMS40**	**25**	**33**	40	0,04	**0,06**	0,07	0,05	**0,07**	0,08	0,06	**0,08**	0,09
	I	I	MS	**KCMS40**	**25**	**33**	40	0,04	**0,06**	0,07	0,05	**0,07**	0,08	0,06	**0,08**	0,09
S2																
	S	O	MS	**KCMS35**	**50**	**60**	70	0,05	**0,09**	0,12	0,06	**0,10**	0,13	0,07	**0,11**	0,14
	S	I	MS	**KCMS40**	**50**	**60**	70	0,05	**0,09**	0,12	0,06	**0,10**	0,13	0,07	**0,11**	0,14
	U	O	MS	**KCMS40**	**30**	**40**	50	0,04	**0,07**	0,08	0,05	**0,07**	0,09	0,06	**0,08**	0,10
	U	I	MS	**KCMS40**	**30**	**40**	50	0,04	**0,07**	0,08	0,05	**0,07**	0,09	0,06	**0,08**	0,10
	I	O	MS	**KCMS40**	**25**	**33**	40	0,04	**0,06**	0,07	0,05	**0,07**	0,08	0,06	**0,08**	0,09
	I	I	MS	**KCMS40**	**25**	**33**	40	0,04	**0,06**	0,07	0,05	**0,07**	0,08	0,06	**0,08**	0,09
S3																
	S	O	MS	**KCMS35**	**70**	**80**	90	0,05	**0,09**	0,12	0,06	**0,10**	0,13	0,07	**0,11**	0,14
	S	I	MS	**KCMS40**	**70**	**80**	90	0,05	**0,09**	0,12	0,06	**0,10**	0,13	0,07	**0,11**	0,14
	U	O	MS	**KCMS40**	**50**	**60**	70	0,04	**0,07**	0,08	0,05	**0,07**	0,09	0,06	**0,08**	0,10
	U	I	MS	**KCMS40**	**50**	**60**	70	0,04	**0,07**	0,08	0,05	**0,07**	0,09	0,06	**0,08**	0,10
	I	O	MS	**KCMS40**	**30**	**35**	40	0,04	**0,06**	0,07	0,05	**0,07**	0,08	0,06	**0,08**	0,09
	I	I	MS	**KCMS40**	**30**	**35**	40	0,04	**0,06**	0,07	0,05	**0,07**	0,08	0,06	**0,08**	0,09
S4																
	S	O	MS	**KCMS35**	**70**	**80**	90	0,05	**0,09**	0,12	0,06	**0,10**	0,13	0,07	**0,11**	0,14
	S	I	MS	**KCMS40**	**70**	**80**	90	0,05	**0,09**	0,12	0,06	**0,10**	0,13	0,07	**0,11**	0,14
	U	O	MS	**KCMS40**	**45**	**55**	65	0,04	**0,07**	0,08	0,05	**0,07**	0,09	0,06	**0,08**	0,10
	U	I	MS	**KCMS40**	**45**	**55**	65	0,04	**0,07**	0,08	0,05	**0,07**	0,09	0,06	**0,08**	0,10
	I	O	MS	**KCMS40**	**30**	**40**	50	0,04	**0,06**	0,07	0,05	**0,07**	0,08	0,06	**0,08**	0,09
	I	I	MS	**KCMS40**	**30**	**40**	50	0,04	**0,06**	0,07	0,05	**0,07**	0,08	0,06	**0,08**	0,09

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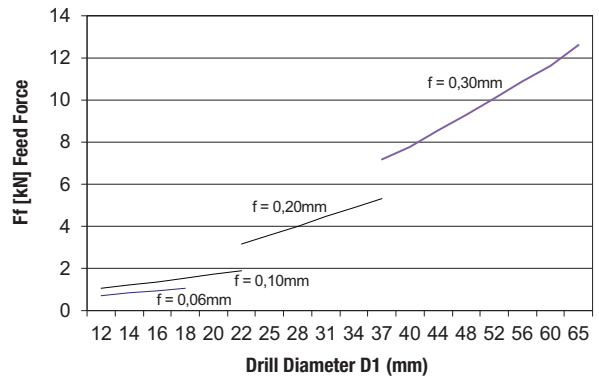
IP = Insert Position
O = Outboard
I = Inboard
GEO = Insert Geometry

					Ø 37,5–45,49mm			Ø 45,5–54,49mm			Ø 54,5–65mm					
MG	**CC**	**IP**	**GEO**	**Grade**	**Min**	**Vc m/min Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**	**Min**	**fz mm/rev Start**	**Max**
S1																
	S	O	MS	**KCMS35**	**60**	**70**	80	0,07	**0,12**	0,16	0,08	**0,13**	0,18	0,08	**0,14**	0,19
	S	I	MS	**KCMS40**	**60**	**70**	80	0,07	**0,12**	0,16	0,08	**0,13**	0,18	0,08	**0,14**	0,19
	U	O	MS	**KCMS40**	**40**	**45**	50	0,06	**0,09**	0,11	0,06	**0,10**	0,12	0,06	**0,10**	0,13
	U	I	MS	**KCMS40**	**40**	**45**	50	0,06	**0,09**	0,11	0,06	**0,10**	0,12	0,06	**0,10**	0,13
	I	O	MS	**KCMS40**	**25**	**33**	40	0,06	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
	I	I	MS	**KCMS40**	**25**	**33**	40	0,06	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
S2																
	S	O	MS	**KCMS35**	**50**	**60**	70	0,07	**0,12**	0,16	0,08	**0,13**	0,18	0,08	**0,14**	0,19
	S	I	MS	**KCMS40**	**50**	**60**	70	0,07	**0,12**	0,16	0,08	**0,13**	0,18	0,08	**0,14**	0,19
	U	O	MS	**KCMS40**	**30**	**40**	50	0,06	**0,09**	0,11	0,06	**0,10**	0,12	0,06	**0,10**	0,13
	U	I	MS	**KCMS40**	**30**	**40**	50	0,06	**0,09**	0,11	0,06	**0,10**	0,12	0,06	**0,10**	0,13
	I	O	MS	**KCMS40**	**25**	**33**	40	0,06	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
	I	I	MS	**KCMS40**	**25**	**33**	40	0,06	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
S3																
	S	O	MS	**KCMS35**	**70**	**80**	90	0,07	**0,12**	0,16	0,08	**0,13**	0,18	0,08	**0,14**	0,19
	S	I	MS	**KCMS40**	**70**	**80**	90	0,07	**0,12**	0,16	0,08	**0,13**	0,18	0,08	**0,14**	0,19
	U	O	MS	**KCMS40**	**50**	**60**	70	0,06	**0,09**	0,11	0,06	**0,10**	0,12	0,06	**0,10**	0,13
	U	I	MS	**KCMS40**	**50**	**60**	70	0,06	**0,09**	0,11	0,06	**0,10**	0,12	0,06	**0,10**	0,13
	I	O	MS	**KCMS40**	**30**	**35**	40	0,06	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
	I	I	MS	**KCMS40**	**30**	**35**	40	0,06	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
S4																
	S	O	MS	**KCMS35**	**70**	**80**	90	0,07	**0,12**	0,16	0,08	**0,13**	0,18	0,08	**0,14**	0,19
	S	I	MS	**KCMS40**	**70**	**80**	90	0,07	**0,12**	0,16	0,08	**0,13**	0,18	0,08	**0,14**	0,19
	U	O	MS	**KCMS40**	**45**	**55**	65	0,06	**0,09**	0,11	0,06	**0,10**	0,12	0,06	**0,10**	0,13
	U	I	MS	**KCMS40**	**45**	**55**	65	0,06	**0,09**	0,11	0,06	**0,10**	0,12	0,06	**0,10**	0,13
	I	O	MS	**KCMS40**	**30**	**40**	50	0,06	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12
	I	I	MS	**KCMS40**	**30**	**40**	50	0,06	**0,08**	0,10	0,06	**0,09**	0,11	0,06	**0,09**	0,12

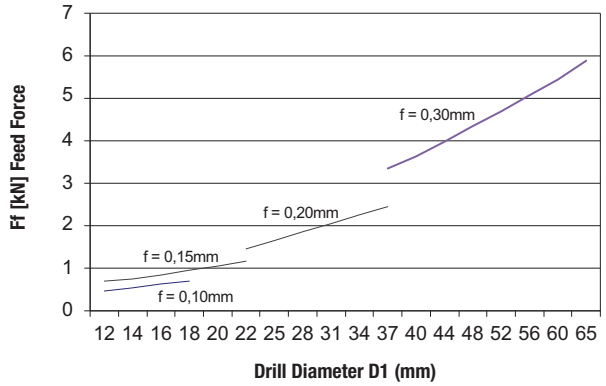
Indexable Drilling

Feed Force Requirement • Metric

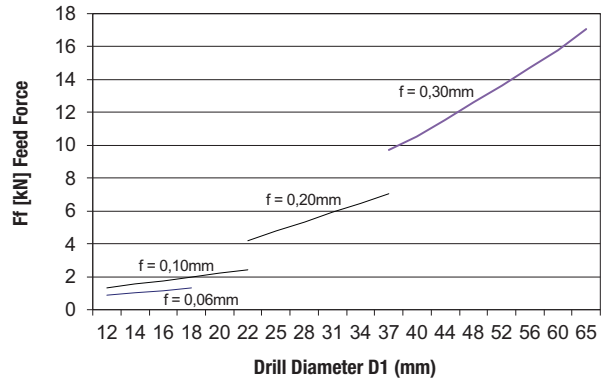
P Steel 42CrMo4



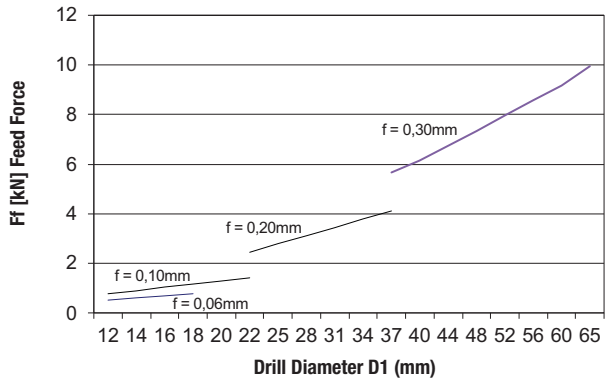
N Non-Ferrous Material 1.3535 AlMg3



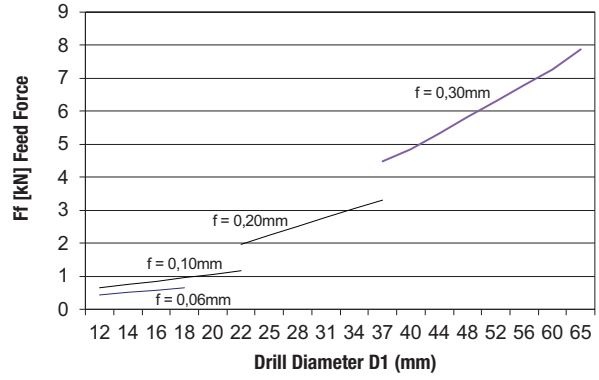
M Stainless Steel 1.4301 (304H)



S High-Temperature Alloys 3.7164 TiAl6V4



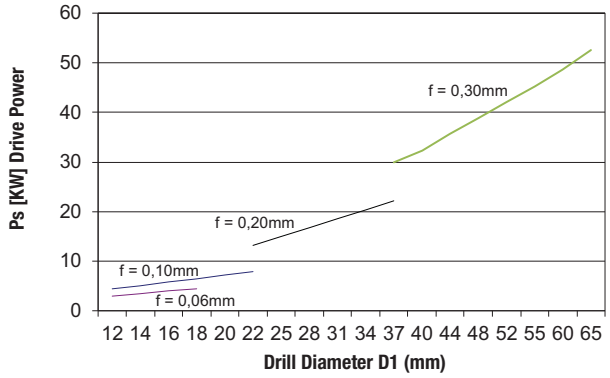
K Cast Iron GGG 40



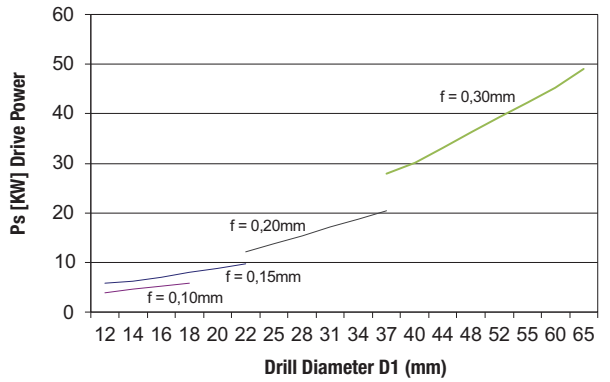
Indexable Drilling

Power Recommendation • Metric

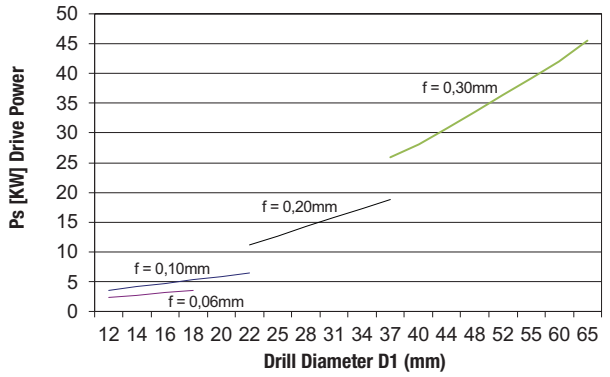
P Steel 42CrMo4



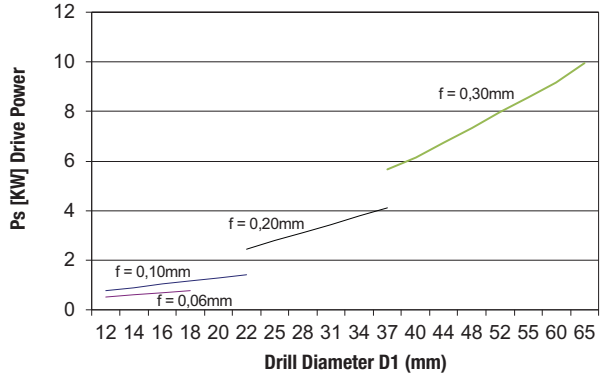
N Non-Ferrous Material 1.3535 AlMg3



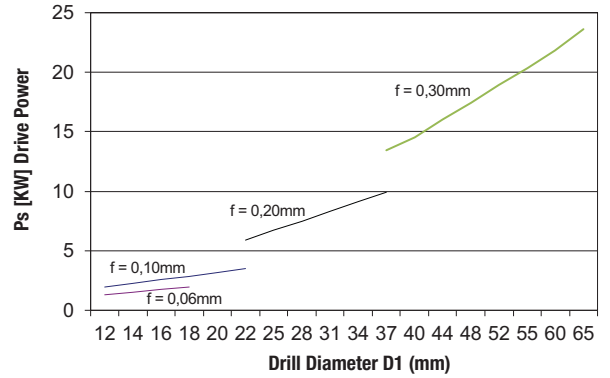
M Stainless Steel 1.4301 (304H)



S High-Temperature Alloys 3.7164 TiAl6V4



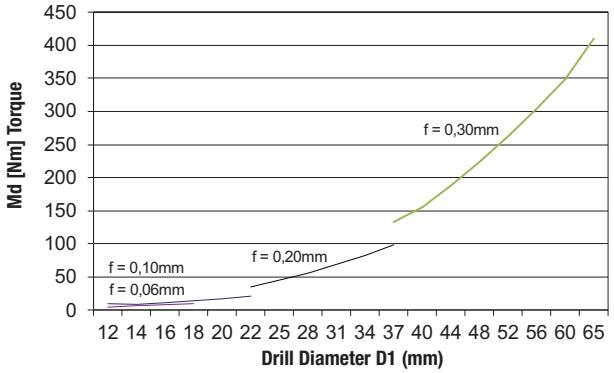
K Cast Iron GGG 40



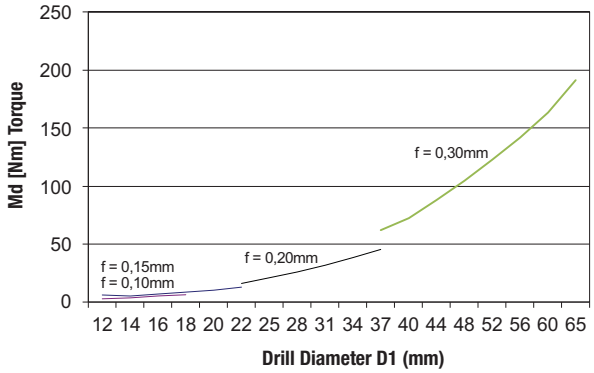
Indexable Drilling

Torque Recommendation • Metric

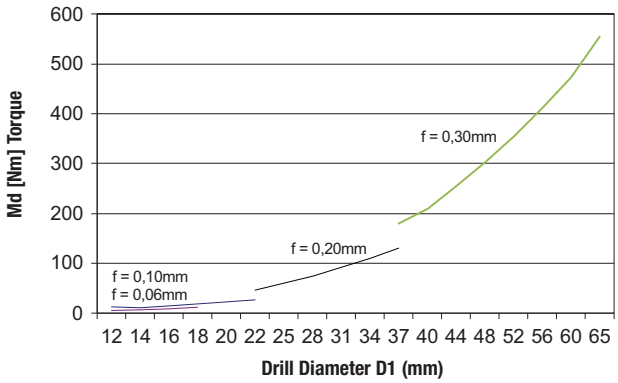
P Steel 42CrMo4



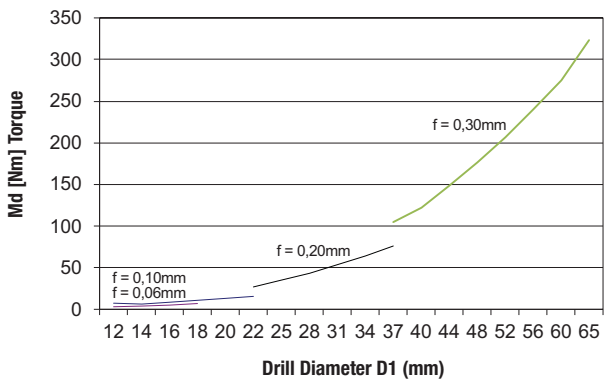
N Non-Ferrous Material 1.3535 AlMg3



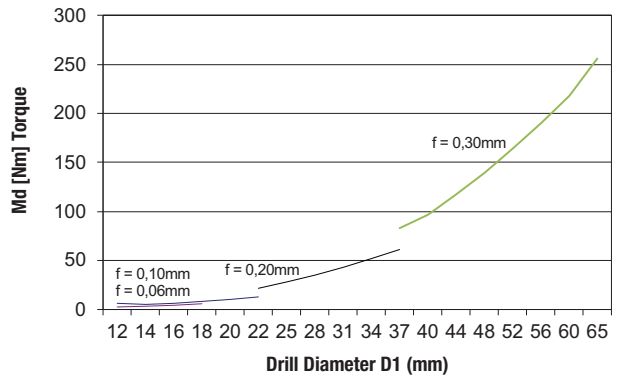
M Stainless Steel 1.4301 (304H)



S High-Temperature Alloys 3.7164 TiAl6V4



K Cast Iron GGG 40

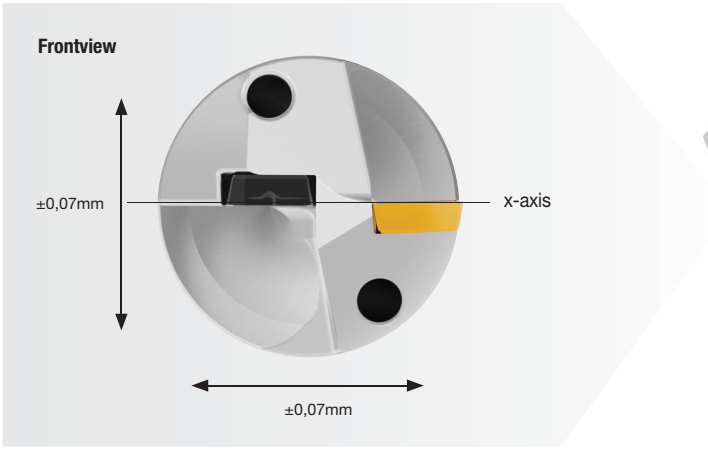


Indexable Drilling

Stationary Applications

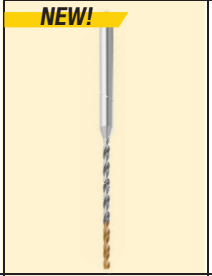
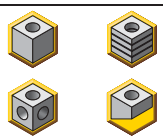
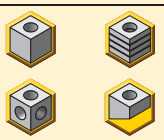
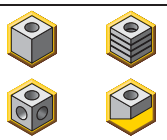
Drill Fix PRO™ drills were also designed for use on lathes or any machine where the tool remains stationary and the workpiece rotates. An “x” is marked on the SSF-shank drills to aid insert orientation on the machine tool.

It is important to align the X-axis of the drill with the X-axis on the machine tool. Accurate alignment is absolutely essential for good performance. The drill must be on center, within the tolerance shown here. Angularity must not exceed 0,07mm within the designated drill depth.



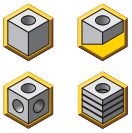
Solid Carbide Drills

Tool Selection Guide • Material-Specific Drills

	KenDrill™ Micro	KenDrill Deep SGL	KenDrill Deep HPR	KenDrill Deep HPS
	NEW! 		NEW! 	
Series	**B068 B070 B071 B072 B073 B074 B075 B076**	**B271*SGL B272*SGL B273*SGL B274*SGL B275*SGL**	**B271*HPR B272*HPR B273*HPR B274*HPR B275*HPR**	**B271*HPS B272*HPS B273*HPS B274*HPS B275*HPS**
Page	52–55	kennametal.com	44–48	kennametal.com
Workpiece material				
Primary	P M S	M S	P K	N
Secondary	K N	P		
Hole tolerance	IT9–IT10	IT9–IT10	IT9–IT10	IT9–IT10
Standard range				
Cutting diameter [D1]	1,0–2,9mm	2,4–16,0mm	2,4–16,0mm	2,4–16,0mm
Drill length [L4 max]	2,0–126,0mm	44,0–450,0mm	44,0–450,0mm	44,0–450,0mm
Drilling depth L/D1	2–50 x D	15–30 x D	15–30 x D	15–30 x D
Point angle	141°/139°	135°	135°	135°
Flute angle	28°	30°	30°	30°
Coolant				
Operations				
Flutes and margin				
Corner chamfer				
Shank				

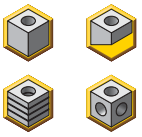
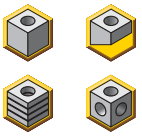
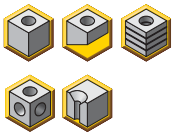
Solid Carbide Drills

Tool Selection Guide • Material-Specific Drills

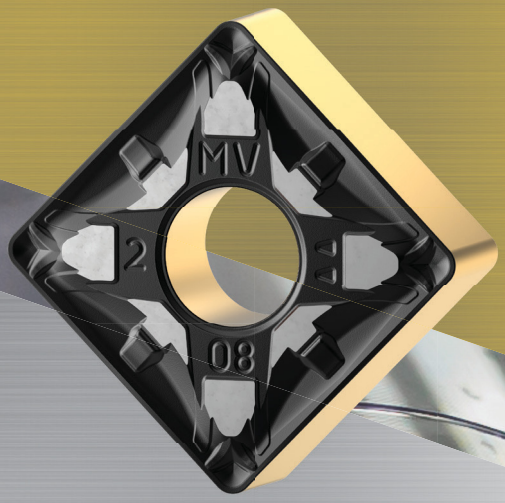
	SGL Drills	HPX Drills	HPX Drills	HPR Drills	HPS Drills	Y-TECH™ Drills	KMH Drills	KMH Drills
								
Series	**B210_SGL B211_SGL B212_SGL**	**B221_HPX B222_HPX**	**B224_HPX B225_HPX B226_HPX**	**B254_HPR B255_HPR B256_HPR**	**B284_HPS B285_HPS B286_HPS**	**B291_YPL B292_YPL**	**B941A**	**B951A**
Page	kennametal.com	kennametal.com	kennametal.com	kennametal.com	kennametal.com	kennametal.com	kennametal.com	kennametal.com
Workpiece material								
Primary	M S	P	P	K	N	M S	H	H
Secondary	P	K				P	P K	P K
Hole tolerance	IT9–IT10	IT9–IT10	IT9–IT10	IT9–IT10	IT9–IT10	IT9–IT10	IT9–IT10	IT9–IT10
Standard range								
Cutting diameter [D1]	2,5–20,0mm	3,0–20,0mm	3,0–20,0mm	3,0–20,0mm	3,0–20,0mm	3,0–20,0mm	2,5–14,0mm	3,0–16,0mm
Drill length [L4 max]	12,0–160,0mm	14,0–85,0mm	14,0–160,0mm	14,0–160,0mm	14,0–124,0mm	14,0–77,0mm	14,0–43,0mm	14,0–45,0mm
Drilling depth L/D1	3–8 x D	3–5 x D	3–8 x D	3–8 x D	3–8 x D	3–5 x D	3 x D	3 x D
Point angle	140°	140°	140°	143°	135°	140°	142°	140°
Flute angle	30°	30°	30°	30°	30°	30°	15°	30°
Coolant								
Operations								
Flutes and margin								
Corner chamfer								
Shank								

Solid Carbide Drills

Tool Selection Guide • Versatile Drills

	GOdrill™	GOdrill	Kenna Universal™ Drills	Kenna Universal Drills	Kenna Universal Step Drills
					
Series	**B041A_CPG B042A_CPG**	**B051A_CPG B052A_CPG B053A_CPG**	**B966A B967A**	**B976A B977A B978A B979A**	**B731A B732A**
Page	kennametal.com	kennametal.com	kennametal.com	kennametal.com	kennametal.com
Workpiece material					
Primary	P M K N S	P M K N S	P K	P K	P K
Secondary	H	H	M N S	M N S	M N S
Hole tolerance	IT9–IT10	IT9–IT10	IT9–IT10	IT9–IT10	IT9–IT10
Standard range					
Cutting diameter [D1]	1,0–20,0mm	1,0–20,0mm	3,0–20,0mm	2,4–20,0mm	3,0–20,0mm
Drill length [L4 max]	5,0–77,0mm	5,0–124,0mm	14,0–85,0mm	12,0–124,0mm	–
Drilling depth L/D1	3–5 x D	3–8 x D	3–5 x D	3–12 x D	–
Point angle	140°	140°	140°	140°/132°	140°
Flute angle	30°	30°	30°	30°	30°
Coolant					
Operations					
Flutes and margin					
Corner chamfer					
Shank					

New KCP25C Steel Turning Grade with KenGold™ CVD Coating Technology



The new KCP25C grade featuring our new KENGold™ CVD coating sets a new standard in steel turning. With our proprietary coating technology, you can machine longer and with greater productivity and efficiency. KENGold delivers the higher metal removal rates and improved wear resistance you need.

KENGold™

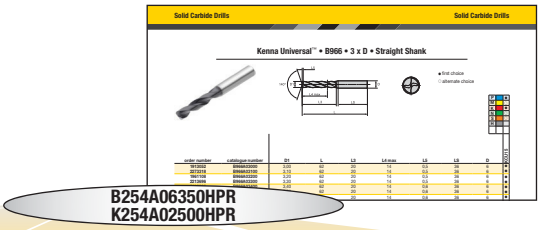
Predictable Performance Turn After Turn

KENNAMETAL®
kennametal.com

TAKE YOUR MANUFACTURING TO THE NEXT LEVEL

Solid Carbide Drills • Catalog Numbering System

Each character in our catalog number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.



