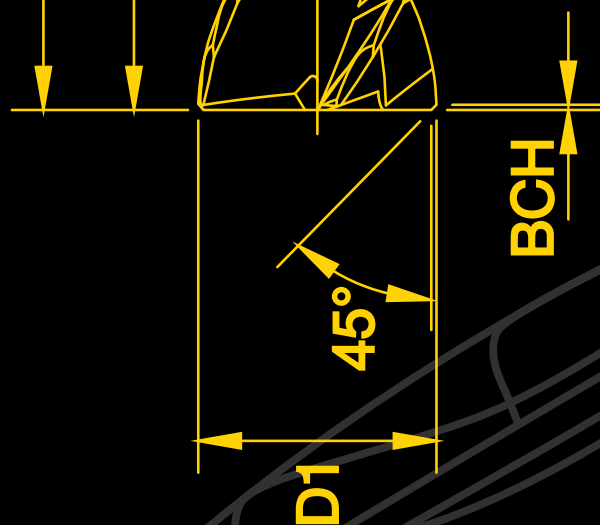


MILLING MASTERY



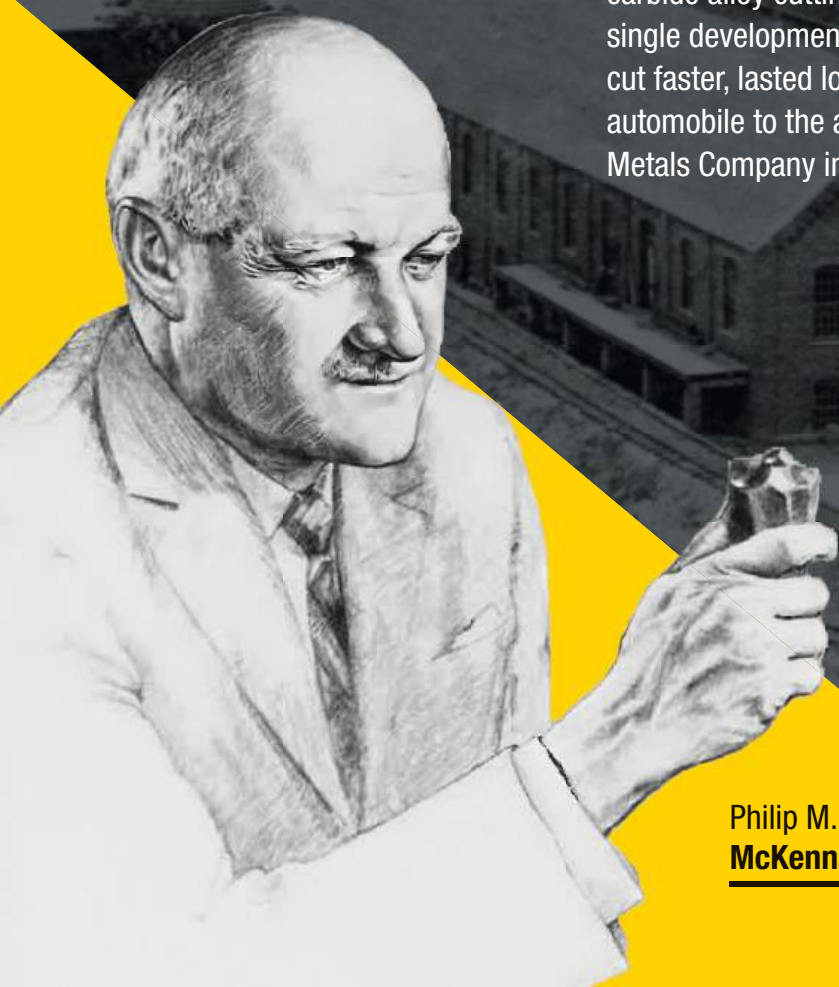
SOLID END MILLING
SOLID & MODULAR - INCH



We've Been Cutting Metal Since 1938.

OUR STORY IS ONE OF

It starts in 1938 with our founder, metallurgist Philip M. McKenna, who after years of research created revolutionary tungsten-titanium carbide alloy cutting tools specifically for working with steel. That single development not only led to a new class of machining tools that cut faster, lasted longer and drove productivity in everything from the automobile to the airplane, but also led to the opening of McKenna Metals Company in Latrobe, Pennsylvania, United States.



Philip M.
McKenna

Kingston Plant



**from left: Mary Laughner, Regina Atkinson, Richard Noel, Alex G. McKenna, Harry Fowler, Philip M. McKenna, James Harris, Donald Shick, Wilson Gallo*



McKenna Metals Company original building in Latrobe, Pennsylvania circa late 1930s/early 1940s.



McKenna Metals Company Grinding Department in Latrobe, Pennsylvania in 1942.



Philip M. McKenna showcasing his tungsten-titanium carbide alloy developments at McKenna Metals Company's first exhibition event in 1940.

CONTINUOUS INNOVATION

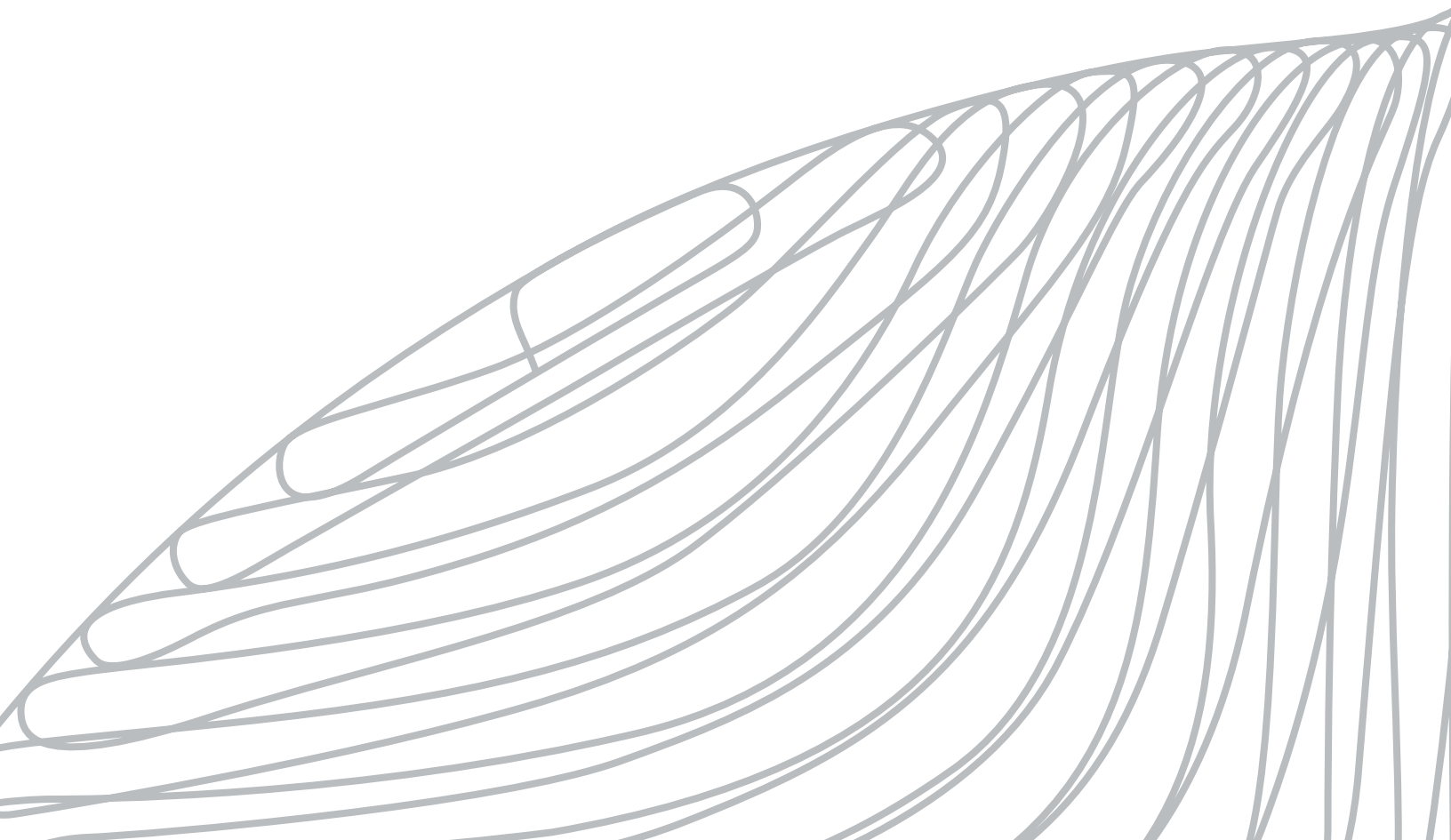
Today, that company is Kennametal Inc.—a recognized leader in metalworking serving customers across continents and industries including transportation, construction, aerospace and defense, machining and cutting, energy and general engineering. We have a reputation for building innovative solutions for our customers' most challenging applications. The name Kennametal is synonymous for high-quality, high-performance tools that can withstand the most strenuous conditions and bring ease to a wide range of machining operations. We help our customers' operations run longer, faster and with greater precision.