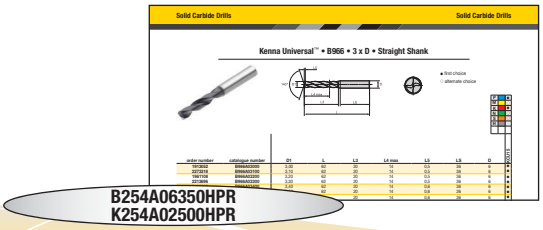
B254A06350HPR
K254A02500HPR

B	25	4	A
K	**25**	**4**	**A**
Tool Type	Series	Length to Diameter Ratio	Shank Style
B = Metric (metric shank with 2mm steps) **K** = Inch (inch shank)	**04** = GOdrill™ **05** = GOdrill Internal Coolant	**1** = 3 x D **2** = 5 x D **3** = 8 x D	**A** = Straight Shank **F** = Whistle Notch™ Shank
	06 = Microdrills Internal Coolant	**8** = 2 x D	
	10 = TF Drill	**5** = 5 x D	
	21 = HP Drill Internal Coolant for stainless steel	**0** = 3 x D **1** = 5 x D **2** = 8 x D	
	22 = HP Drill for steel	**1** = 3 x D **2** = 5 x D **4** = 3 x D Internal Coolant **5** = 5 x D Internal Coolant **6** = 8 x D Internal Coolant	**Z** = Straight Shank (1mm steps)
	25 = HP Drill Internal Coolant for cast iron	**4** = 3 x D **5** = 5 x D **6** = 8 x D	
	26 = HP Drill Internal Coolant	**9** = 12 x D	
	07 = Micro Deep-Hole Drills Internal Coolant	**0** = 7 x D	
	27 = Deep-Hole Drill Internal Coolant	**1** = 15 x D **2** = 20 x D **3** = 25 x D **4** = 30 x D **5** = 40 x D **6** = 50 x D	
	28 = HP Drill Internal Coolant for non-ferrous materials	**4** = 3 x D **5** = 5 x D **6** = 8 x D	
	29 = Y-TECH™ Drill Internal Coolant for difficult-to-machine materials	**1** = 3 x D **2** = 5 x D	**S** = Straight Shank (1mm steps) **H** = Extended Shank for HiPACS
	34 = BF Drill Internal Coolant	**3** = Medium Length	
	41 = TX Drill Internal Coolant **42** = TX Light Drill Internal Coolant	**1** = 5 x D	
	50 = Non-Coolant Spotdrill	**1** = 120° **5** = 90°	
	51 = SPF PCD Drill Internal Coolant **53** = SPF Drill **55** = DAL Drill **56** = DAL PCD Drill Internal Coolant	**1** = 3 x D **2** = 5 x D **6** = 3 x D Internal Coolant **7** = 5 x D Internal Coolant	
	70 = Flat Bottom Drill Internal Coolant	**7** = 3 x D	
	72 = Step Drill **73** = Step Drill Internal Coolant	**1** = Short **2** = Long	
	94 = Hard Drill **95** = Hard Drill Internal Coolant	**1** = 3 x D **2** = 5 x D	
	96 = Kenna Universal™ Drill **97** = Kenna Universal Drill Internal Coolant	**6** = 3 x D **7** = 5 x D **8** = 8 x D **9** = 12 x D	

Solid Carbide Drills

Solid Carbide Drills • Catalog Numbering System

(continued)



B254A06350HPR
K254A02500HPR

06350	HP	R	
02500	HP	R	
Cutting Diameter D1	Point Style	Corner Style	Other Features

Metric = D1 in mm
Inch = D1 in decimal inch

CP = Cone Point
SG = Smoth Gashing
HP = Highly Positive
YP = Uneven Flute Design
SP = Split Point
DA / DAL = Double Angle
KM = Kenna Universal™ Cone Point

G = General Purpose
L = Light Hone
X = Next Generation for Steel
C = Corner Chamfer
R = Corner Radius
S = Sharp
F = Fiber
H = Curved Cutting Edge Shape

P = Body with Flat Surface for HiPACS Insert

POWERED BY NOVO KENNAMETAL

KenDrill™ Deep HPR

Solid Carbide Deep-Hole Drilling

NEW!

Materials

K P

Applications

- Drilling
- Drilling: Inclined Entry
- Drilling: Stacked Plate
- Drilling: Cross Hole

The new KenDrill Deep HPR improves on our existing range of solid carbide deep-hole drilling tools with its steel and and iron capabilities.

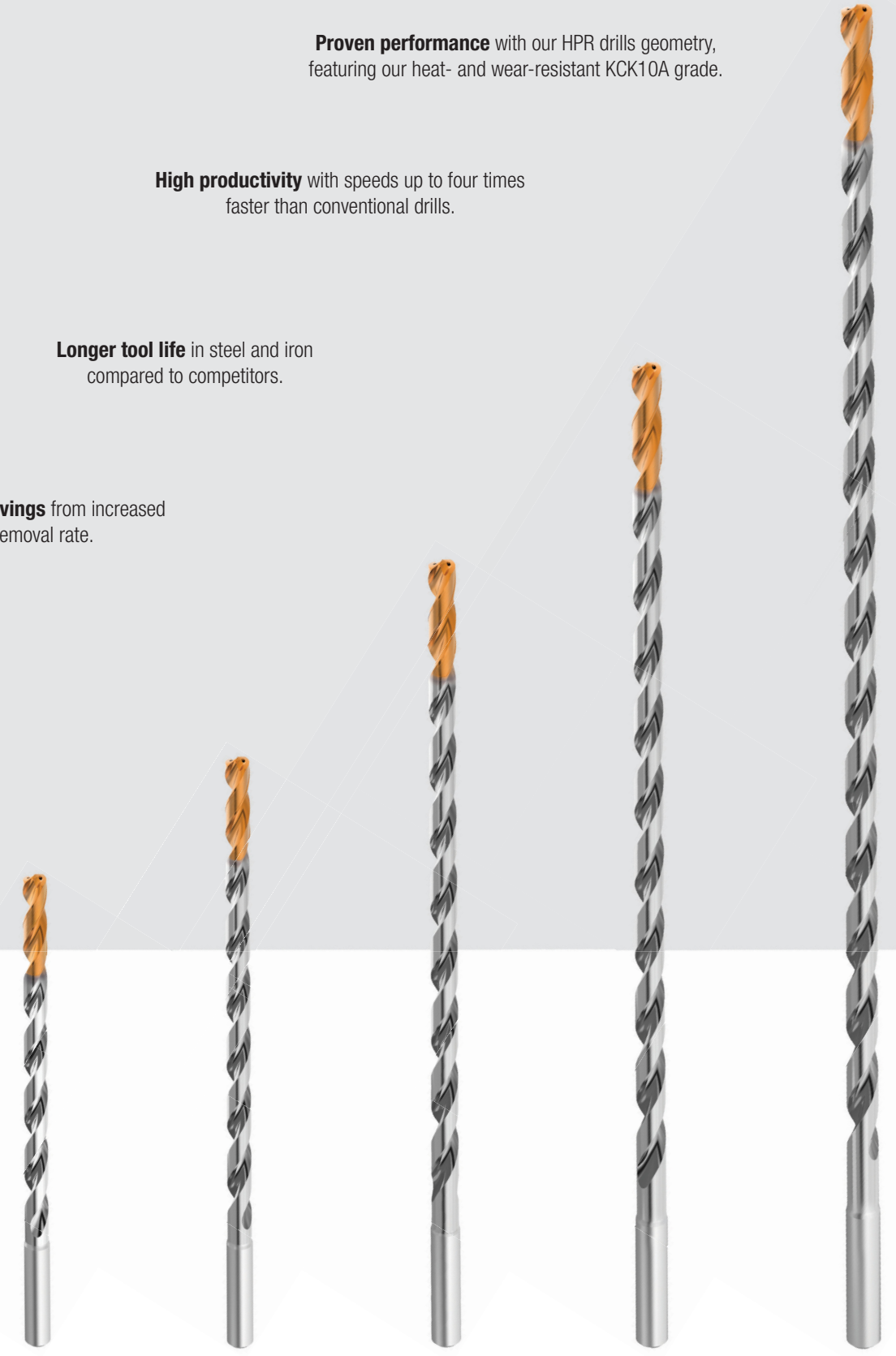
A material-specific deep-hole drill, KenDrill Deep HPR is in stock and available in an extensive range of lengths and diameters.

Proven performance with our HPR drills geometry, featuring our heat- and wear-resistant KCK10A grade.

High productivity with speeds up to four times faster than conventional drills.

Longer tool life in steel and iron compared to competitors.

Bottom-line savings from increased metal removal rate.

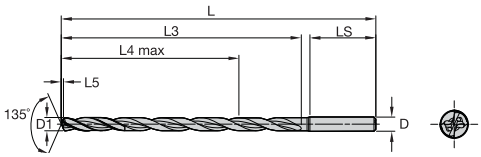


15 x D **20 x D** **25 x D** **30 x D** **40 x D**

Solid Carbide Drills

KenDrill™ Deep HPR • 15 x D • Internal Coolant • Straight Shank • Metric

NEW!



● first choice
○ alternate choice

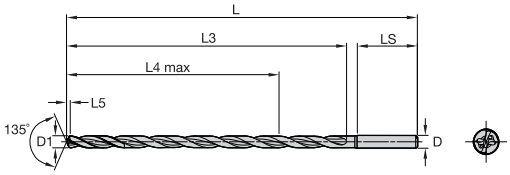
P	●
M	
K	●
N	
S	
H	

order number	catalogue number	D1	L	L3	L4 max	L5	LS	D	KCK10A
7081612	B271Z02383KMR	2,38	86	51	44	0,4	30	3	●
7081613	B271Z02500KMR	2,50	86	51	44	0,5	30	3	●
7081614	B271Z02642KMR	2,64	86	51	44	0,5	30	3	●
7081615	B271Z02705KMR	2,71	86	52	45	0,5	30	3	●
7081616	B271Z02779KMR	2,78	86	52	45	0,5	30	3	●
7081617	B271Z02820KMR	2,82	86	52	45	0,5	30	3	●
7081618	B271Z03000KMR	3,00	86	52	45	0,6	30	3	●
7081619	B271Z03175KMR	3,18	105	67	58	0,6	32	4	●
7081620	B271Z03200KMR	3,20	105	67	58	0,6	32	4	●
7081631	B271Z03500KMR	3,50	105	68	59	0,7	32	4	●
7081632	B271Z03600KMR	3,60	105	68	59	0,7	32	4	●
7081633	B271Z03700KMR	3,70	105	69	60	0,7	32	4	●
7081634	B271Z03970KMR	3,97	105	70	60	0,8	32	4	●
7081635	B271Z04000KMR	4,00	105	70	60	0,8	32	4	●
7081636	B271Z04500HPR	4,50	124	85	74	1,5	34	5	●
7081637	B271Z04623HPR	4,62	124	86	75	1,5	34	5	●
7081638	B271Z04763HPR	4,76	124	86	75	1,6	34	5	●
7081639	B271Z04800HPR	4,80	124	86	75	1,6	34	5	●
7081640	B271Z05000HPR	5,00	124	87	75	1,7	34	5	●
7081641	B271Z05060HPR	5,06	143	101	88	1,7	36	6	●
7081642	B271Z05260HPR	5,26	143	102	89	1,8	36	6	●
7081643	B271Z05410HPR	5,41	143	102	89	1,8	36	6	●
7081644	B271Z05500HPR	5,50	143	102	89	1,8	36	6	●
7081645	B271Z05558HPR	5,56	143	102	89	1,9	36	6	●
7081646	B271Z05800HPR	5,80	143	103	89	1,9	36	6	●
7081647	B271Z05900HPR	5,90	143	103	89	2,0	36	6	●
7081648	B271Z06000HPR	6,00	143	104	90	2,0	36	6	●
7081649	B271Z06200HPR	6,20	162	118	103	2,1	38	7	●
7081650	B271Z06350HPR	6,35	162	119	104	2,1	38	7	●
7081651	B271Z06500HPR	6,50	162	119	104	2,2	38	7	●
7081652	B271Z06528HPR	6,53	162	119	104	2,2	38	7	●
7081653	B271Z06746HPR	6,75	162	120	104	2,3	38	7	●
7081654	B271Z06909HPR	6,91	162	121	105	2,3	38	7	●
7081655	B271Z07000HPR	7,00	162	121	105	2,3	38	7	●
7081656	B271Z07145HPR	7,15	181	135	118	2,4	40	8	●
7081657	B271Z07500HPR	7,50	181	136	119	2,5	40	8	●
7081658	B271Z07541HPR	7,54	181	136	119	2,5	40	8	●
7081659	B271Z07938HPR	7,94	181	138	120	2,7	40	8	●
7081660	B271Z08000HPR	8,00	181	138	120	2,7	40	8	●
7081661	B271Z08200HPR	8,20	200	152	133	2,7	42	9	●
7081662	B271Z08334HPR	8,33	200	153	134	2,8	42	9	●
7081663	B271Z08500HPR	8,50	200	153	134	2,8	42	9	●
7081664	B271Z08733HPR	8,73	200	154	134	2,9	42	9	●
7081667	B271Z09000HPR	9,00	200	155	135	3,0	42	9	●
7081668	B271Z09100HPR	9,10	219	169	148	3,0	44	10	●
7081669	B271Z09200HPR	9,20	219	169	148	3,1	44	10	●
7081670	B271Z09500HPR	9,50	219	170	149	3,2	44	10	●
7081671	B271Z09525HPR	9,53	219	170	149	3,2	44	10	●
7081672	B271Z09750HPR	9,75	219	171	149	3,3	44	10	●
7081673	B271Z10000HPR	10,00	219	172	150	3,3	44	10	●
7081674	B271Z10200HPR	10,20	238	186	163	3,4	46	11	●
7081675	B271Z10500HPR	10,50	238	187	164	3,5	46	11	●
7081676	B271Z10716HPR	10,72	238	188	165	3,6	46	11	●
7081677	B271Z10800HPR	10,80	238	188	164	3,6	46	11	●
7081678	B271Z11000HPR	11,00	238	189	165	3,7	46	11	●
7081680	B271Z11500HPR	11,50	257	204	179	3,8	48	12	●
7081691	B271Z12000HPR	12,00	257	206	180	4,0	48	12	●
7081692	B271Z12500HPR	12,50	276	221	194	4,2	50	13	●
7081694	B271Z12700HPR	12,70	276	222	195	4,2	50	13	●
7081695	B271Z13000HPR	13,00	276	223	195	4,3	50	13	●
7081696	B271Z13500HPR	13,50	295	238	209	4,5	52	14	●
7081697	B271Z14000HPR	14,00	295	240	210	4,7	52	14	●
7081698	B271Z14288HPR	14,29	314	255	224	4,8	54	15	●
7081699	B271Z14500HPR	14,50	314	255	224	4,8	54	15	●
7081700	B271Z15000HPR	15,00	314	257	225	5,0	54	15	●
7081711	B271Z15300HPR	15,30	333	272	239	5,1	56	16	●
7081712	B271Z15875HPR	15,88	333	273	240	5,3	56	16	●
7081713	B271Z16000HPR	16,00	333	274	240	5,4	56	16	●

Solid Carbide Drills

KenDrill™ Deep HPR • 20 x D • Internal Coolant • Straight Shank • Metric

NEW!



● first choice
○ alternate choice

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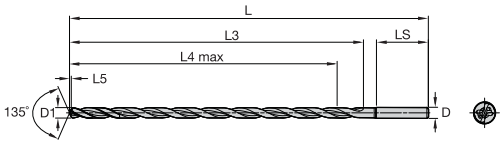
order number	catalogue number	D1	L	L3	L4 max	L5	LS	D	KCK10A
7081716	B272Z02383KMR	2,38	101	63	56	0,4	30	3	●
7081717	B272Z02400KMR	2,40	101	63	56	0,4	30	3	●
7081718	B272Z02489KMR	2,49	101	63	56	0,5	30	3	●
7081719	B272Z02500KMR	2,50	101	63	56	0,5	30	3	●
7081720	B272Z02779KMR	2,78	101	66	59	0,5	30	3	●
7081731	B272Z03000KMR	3,00	101	67	60	0,6	30	3	●
7081732	B272Z03150KMR	3,15	125	83	74	0,6	32	4	●
7081733	B272Z03175KMR	3,18	125	83	74	0,6	32	4	●
7081734	B272Z03300KMR	3,30	125	84	75	0,6	32	4	●
7081735	B272Z03500KMR	3,50	125	86	77	0,7	32	4	●
7081736	B272Z03850KMR	3,85	125	88	79	0,7	32	4	●
7081737	B272Z03970KMR	3,97	125	89	79	0,8	32	4	●
7081738	B272Z04000KMR	4,00	125	90	80	0,8	32	4	●
7081739	B272Z04500HPR	4,50	149	108	97	1,5	34	5	●
7081740	B272Z04623HPR	4,62	149	109	98	1,5	34	5	●
7081741	B272Z04763HPR	4,76	149	110	99	1,6	34	5	●
7081742	B272Z05000HPR	5,00	149	112	100	1,7	34	5	●
7081744	B272Z05200HPR	5,20	173	127	114	1,7	36	6	●
7081745	B272Z05260HPR	5,26	173	128	115	1,8	36	6	●
7081746	B272Z05410HPR	5,41	173	129	116	1,8	36	6	●
7081747	B272Z05500HPR	5,50	173	130	117	1,8	36	6	●
7081748	B272Z05558HPR	5,56	173	130	117	1,9	36	6	●
7081749	B272Z05800HPR	5,80	173	132	118	1,9	36	6	●
7081750	B272Z06000HPR	6,00	173	134	120	2,0	36	6	●
7081771	B272Z06200HPR	6,20	197	149	134	2,1	38	7	●
7081772	B272Z06350HPR	6,35	197	151	136	2,1	38	7	●
7081774	B272Z06500HPR	6,50	197	152	137	2,2	38	7	●
7081775	B272Z06528HPR	6,53	197	152	137	2,2	38	7	●
7081776	B272Z06746HPR	6,75	197	154	138	2,3	38	7	●
7081777	B272Z06800HPR	6,80	197	154	138	2,3	38	7	●
7081778	B272Z06909HPR	6,91	197	155	139	2,3	38	7	●
7081779	B272Z07000HPR	7,00	197	156	140	2,3	38	7	●
7081780	B272Z07145HPR	7,15	221	171	154	2,4	40	8	●
7081781	B272Z07200HPR	7,20	221	171	154	2,4	40	8	●
7081782	B272Z07500HPR	7,50	221	174	157	2,5	40	8	●
7081783	B272Z07541HPR	7,54	221	174	157	2,5	40	8	●
7081784	B272Z07938HPR	7,94	221	177	159	2,7	40	8	●
7081785	B272Z08000HPR	8,00	221	178	160	2,7	40	8	●
7081786	B272Z08334HPR	8,33	245	194	175	2,8	42	9	●
7081787	B272Z08433HPR	8,43	245	195	176	2,8	42	9	●
7081788	B272Z08500HPR	8,50	245	196	177	2,8	42	9	●
7081789	B272Z08733HPR	8,73	245	198	178	2,9	42	9	●
7081790	B272Z09000HPR	9,00	245	200	180	3,0	42	9	●
7081791	B272Z09100HPR	9,10	269	215	194	3,0	44	10	●
7081792	B272Z09500HPR	9,50	269	218	197	3,2	44	10	●
7081793	B272Z09525HPR	9,53	269	218	197	3,2	44	10	●
7081794	B272Z09750HPR	9,75	269	220	198	3,3	44	10	●
7081795	B272Z10000HPR	10,00	269	222	200	3,3	44	10	●
7081796	B272Z10200HPR	10,20	293	237	214	3,4	46	11	●
7081797	B272Z10500HPR	10,50	293	240	217	3,5	46	11	●
7081798	B272Z10716HPR	10,72	293	242	219	3,6	46	11	●
7081799	B272Z11000HPR	11,00	293	244	220	3,7	46	11	●
7081800	B272Z11500HPR	11,50	317	262	237	3,8	48	12	●
7081801	B272Z11800HPR	11,80	317	264	238	3,9	48	12	●
7081802	B272Z12000HPR	12,00	317	266	240	4,0	48	12	●
7081803	B272Z12500HPR	12,50	341	284	257	4,2	50	13	●
7081804	B272Z12700HPR	12,70	341	285	258	4,2	50	13	●
7081805	B272Z13000HPR	13,00	341	288	260	4,3	50	13	●
7081806	B272Z13100HPR	13,10	365	302	273	4,4	52	14	●
7081807	B272Z13500HPR	13,50	365	306	277	4,5	52	14	●
7081808	B272Z14000HPR	14,00	365	310	280	4,7	52	14	●
7081809	B272Z14500HPR	14,50	389	328	297	4,8	54	15	●
7081810	B272Z15000HPR	15,00	389	332	300	5,0	54	15	●
7081811	B272Z15500HPR	15,50	413	350	317	5,2	56	16	●
7081812	B272Z16000HPR	16,00	413	354	320	5,4	56	16	●

117–119	120	40–41	124

Solid Carbide Drills

KenDrill™ Deep HPR • 25 x D • Internal Coolant • Straight Shank • Metric

NEW!



● first choice
○ alternate choice

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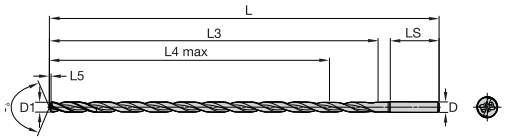
order number	catalogue number	D1	L	L3	L4 max	L5	LS	D	KCK10A
7081813	B273Z02383KMR	2,38	116	74	67	0,4	30	3	●
7081814	B273Z02500KMR	2,50	116	76	69	0,5	30	3	●
7081816	B273Z02600KMR	2,60	116	77	70	0,5	30	3	●
7081817	B273Z03000KMR	3,00	116	82	75	0,6	30	3	●
7081818	B273Z03175KMR	3,18	145	99	90	0,6	32	4	●
7081819	B273Z03500KMR	3,50	145	103	94	0,7	32	4	●
7081820	B273Z04000KMR	4,00	145	110	100	0,8	32	4	●
7081821	B273Z05000HPR	5,00	174	137	125	1,7	34	5	●
7081822	B273Z05100HPR	5,10	203	152	139	1,7	36	6	●
7081823	B273Z05500HPR	5,50	203	157	144	1,8	36	6	●
7081824	B273Z05800HPR	5,80	203	161	147	1,9	36	6	●
7081825	B273Z06000HPR	6,00	203	164	150	2,0	36	6	●
7081826	B273Z06350HPR	6,35	232	182	167	2,1	38	7	●
7081827	B273Z06500HPR	6,50	232	184	169	2,2	38	7	●
7081828	B273Z06746HPR	6,75	232	187	171	2,3	38	7	●
7081829	B273Z07000HPR	7,00	232	191	175	2,3	38	7	●
7081830	B273Z07500HPR	7,50	261	211	194	2,5	40	8	●
7081831	B273Z08000HPR	8,00	261	218	200	2,7	40	8	●
7081832	B273Z08500HPR	8,50	290	238	219	2,8	42	9	●
7081833	B273Z08733HPR	8,73	290	241	221	2,9	42	9	●
7081834	B273Z09000HPR	9,00	290	245	225	3,0	42	9	●
7081835	B273Z10000HPR	10,00	319	272	250	3,3	44	10	●
7081836	B273Z10200HPR	10,20	348	288	265	3,4	46	11	●
7081837	B273Z10500HPR	10,50	348	292	269	3,5	46	11	●
7081838	B273Z11000HPR	11,00	348	299	275	3,7	46	11	●
7081839	B273Z11500HPR	11,50	377	319	294	3,8	48	12	●
7081840	B273Z12000HPR	12,00	377	326	300	4,0	48	12	●
7081841	B273Z12500HPR	12,50	406	346	319	4,2	50	13	●
7081842	B273Z12700HPR	12,70	406	349	322	4,2	50	13	●
7081843	B273Z13000HPR	13,00	406	353	325	4,3	50	13	●
7081844	B273Z13500HPR	13,50	435	373	344	4,5	52	14	●
7081845	B273Z14000HPR	14,00	435	380	350	4,7	52	14	●
7081846	B273Z14288HPR	14,29	464	397	366	4,8	54	15	●
7081847	B273Z14500HPR	14,50	464	400	369	4,8	54	15	●
7081848	B273Z15000HPR	15,00	464	407	375	5,0	54	15	●
7081849	B273Z16000HPR	16,00	493	434	400	5,4	56	16	●

117–119	120	40–41	124

Solid Carbide Drills

KenDrill™ Deep HPR • 30 x D • Internal Coolant • Straight Shank • Metric

NEW!



● first choice
○ alternate choice

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order number	catalogue number	D1	L	L3	L4 max	L5	LS	D	KCK10A
7080419	B274Z02383KMR	2,38	131	86	79	0,4	30	3	●
7080420	B274Z02500KMR	2,50	131	88	81	0,5	30	3	●
7080421	B274Z02600KMR	2,60	131	90	83	0,5	30	3	●
7080422	B274Z02800KMR	2,80	131	94	87	0,5	30	3	●
7080423	B274Z03000KMR	3,00	131	97	90	0,6	30	3	●
7080424	B274Z03175KMR	3,18	165	115	106	0,6	32	4	●
7080425	B274Z03500KMR	3,50	165	121	112	0,7	32	4	●
7080426	B274Z03970KMR	3,97	165	129	119	0,8	32	4	●
7080427	B274Z04000KMR	4,00	165	130	120	0,8	32	4	●
7080428	B274Z04300HPR	4,30	199	149	138	1,4	34	5	●
7080429	B274Z04500HPR	4,50	199	153	142	1,5	34	5	●
7080430	B274Z04763HPR	4,76	199	157	146	1,6	34	5	●
7080431	B274Z05000HPR	5,00	199	162	150	1,7	34	5	●
7080432	B274Z05500HPR	5,50	233	185	172	1,8	36	6	●
7080433	B274Z05700HPR	5,70	233	188	175	1,9	36	6	●
7080434	B274Z06000HPR	6,00	233	194	180	2,0	36	6	●
7080435	B274Z06350HPR	6,35	267	214	199	2,1	38	7	●
7080436	B274Z06500HPR	6,50	267	217	202	2,2	38	7	●
7080437	B274Z06800HPR	6,80	267	222	206	2,3	38	7	●
7080438	B274Z07000HPR	7,00	267	226	210	2,3	38	7	●
7080439	B274Z07700HPR	7,70	301	252	235	2,6	40	8	●
7080440	B274Z07938HPR	7,94	301	257	239	2,7	40	8	●
7080441	B274Z08000HPR	8,00	301	258	240	2,7	40	8	●
7080442	B274Z08334HPR	8,33	335	278	259	2,8	42	9	●
7080443	B274Z08500HPR	8,50	335	281	262	2,8	42	9	●
7080444	B274Z08700HPR	8,70	335	284	264	2,9	42	9	●
7080445	B274Z09000HPR	9,00	335	290	270	3,0	42	9	●
7080446	B274Z09525HPR	9,53	369	313	292	3,2	44	10	●
7080447	B274Z10000HPR	10,00	369	322	300	3,3	44	10	●
7080448	B274Z10200HPR	10,20	403	339	316	3,4	46	11	●
7080449	B274Z10500HPR	10,50	403	345	322	3,5	46	11	●
7080450	B274Z10716HPR	10,72	403	349	326	3,6	46	11	●
7080451	B274Z11000HPR	11,00	403	354	330	3,7	46	11	●
7080452	B274Z11500HPR	11,50	437	377	352	3,8	48	12	●
7080453	B274Z11800HPR	11,80	437	382	356	3,9	48	12	●
7080454	B274Z12000HPR	12,00	437	386	360	4,0	48	12	●
7080455	B274Z12500HPR	12,50	471	409	382	4,2	50	13	●
7080456	B274Z12700HPR	12,70	471	412	385	4,2	50	13	●
7080457	B274Z13000HPR	13,00	471	418	390	4,3	50	13	●
7080458	B274Z13500HPR	13,50	505	441	412	4,5	52	14	●
7080459	B274Z14000HPR	14,00	505	450	420	4,7	52	14	●
7080460	B274Z15000HPR	15,00	539	482	450	5,0	54	15	●

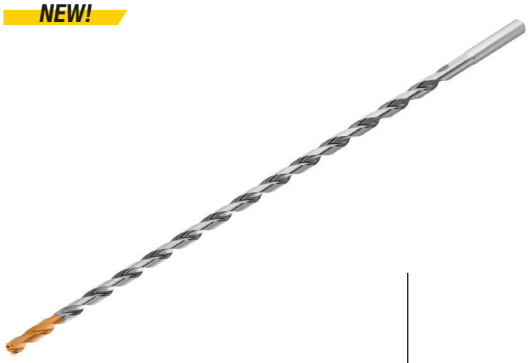
117–119	120	40–41	124

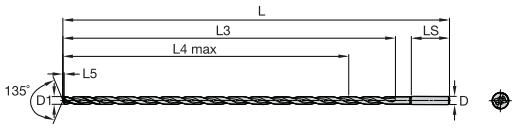
Solid Carbide Drills

KenDrill™ Deep HPR • 40 x D • Internal Coolant • Straight Shank • Metric

NEW!