**WE DON'T CUT CORNERS.
WE CUT METAL.**

**YOUR TOUGHEST MATERIALS
DON'T STAND A CHANCE.**

Philip M. McKenna's first metalworking shop in Latrobe, Pennsylvania in 1938.



END MILLING

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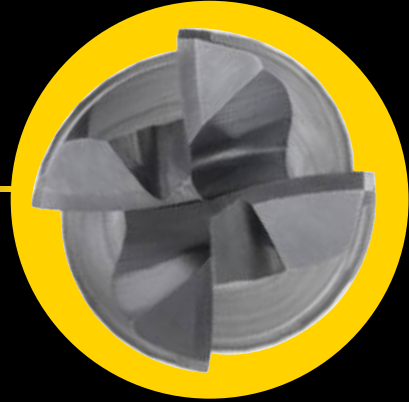
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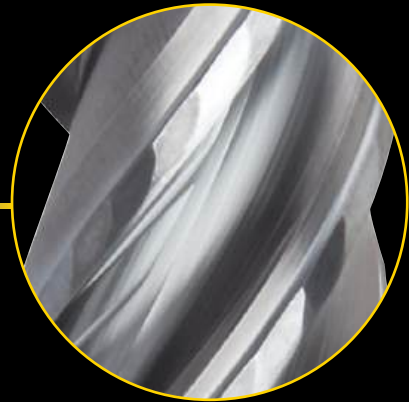
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HARVI I TE

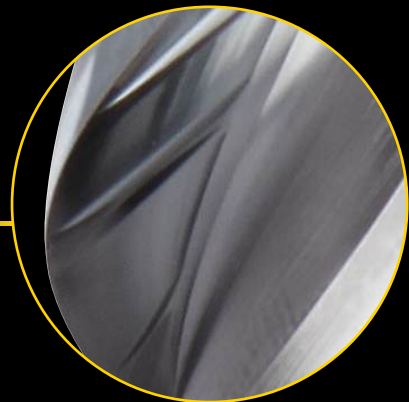
INNOVATIVE PROPRIETARY DESIGN FEATURES
DRIVING MAXIMUM PRODUCTIVITY



TWISTED END FACE



FACETED ECCENTRIC RELIEF



CHIP GASHES WITHIN FLUTES

METAL CUTTING SAFETY

IMPORTANT SAFETY INSTRUCTIONS

Read before using the tools in this catalog!

PROJECTILE AND FRAGMENTATION HAZARDS:

Modern metal cutting operations involve high spindle and cutter speeds and high temperatures and cutting forces. Hot metal chips may fly off the workpiece during metal cutting. 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.

- Always wear appropriate personal protective equipment, including safety goggles, when operating metal cutting 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.

- 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 Metal Cutting 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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GET FAST AND RELIABLE ANSWERS

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

Region	Originating Country	Language	CAS Hotline	Email
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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
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Numbers shown only serve the originating country listed.

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.

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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
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	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 customers should contact the Singapore office.

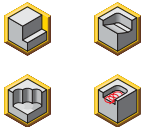
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HIGH PERFORMANCE SOLID CARBIDE END MILLING



TOOL SELECTOR

HIGH-PERFORMANCE ROUGHING AND FINISHING					
HARVI TE					
					
Series	H1TE4CH..S-X..	H1TE4RA..S-X..	H1TE4RA..N-E..	H1TE4SE..S-X..	H1TE4BN..R-L..
Tool type					
Rougher	●	●	●	●	●
Finisher	○	○	○	○	○
Chamfering					
Main operation					
Workpiece material					
Primary	P M K	P M K S	P M K S	P M K	P M K
Secondary	S H	H	H	S H	S H
Corner style					
Corner radius [Re]	—	.010–.250"	.015–.250"	—	—
Corner chamfer width [BCH]	.015–.020"	—	—	—	—
Cutter diameter [D1]	1/8–1-1/4"	1/8–1-1/4"	1/4–1"	1/16–1-1/4"	1/16–1"
Length of cut	1.2–4 x D	1.2–4 x D	1.1–1.5 x D	1.2–4 x D	1.5–4 x D
Maximum cutting depth [Ap1 max]	1/4–4"	1/4–4"	3/8–1-1/8"	1/8–4"	1/8–3-1/4"
Flute helix angle	36°/39°	36°/39°	36°/39°	36°/39°	36°/39°
Number of flutes [ZU]	4	4	4	4	4
Center cutting	✓	✓	✓	✓	✓
Additional operations					

- Primary
- Secondary

TOOL SELECTOR

HIGH-PERFORMANCE ROUGHING AND FINISHING					
HARVI II TE		HARVI II			
					
Series	H2TE5SE..S-X	H2TE5RA..S-X	UCDE	UCDE with Neck	UDDE
Tool type					
Rougher	●	●	●	●	●
Finisher	○	○	○	○	○
Chamfering					
Main operation					
Workpiece material					
Primary	M S	M S	P M K	P M S K	P S
Secondary	P H	P H	S H	H	
Corner style			 		 
Corner radius [Rε]	—	.010–.250"	.015–.120"	.015–.030"	.015–.120"
Corner chamfer width [BCH]	—	—	—	—	—
Cutter diameter [D1]	1/8–1"	1/8–1"	3/16–1"	1/4–1"	1/2–1"
Length of cut	1.25–4 x D	1.25–4 x D	1.75–3.3 x D	1.75–2.5 x D	1.75–2.5 x D
Maximum cutting depth [Ap1 max]	5/16 - 3 1/4"	5/16–4 1/2"	5/8–1-3/4"	1/2–1-3/4"	1-1/4–1-3/4"
Flute helix angle	36°/39°	36°/39°	38°	38°	38°
Number of flutes [ZU]	5	5	5	5	5
Center cutting					
Additional operations	    	    	  	  	  