● first choice
○ alternate choice





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order number	catalogue number	D1	L	L3	L4 max	L5	LS	D	KCK10A
7080289	B275Z02500KMR	2,50	161	113	106	0,5	30	3	●
7080290	B275Z03000KMR	3,00	161	127	120	0,6	30	3	●
7080391	B275Z03175KMR	3,18	205	146	137	0,6	32	4	●
7080392	B275Z03500KMR	3,50	205	156	147	0,7	32	4	●
7080393	B275Z03571KMR	3,57	205	158	149	0,7	32	4	●
7080394	B275Z03970KMR	3,97	205	169	159	0,8	32	4	●
7080395	B275Z04000KMR	4,00	205	170	160	0,8	32	4	●
7080396	B275Z04200HPR	4,20	249	189	178	1,4	34	5	●
7080397	B275Z04500HPR	4,50	249	198	187	1,5	34	5	●
7080398	B275Z04763HPR	4,76	249	205	194	1,6	34	5	●
7080399	B275Z05000HPR	5,00	249	212	200	1,7	34	5	●
7080400	B275Z05500HPR	5,50	293	240	227	1,8	36	6	●
7080401	B275Z05558HPR	5,56	293	241	228	1,9	36	6	●
7080402	B275Z06000HPR	6,00	293	254	240	2,0	36	6	●
7080403	B275Z06350HPR	6,35	337	278	263	2,1	38	7	●
7080404	B275Z06500HPR	6,50	337	282	267	2,2	38	7	●
7080405	B275Z06800HPR	6,80	337	290	274	2,3	38	7	●
7080406	B275Z07000HPR	7,00	337	296	280	2,3	38	7	●
7080407	B275Z07145HPR	7,15	381	314	297	2,4	40	8	●
7080408	B275Z07500HPR	7,50	381	324	307	2,5	40	8	●
7080409	B275Z07938HPR	7,94	381	336	318	2,7	40	8	●
7080410	B275Z08000HPR	8,00	381	338	320	2,7	40	8	●
7080411	B275Z08500HPR	8,50	425	366	347	2,8	42	9	●
7080412	B275Z08733HPR	8,73	425	372	352	2,9	42	9	●
7080413	B275Z09000HPR	9,00	425	380	360	3,0	42	9	●
7080414	B275Z09525HPR	9,53	469	408	387	3,2	44	10	●
7080415	B275Z10000HPR	10,00	469	422	400	3,3	44	10	●
7080416	B275Z10200HPR	10,20	513	441	418	3,4	46	11	●
7080417	B275Z10320HPR	10,32	513	445	422	3,5	46	11	●
7080418	B275Z11000HPR	11,00	513	464	440	3,7	46	11	●

117–119	120	40–41	124

Solid Carbide Drills

KenDrill™ Deep HPR • Application Data • Metric

Material Group	Cutting Speed — vc m/min			Feed rate (f) = mm/r by diameter							
	Min	Starting Value	Max	3,0	4,0	6,0	8,0	10,0	12,0	14,0	16,0
P											
0	100	**100**	125	0,13–0,15	0,14–0,16	0,15–0,21	0,19–0,26	0,21–0,31	0,26–0,36	0,30–0,41	0,34–0,46
1	90	**100**	110	0,15–0,18	0,16–0,19	0,18–0,25	0,22–0,30	0,25–0,37	0,30–0,42	0,35–0,48	0,40–0,54
2	90	**100**	110	0,15–0,18	0,16–0,19	0,18–0,25	0,22–0,30	0,25–0,37	0,30–0,42	0,35–0,48	0,40–0,54
3	80	**95**	110	0,15–0,18	0,16–0,19	0,18–0,25	0,22–0,30	0,25–0,37	0,30–0,42	0,35–0,48	0,40–0,54
4	80	**90**	110	0,15–0,18	0,16–0,19	0,18–0,25	0,22–0,30	0,25–0,37	0,30–0,42	0,35–0,48	0,40–0,54
5	60	**80**	90	0,03–0,11	0,04–0,11	0,05–0,11	0,05–0,14	0,08–0,18	0,11–0,21	0,12–0,22	0,14–0,24
6	60	**70**	80	0,03–0,11	0,04–0,11	0,05–0,11	0,05–0,14	0,08–0,18	0,11–0,21	0,12–0,22	0,14–0,24
K											
1	80	**100**	120	0,15–0,19	0,17–0,20	0,19–0,26	0,24–0,32	0,27–0,40	0,32–0,45	0,38–0,52	0,45–0,59
2	80	**90**	100	0,15–0,18	0,16–0,19	0,18–0,25	0,22–0,30	0,25–0,37	0,30–0,42	0,35–0,48	0,40–0,54
3	60	**90**	120	0,15–0,18	0,16–0,19	0,18–0,25	0,22–0,30	0,25–0,37	0,30–0,42	0,35–0,48	0,40–0,54

POWERED BY NOVO KENNAMETAL

KenDrill™ Micro

Solid Carbide Deep-Hole Drilling

Materials

P M S

Applications

Drilling

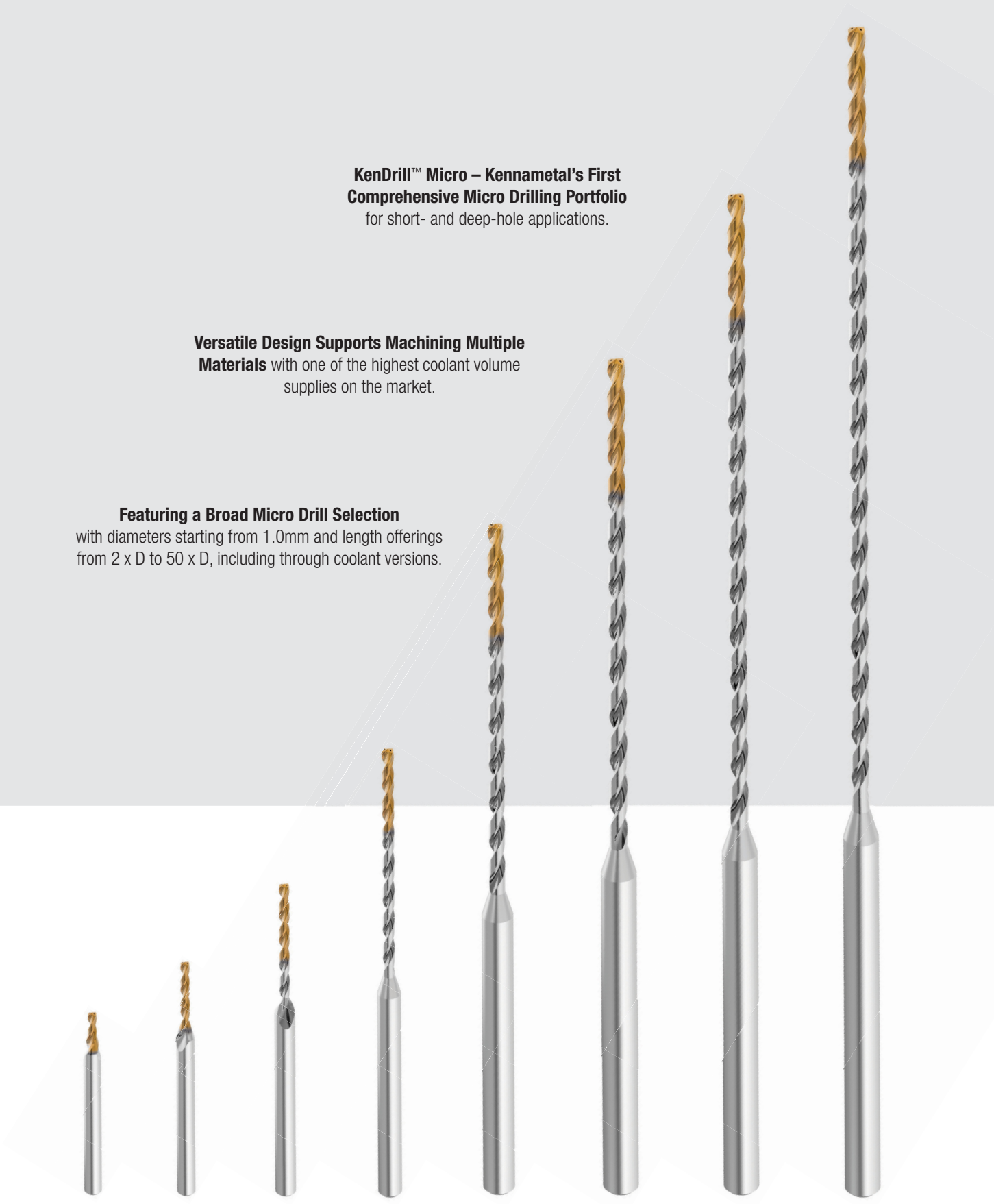
KenDrill Micro delivers powerful coolant supply to improve chip evacuation and avoid frustrating tool breakages. With a reliable drill design that reduces cutting forces and optimizes chip flow, you can expect process consistency.

KenDrill Micro supports machining many materials, providing versatility on the shop floor. This small diameter solid carbide drill will bring a new level of accuracy and longevity to small-part machining.

KenDrill™ Micro – Kennametal's First Comprehensive Micro Drilling Portfolio
for short- and deep-hole applications.

Versatile Design Supports Machining Multiple Materials with one of the highest coolant volume supplies on the market.

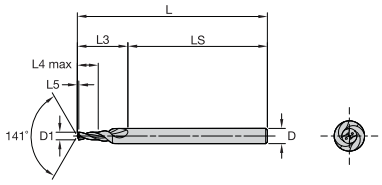
Featuring a Broad Micro Drill Selection
with diameters starting from 1.0mm and length offerings from 2 x D to 50 x D, including through coolant versions.



Solid Carbide Drills

KenDrill™ Micro • 2 x D • Internal Coolant • Straight Shank • Metric

NEW!



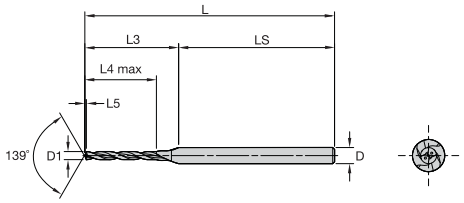
● first choice
○ alternate choice

P	●
M	●
K	○
N	○
S	●
H	

order number	catalogue number	D1	L	L3	L4 max	L5	LS	D	KCU10
7070756	B068A01000	1,00	50	9	2	0,2	41	4	●
7070757	B068A01100	1,10	50	9	2	0,2	41	4	●
7070758	B068A01200	1,20	50	10	3	0,2	41	4	●
7070759	B068A01300	1,30	50	10	3	0,2	40	4	●
7070760	B068A01400	1,40	50	10	3	0,2	40	4	●
7070761	B068A01500	1,50	50	11	3	0,3	39	4	●
7070762	B068A01600	1,60	50	11	4	0,3	39	4	●
7070763	B068A01700	1,70	50	12	4	0,3	38	4	●
7070764	B068A01800	1,80	50	12	4	0,3	38	4	●
7070765	B068A01900	1,90	50	12	4	0,3	38	4	●
7070766	B068A02000	2,00	50	13	4	0,4	37	4	●
7070767	B068A02100	2,10	50	13	5	0,4	37	4	●
7070768	B068A02200	2,20	50	14	5	0,4	36	4	●
7070769	B068A02300	2,30	55	14	5	0,4	41	4	●
7070770	B068A02400	2,40	55	15	5	0,4	40	4	●
7070771	B068A02500	2,50	55	15	5	0,4	40	4	●
7070772	B068A02600	2,60	55	16	6	0,5	40	4	●
7070773	B068A02700	2,70	55	16	6	0,5	39	4	●
7070774	B068A02800	2,80	55	16	6	0,5	39	4	●
7070775	B068A02900	2,90	55	17	6	0,5	38	4	●

KenDrill Micro • 7 x D • Internal Coolant • Straight Shank • Metric

NEW!



● first choice
○ alternate choice

P	●
M	●
K	○
N	○
S	●
H	

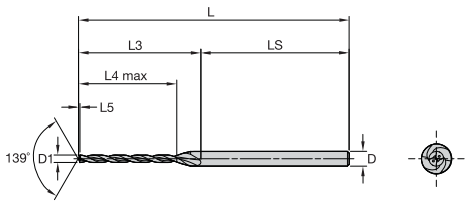
order number	catalogue number	D1	L	L3	L4 max	L5	LS	D	KCU10
7070643	B070A01000	1,00	55	14	7	0,2	41	4	●
7070644	B070A01100	1,10	55	15	8	0,2	40	4	●
7070645	B070A01200	1,20	55	16	9	0,2	40	4	●
7070646	B070A01300	1,30	55	16	9	0,2	39	4	●
7070647	B070A01400	1,40	55	17	10	0,3	38	4	●
7070648	B070A01500	1,50	55	18	11	0,3	37	4	●
7070649	B070A01600	1,60	57	19	12	0,3	38	4	●
7070650	B070A01700	1,70	57	20	12	0,3	37	4	●
7070661	B070A01800	1,80	59	21	13	0,3	38	4	●
7070662	B070A01900	1,90	59	22	14	0,4	37	4	●
7070663	B070A02000	2,00	62	23	14	0,4	39	4	●
7070664	B070A02100	2,10	62	24	15	0,4	38	4	●
7070665	B070A02200	2,20	62	25	16	0,4	37	4	●
7070666	B070A02300	2,30	65	26	17	0,4	39	4	●
7070667	B070A02400	2,40	65	27	17	0,4	38	4	●
7070668	B070A02500	2,50	65	28	18	0,5	37	4	●
7070669	B070A02600	2,60	65	29	19	0,5	37	4	●
7070670	B070A02700	2,70	68	29	19	0,5	39	4	●
7070681	B070A02800	2,80	68	30	20	0,5	38	4	●
7070682	B070A02900	2,90	68	31	21	0,5	37	4	●

117–119	120	40–41	124

Solid Carbide Drills

KenDrill™ Micro • 12 x D • Internal Coolant • Straight Shank • Metric

NEW!



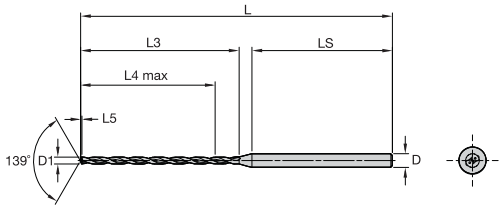
● first choice
○ alternate choice

P	●
M	●
K	○
N	○
S	●
H	

order number	catalogue number	D1	L	L3	L4 max	L5	LS	D	KCU10
7070685	B071A01000	1,00	58	19	12	0,2	39	4	●
7070686	B071A01100	1,10	58	20	13	0,2	38	4	●
7070687	B071A01200	1,20	60	22	15	0,2	39	4	●
7070688	B071A01300	1,30	60	23	16	0,2	37	4	●
7070689	B071A01400	1,40	63	24	17	0,3	39	4	●
7070690	B071A01500	1,50	63	26	18	0,3	37	4	●
7070701	B071A01600	1,60	66	27	20	0,3	39	4	●
7070702	B071A01700	1,70	66	29	21	0,3	37	4	●
7070703	B071A01800	1,80	69	30	22	0,3	39	4	●
7070704	B071A01900	1,90	69	32	23	0,4	38	4	●
7070705	B071A02000	2,00	73	33	24	0,4	40	4	●
7070706	B071A02100	2,10	73	34	26	0,4	39	4	●
7070707	B071A02200	2,20	73	36	27	0,4	37	4	●
7070708	B071A02300	2,30	78	37	28	0,4	41	4	●
7070709	B071A02400	2,40	78	39	29	0,4	39	4	●
7070710	B071A02500	2,50	78	40	31	0,5	38	4	●
7070711	B071A02600	2,60	78	42	32	0,5	37	4	●
7070712	B071A02700	2,70	83	43	33	0,5	40	4	●
7070713	B071A02800	2,80	83	44	34	0,5	39	4	●
7070714	B071A02900	2,90	83	46	35	0,5	37	4	●

KenDrill Micro • 20 x D • Internal Coolant • Straight Shank • Metric

NEW!



● first choice
○ alternate choice

P	●
M	●
K	○
N	○
S	●
H	

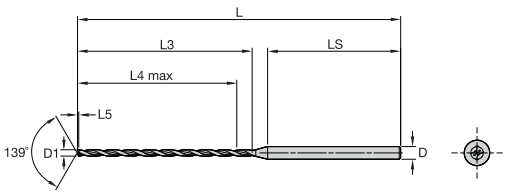
order number	catalogue number	D1	L	L3	L4 max	L5	LS	D	KCU10
7070776	B072A01000	1,00	67	23	20	0,2	38	4	●
7070777	B072A01100	1,10	67	26	22	0,2	36	4	●
7070778	B072A01200	1,20	71	28	24	0,2	38	4	●
7070779	B072A01300	1,30	71	30	26	0,2	36	4	●
7070780	B072A01400	1,40	75	33	28	0,3	38	4	●
7070801	B072A01500	1,50	75	35	30	0,3	36	4	●
7070802	B072A01600	1,60	79	37	32	0,3	37	4	●
7070803	B072A01700	1,70	79	39	34	0,3	35	4	●
7070804	B072A01800	1,80	84	42	36	0,3	38	4	●
7070805	B072A01900	1,90	84	44	38	0,4	36	4	●
7070806	B072A02000	2,00	91	46	40	0,4	41	4	●
7070807	B072A02100	2,10	91	49	42	0,4	39	4	●
7070808	B072A02200	2,20	91	51	44	0,4	37	4	●
7070809	B072A02300	2,30	98	53	46	0,4	42	4	●
7070810	B072A02400	2,40	98	56	48	0,4	39	4	●
7070811	B072A02500	2,50	98	58	51	0,5	37	4	●
7070812	B072A02600	2,60	98	60	53	0,5	35	4	●
7070813	B072A02700	2,70	107	63	55	0,5	42	4	●
7070814	B072A02800	2,80	107	65	57	0,5	40	4	●
7070815	B072A02900	2,90	107	67	59	0,5	38	4	●

117–119	120	40–41	124

Solid Carbide Drills

KenDrill™ Micro • 25 x D • Internal Coolant • Straight Shank • Metric

NEW!



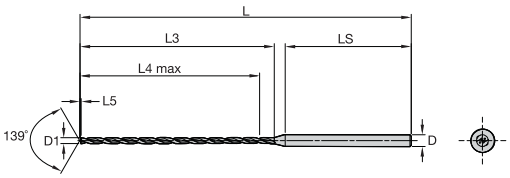
● first choice
○ alternate choice

P	●
M	●
K	○
N	○
S	●
H	

order number	catalogue number	D1	L	L3	L4 max	L5	LS	D	KCU10
7071037	B073A01000	1,00	73	28	25	0,2	39	4	●
7071038	B073A01100	1,10	73	31	28	0,2	37	4	●
7071039	B073A01200	1,20	77	34	30	0,2	38	4	●
7071040	B073A01300	1,30	77	37	33	0,2	35	4	●
7071041	B073A01400	1,40	82	40	35	0,3	38	4	●
7071042	B073A01500	1,50	82	42	38	0,3	35	4	●
7071043	B073A01600	1,60	88	45	40	0,3	38	4	●
7071044	B073A01700	1,70	88	48	43	0,3	36	4	●
7071045	B073A01800	1,80	94	51	45	0,3	39	4	●
7071046	B073A01900	1,90	94	54	48	0,4	37	4	●
7071047	B073A02000	2,00	102	56	50	0,4	42	4	●
7071048	B073A02100	2,10	102	59	53	0,4	39	4	●
7071049	B073A02200	2,20	102	62	55	0,4	37	4	●
7071050	B073A02300	2,30	111	65	58	0,4	43	4	●
7071051	B073A02400	2,40	111	68	60	0,4	40	4	●
7071052	B073A02500	2,50	111	71	63	0,5	38	4	●
7071053	B073A02600	2,60	111	73	66	0,5	35	4	●
7071054	B073A02700	2,70	122	76	68	0,5	44	4	●
7071055	B073A02800	2,80	122	79	71	0,5	41	4	●
7071056	B073A02900	2,90	122	82	73	0,5	38	4	●

KenDrill Micro • 30 x D • Internal Coolant • Straight Shank • Metric

NEW!



● first choice
○ alternate choice

P	●
M	●
K	○
N	○
S	●
H	

order number	catalogue number	D1	L	L3	L4 max	L5	LS	D	KCU10
7070857	B074A01000	1,00	79	33	30	0,2	40	4	●
7070858	B074A01100	1,10	79	37	33	0,2	37	4	●
7070859	B074A01200	1,20	84	40	36	0,2	39	4	●
7070860	B074A01300	1,30	84	43	39	0,2	36	4	●
7071021	B074A01400	1,40	90	47	42	0,3	39	4	●
7071022	B074A01500	1,50	90	50	45	0,3	36	4	●
7071023	B074A01600	1,60	99	53	48	0,3	41	4	●
7071024	B074A01700	1,70	99	56	51	0,3	38	4	●
7071025	B074A01800	1,80	104	60	54	0,3	40	4	●
7071026	B074A01900	1,90	104	63	57	0,4	37	4	●
7071027	B074A02000	2,00	113	66	60	0,4	43	4	●
7071028	B074A02100	2,10	113	70	63	0,4	40	4	●
7071029	B074A02200	2,20	113	73	66	0,4	37	4	●
7071030	B074A02300	2,30	124	76	69	0,4	45	4	●
7071031	B074A02400	2,40	124	80	72	0,4	41	4	●
7071032	B074A02500	2,50	124	83	76	0,5	38	4	●
7071033	B074A02600	2,60	124	86	79	0,5	35	4	●
7071034	B074A02700	2,70	137	90	82	0,5	45	4	●
7071035	B074A02800	2,80	137	93	85	0,5	42	4	●
7071036	B074A02900	2,90	137	96	88	0,5	39	4	●

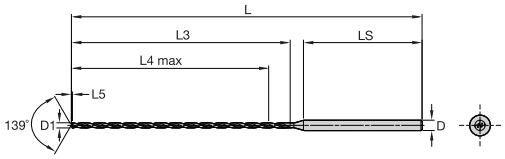
117–119	120	40–41	124

Solid Carbide Drills

KenDrill™ Micro • 40 x D • Internal Coolant • Straight Shank • Metric

NEW!

● first choice
○ alternate choice



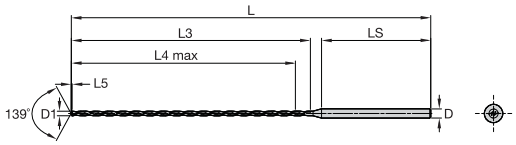
P	●
M	●
K	○
N	○
S	●
H	

order number	catalogue number	D1	L	L3	L4 max	L5	LS	D	KCU10
7071017	B075A01000	1,00	90	43	40	0,2	41	4	●
7071018	B075A01100	1,10	90	48	44	0,2	37	4	●
7071019	B075A01200	1,20	97	52	48	0,2	40	4	●
7071020	B075A01300	1,30	97	56	52	0,2	36	4	●
7071061	B075A01400	1,40	105	61	56	0,3	40	4	●
7071062	B075A01500	1,50	105	65	60	0,3	36	4	●
7071063	B075A01600	1,60	113	69	64	0,3	39	4	●
7071064	B075A01700	1,70	113	73	68	0,3	35	4	●
7071065	B075A01800	1,80	123	78	72	0,3	41	4	●
7071066	B075A01900	1,90	123	82	76	0,4	37	4	●
7071067	B075A02000	2,00	136	86	80	0,4	46	4	●
7071068	B075A02100	2,10	136	91	84	0,4	42	4	●
7071069	B075A02200	2,20	136	95	88	0,4	38	4	●
7071070	B075A02300	2,30	150	99	92	0,4	48	4	●
7071071	B075A02400	2,40	150	104	96	0,4	43	4	●
7071072	B075A02500	2,50	150	108	101	0,5	39	4	●
7071073	B075A02600	2,60	150	112	105	0,5	35	4	●
7071074	B075A02700	2,70	167	117	109	0,5	48	4	●
7071075	B075A02800	2,80	167	121	113	0,5	44	4	●
7071076	B075A02900	2,90	167	125	117	0,5	40	4	●

KenDrill Micro • 50 x D • Internal Coolant • Straight Shank • Metric

NEW!

● first choice
○ alternate choice



P	●
M	●
K	○
N	○
S	●
H	

order number	catalogue number	D1	L	L3	L4 max	L5	LS	D	KCU10
7071077	B076A01000	1,00	102	53	50	0,2	43	4	●
7071078	B076A01500	1,50	120	80	75	0,3	36	4	●
7071079	B076A02000	2,00	158	106	100	0,4	48	4	●
7071080	B076A02500	2,50	176	133	126	0,5	40	4	●

117–119	120	40–41	124

Solid Carbide Drills

KenDrill™ Micro • Application Data • Metric

Material Group	Cutting Speed — vc m/min			Feed rate (f) = mm/r by diameter				
	Min	Starting Value	Max	1,0	1,5	2,0	2,5	2,9
P								
0	30	**65**	100	0,020–0,040	0,030–0,050	0,040–0,080	0,050–0,100	0,058–0,116
1	30	**65**	100	0,020–0,040	0,030–0,050	0,040–0,080	0,050–0,100	0,058–0,116
2	30	**65**	100	0,020–0,040	0,030–0,050	0,040–0,080	0,050–0,100	0,058–0,116
3	30	**65**	100	0,020–0,040	0,030–0,050	0,040–0,080	0,050–0,100	0,058–0,116
4	30	**65**	100	0,020–0,040	0,030–0,050	0,040–0,080	0,050–0,100	0,058–0,116
5	20	**60**	100	0,015–0,030	0,020–0,045	0,025–0,060	0,030–0,075	0,034–0,087
6	20	**60**	100	0,015–0,030	0,020–0,045	0,025–0,060	0,030–0,075	0,034–0,087
M								
1	20	**60**	100	0,010–0,030	0,015–0,045	0,020–0,060	0,025–0,075	0,029–0,087
2	20	**60**	100	0,010–0,030	0,015–0,045	0,020–0,060	0,025–0,075	0,029–0,087
3	20	**60**	100	0,010–0,030	0,015–0,045	0,020–0,060	0,025–0,075	0,029–0,087
K								
1	40	**70**	100	0,020–0,040	0,030–0,050	0,040–0,080	0,050–0,100	0,058–0,116
2	40	**70**	100	0,020–0,040	0,030–0,050	0,040–0,080	0,050–0,100	0,058–0,116
3	40	**70**	100	0,020–0,040	0,030–0,050	0,040–0,080	0,050–0,100	0,058–0,116
N								
1	100	**140**	180	0,020–0,060	0,030–0,075	0,040–0,100	0,050–0,130	0,058–0,145
2	100	**140**	180	0,020–0,060	0,030–0,075	0,040–0,100	0,050–0,130	0,058–0,145
3	100	**140**	180	0,020–0,060	0,030–0,075	0,040–0,100	0,050–0,130	0,058–0,145
4	100	**140**	180	0,020–0,060	0,030–0,075	0,040–0,100	0,050–0,130	0,058–0,145
S								
1	10	**30**	50	0,010–0,020	0,015–0,030	0,020–0,040	0,025–0,050	0,029–0,058
2	10	**30**	50	0,010–0,020	0,015–0,030	0,020–0,040	0,025–0,050	0,029–0,058
3	10	**30**	50	0,010–0,020	0,015–0,030	0,020–0,040	0,025–0,050	0,029–0,058
4	10	**30**	50	0,010–0,030	0,015–0,045	0,020–0,060	0,025–0,075	0,029–0,087

KCSM15A

Solid End Milling Grade

Our KCSM15A grade features an advanced PVD coating technology and delivers the best wear resistance in the history of Kennametal solid carbide end milling. This new grade provides increased output, higher metal removal rates and overall reliability when machining stainless steel, titanium and other high-temp alloys.