● Primary
○ Secondary

TOOL SELECTOR

HIGH-PERFORMANCE ROUGHING AND FINISHING					
HARVI III					
					
Series	HA3R6RA/SE..S-X..	HA3R6RA..N..	HA3R6BN..S-X..	HA3R6BN..N..	HA3R6TB..L-X..
Tool type					
Rougher	●	●	○	○	○
Finisher	○	○	●	●	●
Chamfering					
Main operation					
Workpiece material					
Primary	M S	M S	M S	M S	M S
Secondary	P H	P H	P H	P H	P H
Corner style					
Corner radius [Re]	.015–.250"	.015–.120"	—	—	—
Corner chamfer width [BCH]	—	—	—	—	—
Cutter diameter [D1]	3/8–1-1/4"	3/8–1"	3/8–1"	3/8–3/4"	1/8–7/16"
Length of cut	1.3–4 x D	1.5–2.5 x D	2–2.5 x D	1.25 x D	1.7–9.5 x D
Maximum cutting depth [Ap1 max]	1–2-1/4"	7/8–1-3/4"	7/8–1-1/2"	1/2–1"	3/4–2 x D
Flute helix angle	38°	38°	38°	38°	38°
Number of flutes [ZU]	6	6	6	6	6
Center cutting	✓	✓	✓	✓	✓
Additional operations	 	 	 	 	

- Primary
- Secondary

TOOL SELECTOR

HIGH-PERFORMANCE ROUGHING AND FINISHING

HARVI III Aero



Series	HA3A6RA..S-X..	HA3A6BN..S-X..
Tool type		
Rougher	●	○
Finisher	○	●
Chamfering		
Main operation		
Workpiece material		
Primary	M S	M S
Secondary	P H	P H
Corner style		
Corner radius [Re]	.030-.500"	—
Corner chamfer width [BCH]	—	—
Cutter diameter [D1]	1/2-1-1/2"	1/2-1-1/4"
Length of cut	1.0-5.3 x D	1.3-5.3 x D
Maximum cutting depth [Ap1 max]	1-6-1/2"	1-6-1/2"
Flute helix angle	38°	38°
Number of flutes [ZU]	6	6
Center cutting	✓	✓
Additional operations		

- Primary
- Secondary

TOOL SELECTOR

HIGH-PERFORMANCE ROUGHING AND FINISHING						
	HARVI IV				HARVI II Long	
						
Series	HA4R8RA..I	HA4R8RA..D	HA4R8SE..I	HA4R8SE..D	HA2L5RA/SE..L..	HA2L5RA/SE..X..
Tool type						
Rougher	○	○	○	○		
Finisher	●	●	●	●	●	●
Chamfering						
Main operation						
Workpiece material						
Primary	M S	M S	M S	M S	P M S	P M S
Secondary	P H	P H	P H	P H	K H	K H
Corner style					 	 
Corner radius [Re]	.015-.250	.015-.250			.015-.120"	.015-.120"
Corner chamfer width [BCH]	—	—	—	—	—	—
Cutter diameter [D1]	.375-1"	.375-1"	.375-1"	.375-1"	1/4-1"	1/4-1"
Length of cut	1.2 - 2.2 x D	2.2 - 4.3 x D	1.2 - 2.2 x D	2.2 - 4.3 x D	3 x D	5 x D
Maximum cutting depth [Ap1 max]	1/2-2"	1-4"	1/2-2"	1-4"	3/4-3"	1-1/4-5"
Flute helix angle	35°	35°	35°	35°	43°	43°
Number of flutes [ZU]	8	8	8	8	5	5
Center cutting						
Additional operations	 	 	 	 		

- Primary
- Secondary

TOOL SELECTOR

DYNAMIC MILLING							
KOR 5 ^{DS}		KOR 5 ^{DA}			KOR 6 ^{DT}		
							
Series	KOR5..R..	KOR5..L..	KOR5..R..I	KOR5..L..I..	KOR5..R..C	KOR6..R..	KOR6..L..
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 [Re]	0.030—0.060"	0.030—0.060"	0.015—0.120"	0.015—0.120"	0.015—0.120"	0.030—0.060"	0.030—0.060"
Corner chamfer width [BCH]	—	—	—	—	—	—	—
Cutter diameter [D1]	1/4—1"	1/4—1"	3/8—1"	0.015—0.120"	3/8—1"	3/8—1"	3/8—1"
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]	3/4—3"	1 1/4—5"	1 1/8—3"	1 7/8—5"	1 1/8—3"	1 1/8—3"	1 7/8—5"
Flute helix angle	40°	40°	35°	35°	35°	38°	38°
Number of flutes [ZU]	5	5	5	5	5	6	6
Coolant							
Additional operations	 	 	 	 	 	 	 
							