KCSM15A launches with the **HARVI™ III, HARVI II Long,** and **RSM II** platforms that are proven high performance solid carbide end mills for the aerospace, energy, transportation, and general engineering industries.

- Copper color provides improved tool life observation and reconditioning management
- Protection against abrasive wear and minimized edge build-up
- Increased tool life at high temperatures with minimized chipping
- Improved process stability

KENNAMETAL®
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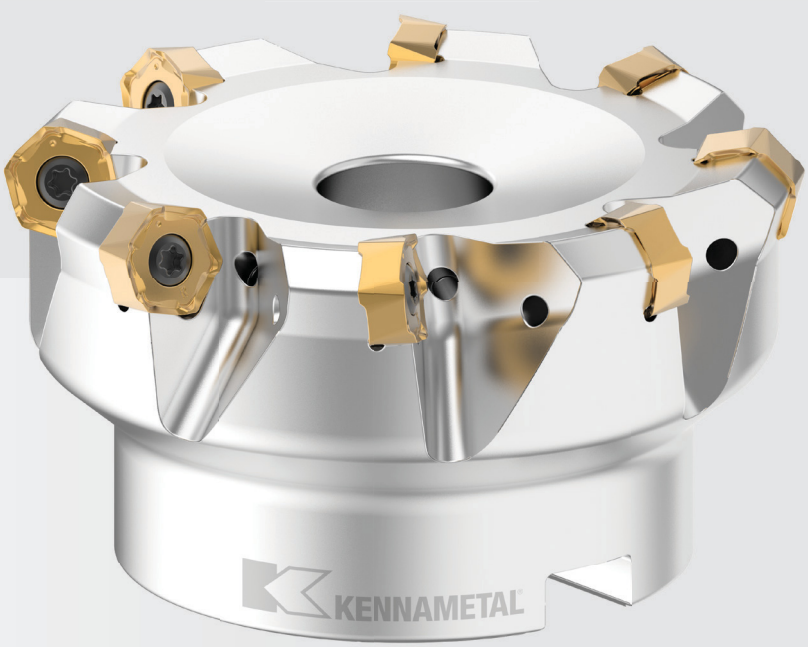
TAKE YOUR MANUFACTURING TO THE NEXT LEVEL

POWERED BY NOVO KENNAMETAL

Dodeka™ Series

Face Milling



Materials

P M K N S H

Applications

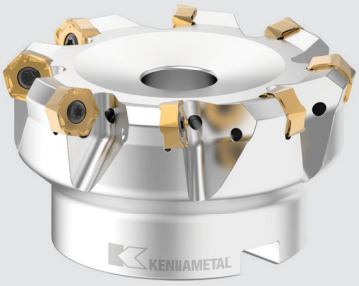
Face Milling

Dodeka Mini, Dodeka, and Dodeka MAX™ face milling 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.

Twelve true cutting edges per insert.

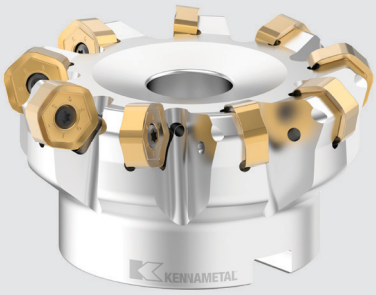
Dodeka™ Mini



Excellent floor finish.

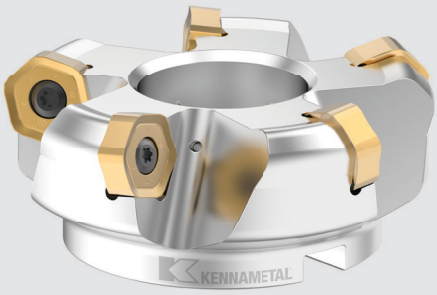
Low cutting forces, soft cutting action.

Dodeka



Best-in-class insert geometry/grade combinations to machine steel, stainless steel, and high-temp alloys.

Dodeka MAX™

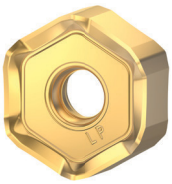


Elevated machining capabilities.

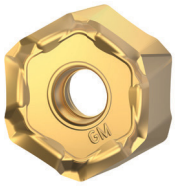
Enhanced chip formation and evacuation.

NEW!

High positive geometries.

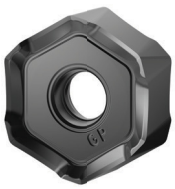


LP Geometry:
Light Machining of Steels



GM Geometry:
Medium Machining of Stainless Steels

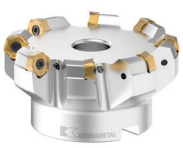
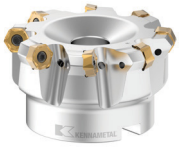
LM Geometry:
Light Machining of Stainless Steels



GP Geometry:
Medium Machining of Steels

Face Milling

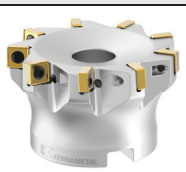
Face Milling • Tool Selection Guide

	Dodeka™ Mini HighFeed 15°	Dodeka Mini 45°	Dodeka Mini 60°	Dodeka HighFeed 15°	Dodeka 45°
					
Page	70	74–75	81	85	89
Main operation					
Workpiece materials					
Primary	P M K N S	P M K N S	P M K N S	P M K N S	P M K N S
Secondary					
Approach angle [KRA]	15°	45°	60°	15°	45°
Cutting diameter [D1]	25–80mm	25–125mm	40–125mm	50–160mm	40–315mm
Cutting diameter [D1 max]	38,2–93,1mm	33,2–133,1mm	46,4–131,3mm	67,9–177,9mm	51,0–326,0mm
Maximum cutting depth [Ap1 max]	1,6mm	3,2mm	4,3mm	2,2mm	4,5mm
Cutting edges per insert	12	3*/12	12	12	12
Insert size IC	12,0mm	12,0mm	12,0mm	16,0mm	16,0mm
Insert corner nose radius	1,0–3,2mm	1,0–3,2mm	1,0–3,2mm	1,2–4,4mm	1,2–4,4mm
Axial adjustable pocket seats (Y/N)	N	N	N	N	N
Internal coolant	Y	Y	Y	Y	Y
Connection style machine side (CSMS)					
Fits regular milling adapters	Y	Y	Y	Y	Y

*True Wiper Insert

Face Milling

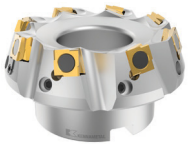
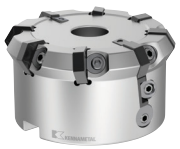
Face Milling • Tool Selection Guide

	Dodeka MAX™ 45°	7745VOD04	KSOM	KSSM8+ IC10	KSSM8+ IC12
					
Page	95	kennametal.com	kennametal.com	kennametal.com	kennametal.com
Main operation					
Workpiece materials					
Primary	P M K S	P M K S	P M K N S	P M K S	P M K S
Secondary					
Approach angle [KRA]	45°	42°	43°	88°	87°
Cutting diameter [D1]	80–315mm	32–160mm	63–160mm	50-100mm	50–160mm
Cutting diameter [D1 max]	97,3–332,3mm	33,0–168,0mm	74,3–170,9mm	50,64-100,64mm	51,15–161,15mm
Maximum cutting depth [Ap1 max]	8,0mm	3,5/8,0mm	5,0/11,7mm	9,0mm	11,8mm
Cutting edges per insert	12	8	8	8	8
Insert size IC	22,0mm	12,7mm	19,0mm	10,0mm	12,7mm
Insert corner nose radius	1,2–3,5mm	0,8mm	1,2mm	0,8–1,2mm	0,8-1,6mm
Axial adjustable pocket seats (Y/N)	N	N	N	N	N
Internal coolant	Y	Y	Y	Y	Y
Connection style machine side (CSMS)					
Fits regular milling adapters	Y	Y	Y	Y	Y

*True Wiper Insert

Face Milling

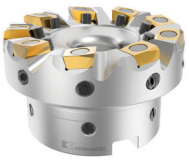
Face Milling • Tool Selection Guide

	Fix-Perfect™ 70° IC12	Fix-Perfect 90° IC12	HexaCut™ 45°	HexaCut 60°	Mill 16 Screw Clamping
					
Page	kennametal.com	kennametal.com	kennametal.com	kennametal.com	kennametal.com
Main operation					
Workpiece materials					
Primary	K P	K P	K	K	K
Secondary					
Approach angle [KRA]	70°	90°	45°	60°	43.5°
Cutting diameter [D1]	50–250mm	50–250mm	80–160mm	80–250mm	50–250mm
Cutting diameter [D1 max]	—	—	92,8–172,8mm	89–259mm	62,7–262mm
Maximum cutting depth [Ap1 max]	5,9/9,5mm	6,0/10,0mm	6,5mm	8,0mm	5,5mm
Cutting edges per insert	1*/4/8	1*/4/8	12	12	16
Insert size IC	11,4mm	11,4mm	16,2mm	16,2mm	20,0mm
Insert corner nose radius	—	—	0,8–3,0mm	0,8–3,0mm	0,8–3,0mm
Axial adjustable pocket seats (Y/N)	Y, N	Y, N	N	Y	N
Internal coolant	N	N	N	N	Y
Connection style machine side (CSMS)					
Fits regular milling adapters	Y	Y	Y	Y	Y

*True Wiper Insert

Face Milling

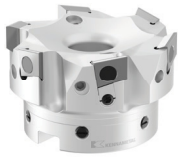
Face Milling • Tool Selection Guide

	Mill 16 Wedge Clamping	Mill 16 Split Case Design	KSSR84	FixPerfect™ Finisher	KCFM™ 45 Fine Finisher
					
Page	kennametal.com	kennametal.com	kennametal.com	kennametal.com	kennametal.com
Main operation					
Workpiece materials					
Primary	K	K	K	K	K
Secondary					
Approach angle [KRA]	43.5°	43.5°	84°	30°	45°
Cutting diameter [D1]	50–250mm	315-500mm	63–200mm	51–239mm	80–250mm
Cutting diameter [D1 max]	63–263mm	327,6–512,6mm	65–202mm	63–250mm	90–260mm
Maximum cutting depth [Ap1 max]	5,5mm	5,5mm	5,0mm	1,0mm	1,0mm
Cutting edges per insert	16	16	1*/8	4	4*/6
Insert size IC	20,0mm	20,0mm	12,7mm	13,0mm	12,7mm
Insert corner nose radius	0,8–3,0mm	0,8–3,0mm	1,2–1,6mm	—	0,8mm
Axial adjustable pocket seats (Y/N)	N	N	Y, N	N	Y
Internal coolant	Y	N	Y	Y	Y
Connection style machine side (CSMS)		KMT Split Case Design			
Fits regular milling adapters	Y	KMT Split Case Design	Y	Y	Y

*True Wiper Insert

Face Milling

Face Milling • Tool Selection Guide

	KBDM	FixPerfect™ AL M Line	FixPerfect AL PM Line	FixPerfect AL HPM Line	FixPerfect AL HSM Line
					
Page	kennametal.com	kennametal.com	kennametal.com	kennametal.com	kennametal.com
Main operation					
Workpiece materials					
Primary	N	N	N	N	N
Secondary					
Approach angle [KRA]	90°	90°	90°	90°	90°
Cutting diameter [D1]	63–250mm	40–160mm	40–250mm	50–200mm	50–80mm
Cutting diameter [D1 max]	—	—	—	—	—
Maximum cutting depth [Ap1 max]	12,7mm	9,5mm	9,5mm	9,5mm	9,5mm
Cutting edges per insert	1	1	1	1	1
Insert size IC	15,88mm	15,0mm	15,0mm	15,0mm	15,0mm
Insert corner nose radius	0,8–2,4mm	0,4–1,5mm	0,4–1,5mm	0,4–1,5mm	0,4–1,5mm
Axial adjustable pocket seats (Y/N)	Y	N	Y/N	Y	Y
Internal coolant	N	Y	Y	Y	Y
Connection style machine side (CSMS)					
Fits regular milling adapters	Y	Y	Y	Y	Y

*True Wiper Insert

Face Milling

Face Milling • Tool Selection Guide

	MEGA45
	
Page	kennametal.com
Main operation	
Workpiece materials	
Primary	P M K S
Secondary	
Approach angle [KRA]	45°
Cutting diameter [D1]	125–315mm
Cutting diameter [D1 max]	160,3–350,3mm
Maximum cutting depth [Ap1 max]	17,2mm
Cutting edges per insert	4
Insert size IC	20,0mm
Insert corner nose radius	1,2mm
Axial adjustable pocket seats (Y/N)	N
Internal coolant	N
Connection style machine side (CSMS)	
Fits regular milling adapters	Y

*True Wiper Insert

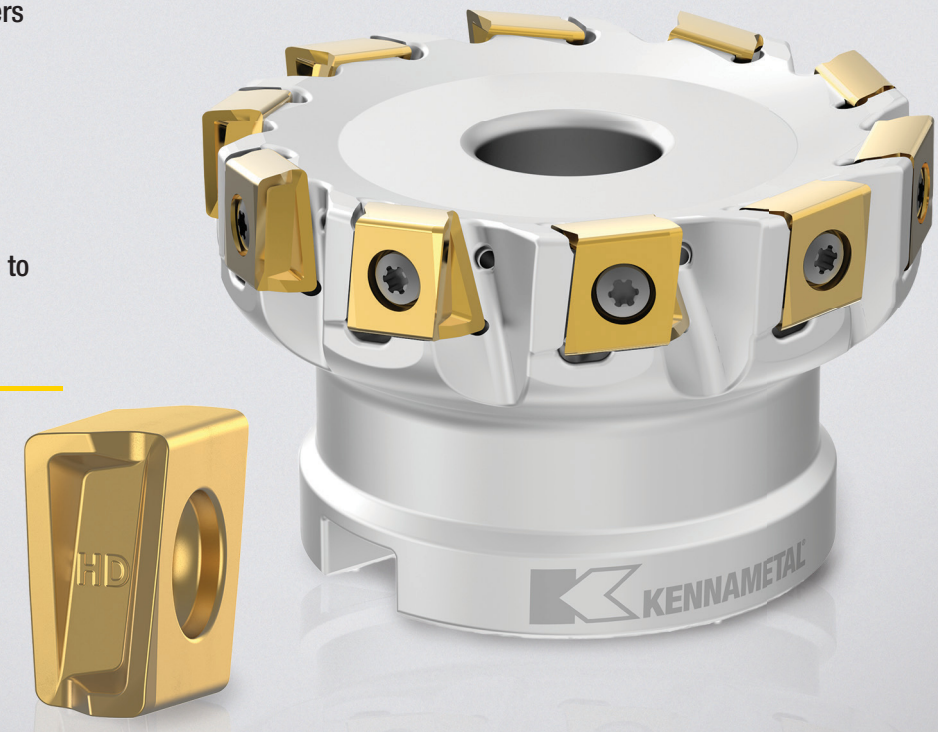
Mill 4™-12KT

Tangential Shoulder Milling

Kennametal's Mill 4-12KT requires up to 15% less horsepower, enabling increased feed rates even on 40 taper machines. Its proprietary insert design features a triangular shaped margin that provides unprecedented stability in steel and cast-iron applications and its minimal axial runout delivers excellent floor finish. With seven grades, seven corner radii and a depth-of-cut range up to .472" (12mm), the Mill 4-12KT can bring new versatility to your shoulder milling applications.

Machinists can expect:

- A proprietary insert design that delivers unprecedented stability in steel and cast-iron applications
- A comprehensive portfolio that offers a wide range of standard inch and metric sizes
- ***NEW!*** HD geometry and fine pitch cutters to further enhance performance



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LET'S TAKE YOUR MANUFACTURING TO THE NEXT LEVEL

Face Milling

Milling Tool Bodies • Catalog Numbering System

Each character in our catalog number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.

End Mills

KSHR	HF	025	D	03	A	20	HN06	L120
Series	Series Features	Cutting Diameter D1	Tool Type	Number of Inserts	Connection Style Machine Side (CSMS)	Shank Diameter	Insert Style and IC	Tool Length
KSHR = Dodeka™	**HF** = High Feed Cutter, 15° Lead Angle **Blank:** 45° Lead Angle	D1 in mm	**D** = End Mill		**A** = Cylindrical Shank **B** = Weldon® Shank **M** = Metric Thread **R50** = Right Hand, Projection Length 50	D in mm		

Shell Mills

KSHR	HF	063	A	06	R	S	15	HN06
Series	Series Features	Cutting Diameter D1	Connection Style Machine Side (CSMS)	Number of Inserts	Hand of Tool	Tool Type	Lead Angle	Insert Style and IC
KSHR = Dodeka	**HF** = High Feed Cutter, 15° Lead Angle **Blank:** 45° and 60° Lead Angle	D1 in mm	**A** = Shell Mill, Form A; Tenon drive, socket head cap screw **B** = Shell Mill Form B; Tenon drive, cutter retaining screw **C** = Shell Mill Form C; Mounted on centering arbor		**R** = Right Hand	**S** = Shell Mill		

Face Milling

Milling Inserts • Catalog Numbering System

Each character in our catalog number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.

HNGJ0604ANENLD

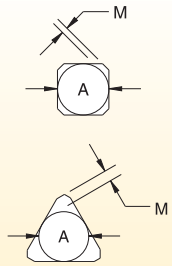
H — Insert Shape

A	Parallelogram	85°
C	Rhomboid	80°
E		75°
H	Hexagon	120°
L	Rectangular	90°
O	Octagon	135°
R	Round	—
S	Square	90°
T	Triangular	60°
X	Kennametal Standard Form	

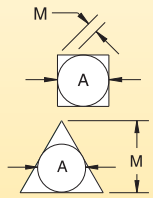
N — Insert Clearance Angle

A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°

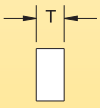
G — Tolerance Class



Indexable inserts with facets/wipers



Indexable inserts with corner radii



Insert thickness

tolerance class	tolerance on "A"	tolerance on "M"	tolerance on "T"	tolerance class	tolerance on "A"	tolerance on "M"	tolerance on "T"
A	0,025	0,005	0,025	J	0,05–0,13*	0,005	0,025
B	0,025	0,005	0,13	K	0,05–0,13*	0,013	0,025
C	0,025	0,013	0,025	L	0,05–0,13*	0,025	0,025
D	0,025	0,013	0,13	M	0,05–0,10*	0,05–0,25*	0,13
E	0,025	0,025	0,025	N	0,05–0,10*	0,05–0,25*	0,025
F	0,013	0,005	0,025	P**	0,038	0,038	0,038
G	0,025	0,025	0,13	U	0,08–0,25*	0,13–0,30*	0,13
H	0,013	0,013	0,025	—	—	—	—

*See table below for tolerances according to insert size and class.
**Kennametal standard only.

A	tolerances on "A"		tolerances on "M"	
	classes J, K, L, M, N	class U	classes M & N	class U
4,76–10,00	0,051	0,076	0,076	0,127
11,11–14,29	0,076	0,127	0,127	0,203
15,00–20,64	0,102	0,178	0,152	0,279
22,00–31,16	0,127	0,254	0,178	0,381
31,75–35,00	0,152	0,254	0,203	0,381

J — Geometry and Clamping Type

symbol	hole	shape of hole	chipbreaker	shape of insert's section
N	without		without	
R			single sided	
F			double sided	
A	with	cylindrical hole	without	
M			single sided	
G			double sided	
W		partly cylindrical hole, 40–60° countersink	without	
T			single sided	
Q		partly cylindrical hole, 40–60° double countersink	without	
U			double sided	
B		partly cylindrical hole, 70–90° countersink	without	
H			single sided	
C		partly cylindrical hole, 70–90° double countersink	without	
J			double sided	
X	special design			

06 — Size

A	"L" for shapes						
	C	T	R	O	C	H	E
6,00	–	–	06	–	–	–	–
6,35	06	11	06	02	06	03	06
8,00	–	–	08	–	–	–	–
9,52	09	16	09	04	09	05	09
10,00	–	–	10	–	–	–	–
12,00	–	–	12	–	–	–	–
12,70	12	22	12	05	12	07	13
15,88	15	27	15	06	16	09	16
16,00	–	–	16	–	–	–	–
19,05	19	33	19	07	19	11	19
20,00	–	–	20	–	–	–	–
25,00	–	–	25	–	–	–	–
25,40	25	44	25	10	25	14	26

For shapes A, L, and X, see position #1; use length of leading cutting edge.

Face Milling

Milling Inserts • Catalog Numbering System

(continued)

HNGJ06**04ANENLD**

04 — Thickness

insert thickness

T	
2,38	02
3,18	03
3,97	T3
4,76	04
5,56	05
6,35	06
7,94	07

AN — Corner Configuration

radius		leading or major cutting edge			
				wiper edge clearance P	
M0	round insert	If letter is replaced by number(s), refer to table for radius "r".		A	3°
01	0,1mm			B	5°
02	0,2mm			C	7°
04	0,4mm			D	15°
05	0,5mm			E	20°
08	0,8mm			F	25°
10	1,0mm			G	30°
12	1,2mm	lead angle K		N	0°
15	1,5mm	A	45°	P	11°
16	1,6mm	D	60°		
24	2,4mm	E	75°		
32	3,2mm	P	90°		

E — Cutting Edge Form

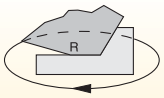
F Sharp

E Honed

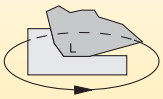
T T-land

S Honed T-land

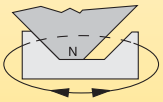
N — Insert Hand



direction of cutter rotation



direction of cutter rotation



direction of cutter rotation

L — Edge Prep Size

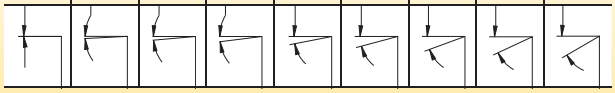
L = Light — sharp or lightly honed and/or T-land

G = General — medium hone and/or T-land

H = Heavy — large hone and/or T-land

D — Rake Face Angle

N	A	B	C	P	D	E	F	G
0° or less	3°	5°	7°	11°	15°	20°	25°	30°



Nominal or average angle of rake on insert face at leading cutting edge before edge prep and before installation.

Added Info

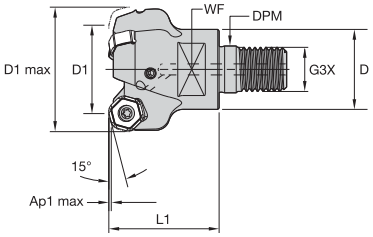
J = Polished rake face

P = Partial T-land

W = Wiper/radiused facet

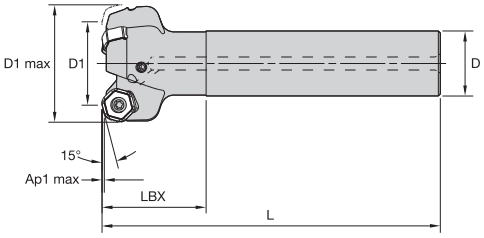
Face Milling

Dodeka™ Mini High-Feed 15° • End Mill • Screw-On • Metric



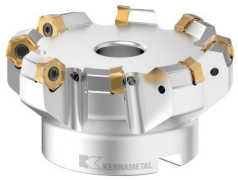
order number	catalogue number	D1	D1 max	D	DPM	G3X	L1	WF	Ap1 max	Z	kg	max RPM
4153687	KSHRHF025D03M16HN06	25	38,2	29	17,0	M16	32,0	22	1,6	3	0,16	20000
4153689	KSHRHF032D04M16HN06	32	45,2	29	17,0	M16	40,0	22	1,6	4	0,25	17600

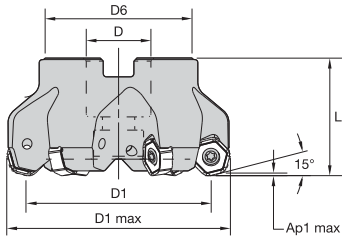
Dodeka Mini High-Feed 15° • End Mill • Cylindrical Shank • Metric



order number	catalogue number	D1	D1 max	D	L	LBX	Ap1 max	Z	kg	max RPM
4153703	KSHRHF025D03A20HN06L120	25	38,2	20	120	32	1,6	3	0,31	20000
4153704	KSHRHF032D03A25HN06L130	32	45,2	25	130	40	1,6	3	0,52	17600

Dodeka Mini High-Feed 15° • Shell Mill • Metric

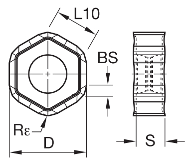




order number	catalogue number	D1	D1 max	D	D6	L	Ap1 max	Z	kg	max RPM
4153706	KSHRHF040A05RS15HN06	40	53,2	22	38	40	1,6	5	0,29	15800
4153707	KSHRHF050A05RS15HN06	50	63,1	22	38	40	1,6	5	0,39	12700
4153708	KSHRHF063A06RS15HN06	63	76,1	22	50	40	1,6	6	0,67	10100
4153709	KSHRHF080A08RS15HN06	80	93,1	27	60	50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

117–119	120	67–69	124

Dodeka™ Mini • Carbide Insert • HNGJ-LDJ • Light Machining of Aluminum

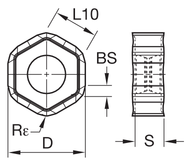


● first choice
○ alternate choice

	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
P					○	●		●	●	○
M					●	●		●	○	●
K			●	●	○		●	○		
N	●	●	○							
S					●	●				●
H										

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
HNGJ0604ANFNLDJ	12	1,54	6,44	1,0	4,48	0,02	12	●	●	–	–	–	–	–	–	–	–

Dodeka Mini • Carbide Insert • HNGJ-LD • Light Machining

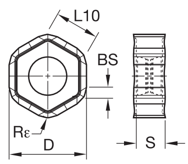


● first choice
○ alternate choice

	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
P					○	●		●	●	○
M					●	●		●	○	●
K			●	●	○		●	○		
N	●	●	○							
S					●	●				●
H										

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
HNGJ0604ANENLD	12	1,52	6,44	1,0	4,48	0,04	12	–	–	●	●	●	●	●	●	●	●
HNGJ060432ANENLD	12	—	6,43	3,2	4,48	0,05	12	–	–	–	–	–	●	–	–	–	–

Dodeka Mini • Carbide Insert • HNPJ-GD • Medium Machining



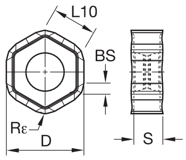
● first choice
○ alternate choice

	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
P					○	●		●	●	○
M					●	●		●	○	●
K			●	●	○		●	○		
N	●	●	○							
S					●	●				●
H										

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
HNPJ0604ANSNGD	12	1,45	6,44	1,0	4,45	0,08	12	–	–	–	●	●	●	●	●	●	●

117–119 | 120 | 67–69 | NOVO 124

Dodeka™ Mini • Carbide Insert • HNGJ-HD • Heavy Machining

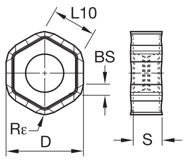


● first choice
○ alternate choice

	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
P					○	●		●	●	○
M					●	●		●	○	●
K			●	●	○		●	○		
N	●	●	○							
S					●	●				●
H										

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
HNGJ0604ANSNHD	12	1,45	6,44	1,0	4,40	0,14	12	–	–	–	–	●	–	●	●	●	●

Dodeka Mini • Carbide Insert • HNPJ-HD • Heavy Machining



● first choice
○ alternate choice

	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
P					○	●		●	●	○
M					●	●		●	○	●
K			●	●	○		●	○		
N	●	●	○							
S					●	●				●
H										

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
HNPJ0604ANSNHD	12	1,45	6,44	1,0	4,40	0,14	12	–	–	–	●	●	●	●	●	●	●
HNPJ060432ANSNHD	12	–	6,43	3,2	4,41	0,10	12	–	–	–	–	●	●	●	●	●	●

117–119 | 120 | 67–69 | NOVO 124

Face Milling

Dodeka™ Mini High Feed 15 • Insert Selection Guide

Material Group	Light Machining		Medium Machining		Heavy Machining	
P1–P2	.E..LD	KC522M	**.S..GD**	**KC522M**	.S..HD	KC725M
P3–P4	.E..LD	KCPM40	**.S..GD**	**KCPK30**	.S..HD	KCPK30
P5–P6	.E..LD	KCPM40	**.S..GD**	**KCPM40**	.S..HD	KCPM40
M1–M2	.E..LD	KC522M	**.S..GD**	**KCSM40**	.S..HD	KCSM40
M3	.E..LD	KCSM40	**.S..GD**	**KCSM40**	.S..HD	KCPM40
K1–K2	.E..LD	KCK20B	**.S..GD**	**KCK15**	.S..HD	KCK15
K3	.E..LD	KCKP10	**.S..GD**	**KCK20B**	.S..HD	KCPK30
N1–N2	.F..LDJ	KC410M	**.F..LDJ**	**KC410M**	.E..LD	KCKP10
N3	.F..LDJ	KC410M	**.F..LDJ**	**KC410M**	.E..LD	KCKP10
S1–S2	.E..LD	KC725M	**.S..GD**	**KC725M**	.S..HD	KC725M
S3	.E..LD	KCSM40	**.S..GD**	**KCSM40**	.S..HD	KCSM40
S4	.E..LD	KCSM40	**.S..GD**	**KCSM40**	.S..HD	KCSM40
H1	.E..LD	KCKP10	**–**	**–**	–	–

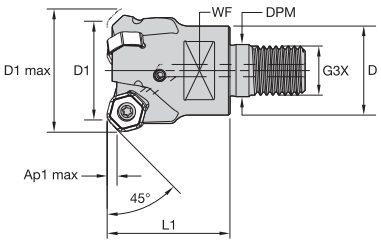
Dodeka Mini High-Feed 15° • Feed Rates [mm]

Insert Geometry	Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)					
	30%			40–100%		
	L	M	H	L	M	H
.F..LDJ	0,21	**0,59**	1,01	0,20	**0,54**	0,93
.E..LD	0,24	**0,76**	1,27	0,22	**0,70**	1,16
.S..GD	0,43	**1,01**	1,52	0,39	**0,93**	1,39
.S..HD	0,43	**1,07**	1,72	0,39	**0,98**	1,57

L = Light Machining; M = Medium Machining; H = Heavy Machining.