- Primary
- Secondary

HARVI I TE

High-Performance Roughing and Finishing
with Maximum Versatility

Materials



Industries



Automotive



General
Engineering



Wind & Solar



Aerospace



Medical



Oil & Gas

Applications



Slotting



Side Milling/
Shoulder Milling



Ramping



Helical Interpolation



Plunge Milling



Trochoidal Milling



3D Profiling

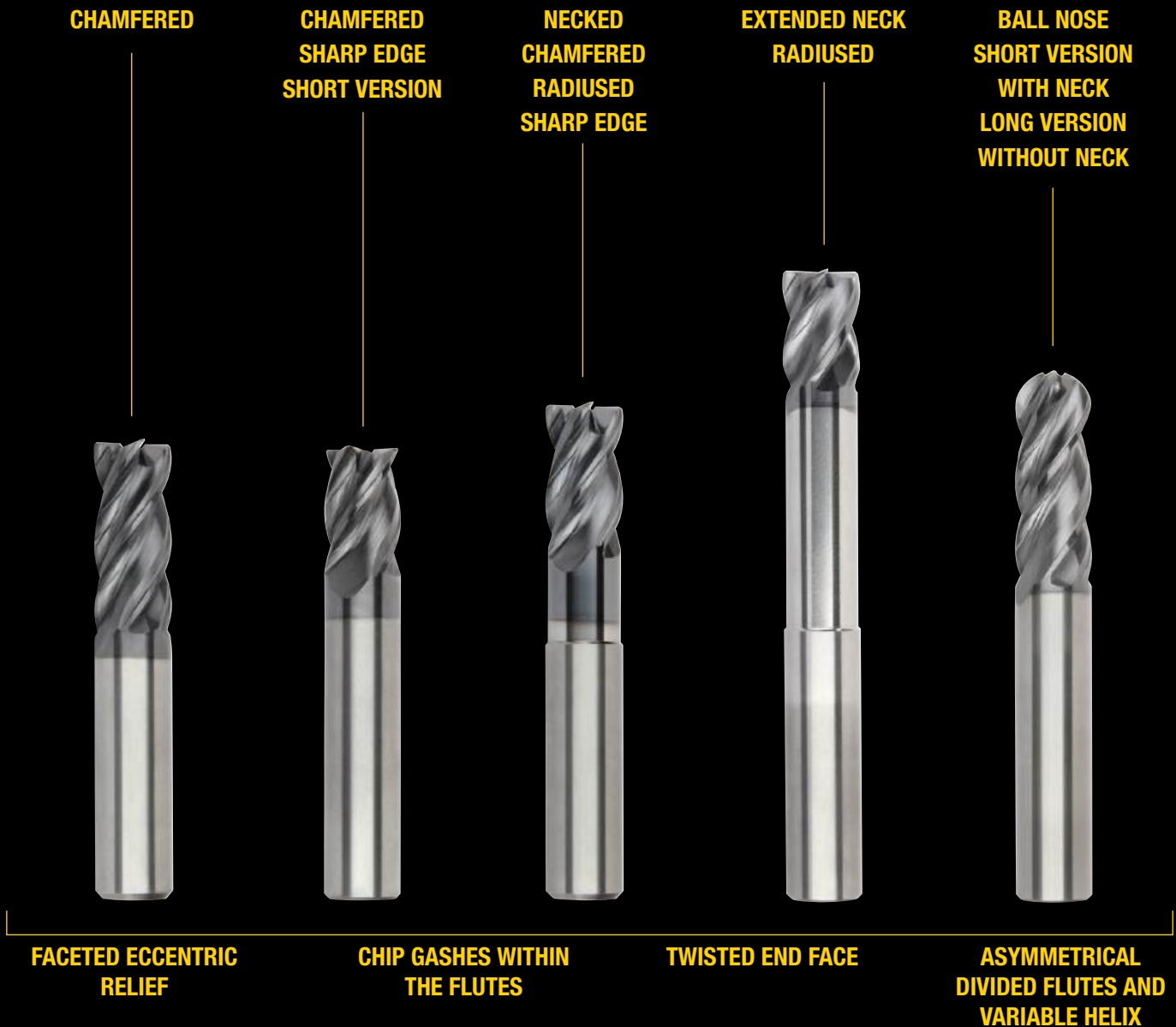


Slotting: Ball Nose



- Four-flute end mill for roughing and finishing covering the broadest range of applications and materials.
- The HARVI I TE Series solid carbide end mills insure maximum metal removal rates in a variety of operations, including dynamic, milling, and extreme ramping operations.
- Applicable in steels, stainless steels, cast iron, high-temp alloys and hardened materials.

HARVI I TE — Maximum metal removal. Maximum productivity. Maximum benefit.



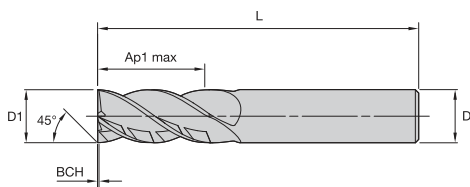
Proprietary end face design — Twisted cutting edge increases corner stability, enabling soft cutting action even at highest ramping angles.

Asymmetrical divided flutes and variable helix — Enables vibration dampening and unmatched feed rates.

Proprietary relief — A precision-faceted eccentric relief reduces vibrations and friction for excellent cutting conditions in multiple materials.

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

Proprietary core design — Increases tool stability.



HARVI I TE

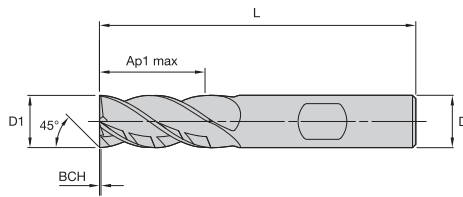
Chamfered • 4 Flutes • Plain Shank

P	●
M	●
K	●
N	●
S	○
H	○

● Primary
○ Secondary

KCPM15

Order Number	Catalog Number	D1	D	Ap1 Max	L	BCH	
6676987	H1TE4CH0125R025HA	1/8	1/8	1/4	1 1/2	.015	●
6676988	H1TE4CH0125X050HA	1/8	1/8	1/2	2	.015	●
6676989	H1TE4CH0156L044HA	5/32	3/16	7/16	2	.015	●
6676990	H1TE4CH0188S031HA	3/16	3/16	5/16	1 1/2	.015	●
6676991	H1TE4CH0188L063HA	3/16	3/16	5/8	2 1/4	.015	●
6676992	H1TE4CH0219R044HA	7/32	1/4	7/16	2	.015	●
6676993	H1TE4CH0250S038HA	1/4	1/4	3/8	2	.015	●
6676994	H1TE4CH0250L075HA	1/4	1/4	3/4	2 1/2	.015	●
6676995	H1TE4CH0281R063HA	9/32	5/16	5/8	2 1/2	.015	●
6676996	H1TE4CH0313S050HA	5/16	5/16	1/2	2	.015	●
6676997	H1TE4CH0313R075HA	5/16	5/16	3/4	2 1/2	.015	●
6676998	H1TE4CH0375S050HA	3/8	3/8	1/2	2	.020	●
6676999	H1TE4CH0375R088HA	3/8	3/8	7/8	2 1/2	.020	●
6677000	H1TE4CH0438R100HA	7/16	7/16	1	2 3/4	.020	●
6677001	H1TE4CH0500S063HA	1/2	1/2	5/8	2 1/2	.020	●
6677002	H1TE4CH0500R100HA	1/2	1/2	1	3	.020	●
6677003	H1TE4CH0500R125HA	1/2	1/2	1 1/4	3 1/4	.020	●
6677004	H1TE4CH0500L150HA	1/2	1/2	1 1/2	4	.020	●
6677005	H1TE4CH0625S075HA	5/8	5/8	3/4	3	.020	●
6677006	H1TE4CH0625R125HA	5/8	5/8	1 1/4	3 1/2	.020	●
6677007	H1TE4CH0625X225HA	5/8	5/8	2 1/4	5	.020	●
6677008	H1TE4CH0750S088HA	3/4	3/4	7/8	3 1/2	.020	●
6677009	H1TE4CH0750R150HA	3/4	3/4	1 1/2	4	.020	●
6677010	H1TE4CH0750L225HA	3/4	3/4	2 1/4	5	.020	●
6677031	H1TE4CH0750X300HA	3/4	3/4	3	6	.020	●
6677032	H1TE4CH1000S150HA	1	1	1 1/2	4 1/2	.020	●
6677033	H1TE4CH1000R225HA	1	1	2 1/4	5	.020	●
6677034	H1TE4CH1000L300HA	1	1	3	6	.020	●
6677035	H1TE4CH1000X400HA	1	1	4	7	.020	●
6677036	H1TE4CH1250R300HA	1 1/4	1 1/4	3	7	.020	●



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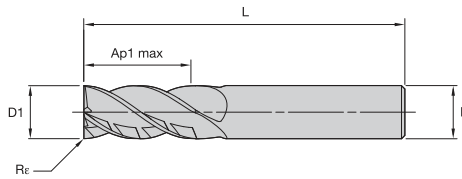
● Primary
○ Secondary

KCPM15

HARVI I TE

Chamfered • 4 Flutes • Weldon Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	BCH	
6677037	H1TE4CH0375S050HB	3/8	3/8	1/2	2	.020	●
6677038	H1TE4CH0375R088HB	3/8	3/8	7/8	2 1/2	.020	●
6677039	H1TE4CH0438R100HB	7/16	7/16	1	2 3/4	.020	●
6677040	H1TE4CH0500S063HB	1/2	1/2	5/8	2 1/2	.020	●
6677051	H1TE4CH0500R100HB	1/2	1/2	1	3	.020	●
6677052	H1TE4CH0500R125HB	1/2	1/2	1 1/4	3 1/4	.020	●
6677053	H1TE4CH0500L150HB	1/2	1/2	1 1/2	4	.020	●
6677054	H1TE4CH0625S075HB	5/8	5/8	3/4	3	.020	●
6677055	H1TE4CH0625R125HB	5/8	5/8	1 1/4	3 1/2	.020	●
6677056	H1TE4CH0625X225HB	5/8	5/8	2 1/4	5	.020	●
6677057	H1TE4CH0750S088HB	3/4	3/4	7/8	3 1/2	.020	●
6677058	H1TE4CH0750R150HB	3/4	3/4	1 1/2	4	.020	●
6677059	H1TE4CH0750L225HB	3/4	3/4	2 1/4	5	.020	●
6677060	H1TE4CH0750X300HB	3/4	3/4	3	6	.020	●
6677061	H1TE4CH1000S150HB	1	1	1 1/2	4 1/2	.020	●
6677062	H1TE4CH1000R225HB	1	1	2 1/4	5	.020	●
6677063	H1TE4CH1000L300HB	1	1	3	6	.020	●
6677064	H1TE4CH1000X400HB	1	1	4	7	.020	●
6677065	H1TE4CH1250R300HB	1 1/4	1 1/4	3	7	.020	●