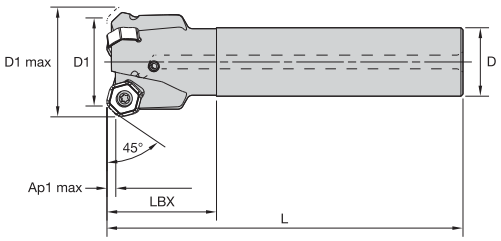
Face Milling

Dodeka™ Mini 45° • End Mill • Screw-On • Metric



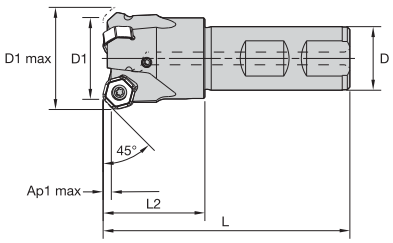
order number	catalogue number	D1	D1 max	D	DPM	G3X	L1	WF	Ap1 max	Z	kg	max RPM
4125882	KSHR025D03M16HN06	25	33,2	29	17,0	M16	32,0	22	3,2	3	0,13	20000
4126343	KSHR032D03M16HN06	32	40,2	29	17,0	M16	40,0	22	3,2	3	0,21	17600
4126344	KSHR032D04M16HN06	32	40,2	29	17,0	M16	40,0	22	3,2	4	0,21	17600

Dodeka Mini 45° • End Mill • Cylindrical Shank • Metric



order number	catalogue number	D1	D1 max	D	L	LBX	Ap1 max	Z	kg	max RPM
4126351	KSHR025D02A20HN06L120	25	33,2	20	120	32	3,2	2	0,28	20000
4126352	KSHR025D03A20HN06L120	25	33,2	20	120	32	3,2	3	0,28	20000
4126386	KSHR025D03A25HN06L200	25	33,2	25	200	32	3,2	3	0,71	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

Dodeka Mini 45° • End Mill • Weldon® Shank • Metric

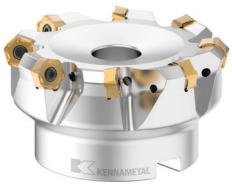


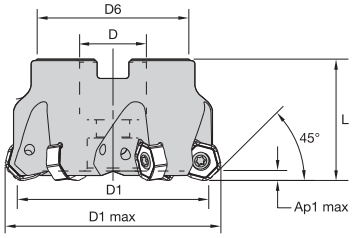
order number	catalogue number	D1	D1 max	D	L	L2	Ap1 max	Z	kg	max RPM
4126348	KSHR025D03B20HN06	25	33,2	20	82	32	3,2	3	0,21	20000
4126349	KSHR032D03B25HN06	32	40,2	25	97	40	3,2	3	0,40	17600
4126350	KSHR032D04B25HN06	32	40,2	25	97	40	3,2	4	0,41	17600

117–119	120	67–69	124

Face Milling

Dodeka™ Mini 45° • Shell Mill • Metric

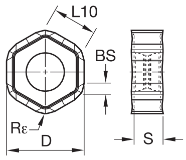




order number	catalogue number	D1	D1 max	D	D6	L	Ap1 max	Z	kg	max RPM
4126387	KSHR040A04RS45HN06	40	48,2	22	38	40	3,2	4	0,25	15800
4124313	KSHR040A05RS45HN06	40	48,2	22	38	40	3,2	5	0,25	15800
4126388	KSHR050A04RS45HN06	50	58,2	22	38	40	3,2	4	0,36	12700
4122886	KSHR050A05RS45HN06	50	58,2	22	38	40	3,2	5	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
4126407	KSHR125B08RS45HN06	125	133,1	40	90	63	3,2	8	2,87	5050
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

117–119	120	67–69	124

Dodeka™ Mini • Carbide Insert • HNGJ-LDJ • Light Machining of Aluminum

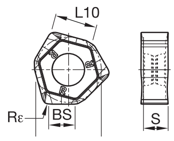


● first choice
○ alternate choice

		K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
P						○	●		●	●	○
M						●	●		●	○	●
K				●	●	○		●	○		
N		●	●	○							
S						●	●				●
H											

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
HNGJ0604ANFNLDJ	12	1,54	6,44	1,0	4,48	0,02	12	●	●	–	–	–	–	–	–	–	–

Dodeka Mini 45° • Wiper Carbide Insert • XNGJ-LDJ3W • Fine Finishing of Aluminum

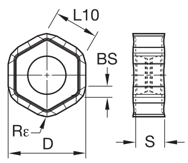


● first choice
○ alternate choice

		K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
P						○	●		●	●	○
M						●	●		●	○	●
K				●	●	○		●	○		
N		●	●	○							
S						●	●				●
H											

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
XNGJ0604ANFNLDJ3W	12	4,80	7,20	1,6	4,51	0,02	6	–	●	–	–	–	–	–	–	–	–

Dodeka Mini • Carbide Insert • HNGJ-LD • Light Machining



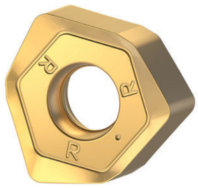
● first choice
○ alternate choice

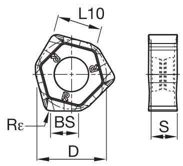
		K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
P						○	●		●	●	○
M						●	●		●	○	●
K				●	●	○		●	○		
N		●	●	○							
S						●	●				●
H											

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
HNGJ0604ANENLD	12	1,52	6,44	1,0	4,48	0,04	12	–	–	●	●	●	●	●	●	●	●
HNGJ060432ANENLD	12	—	6,43	3,2	4,48	0,05	12	–	–	–	–	–	●	–	–	–	–

		SNC	NOVO
117–119	120	67–69	124

Dodeka™ Mini 45° • Wiper Carbide Insert • XNGJ-LD3W • Fine Finishing of Multiple Materials



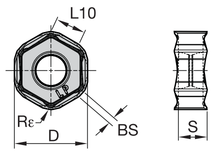


● first choice
○ alternate choice

		K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
P						○	●		●	●	○
M						●	●		●	○	●
K				●	●	○		●	○		
N		●	●	○							
S						●	●				●
H											

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
XNGJ0604ANENLD3W	12	4,80	7,20	1,6	4,51	0,05	12	–	–	●	–	●	–	–	–	●	●

Dodeka Mini 45° • Carbide Insert • HNPJ-LP • Light Machining of Steels

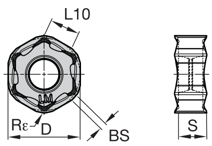


● first choice
○ alternate choice

		KC522M	KCK20B	KCPK30	KCPM40
P		○	○	●	●
M		●		●	○
K		○	●	○	
N					
S		●			
H					

ISO catalogue number	D	S	L10	BS	Rε	hm	CE	KC522M	KCK20B	KCPK30	KCPM40
HNPJ0604ANERLP	12,00	4,72	6,41	1,33	1,0	0,05	12	●	●	●	●

Dodeka Mini 45° • Carbide Insert • HNPJ-LM • Light Machining of Stainless Steels



● first choice
○ alternate choice

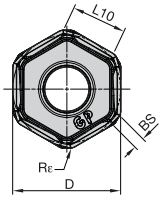
		KC522M	KCSM40
P		○	○
M		●	●
K		○	
N			
S		●	●
H			

ISO catalogue number	D	S	L10	BS	Rε	hm	CE	KC522M	KCSM40
HNPJ0604ANERLM	12,00	4,71	6,41	1,33	1,0	0,05	12	●	●

			NOVO
117–119	120	67–69	124

Face Milling

Dodeka™ Mini 45° • Carbide Insert • HNGJ-GP • Medium Machining of Steels

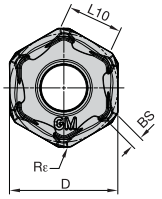


● first choice
○ alternate choice

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

ISO catalogue number	D	S	L10	BS	Rε	hm	CE	KC522M	KCPM40	KTPK20
HNGJ0604ANERGP	12,00	4,70	4,10	1,10	1,0	0,06	12	●	●	●

Dodeka Mini 45° • Carbide Insert • HNGJ-GM • Medium Machining of Stainless Steels

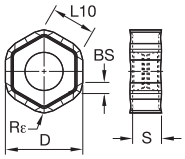


● first choice
○ alternate choice

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

ISO catalogue number	D	S	L10	BS	Rε	hm	CE	KC522M	KCSM40
HNGJ0604ANERGM	12,00	4,70	4,10	1,10	1,0	0,06	12	●	●

Dodeka Mini • Carbide Insert • HNPJ-GD • Medium Machining



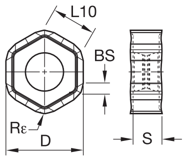
● first choice
○ alternate choice

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

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
HNPJ0604ANSNGD	12	1,45	6,44	1,0	4,45	0,08	12	–	–	–	●	●	●	●	●	●	●

117–119	120	67–69	124

Dodeka™ Mini • Carbide Insert • HNGJ-HD • Heavy Machining

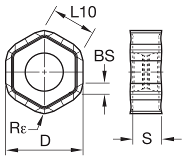


● first choice
○ alternate choice

	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
P					○	●		●	●	○
M					●	●		●	○	●
K			●	●	○		●	○		
N	●	●	○							
S					●	●				●
H										

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
HNGJ0604ANSNHD	12	1,45	6,44	1,0	4,40	0,14	12	–	–	–	–	●	–	●	●	●	●

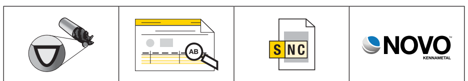
Dodeka Mini • Carbide Insert • HNPJ-HD • Heavy Machining



● first choice
○ alternate choice

	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
P					○	●		●	●	○
M					●	●		●	○	●
K			●	●	○		●	○		
N	●	●	○							
S					●	●				●
H										

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
HNPJ0604ANSNHD	12	1,45	6,44	1,0	4,40	0,14	12	–	–	–	●	●	●	●	●	●	●
HNPJ060432ANSNHD	12	–	6,43	3,2	4,41	0,10	12	–	–	–	–	●	●	●	●	●	●



117–119 | 120 | 67–69 | 124

Face Milling

Dodeka™ Mini 45 • Insert Selection Guide

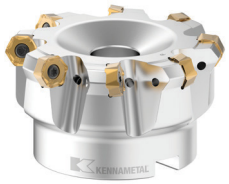
Material Group	Light Machining				Medium Machining				Heavy Machining	
P1–P2	.E..LD	KC522M	.E..LP	KC522M	**.E..GP**	**KC522M**	**.S..GD**	**KC522M**	.S..HD	KC725M
P3–P4	.E..LD	KCPM40	.E..LP	KCPM40	**.E..GP**	**KCPM40**	**.S..GD**	**KCPK30**	.S..HD	KCPK30
P5–P6	.E..LD	KCPM40	.E..LP	KCPM40	**.E..GP**	**KCPM40**	**.S..GD**	**KCPM40**	.S..HD	KCPM40
M1–M2	.E..LD	KC522M	.E..LM	KC522M	**.E..GM**	**KCSM40**	**.S..GD**	**KCSM40**	.S..HD	KCSM40
M3	.E..LD	KCSM40	.E..LM	KCSM40	**.E..GM**	**KCSM40**	**.S..GD**	**KCSM40**	.S..HD	KCPM40
K1–K2	.E..LD	KCK20B	.E..LP	KCK20B	**.E..LP**	**KCK20B**	**.S..GD**	**KCK15**	.S..HD	KCK15
K3	.E..LD	KCKP10	.E..LP	KCPK30	**.E..LP**	**KCPK30**	**.S..GD**	**KCK20B**	.S..HD	KCPK30
N1–N2	.F..LDJ	KC410M	.F..LDJ	KC410M	**.F..LDJ**	**KC410M**	**.F..LDJ**	**KC410M**	.E..LD	KCKP10
N3	.F..LDJ	KC410M	.F..LDJ	KC410M	**.F..LDJ**	**KC410M**	**.F..LDJ**	**KC410M**	.E..LD	KCKP10
S1–S2	.E..LD	KC725M	.E..LM	KCSM40	**.E..GM**	**KCSM40**	**.S..GD**	**KC725M**	.S..HD	KC725M
S3	.E..LD	KCSM40	.E..LM	KCSM40	**.E..GM**	**KCSM40**	**.S..GD**	**KCSM40**	.S..HD	KCSM40
S4	.E..LD	KCSM40	.E..LM	KCSM40	**.E..GM**	**KCSM40**	**.S..GD**	**KCSM40**	.S..HD	KCSM40
H1	.E..LD	KCKP10	–	–	**.E..GP**	**KC522M**	**–**	**–**	–	–

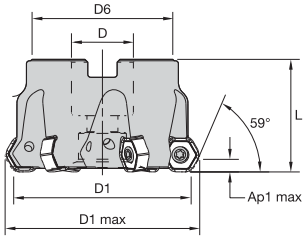
Dodeka Mini 45° • Feed Rates [mm]

	Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)					
	30%			40–100%		
Insert Geometry	L	M	H	L	M	H
.F..LDJ	0,08	**0,22**	0,37	0,07	**0,20**	0,34
.E..LD	0,09	**0,28**	0,46	0,08	**0,25**	0,42
.E..LM	0,08	**0,23**	0,38	0,07	**0,21**	0,35
.E..LP	0,08	**0,28**	0,43	0,07	**0,25**	0,40
.E..GM	0,08	**0,23**	0,38	0,07	**0,21**	0,35
.E..GP	0,08	**0,28**	0,44	0,07	**0,25**	0,40
.S..GD	0,16	**0,37**	0,56	0,14	**0,34**	0,51
.S..HD	0,16	**0,39**	0,63	0,14	**0,36**	0,57
L = Light Machining; M = Medium Machining; H = Heavy Machining.						

Face Milling

Dodeka™ Mini 60° • Shell Mill • Heavy Machining • Metric

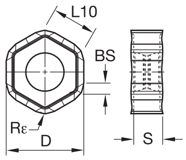




order number	catalogue number	D1	D1 max	D	D6	L	Ap1 max	Z	kg	max RPM
4147022	**KSHR040A04RS60HN06**	40	46,4	22	38	40	4,3	4	0,21	15800
4147713	**KSHR040A05RS60HN06**	40	46,4	22	38	40	4,3	5	0,21	15800
4147714	**KSHR050A04RS60HN06**	50	56,4	22	38	40	4,3	4	0,32	12700
4147715	**KSHR050A05RS60HN06**	50	56,4	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
4147721	**KSHR100B09RS60HN06**	100	106,3	32	80	50	4,3	9	1,78	6300
4147722	**KSHR125B08RS60HN06**	125	131,3	40	90	63	4,3	8	2,92	5050
4147723	**KSHR125B12RS60HN06**	125	131,3	40	90	63	4,3	12	2,96	5050

117–119	120	67–69	124

Dodeka™ Mini • Carbide Insert • HNGJ-LDJ • Light Machining of Aluminum

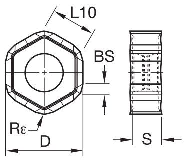


● first choice
○ alternate choice

		K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
P						○	●		●	●	○
M						●	●		●	○	●
K				●	●	○		●	○		
N		●	●	○							
S						●	●				●
H											

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
HNGJ0604ANFNLDJ	12	1,54	6,44	1,0	4,48	0,02	12	●	●	–	–	–	–	–	–	–	–

Dodeka Mini • Carbide Insert • HNGJ-LD • Light Machining

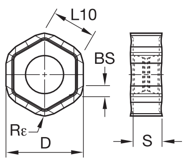


● first choice
○ alternate choice

		K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
P						○	●		●	●	○
M						●	●		●	○	●
K				●	●	○		●	○		
N		●	●	○							
S						●	●				●
H											

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
HNGJ0604ANENLD	12	1,52	6,44	1,0	4,48	0,04	12	–	–	●	●	●	●	●	●	●	●
HNGJ060432ANENLD	12	–	6,43	3,2	4,48	0,05	12	–	–	–	–	–	●	–	–	–	–

Dodeka Mini • Carbide Insert • HNPJ-GD • Medium Machining



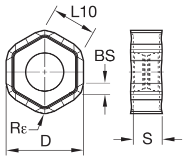
● first choice
○ alternate choice

		K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
P						○	●		●	●	○
M						●	●		●	○	●
K				●	●	○		●	○		
N		●	●	○							
S						●	●				●
H											

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
HNPJ0604ANSNGD	12	1,45	6,44	1,0	4,45	0,08	12	–	–	–	●	●	●	●	●	●	●

117–119	120	67–69	124

Dodeka™ Mini • Carbide Insert • HNGJ-HD • Heavy Machining

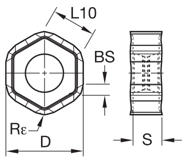


● first choice
○ alternate choice

		K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
P						○	●		●	●	○
M						●	●		●	○	●
K				●	●	○		●	○		
N		●	●	○							
S						●	●				●
H											

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
HNGJ0604ANSNHD	12	1,45	6,44	1,0	4,40	0,14	12	–	–	–	–	●	–	●	●	●	●

Dodeka Mini • Carbide Insert • HNPJ-HD • Heavy Machining



● first choice
○ alternate choice

		K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
P						○	●		●	●	○
M						●	●		●	○	●
K				●	●	○		●	○		
N		●	●	○							
S						●	●				●
H											

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	K313	KC410M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
HNPJ0604ANSNHD	12	1,45	6,44	1,0	4,40	0,14	12	–	–	–	●	●	●	●	●	●	●
HNPJ060432ANSNHD	12	—	6,43	3,2	4,41	0,10	12	–	–	–	–	●	●	●	●	●	●

			NOVO
117–119	120	67–69	124

Face Milling

Dodeka™ Mini 60° • Insert Selection Guide

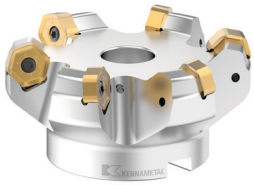
Material Group	Light Machining		Medium Machining		Heavy Machining	
P1–P2	.E..LD	KC522M	**.S..GD**	**KC522M**	.S..HD	KC725M
P3–P4	.E..LD	KCPM40	**.S..GD**	**KCPK30**	.S..HD	KCPK30
P5–P6	.E..LD	KCPM40	**.S..GD**	**KCPM40**	.S..HD	KCPM40
M1–M2	.E..LD	KC522M	**.S..GD**	**KCSM40**	.S..HD	KCSM40
M3	.E..LD	KCSM40	**.S..GD**	**KCSM40**	.S..HD	KCPM40
K1–K2	.E..LD	KCK20B	**.S..GD**	**KCK15**	.S..HD	KCK15
K3	.E..LD	KCKP10	**.S..GD**	**KCK20B**	.S..HD	KCPK30
N1–N2	.F..LDJ	KC410M	**.F..LDJ**	**KC410M**	.E..LD	KCKP10
N3	.F..LDJ	KC410M	**.F..LDJ**	**KC410M**	.E..LD	KCKP10
S1–S2	.E..LD	KC725M	**.S..GD**	**KC725M**	.S..HD	KC725M
S3	.E..LD	KCSM40	**.S..GD**	**KCSM40**	.S..HD	KCSM40
S4	.E..LD	KCSM40	**.S..GD**	**KCSM40**	.S..HD	KCSM40
H1	.E..LD	KCKP10	**–**	**–**	–	–

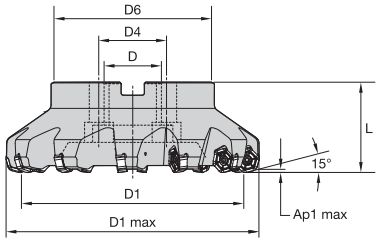
Dodeka Mini 60° • Feed Rates [mm]

	Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)					
	30%			40–100%		
Insert Geometry	L	M	H	L	M	H
.F..LDJ	0,06	**0,18**	0,30	0,06	**0,16**	0,28
.E..LD	0,07	**0,23**	0,38	0,07	**0,21**	0,35
.S..GD	0,13	**0,30**	0,45	0,12	**0,28**	0,42
.S..HD	0,13	**0,32**	0,51	0,12	**0,29**	0,47
L = Light Machining; M = Medium Machining; H = Heavy Machining.						

Face Milling

Dodeka™ High-Feed 15° • Shell Mill • Metric

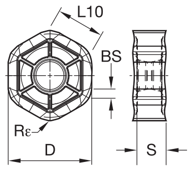




order number	catalogue number	D1	D1 max	D	D4	D6	L	Ap1 max	Z	kg	max RPM
4042332	KSHRHF50A04RS15HN09	50	67,9	22	–	38	40	2,2	4	0,41	11400
4042533	KSHRHF63A05RS15HN09	63	80,9	22	–	50	40	2,2	5	0,65	8950
4042534	KSHRHF80A06RS15HN09	80	97,9	27	–	60	50	2,2	6	1,24	7300
4042535	KSHRHF100B08RS15HN09	100	117,9	32	–	80	50	2,2	8	1,89	5900
4042536	KSHRHF125B09RS15HN09	125	142,9	40	–	90	63	2,2	9	3,23	4800
4042537	KSHRHF160C12RS15HN09	160	177,9	40	67	110	63	2,2	12	5,14	3900

117–119	120	67–69	124

Dodeka™ • Carbide Insert • HNGJ-LDJ • Light Machining of Aluminum

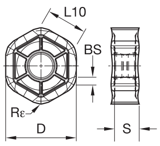


● first choice
○ alternate choice

		KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
P				○	●		●	●	○	
M				●	●		●	○	●	
K			●	○		●	○			●
N		●								
S				●	●				●	
H										

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
HNGJ0905ANFNLDJ	16	1,81	8,58	1,2	5,56	0,02	12	●	–	–	–	–	–	–	–	–

Dodeka • Carbide Insert • HNGJ-LD • Light Machining

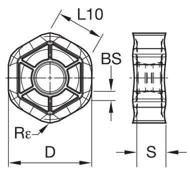


● first choice
○ alternate choice

		KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
P				○	●		●	●	○	
M				●	●		●	○	●	
K			●	○		●	○			●
N		●								
S				●	●				●	
H										

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
HNGJ0905ANENLD	16	1,76	8,58	1,2	5,56	0,05	12	–	●	●	●	●	●	–	●	–

Dodeka • Carbide Insert • HNPJ-GD • Medium Machining



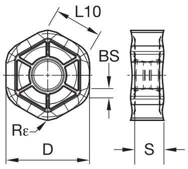
● first choice
○ alternate choice

		KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
P				○	●		●	●	○	
M				●	●		●	○	●	
K			●	○		●	○			●
N		●								
S				●	●				●	
H										

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
HNPJ0905ANSNGD	16	1,80	8,58	1,2	5,56	0,10	12	–	●	●	●	●	●	●	–	–

117–119 | 120 | 67–69 | 124

Dodeka™ • Carbide Insert • HNGJ-GD • Medium Machining

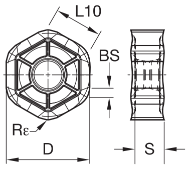


● first choice
○ alternate choice

		KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
P				○	●		●	●	○	
M				●	●		●	○	●	
K			●	○		●	○			●
N		●								
S				●	●				●	
H										

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
HNGJ0905ANSNGD	16	1,71	8,59	1,2	5,56	0,10	12	–	–	–	●	●	●	●	●	–

Dodeka • Carbide Insert • HNGJ-HD • Heavy Machining

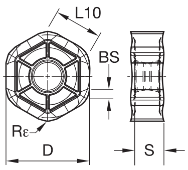


● first choice
○ alternate choice

		KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
P				○	●		●	●	○	
M				●	●		●	○	●	
K			●	○		●	○			●
N		●								
S				●	●				●	
H										

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
HNGJ0905ANSNHD	16	1,65	8,59	1,2	5,46	0,17	12	–	●	–	●	●	●	●	●	–
HNGJ090543ANSNHD	16	—	8,50	4,4	5,44	0,20	12	–	●	–	●	●	●	●	●	–

Dodeka • Carbide Insert • HNPJ-HD • Heavy Machining



● first choice
○ alternate choice

		KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
P				○	●		●	●	○	
M				●	●		●	○	●	
K			●	○		●	○			●
N		●								
S				●	●				●	
H										

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
HNPJ0905ANSNHD	16	1,65	8,59	1,2	5,46	0,18	12	–	●	●	●	●	●	●	●	–
HNPJ090543ANSNHD	16	—	8,50	4,4	5,44	0,13	12	–	–	●	●	●	●	●	●	–

			NOVO
117–119	120	67–69	124

Face Milling

Dodeka™ 15° High-Feed • Insert Selection Guide

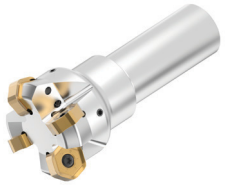
Material Group	Light Machining		Medium Machining		Heavy Machining	
P1–P2	.E..LD	KC522M	**.S..GD**	**KC522M**	.S..HD	KC725M
P3–P4	.E..LD	KCPK30	**.S..GD**	**KCPK30**	.S..HD	KCPK30
P5–P6	.E..LD	KC725M	**.S..GD**	**KCPM40**	.S..HD	KCPM40
M1–M2	.E..LD	KC522M	**.S..GD**	**KCSM40**	.S..HD	KCSM40
M3	.E..LD	KCSM40	**.S..GD**	**KCSM40**	.S..HD	KCPM40
K1–K2	.E..LD	KCK20B	**.S..GD**	**KCK15**	.S..HD	KCK15
K3	.E..LD	KCK20B	**.S..GD**	**KCK20B**	.S..HD	KCPK30
N1–N2	.F..LDJ	KC410M	**.F..LDJ**	**KC410M**	.F..LDJ	KC410M
N3	.F..LDJ	KC410M	**.F..LDJ**	**KC410M**	.F..LDJ	KC410M
S1–S2	.E..LD	KC725M	**.S..GD**	**KC725M**	.S..HD	KC725M
S3	.E..LD	KCSM40	**.S..GD**	**KCSM40**	.S..HD	KCSM40
S4	.E..LD	KCSM40	**.S..GD**	**KCSM40**	.S..HD	KCSM40

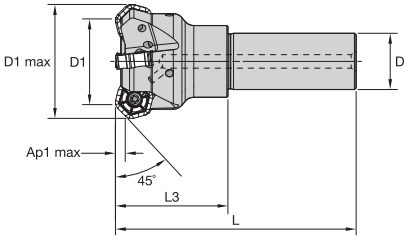
Dodeka 15° High-Feed • Feed Rates [mm]

	Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)					
	30%			40–100%		
Insert Geometry	L	M	H	L	M	H
.F..LDJ	0,21	**0,59**	1,01	0,20	**0,54**	0,93
.E..LD	0,30	**0,84**	1,27	0,27	**0,77**	1,16
.S..GD	0,43	**0,92**	1,46	0,39	**0,84**	1,34
.S..HD	0,43	**1,07**	1,72	0,39	**0,98**	1,57
L = Light Machining; M = Medium Machining; H = Heavy Machining.						

Face Milling

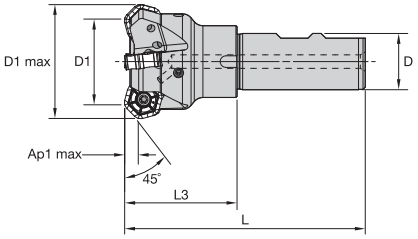
Dodeka™ 45° • End Mill • Cylindrical Shank • Metric





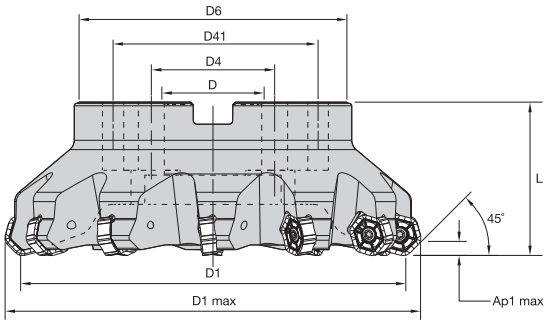
order number	catalogue number	D1	D1 max	D	L	L3	Ap1 max	Z	kg	max RPM
3644452	KSHR40D03R50A25SHN09	40	51,0	25	107	50	4,5	3	0,53	15800
3645083	KSHR40D04R50A25SHN09	40	51,0	25	107	50	4,5	4	0,53	15800

Dodeka 45° • End Mill • Weldon® Shank • Metric



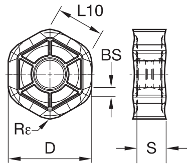
order number	catalogue number	D1	D1 max	D	L	L3	Ap1 max	Z	kg	max RPM
3324830	KSHR40D04R50B25SHN09	40	51,0	25	107	50,00	4,5	4	0,52	15800
3324829	KSHR40D03R50B25SHN09	40	51,0	25	107	50,00	4,5	3	0,53	15800

Dodeka 45° • Shell Mill • Metric



order number	catalogue number	D1	D1 max	D	D4	D41	D6	L	Ap1 max	Z	kg	max RPM
3647201	KSHR40A04RS45HN09	40	51,0	22	–	–	39	40	4,5	4	0,25	15800
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
3587754	KSHR315C24RS45HN09	315	326,0	60	102	178	230	80	4,5	24	22,90	2020

Dodeka™ • Carbide Insert • HNGJ-LDJ • Light Machining of Aluminum

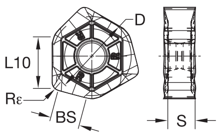


● first choice
○ alternate choice

		KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
P				○	●		●	●	○	
M				●	●		●	○	●	
K			●	○		●	○			●
N		●								
S				●	●				●	
H										

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
HNGJ0905ANFNLDJ	16	1,81	8,58	1,2	5,56	0,02	12	●	–	–	–	–	–	–	–	–

Dodeka 45° • Wiper Carbide Insert • XNGJ-LDJ3W • Fine Finishing of Aluminum

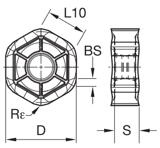


● first choice
○ alternate choice

		KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
P				○	●		●	●	○	
M				●	●		●	○	●	
K			●	○		●	○			●
N		●								
S				●	●				●	
H										

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
XNGJ0905ANFNLDJ3W	16	6,00	9,56	1,6	5,51	0,02	6	●	–	–	–	–	–	–	–	–

Dodeka • Carbide Insert • HNGJ-LD • Light Machining



● first choice
○ alternate choice

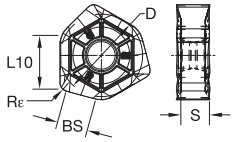
		KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
P				○	●		●	●	○	
M				●	●		●	○	●	
K			●	○		●	○			●
N		●								
S				●	●				●	
H										

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
HNGJ0905ANENLD	16	1,76	8,58	1,2	5,56	0,05	12	–	●	●	●	●	●	–	●	–

			NOVO
117–119	120	67–69	124

Face Milling

Dodeka™ 45° • Wiper Carbide Insert • XNGJ-GD3W • Fine Finishing of Multiple Materials



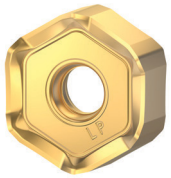
● first choice
○ alternate choice

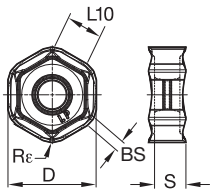
P	○ ● ● ● ○
M	● ● ● ○ ●
K	● ○ ● ○ ●
N	●
S	● ● ●
H	

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
XNGJ0905ANSNGD3W	16	6,00	9,56	1,6	5,51	0,09	6	–	–	–	●	●	●	–	●	–

Dodeka 45° • Carbide Insert • HNPJ-LP • Light Machining of Steels

NEW!





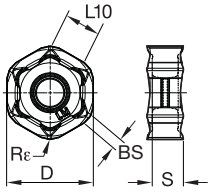
● first choice
○ alternate choice

P	○ ○ ● ●
M	● ● ○
K	○ ● ○
N	
S	●
H	

ISO catalogue number	L10	BS	D	S	Rε	hm	CE	KC522M	KCK20B	KCPK30	KCPM40
HNPJ0905ANERLP	8,59	1,68	15,88	5,7	1,2	0,05	12	●	●	●	●

Dodeka 45° • Carbide Insert • HNPJ-LM • Light Machining of Stainless Steels

NEW!



● first choice
○ alternate choice

P	○ ○
M	● ●
K	○
N	
S	● ●
H	

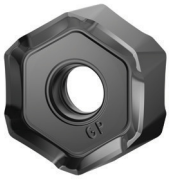
ISO catalogue number	L10	BS	D	S	Rε	hm	CE	KC522M	KCSM40
HNPJ0905ANERLM	8,58	1,73	15,88	5,7	1,2	0,05	12	●	●

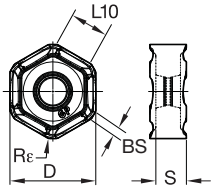
117–119	120	67–69	124

Face Milling

Dodeka™ 45° • Carbide Insert • HNGJ-GP • Medium Machining of Steels

NEW!





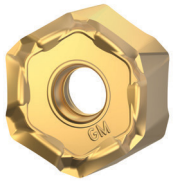
● first choice
○ alternate choice

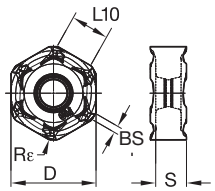
P		○	●
M		●	○
K		○	
N			
S		●	
H			

ISO catalogue number	L10	BS	D	S	Rε	hm	CE	KC522M	KCPM40
HNGJ0905ANERGP	6,19	2,13	15,88	5,8	1,2	0,06	12	●	●

Dodeka 45° • Carbide Insert • HNGJ-GM • Medium Machining of Stainless Steels

NEW!



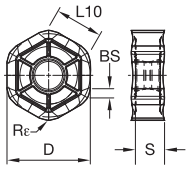


● first choice
○ alternate choice

P		○	○
M		●	●
K		○	
N			
S		●	●
H			

ISO catalogue number	L10	BS	D	S	Rε	hm	CE	KC522M	KCSM40
HNGJ0905ANERGM	6,19	2,13	15,88	5,8	1,2	0,06	12	●	●

Dodeka • Carbide Insert • HNGJ-GD • Medium Machining



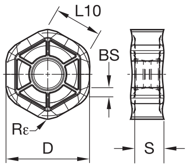
● first choice
○ alternate choice

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

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
HNGJ0905ANSNGD	16	1,71	8,59	1,2	5,56	0,10	12	–	–	–	●	●	●	●	●	–

117–119	120	67–69	124

Dodeka™ • Carbide Insert • HNPJ-GD • Medium Machining

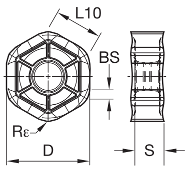


● first choice
○ alternate choice

	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
P			○	●		●	●	○	
M			●	●		●	○	●	
K		●	○		●	○			●
N	●								
S			●	●				●	
H									

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
HNPJ0905ANSNGD	16	1,80	8,58	1,2	5,56	0,10	12	–	●	●	●	●	●	●	–	–

Dodeka • Carbide Insert • HNGJ-HD • Heavy Machining

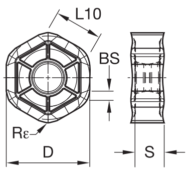


● first choice
○ alternate choice

	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
P			○	●		●	●	○	
M			●	●		●	○	●	
K		●	○		●	○			●
N	●								
S			●	●				●	
H									

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
HNGJ0905ANSNHD	16	1,65	8,59	1,2	5,46	0,17	12	–	●	–	●	●	●	●	●	–
HNGJ090543ANSNHD	16	–	8,50	4,4	5,44	0,20	12	–	●	–	●	●	●	●	●	–

Dodeka • Carbide Insert • HNPJ-HD • Heavy Machining



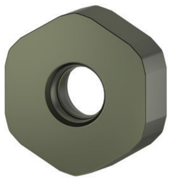
● first choice
○ alternate choice

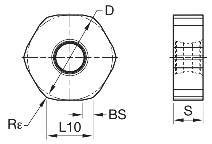
	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
P			○	●		●	●	○	
M			●	●		●	○	●	
K		●	○		●	○			●
N	●								
S			●	●				●	
H									

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
HNPJ0905ANSNHD	16	1,65	8,59	1,2	5,46	0,18	12	–	●	●	●	●	●	●	●	–
HNPJ090543ANSNHD	16	–	8,50	4,4	5,44	0,13	12	–	–	●	●	●	●	●	●	–

			NOVO
117–119	120	67–69	124

Dodeka™ 45° • Ceramic Insert • HNEC • High-Speed Machining of Cast Iron





● first choice
○ alternate choice

		KC410M	KC5520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
P				○	●		●	●	○	
M				●	●		●	○	●	
K			●	○		●	○			●
N		●								
S				●	●				●	
H										

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	KC410M	KC5520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM40	KY3500
HNEC0905ANSN	16	1,95	9,17	1,2	5,56	0,19	12	–	–	–	–	–	–	–	–	●

Dodeka 45° • Insert Selection Guide

Material Group	Light Machining				Medium Machining				Heavy Machining	
P1–P2	.E..LD	KC522M	.E..LP	KC522M	**.E..GP**	**KC522M**	**.S..GD**	**KC522M**	.S..HD	KC725M
P3–P4	.E..LD	KCPK30	.E..LP	KCPM40	**.E..GP**	**KCPM40**	**.S..GD**	**KCPK30**	.S..HD	KCPK30
P5–P6	.E..LD	KC725M	.E..LP	KCPM40	**.E..GP**	**KCPM40**	**.S..GD**	**KCPM40**	.S..HD	KCPM40
M1–M2	.E..LD	KC522M	.E..LM	KC522M	**.E..GM**	**KCSM40**	**.S..GD**	**KCSM40**	.S..HD	KCSM40
M3	.E..LD	KCSM40	.E..LM	KCSM40	**.E..GM**	**KCSM40**	**.S..GD**	**KCSM40**	.S..HD	KCPM40
K1–K2	.E..LD	KCK20B	.E..LP	KCK20B	**.E..LP**	**KCK20B**	**.S..GD**	**KCK15**	.S..HD	KCK15
K3	.E..LD	KCK20B	.E..LP	KCKP30	**.E..LP**	**KCPK30**	**.S..GD**	**KCK20B**	.S..HD	KCPK30
N1–N2	.F..LDJ	KC410M	.F..LDJ	KC410M	**.F..LDJ**	**KC410M**	**.F..LDJ**	**KC410M**	.F..LDJ	KC410M
N3	.F..LDJ	KC410M	.F..LDJ	KC410M	**.F..LDJ**	**KC410M**	**.F..LDJ**	**KC410M**	.F..LDJ	KC410M
S1–S2	.E..LD	KC725M	.E..LM	KCSM40	**.E..GM**	**KCSM40**	**.S..GD**	**KC725M**	.S..HD	KC725M
S3	.E..LD	KCSM40	.E..LM	KCSM40	**.E..GM**	**KCSM40**	**.S..GD**	**KCSM40**	.S..HD	KCSM40
S4	.E..LD	KCSM40	.E..LM	KCSM40	**.E..GM**	**KCSM40**	**.S..GD**	**KCSM40**	.S..HD	KCSM40
H1	–	–	–	–	**.E..GP**	**KC522M**	–	–	–	–

Dodeka 45° • Feed Rates [mm]

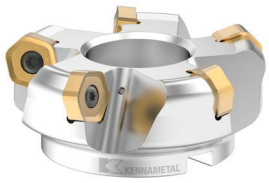
	Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)					
	30%			40–100%		
Insert Geometry	L	M	H	L	M	H
.F..LDJ	0,08	**0,22**	0,37	0,07	**0,20**	0,34
.E..LD	0,11	**0,31**	0,46	0,10	**0,28**	0,42
.E..LM	0.08	**0.23**	0.38	0.07	**0.21**	0.35
.E..LP	0.08	**0.28**	0.43	0.07	**0.25**	0.40
.E..GM	0.08	**0.23**	0.38	0.07	**0.21**	0.35
.E..GP	0.08	**0.28**	0.44	0.07	**0.25**	0.40
.S..GD	0,16	**0,34**	0,54	0,14	**0,31**	0,49
.S..HD	0,16	**0,39**	0,63	0,14	**0,36**	0,57

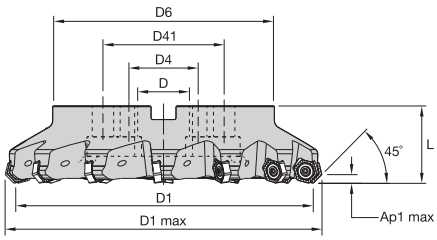
L = Light Machining; M = Medium Machining; H = Heavy Machining.

		SNC	NOVO
117–119	120	67–69	124

Face Milling

Dodeka MAX™ 45° • Shell Mill • Metric



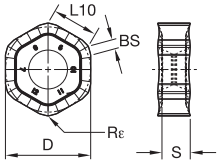


order number	catalogue number	D1	D1 max	D	D4	D41	D6	L	Ap1 max	Z	kg	max RPM
4059463	KSHR80A04RS45HN13	80	97,3	27	–	–	60	50	8,0	4	1,26	7900
4060935	KSHR100B05RS45HN13	100	117,3	32	–	–	80	50	8,0	5	1,81	6300
4060936	KSHR125B06RS45HN13	125	142,3	40	–	–	90	63	8,0	6	3,07	5050
4059485	KSHR160C09RS45HN13	160	177,3	40	66,7	–	110	63	8,0	9	4,34	3900
4060912	KSHR200C10RS45HN13	200	217,3	60	101,6	–	130	63	8,0	10	6,41	3180
4060937	KSHR200C12RS45HN13	200	217,3	60	101,6	–	130	63	8,0	12	6,48	3180
4060933	KSHR250C12RS45HN13	250	267,3	60	101,6	–	130	63	8,0	12	10,30	2550
4060938	KSHR250C14RS45HN13	250	267,3	60	101,6	–	130	63	8,0	14	10,27	2550
4060934	KSHR315C14RS45HN13	315	332,3	60	101,6	177,8	230	80	8,0	14	24,04	2020
4059486	KSHR315C18RS45HN13	315	332,3	60	101,6	177,8	230	80	8,0	18	24,62	2020

117–119	120	67–69	124

Face Milling

Dodeka MAX™ 45° • Carbide Insert • HNGJ-GD • Medium Machining

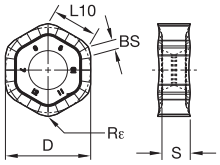


● first choice
○ alternate choice

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

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	KC520M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
HNGJ1307ANENGD	22	1,88	12,11	1,2	7,41	0,05	12	–	●	–	●	●	–

Dodeka MAX 45° • Carbide Insert • HNPJ-GD • Medium Machining

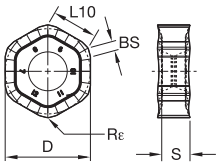


● first choice
○ alternate choice

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

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	KC520M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
HNPJ130720ANSNGD	22	–	12,83	2,0	7,53	0,13	12	–	●	●	●	–	–

Dodeka MAX 45° • Carbide Insert • HNPJ-HD • Heavy Machining



● first choice
○ alternate choice

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

ISO catalogue number	D	BS	L10	Rε	S	hm	CE	KC520M	KC725M	KCK15	KCPK30	KCPM40	KCSM40
HNPJ1307ANSNHD	22	1,88	12,83	1,2	7,34	0,25	12	–	●	–	●	●	●
HNPJ130720ANSNHD	22	–	12,83	2,0	7,42	0,23	12	–	●	●	●	●	–
HNPJ130735ANSNHD	22	–	12,29	3,5	7,33	0,23	12	–	–	●	●	–	–

117–119	120	67–69	124

Face Milling

Dodeka MAX™ 45° • Insert Selection Guide

Material Group	Light Machining		Medium Machining		Heavy Machining	
P1–P2	.E..GD	KCPM40	**.S..GD**	**KCPK30**	.S..HD	KC725M
P3–P4	.E..GD	KCPK30	**.S..GD**	**KCPK30**	.S..HD	KCPK30
P5–P6	.E..GD	KC725M	**.S..GD**	**KC725M**	.S..HD	KCPM40
M1–M2	.E..GD	KC725M	**.S..GD**	**KC725M**	.S..HD	KCSM40
M3	.E..GD	KCPM40	**.S..GD**	**KC725M**	.S..HD	KCPM40
K1–K2	.S..GD	KCK15	**.S..GD**	**KCK15**	.S..HD	KCK15
K3	.S..GD	KCK15	**.S..GD**	**KCK15**	.S..HD	KCPK30
S1–S2	.E..GD	KC725M	**.S..GD**	**KC725M**	.S..HD	KC725M
S3	.E..GD	KCPM40	**.S..GD**	**KC725M**	.S..HD	KCSM40
S4	.E..GD	KC725M	**.S..GD**	**KC725M**	.S..HD	KCSM40

Dodeka MAX 45° • Feed Rates [mm]

	Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)					
	30%			40–100%		
Insert Geometry	L	M	H	L	M	H
.E..GD	0,11	**0,31**	0,54	0,10	**0,28**	0,49
.S..GD	0,16	**0,35**	0,59	0,14	**0,32**	0,54
.S..HD	0,16	**0,39**	0,63	0,14	**0,36**	0,57
L = Light Machining; M = Medium Machining; H = Heavy Machining.						

Face Milling

Speed Information Dodeka™ Series • Metric

	K313			KC410M			KC522M			KC725M			KCK15			KCPK30			KCKP10		
Chip Thickness h_{ex} mm	Min		Max	Min		Max	Min		Max	Min		Max	Min		Max	Min		Max	Min		Max
Cutting Speed (m/min)	Max	Start	Min	Max	Start	Min	Max	Start	Min	Max	Start	Min	Max	Start	Min	Max	Start	Min	Max	Start	Min
P																					
1	–	–	–	–	–	–	395	**345**	325	310	**275**	260	–	–	–	545	**475**	445	370	**340**	310
2	–	–	–	–	–	–	330	**290**	240	265	**230**	190	–	–	–	335	**305**	275	350	**315**	280
3	–	–	–	–	–	–	305	**260**	210	240	**205**	170	–	–	–	305	**275**	245	330	**280**	245
4	–	–	–	–	–	–	270	**220**	180	215	**180**	145	–	–	–	270	**220**	190	280	**245**	190
5	–	–	–	–	–	–	220	**205**	180	180	**160**	145	–	–	–	225	**200**	180	250	**190**	150
6	–	–	–	–	–	–	200	**150**	120	155	**120**	95	–	–	–	190	**160**	130	190	**150**	130
M																					
1	–	–	–	–	–	–	245	**215**	200	205	**180**	160	–	–	–	245	**220**	185	–	–	–
2	–	–	–	–	–	–	220	**190**	180	185	**155**	130	–	–	–	220	**190**	170	–	–	–
3	–	–	–	–	–	–	170	**145**	115	140	**120**	95	–	–	–	175	**155**	140	–	–	–
K																					
1	190	**165**	140	–	–	–	275	**245**	220	–	–	–	505	**460**	410	355	**320**	290	490	**390**	280
2	–	–	–	–	–	–	215	**190**	180	–	–	–	400	**355**	330	280	**250**	230	335	**290**	225
3	–	–	–	–	–	–	180	**160**	145	–	–	–	335	**300**	275	235	**210**	190	280	**230**	190
N																					
1	875	**765**	660	1335	**1185**	1090	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2	–	–	–	1185	**1090**	950	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
3	–	–	–	1185	**1090**	950	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
S																					
1	–	–	–	–	–	–	40	**35**	25	35	**30**	25	–	–	–	–	–	–	–	–	–
2	–	–	–	–	–	–	40	**35**	25	35	**30**	25	–	–	–	–	–	–	–	–	–
3	–	–	–	–	–	–	50	**40**	25	45	**35**	25	–	–	–	–	–	–	–	–	–
4	–	–	–	–	–	–	50	**45**	35	50	**45**	35	–	–	–	60	**50**	40	–	–	–
H																					
1	–	–	–	–	–	–	145	**110**	85	–	–	–	–	–	–	–	–	–	160	**120**	95

Recommended starting speeds are in bold type. As the average chip thickness increases, speed should be decreased.
Material groups P, M, K, and H show recommended starting speeds for dry machining. For wet machining, reduce speed by 20%.
Material groups N and S show recommended starting speeds for wet machining. Not recommended for dry machining.

	KCK20B			KCPM40			KCSM30			KCSM40			KTPK20			KY3500		
Chip Thickness h_{ex} mm	Min		Max	Min		Max	Min		Max	Min		Max	Min		Max	Min		Max
Cutting Speed (m/min)	Max	Start	Min	Max	Start	Min	Max	Start	Min	Max	Start	Min	Max	Start	Min	Max	Start	Min
P																		
1	–	–	–	355	**310**	295	440	**380**	350	420	**375**	345	430	**360**	300	–	–	–
2	–	–	–	300	**260**	215	365	**320**	260	360	**320**	255	315	**260**	240	–	–	–
3	–	–	–	275	**235**	190	340	**285**	234	335	**275**	230	290	**240**	215	–	–	–
4	–	–	–	245	**205**	160	300	**245**	195	285	**240**	190	250	**215**	190	–	–	–
5	–	–	–	205	**185**	160	245	**220**	190	240	**210**	180	220	**200**	180	–	–	–
6	–	–	–	180	**140**	110	215	**165**	130	210	**155**	120	190	**155**	120	–	–	–
M																		
1	–	–	–	235	**205**	185	255	**210**	190	290	**230**	200	260	**210**	180	–	–	–
2	–	–	–	210	**180**	150	230	**190**	150	260	**205**	170	235	**200**	165	–	–	–
3	–	–	–	155	**140**	110	170	**145**	115	190	**160**	125	175	**145**	120	–	–	–
K																		
1	430	**340**	280	–	–	–	–	–	–	–	–	–	275	**235**	190	965	**875**	780
2	330	**270**	220	–	–	–	–	–	–	–	–	–	220	**180**	155	760	**685**	635
3	250	**210**	165	–	–	–	–	–	–	–	–	–	180	**155**	125	–	–	–
N																		
1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
S																		
1	–	–	–	45	**40**	35	50	**45**	35	60	**45**	30	–	–	–	–	–	–
2	–	–	–	45	**40**	35	50	**45**	35	65	**45**	30	–	–	–	–	–	–
3	–	–	–	60	**45**	35	65	**50**	35	75	**50**	35	–	–	–	–	–	–
4	–	–	–	65	**60**	40	70	**65**	45	90	**70**	45	–	–	–	–	–	–
H																		
1	–	–	–	–	–	–	160	**120**	90	–	–	–	–	–	–	–	–	–

Recommended starting speeds are in bold type. As the average chip thickness increases, speed should be decreased.
Material groups P, M, K, and H show recommended starting speeds for dry machining. For wet machining, reduce speed by 20%.
Material groups N and S show recommended starting speeds for wet machining. Not recommended for dry machining.

KCSM15A

Solid End Milling Grade

Our KCSM15A grade features an advanced PVD coating technology and delivers the best wear resistance in the history of Kennametal solid carbide end milling. This new grade provides increased output, higher metal removal rates and overall reliability when machining stainless steel, titanium and other high-temp alloys.

KCSM15A launches with the **HARVI™ III, HARVI II Long,** and **RSM II** platforms that are proven high performance solid carbide end mills for the aerospace, energy, transportation, and general engineering industries.