● Primary
○ Secondary

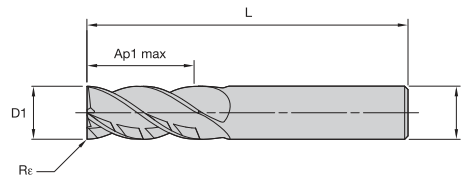
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HARVI I TE

Radiused • 4 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Re	
6676348	H1TE4RA0125R025HAR010	1/8	1/8	1/4	1 1/2	.010	●
6676349	H1TE4RA0125R025HAR015	1/8	1/8	1/4	1 1/2	.015	●
6676350	H1TE4RA0125X050HAR010	1/8	1/8	1/2	1 1/2	.010	●
6676351	H1TE4RA0125X050HAR015	1/8	1/8	1/2	1 1/2	.015	●
6676352	H1TE4RA0156L044HAR010	5/32	3/16	7/16	2	.010	●
6676353	H1TE4RA0188R038HAR010	3/16	3/16	3/8	2	.010	●
6676354	H1TE4RA0188R038HAR030	3/16	3/16	3/8	2	.030	●
6676355	H1TE4RA0188L063HAR010	3/16	3/16	5/8	2 1/4	.010	●
6676356	H1TE4RA0188L063HAR030	3/16	3/16	5/8	2 1/4	.030	●
6676357	H1TE4RA0219R044HAR010	7/32	1/4	7/16	2	.010	●
6676358	H1TE4RA0250S038HAR015	1/4	1/4	3/8	2	.015	●
6676359	H1TE4RA0250S038HAR030	1/4	1/4	3/8	2	.030	●
6676360	H1TE4RA0250R050HAR015	1/4	1/4	1/2	2 1/2	.015	●
6676361	H1TE4RA0250R050HAR030	1/4	1/4	1/2	2 1/2	.030	●
6676362	H1TE4RA0250R050HAR060	1/4	1/4	1/2	2 1/2	.060	●
6676363	H1TE4RA0250R050HAR090	1/4	1/4	1/2	2 1/2	.090	●
6676370	H1TE4RA0250L075HAR015	1/4	1/4	3/4	2 1/2	.015	●
6676371	H1TE4RA0250L075HAR030	1/4	1/4	3/4	2 1/2	.030	●
6676372	H1TE4RA0250L075HAR060	1/4	1/4	3/4	2 1/2	.060	●
6676373	H1TE4RA0250L075HAR090	1/4	1/4	3/4	2 1/2	.090	●
6676374	H1TE4RA0281R063HAR010	9/32	5/16	5/8	2 1/2	.010	●
6676375	H1TE4RA0313S050HAR015	5/16	5/16	1/2	2	.015	●
6676377	H1TE4RA0313S050HAR030	5/16	5/16	1/2	2	.030	●
6676378	H1TE4RA0313S050HAR060	5/16	5/16	1/2	2	.060	●
6676379	H1TE4RA0313R081HAR015	5/16	5/16	13/16	2 1/2	.015	●
6676380	H1TE4RA0313R081HAR030	5/16	5/16	13/16	2 1/2	.030	●
6676381	H1TE4RA0313R081HAR060	5/16	5/16	13/16	2 1/2	.060	●
6676382	H1TE4RA0375R088HAR015	3/8	3/8	7/8	2 1/2	.015	●
6676383	H1TE4RA0375R088HAR030	3/8	3/8	7/8	2 1/2	.030	●
6676384	H1TE4RA0375R088HAR060	3/8	3/8	7/8	2 1/2	.060	●
6676385	H1TE4RA0375R088HAR090	3/8	3/8	7/8	2 1/2	.090	●
6676386	H1TE4RA0375R100HAR015	3/8	3/8	1	3	.015	●
6676387	H1TE4RA0375R100HAR030	3/8	3/8	1	3	.030	●
6676388	H1TE4RA0375R100HAR060	3/8	3/8	1	3	.060	●
6676389	H1TE4RA0375R100HAR090	3/8	3/8	1	3	.090	●
6676390	H1TE4RA0375X150HAR015	3/8	3/8	1 1/2	4	.015	●
6676401	H1TE4RA0375X150HAR030	3/8	3/8	1 1/2	4	.030	●
6676402	H1TE4RA0375X150HAR060	3/8	3/8	1 1/2	4	.060	●
6676403	H1TE4RA0438R100HAR015	7/16	7/16	1	2 3/4	.015	●
6676404	H1TE4RA0438R100HAR030	7/16	7/16	1	2 3/4	.030	●
6676405	H1TE4RA0500S063HAR015	1/2	1/2	5/8	2 1/2	.015	●
6676406	H1TE4RA0500S063HAR030	1/2	1/2	5/8	2 1/2	.030	●
6676407	H1TE4RA0500S063HAR060	1/2	1/2	5/8	2 1/2	.060	●
6676408	H1TE4RA0500R100HAR015	1/2	1/2	1	3	.015	●
6676409	H1TE4RA0500R100HAR030	1/2	1/2	1	3	.030	●
6676410	H1TE4RA0500R100HAR060	1/2	1/2	1	3	.060	●
6676421	H1TE4RA0500R100HAR090	1/2	1/2	1	3	.090	●
6676422	H1TE4RA0500R100HAR120	1/2	1/2	1	3	.120	●
6676423	H1TE4RA0500R125HAR015	1/2	1/2	1 1/4	3 1/4	.015	●
6676424	H1TE4RA0500R125HAR030	1/2	1/2	1 1/4	3 1/4	.030	●
6676425	H1TE4RA0500R125HAR060	1/2	1/2	1 1/4	3 1/4	.060	●
6676426	H1TE4RA0500R125HAR090	1/2	1/2	1 1/4	3 1/4	.090	●

KCSM15



● Primary
○ Secondary

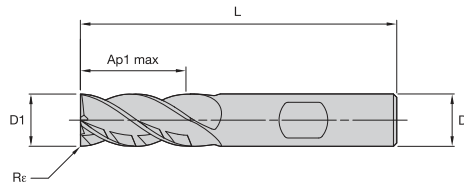
P	●
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KCSM15

HARVI I TE

Radiused • 4 Flutes • Plain Shank (continued)

Order Number	Catalog Number	D1	D	Ap1 Max	L	Re	
6676427	H1TE4RA0500R125HAR120	1/2	1/2	1 1/4	3 1/4	.120	●
6676428	H1TE4RA0500L150HAR030	1/2	1/2	1 1/2	4	.030	●
6676429	H1TE4RA0500L150HAR060	1/2	1/2	1 1/2	4	.060	●
6676430	H1TE4RA0500X200HAR030	1/2	1/2	2	4	.030	●
6676431	H1TE4RA0500X200HAR060	1/2	1/2	2	4	.060	●
6676432	H1TE4RA0625S075HAR030	5/8	5/8	3/4	3	.030	●
6676433	H1TE4RA0625S075HAR060	5/8	5/8	3/4	3	.060	●
6676434	H1TE4RA0625R125HAR015	5/8	5/8	1 1/4	3 1/2	.015	●
6676435	H1TE4RA0625R125HAR030	5/8	5/8	1 1/4	3 1/2	.030	●
6676436	H1TE4RA0625R125HAR060	5/8	5/8	1 1/4	3 1/2	.060	●
6676437	H1TE4RA0625R125HAR090	5/8	5/8	1 1/4	3 1/2	.090	●
6676438	H1TE4RA0625R125HAR120	5/8	5/8	1 1/4	3 1/2	.120	●
6676439	H1TE4RA0625X225HAR030	5/8	5/8	2 1/4	5	.030	●
6676440	H1TE4RA0625X225HAR060	5/8	5/8	2 1/4	5	.060	●
6676451	H1TE4RA0625X225HAR090	5/8	5/8	2 1/4	5	.090	●
6676452	H1TE4RA0625X225HAR120	5/8	5/8	2 1/4	5	.120	●
6676453	H1TE4RA0750S088HAR030	3/4	3/4	7/8	3 1/2	.030	●
6676454	H1TE4RA0750S088HAR060	3/4	3/4	7/8	3 1/2	.060	●
6676455	H1TE4RA0750R150HAR015	3/4	3/4	1 1/2	4	.015	●
6676456	H1TE4RA0750R150HAR030	3/4	3/4	1 1/2	4	.030	●
6676457	H1TE4RA0750R150HAR060	3/4	3/4	1 1/2	4	.060	●
6676458	H1TE4RA0750R150HAR090	3/4	3/4	1 1/2	4	.090	●
6676459	H1TE4RA0750R150HAR120	3/4	3/4	1 1/2	4	.120	●
6676460	H1TE4RA0750L225HAR030	3/4	3/4	2 1/4	5	.030	●
6676461	H1TE4RA0750L225HAR060	3/4	3/4	2 1/4	5	.060	●
6676462	H1TE4RA0750L225HAR090	3/4	3/4	2 1/4	5	.090	●
6676463	H1TE4RA0750L225HAR120	3/4	3/4	2 1/4	5	.120	●
6676464	H1TE4RA1000S150HAR030	1	1	1 1/2	4 1/2	.030	●
6676465	H1TE4RA1000S150HAR060	1	1	1 1/2	4 1/2	.060	●
6676466	H1TE4RA1000S150HAR090	1	1	1 1/2	4 1/2	.090	●
6676467	H1TE4RA1000S150HAR120	1	1	1 1/2	4 1/2	.120	●
6676468	H1TE4RA1000S150HAR250	1	1	1 1/2	4 1/2	.250	●
6676469	H1TE4RA1000R225HAR030	1	1	2 1/4	5	.030	●
6676470	H1TE4RA1000R225HAR060	1	1	2 1/4	5	.060	●
6676471	H1TE4RA1000R225HAR090	1	1	2 1/4	5	.090	●
6676472	H1TE4RA1000R225HAR120	1	1	2 1/4	5	.120	●
6676473	H1TE4RA1000R225HAR250	1	1	2 1/4	5	.250	●
6676474	H1TE4RA1000L300HAR030	1	1	3	6	.030	●
6676475	H1TE4RA1000L300HAR060	1	1	3	6	.060	●
6676476	H1TE4RA1000X400HAR030	1	1	4	7	.030	●
6676477	H1TE4RA1000X400HAR060	1	1	4	7	.060	●
6676478	H1TE4RA1250R300HAR030	1 1/4	1 1/4	3	7	.030	●
6676479	H1TE4RA1250R300HAR060	1 1/4	1 1/4	3	7	.060	●
6676480	H1TE4RA1250R300HAR120	1 1/4	1 1/4	3	7	.120	●



● Primary
○ Secondary

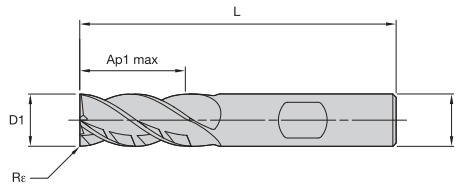
P	●	○
M	●	○
K	●	○
N	●	○
S	●	○
H	●	○

HARVI I TE

Radiused • 4 Flutes • Weldon Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Re	
6676481	H1TE4RA0375R088HBR015	3/8	3/8	7/8	2 1/2	.015	●
6676482	H1TE4RA0375R088HBR030	3/8	3/8	7/8	2 1/2	.030	●
6676483	H1TE4RA0375R088HBR060	3/8	3/8	7/8	2 1/2	.060	●
6676484	H1TE4RA0375R088HBR090	3/8	3/8	7/8	2 1/2	.090	●
6676485	H1TE4RA0375R100HBR015	3/8	3/8	1	3	.015	●
6676486	H1TE4RA0375R100HBR030	3/8	3/8	1	3	.030	●
6676487	H1TE4RA0375R100HBR060	3/8	3/8	1	3	.060	●
6676488	H1TE4RA0375R100HBR090	3/8	3/8	1	3	.090	●
6676489	H1TE4RA0375X150HBR015	3/8	3/8	1 1/2	4	.015	●
6676490	H1TE4RA0375X150HBR030	3/8	3/8	1 1/2	4	.030	●
6676491	H1TE4RA0375X150HBR060	3/8	3/8	1 1/2	4	.060	●
6676492	H1TE4RA0438R100HBR015	7/16	7/16	1	2 3/4	.015	●
6676493	H1TE4RA0438R100HBR030	7/16	7/16	1	2 3/4	.030	●
6676494	H1TE4RA0500S063HBR015	1/2	1/2	5/8	2 1/2	.015	●
6676495	H1TE4RA0500S063HBR030	1/2	1/2	5/8	2 1/2	.030	●
6676496	H1TE4RA0500S063HBR060	1/2	1/2	5/8	2 1/2	.060	●
6676497	H1TE4RA0500R100HBR015	1/2	1/2	1	3	.015	●
6676498	H1TE4RA0500R100HBR030	1/2	1/2	1	3	.030	●
6676499	H1TE4RA0500R100HBR060	1/2	1/2	1	3	.060	●
6676500	H1TE4RA0500R100HBR090	1/2	1/2	1	3	.090	●
6676501	H1TE4RA0500R100HBR120	1/2	1/2	1	3	.120	●
6676502	H1TE4RA0500R125HBR015	1/2	1/2	1 1/4	3 1/4	.015	●
6676503	H1TE4RA0500R125HBR030	1/2	1/2	1 1/4	3 1/4	.030	●
6676504	H1TE4RA0500R125HBR060	1/2	1/2	1 1/4	3 1/4	.060	●
6676505	H1TE4RA0500R125HBR090	1/2	1/2	1 1/4	3 1/4	.090	●
6676506	H1TE4RA0500R125HBR120	1/2	1/2	1 1/4	3 1/4	.120	●
6676507	H1TE4RA0500L150HBR030	1/2	1/2	1 1/2	4	.030	●
6676508	H1TE4RA0500L150HBR060	1/2	1/2	1 1/2	4	.060	●
6676509	H1TE4RA0500X200HBR030	1/2	1/2	2	4	.030	●
6676510	H1TE4RA0500X200HBR060	1/2	1/2	2	4	.060	●
6676511	H1TE4RA0625S075HBR030	5/8	5/8	3/4	3	.030	●
6676512	H1TE4RA0625S075HBR060	5/8	5/8	3/4	3	.060	●
6676513	H1TE4RA0625R125HBR015	5/8	5/8	1 1/4	3 1/2	.015	●
6676514	H1TE4RA0625R125HBR030	5/8	5/8	1 1/4	3 1/2	.030	●
6676515	H1TE4RA0625R125HBR060	5/8	5/8	1 1/4	3 1/2	.060	●
6676516	H1TE4RA0625R125HBR090	5/8	5/8	1 1/4	3 1/2	.090	●
6676517	H1TE4RA0625R125HBR120	5/8	5/8	1 1/4	3 1/2	.120	●
6676518	H1TE4RA0625X225HBR030	5/8	5/8	2 1/4	5	.030	●
6676519	H1TE4RA0625X225HBR060	5/8	5/8	2 1/4	5	.060	●
6676520	H1TE4RA0625X225HBR090	5/8	5/8	2 1/4	5	.090	●
6676521	H1TE4RA0625X225HBR120	5/8	5/8	2 1/4	5	.120	●
6676522	H1TE4RA0750S088HBR030	3/4	3/4	7/8	3 1/2	.030	●
6676523	H1TE4RA0750S088HBR060	3/4	3/4	7/8	3 1/2	.060	●
6676524	H1TE4RA0750R150HBR015	3/4	3/4	1 1/2	4	.015	●
6676525	H1TE4RA0750R150HBR030	3/4	3/4	1 1/2	4	.030	●
6676526	H1TE4RA0750R150HBR060	3/4	3/4	1 1/2	4	.060	●
6676527	H1TE4RA0750R150HBR090	3/4	3/4	1 1/2	4	.090	●
6676528	H1TE4RA0750R150HBR120	3/4	3/4	1 1/2	4	.120	●
6676529	H1TE4RA0750L225HBR030	3/4	3/4	2 1/4	5	.030	●
6676530	H1TE4RA0750L225HBR060	3/4	3/4	2 1/4	5	.060	●
6676551	H1TE4RA0750L225HBR090	3/4	3/4	2 1/4	5	.090	●
6676552	H1TE4RA0750L225HBR120	3/4	3/4	2 1/4	5	.120	●