- Copper color provides improved tool life observation and reconditioning management
- Protection against abrasive wear and minimized edge build-up
- Increased tool life at high temperatures with minimized chipping
- Improved process stability

KENNAMETAL®
kennametal.com

TAKE YOUR MANUFACTURING TO THE NEXT LEVEL

Solid Carbide End Milling

Tool Selector

	HIGH-PERFORMANCE ROUGHING AND FINISHING					
	HARVI™ I TE					
						
Series	**H1TE4CH..R..**	**H1TE4CH..N..**	**H1TE4CH..S..**	**H1TE4RA..N..**	**H1TE4RA..E..**	**H1TE4SE..N..**
Page	10*	11*	12*	13–14*	15–17*	18*
Tool type						
Rougher	●	●	●	●	●	●
Finisher	○	○	○	○	○	○
Chamfering						
Main operation						
Workpiece material						
Primary	P M K	P M K	P M K	P M K S	P M K S	P M K
Secondary	S H	S H	S H	H	H	S H
Corner style						
Corner radius [Rε]	–	–	–	0,25–6,0mm	0,25-6,0mm	–
Corner chamfer width [BCH]	0,2–0,5mm	0,15–0,35mm	0,1–0,35mm	–	–	–
Cutter diameter [D1]	2–25mm	2–25mm	2–25mm	4–25mm	4–25mm	2–25mm
Length of cut	1,8–3 x D1	1,8–3 x D1	1,2–2 x D1	1,5 x D	1,8–2,75 x D1	1,8–3 x D1
Maximum cutting depth [Ap1 max]	5–45mm	6–45mm	4–30mm	6–37,5mm	11–45mm	6–45mm
Flute helix angle	36°/39°	36°/39°	36°/39°	36°/39°	36/39	36°/39°
Number of flutes [ZU]	4	4	4	4	4	4
Center cutting	✔	✔	✔	✔	✔	✔
Additional operations	 	 	 	 	 	 

*See page in the Kennametal SCEM Master Catalog 2024 • 153258-23

● Primary
○ Secondary

Solid Carbide End Milling

Tool Selector

	HIGH-PERFORMANCE ROUGHING AND FINISHING					
	HARVI™ I TE		HARVI II		HARVI III	
					NEW! 	NEW! 
Series	**H1TE4SE..S..**	**H1TEBN..N-L**	**UCDE**	**UDDE**	**HA3R6RA/SE..S-X..**	**HA3R6RA/SE..N..**
Page	19*	20*	28–30*	31–33*	106	107–108
Tool type						
Rougher	●	●	●	●	○	○
Finisher	○	○	○	○	●	●
Chamfering						
Main operation						
Workpiece material						
Primary	P M K	P M K	P M K S	P M S	M S	M S
Secondary	S H	S H	H	H	P H	P H
Corner style						
Corner radius [Rε]	–	–	0,25–0,75mm	0,20–6mm	0,50–0,75mm	0,50–6mm
Corner chamfer width [BCH]	–	–	–	–	–	–
Cutter diameter [D1]	2–25mm	2–20mm	4–25mm	6–25mm	10–25mm	10–25mm
Length of cut	1,2–2 x D1	1–2,7 x D	1,8–2,7 x D1	1,8–2,4 x D	1,8–2,2 x D	1,8–2,2 x D
Maximum cutting depth [Ap1 max]	4–30mm	2–50mm	11–45mm	13–45mm	22–45mm	22–45mm
Flute helix angle	36°/39°	36°/39°	38°	38°	38°	38°
Number of flutes [ZU]	4	4	5	5	6	6
Center cutting	✔	✔			✔	✔
Additional operations						

*See page in the Kennametal SCEM Master Catalog 2024 • 153258-23

● Primary
○ Secondary

Solid Carbide End Milling

Tool Selector

	HIGH-PERFORMANCE ROUGHING AND FINISHING			
	HARVI™ III		HARVI II Long	
	NEW! 	NEW! 	NEW! 	NEW! 
Series	HA3R6BN..N..	HA3R6TB..L-X..	HA2L5RA..L..	HA2L5RA..X..
Page	108	109	110	111
Tool type				
Rougher	○	○		
Finisher	●	●	●	●
Chamfering				
Main operation				
Workpiece material				
Primary	M S	M S	P M S	P M S
Secondary	P H	P H	K H	K H
Corner style				
Corner radius [Rε]	–	–	0,20–6mm	0,20–6mm
Corner chamfer width [BCH]	–	–	–	–
Cutter diameter [D1]	10–20mm	4–10mm	6–25mm	6–25mm
Length of cut	1 x D1	4,7–7 x D	3 x D	5 x D
Maximum cutting depth [Ap1 max]	10–20mm	26–39mm	18–75mm	30–125mm
Flute helix angle	38°	38°	43°	43°
Number of flutes [ZU]	6	6	5	5
Center cutting	✔	✔		
Additional operations				

● Primary
○ Secondary

Solid Carbide End Milling

Tool Selector

	DYNAMIC MILLING						
	KOR5™ DS		KOR5DA			KOR6™ DT	
							
Series	KOR5..R..	KOR5..L..	KOR5..R..I	KOR5..L..I..	KOR5..R..C	KOR6..R..	KOR6..L..
Page	48*	49*	50–51*	53–55*	51–53*	55–56*	56–57*
Tool type							
Rougher	●	●	●	●	●	●	●
Finisher	○	○	○	○	○		
Chamfering							
Main operation							
Workpiece material							
Primary	P M	P M	N	N	N	S	S
Secondary	K S H	K S H				P M K H	P M K H
Corner style							
Corner radius [Rε]	0,50—1mm	0,50—1mm	0,20—2,50mm	0,20—2,50mm	0,20—2,50mm	0,05—1mm	0,50—1mm
Corner chamfer width [BCH]	–	–	–	–	–	–	–
Cutter diameter [D1]	8—25mm	8—25mm	10—25mm	10—25mm	10—25mm	8—25mm	8—25mm
Length of cut	3 x D	5 x D	3 x D	5 x D	3 x D	3 x D	5 x D
Maximum cutting depth [Ap1 max]	24—75mm	40—125mm	30—60mm	50—125mm	30—60mm	24—75mm	40—125mm
Flute helix angle	40°	40°	35°	35°	35°	38°	38°
Number of flutes [ZU]	5	5	5	5	5	6	6
Coolant							
Additional operations							

*See page in the Kennametal SCEM Master Catalog 2024 • 153258-23

● Primary
○ Secondary

POWERED BY NOVO KENNAMETAL

HARVI™ Series

High-Performance Roughing and Finishing

Materials

P M K S

Applications

- Ramping
- Slotting: Square End
- Trochoidal Milling
- Shoulder Milling
- Profiling

NEW!

KCSM15A Grade for high-temperature alloys.

Roughing and finishing in multiple materials.

Unequally spaced flutes to minimize vibrations and provide high tool life and superior surface quality. Safe-Lock™ shanks with pullout protection deliver increased process safety. Proprietary tapered-core design improves tool stability in roughing and finishing applications.

HARVI II
Five-flute end mill for high-feed roughing and finishing with one tool in multiple materials.

HARVI II Long
Five-flute end mill for semi-finishing and finishing of thin walls and deep pockets in titanium, steels, and stainless steels with excellent surface finishes.

HARVI™ II

Harvi II: Non-center cutting.

Harvi II Long: High feed rate capability for corner machining operations delivers additional productivity.

HARVI III

Harvi III & Harvi III Ball Nose: Tailored axial and radial rake angles result in lower cutting forces and lower pressure on cutting edge, providing smooth cutting action and best surface finishes.

Center cutting design enables radial and axial finishing pass after roughing operation.

Harvi III Taper Ball Nose: Six flutes in ball nose section and taper section for highest metal removal rates.

Taper angles of 4° and 6° for a broad range of applications.

HARVI III

Six-flute end mill for high-feed roughing and finishing with maximum metal removal rates in titanium and stainless steel with excellent surfaces.

HARVI III Ball Nose

Six-flute end mill for 3D profiling with highest productivity in titanium and stainless steel.

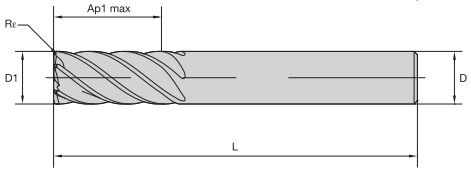
HARVI III Taper Ball Nose

Six-flute end mill for 5-axis machining of steel, stainless steel, nickel-based alloys, and titanium to significantly increase output and decrease machining time.

Solid Carbide End Milling

HARVI™ III • Radiused • 6 Flutes • Plain Shank • Metric

NEW!



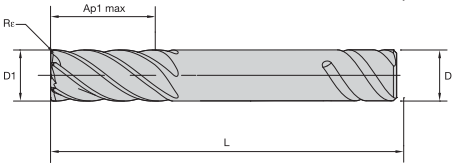
● first choice
○ alternate choice

P		○					
M		●					
K							
N							
S		●					
H		○					

order number	catalogue number	D1	D	Ap1 max	L	Rε	KCSM15A
7077115	HA3R6RA1000R022HAR050M	10,00	10,00	22,00	72,00	0,50	●
7077117	HA3R6RA1200R026HAR075M	12,00	12,00	26,00	83,00	0,75	●
7077119	HA3R6RA1400R026HAR075M	14,00	14,00	26,00	83,00	0,75	●
7077261	HA3R6RA1600R032HAR075M	16,00	16,00	32,00	92,00	0,75	●
7077263	HA3R6RA2000R038HAR075M	20,00	20,00	38,00	104,00	0,75	●
7077265	HA3R6RA2500R045HAR075M	25,00	25,00	45,00	121,00	0,75	●

HARVI III • Radiused • 6 Flutes • Safe-Lock™ Shank • Metric

NEW!



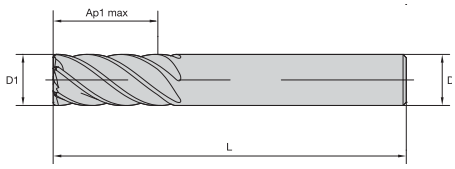
● first choice
○ alternate choice

P		○					
M		●					
K							
N							
S		●					
H		○					

order number	catalogue number	D1	D	Ap1 max	L	Rε	KCSM15A
7077267	HA3R6RA1200R026SLR075M	12,00	12,00	26,00	83,00	0,75	●
7077268	HA3R6RA1600R032SLR075M	16,00	16,00	32,00	92,00	0,75	●
7077269	HA3R6RA2000R038SLR075M	20,00	20,00	38,00	104,00	0,75	●
7077270	HA3R6RA2500R045SLR075M	25,00	25,00	45,00	121,00	0,75	●

HARVI III • Square End • 6 Flutes • Plain Shank • Metric

NEW!



● first choice
○ alternate choice

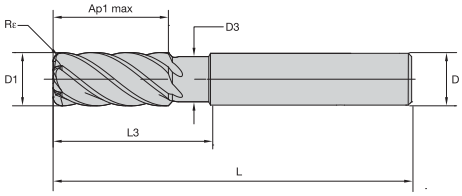
P		○					
M		●					
K							
N							
S		●					
H		○					

order number	catalogue number	D1	D	Ap1 max	L	KCSM15A
7077116	HA3R6SE1000R022HAM	10,00	10,00	22,00	72,00	●
7077118	HA3R6SE1200R026HAM	12,00	12,00	26,00	83,00	●
7077120	HA3R6SE1400R026HAM	14,00	14,00	26,00	83,00	●
7077262	HA3R6SE1600R032HAM	16,00	16,00	32,00	92,00	●
7077264	HA3R6SE2000R038HAM	20,00	20,00	38,00	104,00	●
7077266	HA3R6SE2500R045HAM	25,00	25,00	45,00	121,00	●

Solid Carbide End Milling

HARVI™ III • Radiused • 6 Flutes • Necked • Plain Shank • Metric

NEW!



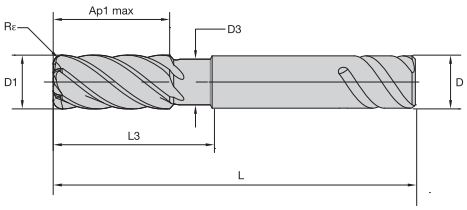
● first choice
○ alternate choice

P	○
M	●
K	
N	
S	●
H	○

order number	catalogue number	D1	D	D3	Ap1 max	L3	L	Rε	KCSM15A
7077281	HA3R6RA1000N022HAR050M	10,00	10,00	9,40	22,00	30,00	76,00	0,50	●
7077282	HA3R6RA1000N022HAR100M	10,00	10,00	9,40	22,00	30,00	76,00	1,00	●
7077283	HA3R6RA1000N022HAR200M	10,00	10,00	9,40	22,00	30,00	76,00	2,00	●
7077285	HA3R6RA1200N026HAR050M	12,00	12,00	11,28	26,00	36,00	83,00	0,50	●
7077286	HA3R6RA1200N026HAR100M	12,00	12,00	11,28	26,00	36,00	83,00	1,00	●
7077287	HA3R6RA1200N026HAR200M	12,00	12,00	11,28	26,00	36,00	83,00	2,00	●
7077288	HA3R6RA1200N026HAR300M	12,00	12,00	11,28	26,00	36,00	83,00	3,00	●
7077291	HA3R6RA1600N032HAR050M	16,00	16,00	15,04	32,00	48,00	100,00	0,50	●
7077292	HA3R6RA1600N032HAR100M	16,00	16,00	15,04	32,00	48,00	100,00	1,00	●
7077293	HA3R6RA1600N032HAR200M	16,00	16,00	15,04	32,00	48,00	100,00	2,00	●
7077294	HA3R6RA1600N032HAR300M	16,00	16,00	15,04	32,00	48,00	100,00	3,00	●
7077295	HA3R6RA1600N032HAR400M	16,00	16,00	15,04	32,00	48,00	100,00	4,00	●
7077296	HA3R6RA1600N032HAR600M	16,00	16,00	15,04	32,00	48,00	100,00	6,00	●
7077298	HA3R6RA2000N038HAR050M	20,00	20,00	18,80	38,00	60,00	115,00	0,50	●
7077299	HA3R6RA2000N038HAR100M	20,00	20,00	18,80	38,00	60,00	115,00	1,00	●
7077300	HA3R6RA2000N038HAR200M	20,00	20,00	18,80	38,00	60,00	115,00	2,00	●
7077301	HA3R6RA2000N038HAR300M	20,00	20,00	18,80	38,00	60,00	115,00	3,00	●
7077302	HA3R6RA2000N038HAR400M	20,00	20,00	18,80	38,00	60,00	115,00	4,00	●
7077303	HA3R6RA2000N038HAR600M	20,00	20,00	18,80	38,00	60,00	115,00	6,00	●
7077305	HA3R6RA2500N045HAR100M	25,00	25,00	23,50	45,00	75,00	135,00	1,00	●
7077306	HA3R6RA2500N045HAR400M	25,00	25,00	23,50	45,00	75,00	135,00	4,00	●

HARVI III • Radiused • 6 Flutes • Necked • Safe-Lock™ Shank • Metric

NEW!



● first choice
○ alternate choice

P	○
M	●
K	
N	
S	●
H	○

order number	catalogue number	D1	D	D3	Ap1 max	L3	L	Rε	KCSM15A
7077307	HA3R6RA1200N026SLR050M	12,00	12,00	11,28	26,00	36,00	83,00	0,50	●
7077308	HA3R6RA1200N026SLR100M	12,00	12,00	11,28	26,00	36,00	83,00	1,00	●
7077309	HA3R6RA1600N032SLR050M	16,00	16,00	15,04	32,00	48,00	100,00	0,50	●
7077310	HA3R6RA1600N032SLR100M	16,00	16,00	15,04	32,00	48,00	100,00	1,00	●
7077311	HA3R6RA1600N032SLR200M	16,00	16,00	15,04	32,00	48,00	100,00	2,00	●
7077312	HA3R6RA1600N032SLR400M	16,00	16,00	15,04	32,00	48,00	100,00	4,00	●
7077313	HA3R6RA2000N038SLR050M	20,00	20,00	18,80	38,00	60,00	115,00	0,50	●
7077314	HA3R6RA2000N038SLR100M	20,00	20,00	18,80	38,00	60,00	115,00	1,00	●
7077316	HA3R6RA2000N038SLR200M	20,00	20,00	18,80	38,00	60,00	115,00	2,00	●
7077317	HA3R6RA2000N038SLR400M	20,00	20,00	18,80	38,00	60,00	115,00	4,00	●
7077318	HA3R6RA2500N045SLR050M	25,00	25,00	23,50	45,00	75,00	135,00	0,50	●

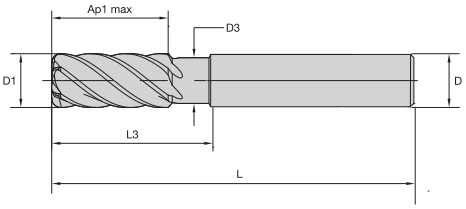
117–119	120	116	124

Solid Carbide End Milling

HARVI™ III • Square End • 6 Flutes • Necked • Plain Shank • Metric

● first choice
○ alternate choice

NEW!



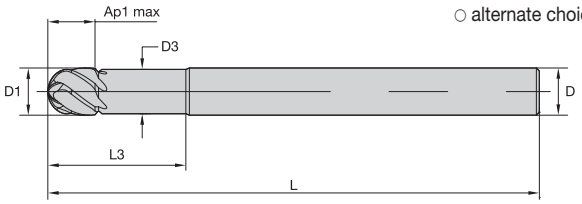
P	○
M	●
K	
N	
S	●
H	○

order number	catalogue number	D1	D	D3	Ap1 max	L3	L	KCSM15A
7077284	HA3R6SE1000N022HAM	10,00	10,00	9,40	22,00	30,00	76,00	●
7077290	HA3R6SE1200N026HAM	12,00	12,00	11,28	26,00	36,00	83,00	●
7077297	HA3R6SE1600N032HAM	16,00	16,00	15,04	32,00	48,00	100,00	●
7077304	HA3R6SE2000N038HAM	20,00	20,00	18,80	38,00	60,00	115,00	●

HARVI III • Ball Nose • 6 Flutes • Necked • Plain Shank • Metric

● first choice
○ alternate choice

NEW!



P	○
M	●
K	
N	
S	●
H	○

order number	catalogue number	D1	D	D3	Ap1 max	L3	L	KCSM15A
7077319	HA3R6BN1000N010HAM	10,00	10,00	9,40	10,00	30,00	72,00	●
7077320	HA3R6BN1000N010HAEM	10,00	10,00	9,40	10,00	30,00	121,00	●
7077321	HA3R6BN1200N012HAM	12,00	12,00	11,28	12,00	36,00	83,00	●
7077322	HA3R6BN1200N012HAEM	12,00	12,00	11,28	12,00	36,00	125,00	●
7077323	HA3R6BN1600N016HAM	16,00	16,00	15,04	16,00	48,00	100,00	●
7077324	HA3R6BN1600N016HAEM	16,00	16,00	15,04	16,00	48,00	150,00	●
7077325	HA3R6BN2000N020HAM	20,00	20,00	18,80	20,00	60,00	115,00	●
7077326	HA3R6BN2000N020HAEM	20,00	20,00	18,80	20,00	60,00	150,00	●

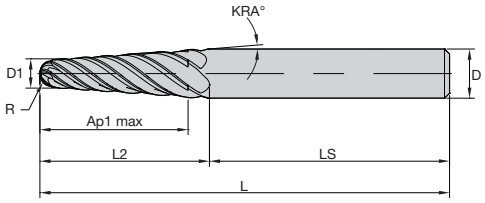
117–119	120	116	124

Solid Carbide End Milling

HARVI™ III • Taper Ball Nose • 6 Flutes • Plain Shank • Metric

● first choice
○ alternate choice

NEW!



P	○
M	●
K	
N	
S	●
H	○

order number	catalogue number	D1	D	Ap1 max	L2	LS	L	R	KRA	KCSM15A
7078273	HA3R6TB0400X026HAM	4,00	8,00	26,00	30,53	45,47	76,00	2,00	4.00	●
7078272	HA3R6TB0400L025HAM	4,00	10,00	25,00	30,44	58,56	89,00	2,00	6.00	●
7078275	HA3R6TB0500X033HAM	5,00	10,00	33,00	38,16	50,84	89,00	2,50	4.00	●
7078274	HA3R6TB0500L029HAM	5,00	12,00	29,00	35,67	64,33	100,00	2,50	6.00	●
7078277	HA3R6TB0600L039HAM	6,00	12,00	39,00	45,80	54,20	100,00	3,00	4.00	●
7078278	HA3R6TB0600X042HAM	6,00	16,00	42,00	50,42	59,59	110,00	3,00	6.00	●
7078301	HA3R6TB0800X039HAM	8,00	14,00	39,00	46,76	53,24	100,00	4,00	4.00	●
7078280	HA3R6TB0800L033HAM	8,00	16,00	33,00	41,85	68,15	110,00	4,00	6.00	●
7078302	HA3R6TB1000L025HAM	10,00	16,00	25,00	33,28	76,72	110,00	5,00	6.00	●
7078303	HA3R6TB1000X039HAM	10,00	16,00	39,00	47,73	62,27	110,00	5,00	4.00	●

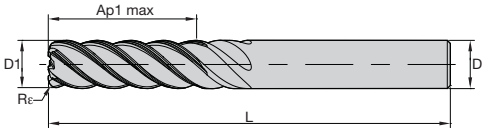
117–119	120	116	124

Solid Carbide End Milling

HARVI™ II Long • Radiused • 5 Flutes • 3 x D • Plain Shank • Metric

● first choice
○ alternate choice

NEW!



P	●
M	●
K	○
N	
S	●
H	○

order number	catalogue number	D1	D	Ap1 max	L	Rε	KCSM15A
7077633	HA2L5RA0600L018HAR020M	6,00	6,00	18,00	63,00	0,20	●
7077634	HA2L5RA0600L018HAR050M	6,00	6,00	18,00	63,00	0,50	●
7077635	HA2L5RA0600L018HAR100M	6,00	6,00	18,00	63,00	1,00	●
7077636	HA2L5RA0800L024HAR020M	8,00	8,00	24,00	67,00	0,20	●
7077637	HA2L5RA0800L024HAR050M	8,00	8,00	24,00	67,00	0,50	●
7077638	HA2L5RA0800L024HAR100M	8,00	8,00	24,00	67,00	1,00	●
7077639	HA2L5RA1000L030HAR050M	10,00	10,00	30,00	76,00	0,50	●
7077640	HA2L5RA1000L030HAR100M	10,00	10,00	30,00	76,00	1,00	●
7077871	HA2L5RA1000L030HAR200M	10,00	10,00	30,00	76,00	2,00	●
7077872	HA2L5RA1000L030HAR250M	10,00	10,00	30,00	76,00	2,50	●
7077873	HA2L5RA1200L036HAR050M	12,00	12,00	36,00	100,00	0,50	●
7077874	HA2L5RA1200L036HAR100M	12,00	12,00	36,00	100,00	1,00	●
7077875	HA2L5RA1200L036HAR200M	12,00	12,00	36,00	100,00	2,00	●
7077876	HA2L5RA1200L036HAR250M	12,00	12,00	36,00	100,00	2,50	●
7077877	HA2L5RA1400L042HAR300M	14,00	14,00	42,00	100,00	3,00	●
7077878	HA2L5RA1600L048HAR100M	16,00	16,00	48,00	110,00	1,00	●
7077879	HA2L5RA1600L048HAR200M	16,00	16,00	48,00	110,00	2,00	●
7077880	HA2L5RA1600L048HAR250M	16,00	16,00	48,00	110,00	2,50	●
7077881	HA2L5RA1600L048HAR300M	16,00	16,00	48,00	110,00	3,00	●
7077882	HA2L5RA1600L048HAR400M	16,00	16,00	48,00	110,00	4,00	●
7077884	HA2L5RA1600L048HAR600M	16,00	16,00	48,00	110,00	6,00	●
7077886	HA2L5RA2000L060HAR100M	20,00	20,00	60,00	125,00	1,00	●
7077888	HA2L5RA2000L060HAR200M	20,00	20,00	60,00	125,00	2,00	●
7077890	HA2L5RA2000L060HAR250M	20,00	20,00	60,00	125,00	2,50	●
7077892	HA2L5RA2000L060HAR300M	20,00	20,00	60,00	125,00	3,00	●
7077894	HA2L5RA2000L060HAR400M	20,00	20,00	60,00	125,00	4,00	●
7077896	HA2L5RA2000L060HAR600M	20,00	20,00	60,00	125,00	6,00	●
7077898	HA2L5RA2500L075HAR100M	25,00	25,00	75,00	150,00	1,00	●
7077900	HA2L5RA2500L075HAR200M	25,00	25,00	75,00	150,00	2,00	●
7077912	HA2L5RA2500L075HAR250M	25,00	25,00	75,00	150,00	2,50	●
7077914	HA2L5RA2500L075HAR300M	25,00	25,00	75,00	150,00	3,00	●
7077916	HA2L5RA2500L075HAR400M	25,00	25,00	75,00	150,00	4,00	●
7077918	HA2L5RA2500L075HAR600M	25,00	25,00	75,00	150,00	6,00	●

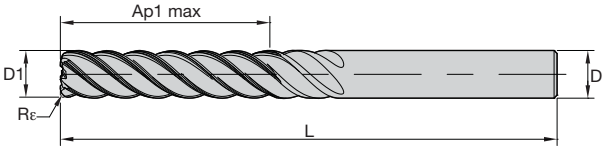
117–119	120	116	124

Solid Carbide End Milling

HARVI™ II Long • Radiused • 5 Flutes • 5 x D • Plain Shank • Metric

● first choice
○ alternate choice

NEW!



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S	●
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order number	catalogue number	D1	D	Ap1 max	L	Rε	KCSM15A
7077920	HA2L5RA0600X030HAR020M	6,00	6,00	30,00	76,00	0,20	●
7077932	HA2L5RA0600X030HAR050M	6,00	6,00	30,00	76,00	0,50	●
7077933	HA2L5RA0600X030HAR100M	6,00	6,00	30,00	76,00	1,00	●
7077934	HA2L5RA0800X040HAR020M	8,00	8,00	40,00	87,00	0,20	●
7077935	HA2L5RA0800X040HAR050M	8,00	8,00	40,00	87,00	0,50	●
7077936	HA2L5RA0800X040HAR100M	8,00	8,00	40,00	87,00	1,00	●
7077937	HA2L5RA1000X050HAR050M	10,00	10,00	50,00	100,00	0,50	●
7077938	HA2L5RA1000X050HAR100M	10,00	10,00	50,00	100,00	1,00	●
7077939	HA2L5RA1000X050HAR200M	10,00	10,00	50,00	100,00	2,00	●
7077940	HA2L5RA1000X050HAR250M	10,00	10,00	50,00	100,00	2,50	●
7077941	HA2L5RA1200X060HAR050M	12,00	12,00	60,00	125,00	0,50	●
7077942	HA2L5RA1200X060HAR100M	12,00	12,00	60,00	125,00	1,00	●
7077943	HA2L5RA1200X060HAR200M	12,00	12,00	60,00	125,00	2,00	●
7077944	HA2L5RA1200X060HAR250M	12,00	12,00	60,00	125,00	2,50	●
7077945	HA2L5RA1400X070HAR300M	14,00	14,00	70,00	120,00	3,00	●
7077946	HA2L5RA1600X080HAR100M	16,00	16,00	80,00	141,00	1,00	●
7077947	HA2L5RA1600X080HAR200M	16,00	16,00	80,00	141,00	2,00	●
7077883	HA2L5RA1600X080HAR250M	16,00	16,00	80,00	141,00	2,50	●
7077885	HA2L5RA1600X080HAR300M	16,00	16,00	80,00	141,00	3,00	●
7077887	HA2L5RA1600X080HAR400M	16,00	16,00	80,00	141,00	4,00	●
7077889	HA2L5RA1600X080HAR600M	16,00	16,00	80,00	141,00	6,00	●
7077891	HA2L5RA2000X100HAR100M	20,00	20,00	100,00	166,00	1,00	●
7077893	HA2L5RA2000X100HAR200M	20,00	20,00	100,00	166,00	2,00	●
7077895	HA2L5RA2000X100HAR250M	20,00	20,00	100,00	166,00	2,50	●
7077897	HA2L5RA2000X100HAR300M	20,00	20,00	100,00	166,00	3,00	●
7077899	HA2L5RA2000X100HAR400M	20,00	20,00	100,00	166,00	4,00	●
7077911	HA2L5RA2000X100HAR600M	20,00	20,00	100,00	166,00	6,00	●
7077913	HA2L5RA2500X125HAR100M	25,00	25,00	125,00	190,00	1,00	●
7077915	HA2L5RA2500X125HAR200M	25,00	25,00	125,00	190,00	2,00	●
7077917	HA2L5RA2500X125HAR300M	25,00	25,00	125,00	190,00	3,00	●
7077919	HA2L5RA2500X125HAR400M	25,00	25,00	125,00	190,00	4,00	●
7077931	HA2L5RA2500X125HAR600M	25,00	25,00	125,00	190,00	6,00	●

117–119	120	116	124

Solid Carbide End Milling

HARVI™ III • Application Data • Metric

With Neck

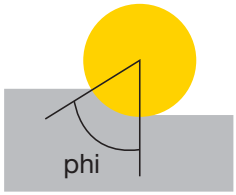
Without Neck

Material Group				KCSM15A		Recommended feed per tooth (fz = mm/th) for side milling.							
				Cutting Speed — vc m/min			D1 — Diameter						
		ap	ae	Min	Max	mm	10,0	12,0	14,0	16,0	18,0	20,0	25,0
P	4	ap max	0,4 x D	90	150	Fz	0,054	0,062	0,070	0,077	0,083	0,088	0,098
	5	ap max	0,4 x D	60	100	Fz	0,048	0,056	0,063	0,070	0,076	0,081	0,091
M	1	ap max	0,4 x D	90	115	Fz	0,061	0,070	0,079	0,087	0,095	0,101	0,114
	2	ap max	0,4 x D	60	80	Fz	0,048	0,056	0,063	0,070	0,076	0,081	0,091
	3	ap max	0,4 x D	60	70	Fz	0,040	0,047	0,052	0,057	0,061	0,065	0,071
S	1	ap max	0,4 x D	50	90	Fz	0,061	0,070	0,079	0,087	0,095	0,101	0,114
	2	ap max	0,4 x D	25	50	Fz	0,032	0,037	0,042	0,046	0,050	0,054	0,061
	3	ap max	0,4 x D	25	40	Fz	0,032	0,037	0,042	0,046	0,050	0,054	0,061
	4	ap max	0,4 x D	50	60	Fz	0,045	0,052	0,058	0,064	0,069	0,074	0,084
H	1	ap max	0,4 x D	80	140	Fz	0,054	0,062	0,070	0,077	0,083	0,088	0,098
	2	ap max	0,4 x D	70	120	Fz	0,040	0,047	0,052	0,057	0,061	0,065	0,071

NOTE: These guidelines may require variations to achieve optimum results.
Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >12mm diameter.