KCSM15



● Primary
○ Secondary

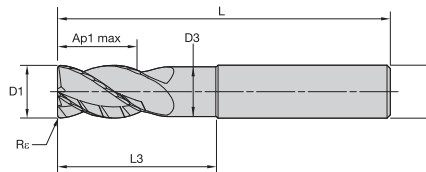
P	Blue	○
M	Yellow	●
K	Red	○
N	Green	●
S	Orange	○
H	Grey	●

KCSM15

HARVI I TE

Radiused • 4 Flutes • Weldon Shank (continued)

Order Number	Catalog Number	D1	D	Ap1 Max	L	Re	
6676553	H1TE4RA1000S150HBR030	1	1	1 1/2	4 1/2	.030	●
6676554	H1TE4RA1000S150HBR060	1	1	1 1/2	4 1/2	.060	●
6676555	H1TE4RA1000S150HBR090	1	1	1 1/2	4 1/2	.090	●
6676556	H1TE4RA1000S150HBR120	1	1	1 1/2	4 1/2	.120	●
6676557	H1TE4RA1000S150HBR250	1	1	1 1/2	4 1/2	.250	●
6676558	H1TE4RA1000R225HBR030	1	1	2 1/4	5	.030	●
6676560	H1TE4RA1000R225HBR060	1	1	2 1/4	5	.060	●
6676561	H1TE4RA1000R225HBR090	1	1	2 1/4	5	.090	●
6676562	H1TE4RA1000R225HBR120	1	1	2 1/4	5	.120	●
6676563	H1TE4RA1000R225HBR250	1	1	2 1/4	5	.250	●
6676564	H1TE4RA1000L300HBR030	1	1	3	6	.030	●
6676565	H1TE4RA1000L300HBR060	1	1	3	6	.060	●
6676566	H1TE4RA1000X400HBR030	1	1	4	7	.030	●
6676567	H1TE4RA1000X400HBR060	1	1	4	7	.060	●
6676568	H1TE4RA1250R300HBR030	1 1/4	1 1/4	3	7	.030	●
6676569	H1TE4RA1250R300HBR060	1 1/4	1 1/4	3	7	.060	●
6676570	H1TE4RA1250R300HBR120	1 1/4	1 1/4	3	7	.120	●



● Primary
○ Secondary

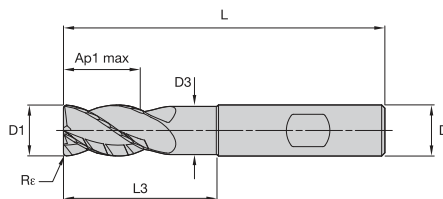
P	Blue	○
M	Yellow	●
K	Red	○
N	Green	●
S	Orange	○
H	Grey	●

KCSM15

HARVI I TE

Radiused • 4 Flutes • Necked • Plain Shank

Order Number	Catalog Number	D1	D	D3	Ap1 Max	L3	L	Re	
6767785	H1TE4RA0250N038HAR015	1/4	1/4	.2350	3/8	1 1/4	4	.015	●
6767786	H1TE4RA0250N038HAR030	1/4	1/4	.2350	3/8	1 1/4	4	.030	●
6767788	H1TE4RA0250N038HAR060	1/4	1/4	.2350	3/8	1 1/4	4	.060	●
6767789	H1TE4RA0250N038HAR090	1/4	1/4	.2350	3/8	1 1/4	4	.090	●
6767790	H1TE4RA0375N050HAR015	3/8	3/8	.3525	1/2	2	4	.015	●
6767811	H1TE4RA0375N050HAR030	3/8	3/8	.3525	1/2	2	4	.030	●
6767812	H1TE4RA0375N050HAR060	3/8	3/8	.3525	1/2	2	4	.060	●
6767814	H1TE4RA0375N050HAR090	3/8	3/8	.3525	1/2	2	4	.090	●
6767815	H1TE4RA0500N063HAR015	1/2	1/2	.4700	5/8	2 1/4	4	.015	●
6767816	H1TE4RA0500N063HAR030	1/2	1/2	.4700	5/8	2 1/4	4	.030	●
6767817	H1TE4RA0500N063HAR060	1/2	1/2	.4700	5/8	2 1/4	4	.060	●
6767818	H1TE4RA0500N063HAR090	1/2	1/2	.4700	5/8	2 1/4	4	.090	●
6767819	H1TE4RA0500N063HAR120	1/2	1/2	.4700	5/8	2 1/4	4	.120	●
6767820	H1TE4RA0625N075HAR015	5/8	5/8	.5875	3/4	2 1/4	4	.015	●
6767821	H1TE4RA0625N075HAR030	5/8	5/8	.5875	3/4	2 1/4	4	.030	●
6767822	H1TE4RA0625N075HAR060	5/8	5/8	.5875	3/4	2 1/4	4	.060	●
6767823	H1TE4RA0625N075HAR090	5/8	5/8	.5875	3/4	2 1/4	4	.090	●
6767824	H1TE4RA0625N075HAR120	5/8	5/8	.5875	3/4	2 1/4	4	.120	●
6767825	H1TE4RA0750N100HAR030	3/4	3/4	.7050	1	2 1/4	4 1/2	.030	●
6767826	H1TE4RA0750N100HAR060	3/4	3/4	.7050	1	2 1/4	4 1/2	.060	●
6767827	H1TE4RA0750N100HAR090	3/4	3/4	.7050	1	2 1/4	4 1/2	.090	●
6767828	H1TE4RA0750N100HAR120	3/4	3/4	.7050	1	2 1/4	4 1/2	.120	●
6767829	H1TE4RA0750E100HAR030	3/4	3/4	.7050	1	3 1/4	5 1/2	.030	●
6767830	H1TE4RA0750E100HAR060	3/4	3/4	.7050	1	3 1/4	5 1/2	.060	●
6767842	H1TE4RA0750E100HAR090	3/4	3/4	.7050	1	3 1/4	5 1/2	.090	●
6767843	H1TE4RA0750E100HAR120	3/4	3/4	.7050	1	3 1/4	5 1/2	.120	●
6767844	H1TE4RA1000N113HAR030	1	1	.9400	1 1/8	3 1/4	5 1/2	.030	●
6767845	H1TE4RA1000N113HAR060	1	1	.9400	1 1/8	3 1/4	5 1/2	.060	●
6767846	H1TE4RA1000N113HAR120	1	1	.9400	1 1/8	3 1/4	5 1/2	.120	●
6767847	H1TE4RA1000N113HAR250	1	1	.9400	1 1/8	3 1/4	5 1/2	.250	●