HARVI III • Adjustment Factor for Feed and Speed Calculation • Metric

	Ae/D	2%	4%	5%	8%	10%	12%	20%	30%
Speed factor	Kv	1,75–3,0	1,33–2,52	1,33–2,1	1,33	1,17	1,15	1,08	1,00
Feed factor	KFz	3,28	2,35	2,11	1,69	1,53	1,41	1,15	1,00
phi [°]		16,26	23,07	25,84	32,86	36,87	40,54	53,13	66,42



NOTE: For an Ae/D ratio of 5% or less there is a range given for speed factor Kv, which allows the user to either be more conservative at the lower value or more aggressive with the higher value.
This can also be considered based on the machinability of the material, from difficult to free cutting.
These calculations are for roughing/semi-finishing cuts when used with the recommeded base Fz.
For light finishing cuts requiring improved surface quality it is recommended to reduce the base Fz approximately 50% and then apply these factors.

To calculate application specific cutting data, please use above Kv coefficient for adaptation of cutting speed and KFz for feed respectively.

Vc new = Vc * Kv
Fz new = Fz * KFz

Calculation example:
Application: D1 = 16,0mm;
S4 material group;
Ae 0,1mm (Ae = 10% of D)
Cutting data recommendation: Vc = 60m/min;
Fz = 0,064mm/th
Adjustment coefficients: Kv = 1,17mm;
KFz = 1,53

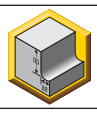
Final cutting data recommendation:
Vc new = 60 * 1,17 = 70m/min
Fz new = 0,064128 * 1,53 = 0,098mm/th

Solid Carbide End Milling

HARVI™ III Ballnose • HARVI III Taper Ball Nose • Application Data • Roughing • Metric

Ball Nose With Neck

Taper Ball Nose

Material Group				KCSM15A			Recommended feed per tooth (fz = mm/th) for side milling.										
				Cutting Speed — vc m/min				D1 — Diameter									
		ap	ae	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	Ap max	0,4 x D	150	–	200	Fz	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114	0,124
	1	Ap max	0,4 x D	150	–	200	Fz	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114	0,124
	2	Ap max	0,4 x D	140	–	190	Fz	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114	0,124
	3	Ap max	0,4 x D	120	–	160	Fz	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101	0,114
	4	Ap max	0,4 x D	90	–	150	Fz	0,021	0,027	0,033	0,045	0,054	0,062	0,070	0,077	0,083	0,088	0,098
	5	Ap max	0,4 x D	60	–	100	Fz	0,019	0,024	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081	0,091
	6	Ap max	0,4 x D	50	–	75	Fz	0,016	0,020	0,025	0,034	0,040	0,047	0,052	0,057	0,061	0,065	0,071
M	1	Ap max	0,4 x D	90	–	115	Fz	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101	0,114
	2	Ap max	0,4 x D	60	–	80	Fz	0,019	0,024	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081	0,091
	3	Ap max	0,4 x D	60	–	70	Fz	0,016	0,020	0,025	0,034	0,040	0,047	0,052	0,057	0,061	0,065	0,071
S	1	Ap max	0,4 x D	50	–	90	Fz	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101	0,114
	2	Ap max	0,4 x D	25	–	50	Fz	0,013	0,016	0,019	0,026	0,032	0,037	0,042	0,046	0,050	0,054	0,061
	3	Ap max	0,4 x D	25	–	40	Fz	0,013	0,016	0,019	0,026	0,032	0,037	0,042	0,046	0,050	0,054	0,061
	4	Ap max	0,4 x D	50	–	60	Fz	0,016	0,021	0,026	0,037	0,045	0,052	0,058	0,064	0,069	0,074	0,084
H	1	Ap max	0,4 x D	80	–	140	Fz	0,021	0,027	0,033	0,045	0,054	0,062	0,070	0,077	0,083	0,088	0,098

NOTE: These guidelines may require variations to achieve optimum results.
Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >12mm diameter.

HARVI III Ballnose • HARVI III Taper Ball Nose • Application Data • Finishing • Metric

Ball Nose With Neck

Taper Ball Nose

Material Group				KCSM15A			Recommended feed per tooth (fz = mm/th) for side milling.										
				Cutting Speed — vc m/min				D1 — Diameter									
		ap	ae	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	Ap max	0,06 x D	285	–	380	Fz	0,034	0,043	0,053	0,072	0,086	0,099	0,121	0,130	0,137	0,149	
	1	Ap max	0,06 x D	285	–	380	Fz	0,034	0,043	0,053	0,072	0,086	0,099	0,121	0,130	0,137	0,149	
	2	Ap max	0,06 x D	266	–	361	Fz	0,034	0,043	0,053	0,072	0,086	0,099	0,121	0,130	0,137	0,149	
	3	Ap max	0,06 x D	228	–	304	Fz	0,028	0,036	0,044	0,060	0,073	0,084	0,105	0,113	0,121	0,137	
	4	Ap max	0,06 x D	171	–	285	Fz	0,026	0,033	0,039	0,054	0,065	0,075	0,092	0,099	0,106	0,117	
	5	Ap max	0,06 x D	114	–	190	Fz	0,023	0,029	0,035	0,048	0,058	0,067	0,084	0,091	0,097	0,109	
	6	Ap max	0,06 x D	95	–	142,5	Fz	0,019	0,024	0,030	0,040	0,048	0,056	0,068	0,073	0,078	0,085	
M	1	Ap max	0,06 x D	171	–	218,5	Fz	0,028	0,036	0,044	0,060	0,073	0,084	0,105	0,113	0,121	0,137	
	2	Ap max	0,06 x D	114	–	152	Fz	0,023	0,029	0,035	0,048	0,058	0,067	0,084	0,091	0,097	0,109	
	3	Ap max	0,06 x D	114	–	133	Fz	0,019	0,024	0,030	0,040	0,048	0,056	0,068	0,073	0,078	0,085	
S	1	Ap max	0,06 x D	95	–	171	Fz	0,028	0,036	0,044	0,060	0,073	0,084	0,105	0,113	0,121	0,137	
	2	Ap max	0,06 x D	47.5	–	95	Fz	0,015	0,019	0,023	0,032	0,038	0,045	0,056	0,060	0,065	0,074	
	3	Ap max	0,06 x D	47.5	–	76	Fz	0,015	0,019	0,023	0,032	0,038	0,045	0,056	0,060	0,065	0,074	
	4	Ap max	0,06 x D	95	–	114	Fz	0,019	0,025	0,031	0,044	0,053	0,062	0,077	0,083	0,089	0,100	
H	1	Ap max	0,06 x D	152	–	266	Fz	0,026	0,033	0,039	0,054	0,065	0,075	0,092	0,099	0,106	0,117	

NOTE: These guidelines may require variations to achieve optimum results.
Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >12mm diameter.

Solid Carbide End Milling

HARVI™ II Long • 3 x D and 5 x D • Application Data • Metric

3 x D Lengths of Cut

5 x D Lengths of Cut

Material Group				KCSM15A		Recommended feed per tooth (fz = mm/th) for side milling.								
				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	0	ap max	0,05 x D	300	400	Fz	0,044	0,060	0,072	0,083	0,092	0,101	0,114	0,124
	1	ap 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	ap 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	ap 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	ap 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	ap 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	ap 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	ap 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	ap 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	ap 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	ap 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	ap max	0,05 x D	220	280	Fz	0,036	0,050	0,061	0,070	0,079	0,087	0,101	0,114
	3	ap max	0,05 x D	220	260	Fz	0,029	0,040	0,048	0,056	0,063	0,070	0,081	0,091
S	1	ap 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	ap max	0,05 x D	50	100	Fz	0,019	0,026	0,032	0,037	0,042	0,046	0,054	0,061
	3	ap 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	ap 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	ap max	0,05 x D	160	280	Fz	0,033	0,045	0,054	0,062	0,070	0,077	0,088	0,098
	2	ap max	0,05 x D	140	240	Fz	0,025	0,034	0,040	0,047	0,052	0,057	0,065	0,071

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

Solid Carbide End Milling

Application Recommendation for Surface Profiling with HARVI™ III Ball Nose Series

Not all six cutting edges reach the center of the HARVI III series ball nose end mill. Due to this, certain tilt angles will engage different numbers of cutting edges and can alter the required cutting parameters. This will also be altered by the depths of cut, which will change the contact area and resulting number of edges engaged.

When surface profiling with any ball nose end mill, optimum performance will be achieved by tilting away from the center of the tool if possible. This is due to the fact that at the tip of the tool only the center cutting edges exist (two in the case of HARVI III series), and also the fact that the rotational velocity is zero in the center. Therefore, Kennametal recommends tilting the end mill to engage more cutting edges and avoid the zero-speed condition.

As the HARVI III series ball nose end mills do have two center cutting edges, it is possible to machine without tilting if the application requires this. Just factor in the reduced number of cutting edges into the cutting parameter calculations.

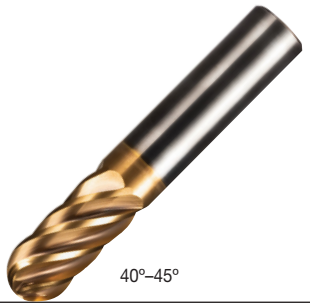
At the tip of the tool, only the center cutting edges exist.
The rotational velocity is zero in the center.

When surface profiling with any ball nose end mill, optimum performance will be achieved by tilting away from the center of the tool if possible.

HARVI III Ball Nose & HARVI III Taper Ball Nose

15°

22°



40°–45°

For tilt angles less than 15° and shallow profiling depths, only two cutting edges will be typically engaged. As the end mill is tilted above this, the next two edges will engage.

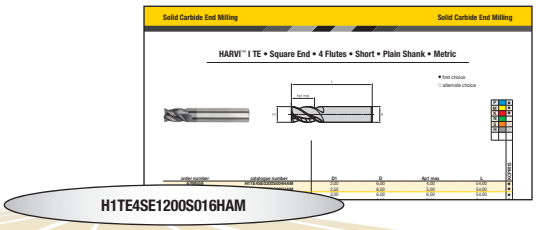
After reaching a tilt angle of at least 22°, then all six edges will at least be partially engaged.

For maximum profiling performance, a tilt angle of 40°–45° will result in full engagement of all edges with a wide range of cutting depths.

Solid Carbide End Milling

HARVI™ • KOR™ • PCD • Catalog Numbering System

Each character in our catalog number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.



H1TE	4	SE	1200	S	016	HA			M
Series	Number of Flutes	Front End Style	Cutting Diameter D1	Flute Section Style	Length of Cut Ap1 max	Shank Style	Radius	Specific Features	Standard
H1TE = HARVI I TE **HA2L** = HARVI II Long **HA3R** = HARVI III **HA3A** = HARVI III Aero **RSMF** = RSM II **KOR** = KOR **ALCB** = Basic PCD end mill with carbide body **ALCC** = Complex PCD end mill carbide body **ALCR** = Roughing PCD end mill with carbide body **ALSB** = Basic PCD end mill with steel body **ALSR** = Basic PCD end mill with steel body	**1** = 1-Flute **2** = 2-Flute **3** = 3-Flute **4** = 4-Flute **5** = 5-Flute **6** = 6-Flute **7** = 7-Flute **8** = 8-Flute **9** = 9-Flute **M** = Multi-flute	**SE** = Sharp Edge **CH** = Chamfer **RA** = Radius **BN** = Ball Nose **TB** = Taper Ball Nose **TO** = Torroid	**Metric** = D1 in mm **Inch** = D1 in decimal inch	**N** = Neck **E** = Extended Neck **S** = Short Without Neck **R** = Regular Without Neck **L** = Long Without Neck **X** = Extra Long Without Neck	**Metric** = Ap1 Max in mm **Inch** = Ap1 Max in decimal inch	**HA** = Plain **HB** = Weldon® **SL** = Safe-Lock™ **DL** = DUO-LOCK™		**C** = Chip Splitter **I** = Internal Coolant **O** = Coolant Grooves in Shank **P** = Polished Flutes	**M** = Metric **Blank** = Inch

Radius Metric		
R020	=	0,2mm
R025	=	0,25mm
R030	=	0,3mm
R040	=	0,4mm
R050	=	0,5mm
R075	=	0,75mm
R100	=	1,0mm
R125	=	1,25mm
R150	=	1,5mm
R200	=	2,0mm
R250	=	2,5mm
R300	=	3,0mm
R400	=	4,0mm
R500	=	5,0mm
R600	=	6,0mm

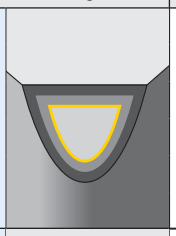
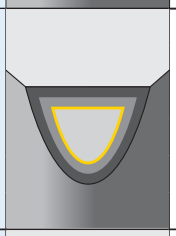
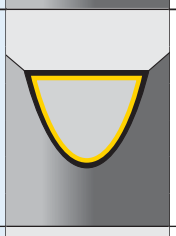
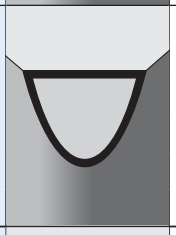
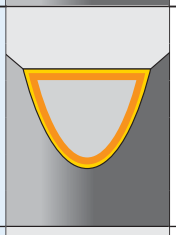
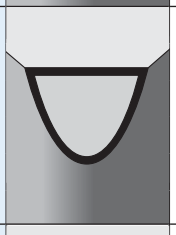
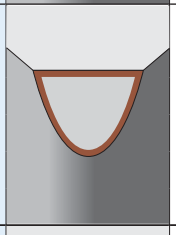
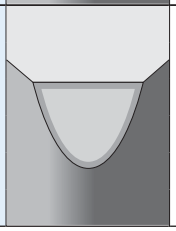
Radius Inch		
R010	=	.010"
R015	=	.015"
R030	=	.030"
R060	=	.060"
R090	=	.090"
R120	=	.120"
R160	=	.160"
R250	=	.250"
R190	=	.190"
R375	=	.375"
R045	=	.045"

Grades and Grade Descriptions

Holemaking

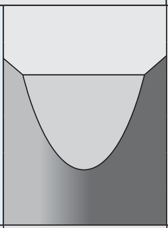
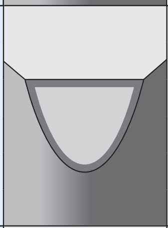
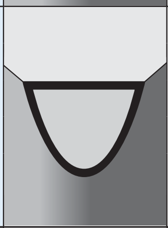
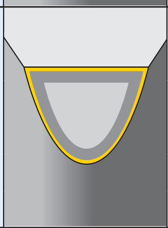
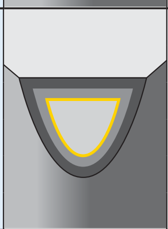
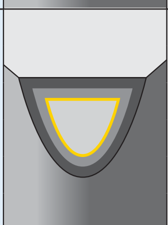
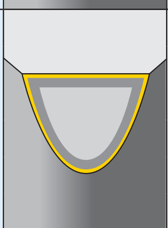
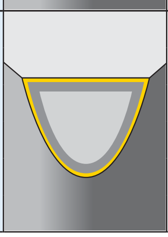
wear resistance ◄——► toughness

Grades

Coating		Grade Description		05	10	15	20	25	30	35	40	45
KCPK10		Composition: Advanced CVD TiCN-Al_2O_3 coating combined with a cobalt-enriched carbide substrate. Application: The KCPK10 grade offers a balanced combination of deformation resistance and edge toughness leading to outstanding abrasion and crater wear resistance for high-speed machining of steel and cast iron. Use for very high cutting speeds with low to medium feed rates.	P									
			K									
KCU25™		Composition: Advanced CVD TiCN-Al_2O_3 coating combined with a tough carbide substrate. Application: First choice for steel and cast iron. This grade offers adequate deformation resistance, excellent edge strength and superior wear resistance over a wide range of machining conditions for high productivity with very good reliability.	P									
			K									
KCU40		Composition: Multilayered PVD TiN-TiAlN coated submicron grain carbide. Application: First choice for high reliability in most materials. This grade should be used at medium speeds and high feeds due to sharper cutting edges. As universal grade it withstands interruptions and provides high wear resistance for long tool life. It covers steel, stainless steel, and cast iron.	P									
			M									
			K									
KCMS35		Composition: PVD AlTiN coated submicron grain carbide. Application: First choice for stainless steel, high-temp alloys, and long chipping steel. This grade combines superior edge toughness with good wear resistance for long tool life in long chipping materials.	P									
			M									
			S									
KC7140		Composition: PVD TiCN/TiN coated medium grain carbide with high toughness. Application: Best suited for machining of steel and stainless steel. This exceptionally tough grade is a perferct choice for demanding machining conditions offering excellent tool life.	P									
			M									
KCMS40		Composition: PVD AlTiN coated medium grain carbide with high toughness. Application: Best suited for machining of stainless steel, high-temp alloys, and long chipping steel. The tough substrate combined with its smooth built-up edge reducing coating make it the perfect choice for long chipping materials and challenging applications.	P									
			M									
			S									
KCU10™		Composition: Multilayered PVD AlCrN-based coated submicron grain carbide with superior surface finish. Application: This grade is used for micro tooling. This grade can be applied in all material groups utilizing a versatile PVD coating. The coating surface is enhanced to improve chipflow and to prevent tool breakage.	P									
			M									
			K									
			N									
			S									
KCK10A		Composition: Multilayered PVD AlTiN-based coated submicron grain carbide with superior surface finish. Application: First choice for cast iron. This grade utilizes a newly developed coating combined with a state-of-the-art surface condition to offer extraordinary wear resistance in abrasive materials at elevated cutting conditions with improved performance consistency.	K									

Indexable Milling

wear resistance ← → toughness

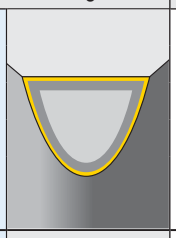
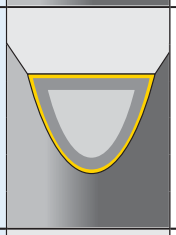
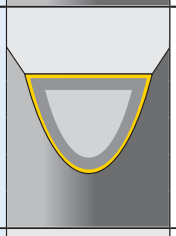
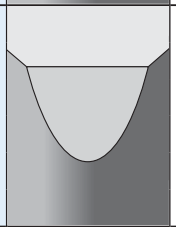
Grades	Coating	Grade Description		05	10	15	20	25	30	35	40	45
K313		Uncoated carbide grade. K313 is suitable for machining cast iron, high-temperature alloys, and non-ferrous materials. This grade can be used both wet and dry and is designed for light and general machining.	K	■	■	■						
			N	■	■	■						
			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, reduces burrs, and generates excellent surface finishes. The grade is best suited for aluminum with <10% silicon and other non-ferrous materials.	N	■	■	■						
KC522M		Coated carbide grade with a AlTiN (PVD) coating. KC522M is engineered to provide better performance in general machining of steel, stainless steel, cast iron, and high-temperature alloys. KC522M resists breakage and offers improved wear resistance and increased strength.	P				■	■				
			M				■	■	■			
			K					■	■	■		
			S					■	■	■		
KC725M		Coated carbide grade with an advanced PVD TiAlN coating. KC725M is a high-performance grade for milling steel, stainless steel, and high-temperature alloys. 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					■	■	■	■	
KCKP10		Submicron substrate with latest TiAlN/TiN coating technolgy (PVD). KCKP10 is highly wear-resistant grade. First choice for finishing and semi roughing of all cast iron materials, suitable for finishing of steel as well. This grade can be used dry or wet.	P	■	■							
			K	■	■	■						
KCK20B		Coated carbide grade with an advanced PVD TiAlN/TiN coating. Fine grained substrate combines high toughness and wear resistance for cast iron roughing and semi-roughing applications. High thermal shock resistance of the substrate and coating makes this grade ideal for wet and dry machining. First choice for roughing and challenging cutting conditions.	K		■	■	■	■				

Grades and Grade Descriptions

Indexable Milling

wear resistance ← → toughness

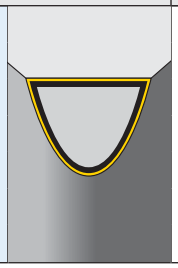
Grades

Coating	Grade Description		05	10	15	20	25	30	35	40	45
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					■	■	■	■	
KCSM30 	Submicron substrate coated with high-performance TiAlN-PVD coating is an excellent choice for titanium, but also high-temperature alloys and stainless with higher speeds for light to medium cuts. First choice for application with thin to medium chip thickness, dry and wet.	P				■	■	■			
		M					■	■	■		
		S				■	■	■	■		
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 gray cast iron and ferritic ductile cast iron. Dry machining is recommended.										
		K				■	■	■	■		

Solid Carbide End Milling

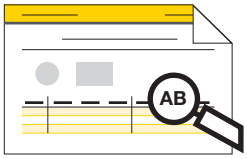
wear resistance ← → toughness

Grade

Coating	Grade Description		05	10	15	20	25	30	35	40	45
KCSM15A 	Composition: PVD AlCrN/TiSiN coated submicron grain carbide. Application: First choice for high-temperature alloys and stainless steel. The proprietary coating technology combines a high-hardness top layer with a stress-optimized base layer taking the wear resistance and performance reliability to the next level.										
		M		■	■	■					
		S		■	■	■					

General Information

Key to Product Table Column Headings



You may notice a slight change in the appearance of our product tables and specification charts. In this catalog, Kennametal introduces a set of short-name codes to improve the readability of tables and drawings. These codes replace full-text descriptions. The full list of codes and their definitions can be found below.

Short-Name Code	Full Text Description
Ap1 max	Maximum Cutting Depth
BS	Corner Facet Length
CS	Coolant Supply Size
D	Adaptor/Shank Diameter
D	Insert: Insert IC Size
D1	Insert: Insert Hole Size
D1	Holemaking: Drill Diameter
D1	Milling: Cutter Diameter
D1 max	Maximum Drill Diameter
D1 max	Maximum Cutting Diameter
D3	Neck Diameter
D4	Bolt Circle Diameter
D41	Bolt Circle 2 Diameter
D6	Hub Diameter
DPM	Pilot Diameter Machine Side
G3X	Connection Thread Size External
hm	Average Chip Thickness
KRA	Lead Angle
L	Overall Length
L1	Holemaking: Tool Length
L1	Milling: Gage Length
L10	Insert Cutting Edge Length
L2	Milling: Head Length
L3	Drill Flute Length
L3	Milling: Maximum Depth
L4 max	Maximum Drill Depth
L5	Drill Point Length
lbs	Weight Pounds
LS	Shank Length
max RPM	Maximum Revolutions Per Minute
Rε	Corner Radius
R	Profile or Ball Nose Radii
S	Insert Thickness
W	Cutting Edge Width or Slot Width
WF	Milling: Width of Flat
Z	Number of Inserts

Material Cross Reference • DIN

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 Aluminum	–	–	–	–	AlMg1, Al99.5, AlCuMg1, AlCuBiPb, AlMgSi1, ALMgSiPb
N2	Low-Silicon Aluminum Alloys and Magnesium Alloys	Si <12,2%	–	–	–	GAlSiCu4, GDAlSi10Mg
N3	High-Silicon Aluminum 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, Fiberglass	–	–	–	–	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	–	–	–	–	–

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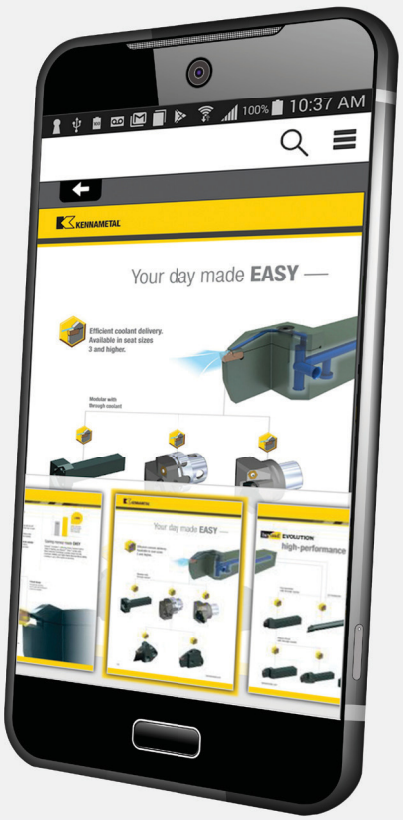

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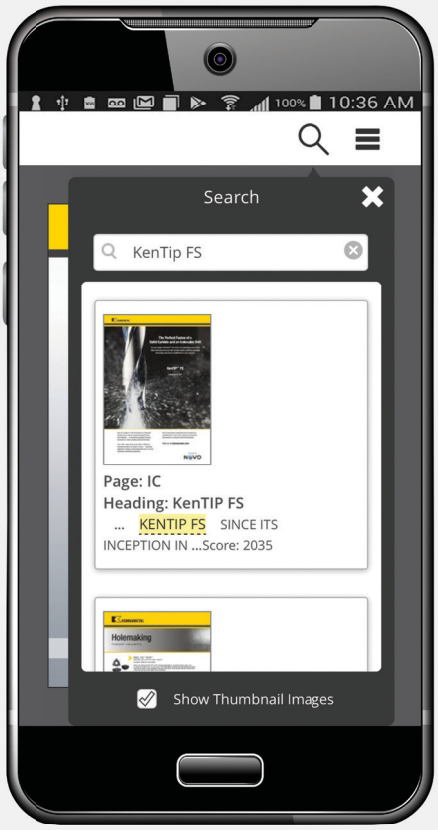

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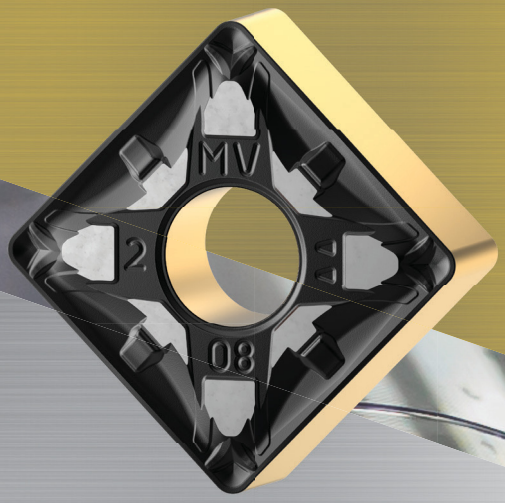

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METALCUTTING SAFETY

IMPORTANT SAFETY INSTRUCTIONS

Read before using the tools in this catalog!

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 catalog 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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