P	Blue	○
M	Yellow	●
K	Red	○
N	Green	●
S	Black	○
H	Grey	○

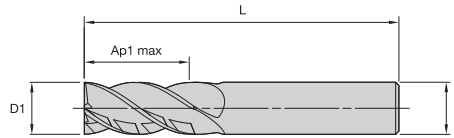
● Primary
○ Secondary

HARVI I TE

Radiused • 4 Flutes • Necked • Weldon Shank

Order Number	Catalog Number	D1	D	D3	Ap1 Max	L3	L	Re	
6767849	H1TE4RA0375N050HBR015	3/8	3/8	.3525	1/2	2	4	.015	•
6767850	H1TE4RA0375N050HBR030	3/8	3/8	.3525	1/2	2	4	.030	•
6767851	H1TE4RA0375N050HBR060	3/8	3/8	.3525	1/2	2	4	.060	•
6767852	H1TE4RA0375N050HBR090	3/8	3/8	.3525	1/2	2	4	.090	•
6767853	H1TE4RA0500N063HBR015	1/2	1/2	.4700	5/8	2 1/4	4	.015	•
6767854	H1TE4RA0500N063HBR030	1/2	1/2	.4700	5/8	2 1/4	4	.030	•
6767855	H1TE4RA0500N063HBR060	1/2	1/2	.4700	5/8	2 1/4	4	.060	•
6767856	H1TE4RA0500N063HBR090	1/2	1/2	.4700	5/8	2 1/4	4	.090	•
6767858	H1TE4RA0500N063HBR120	1/2	1/2	.4700	5/8	2 1/4	4	.120	•
6767859	H1TE4RA0625N075HBR015	5/8	5/8	.5875	3/4	2 1/4	4	.015	•
6767860	H1TE4RA0625N075HBR030	5/8	5/8	.5875	3/4	2 1/4	4	.030	•
6767861	H1TE4RA0625N075HBR060	5/8	5/8	.5875	3/4	2 1/4	4	.060	•
6767862	H1TE4RA0625N075HBR090	5/8	5/8	.5875	3/4	2 1/4	4	.090	•
6767863	H1TE4RA0625N075HBR120	5/8	5/8	.5875	3/4	2 1/4	4	.120	•
6767864	H1TE4RA0750N100HBR030	3/4	3/4	.7050	1	2 1/4	4 1/2	.030	•
6767865	H1TE4RA0750N100HBR060	3/4	3/4	.7050	1	2 1/4	4 1/2	.060	•
6767866	H1TE4RA0750N100HBR090	3/4	3/4	.7050	1	2 1/4	4 1/2	.090	•
6767868	H1TE4RA0750N100HBR120	3/4	3/4	.7050	1	2 1/4	4 1/2	.120	•
6767869	H1TE4RA0750E100HBR030	3/4	3/4	.7050	1	3 1/4	5 1/2	.030	•
6767870	H1TE4RA0750E100HBR060	3/4	3/4	.7050	1	3 1/4	5 1/2	.060	•
6767892	H1TE4RA0750E100HBR090	3/4	3/4	.7050	1	3 1/4	5 1/2	.090	•
6767893	H1TE4RA0750E100HBR120	3/4	3/4	.7050	1	3 1/4	5 1/2	.120	•
6767894	H1TE4RA1000N113HBR030	1	1	.9400	1 1/8	3 1/4	5 1/2	.030	•
6767896	H1TE4RA1000N113HBR060	1	1	.9400	1 1/8	3 1/4	5 1/2	.060	•
6767897	H1TE4RA1000N113HBR120	1	1	.9400	1 1/8	3 1/4	5 1/2	.120	•
6767898	H1TE4RA1000N113HBR250	1	1	.9400	1 1/8	3 1/4	5 1/2	.250	•

KCSM15



● Primary
○ Secondary

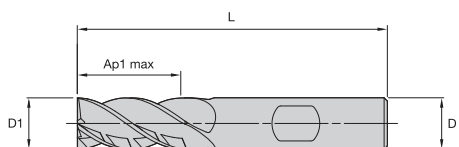
P	●
M	●
K	●
N	●
S	○
H	○

KCPM15

HARVI I TE

Square End • 4 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
6767731	H1TE4SE0063R013HA	1/16	1/8	1/8	1 1/2	●
6767733	H1TE4SE0078R016HA	5/64	1/8	5/32	1 1/2	●
6767734	H1TE4SE0094R019HA	3/32	1/8	3/16	1 1/2	●
6767735	H1TE4SE0109R025HA	7/64	1/8	1/4	1 1/2	●
6676840	H1TE4SE0125R025HA	1/8	1/8	1/4	1 1/2	●
6676911	H1TE4SE0125X050HA	1/8	1/8	1/2	2	●
6676912	H1TE4SE0156L044HA	5/32	3/16	7/16	2	●
6676913	H1TE4SE0188S031HA	3/16	3/16	5/16	1 1/2	●
6676914	H1TE4SE0188L063HA	3/16	3/16	5/8	2 1/4	●
6676915	H1TE4SE0219R044HA	7/32	1/4	7/16	2	●
6676916	H1TE4SE0250S038HA	1/4	1/4	3/8	2	●
6676917	H1TE4SE0250R050HA	1/4	1/4	1/2	2 1/2	●
6676918	H1TE4SE0250L075HA	1/4	1/4	3/4	2 1/2	●
6676919	H1TE4SE0250X100HA	1/4	1/4	1	3	●
6676920	H1TE4SE0281R063HA	9/32	5/16	5/8	2 1/2	●
6676921	H1TE4SE0313S050HA	5/16	5/16	1/2	2	●
6676922	H1TE4SE0313R075HA	5/16	5/16	3/4	2 1/2	●
6676923	H1TE4SE0375S050HA	3/8	3/8	1/2	2	●
6676924	H1TE4SE0375R088HA	3/8	3/8	7/8	2 1/2	●
6676925	H1TE4SE0375R100HA	3/8	3/8	1	3	●
6676926	H1TE4SE0375X150HA	3/8	3/8	1 1/2	4	●
6676927	H1TE4SE0438R100HA	7/16	7/16	1	2 3/4	●
6676928	H1TE4SE0500S063HA	1/2	1/2	5/8	2 1/2	●
6676929	H1TE4SE0500R100HA	1/2	1/2	1	3	●
6676930	H1TE4SE0500R125HA	1/2	1/2	1 1/4	3 1/4	●
6676941	H1TE4SE0500L150HA	1/2	1/2	1 1/2	4	●
6676942	H1TE4SE0500X200HA	1/2	1/2	2	4	●
6676943	H1TE4SE0625S075HA	5/8	5/8	3/4	3	●
6676944	H1TE4SE0625R125HA	5/8	5/8	1 1/4	3 1/2	●
6676945	H1TE4SE0625X225HA	5/8	5/8	2 1/4	5	●
6676946	H1TE4SE0750S088HA	3/4	3/4	7/8	3 1/2	●
6676947	H1TE4SE0750R150HA	3/4	3/4	1 1/2	4	●
6676948	H1TE4SE0750L225HA	3/4	3/4	2 1/4	5	●
6676949	H1TE4SE0750X300HA	3/4	3/4	3	6	●
6676950	H1TE4SE1000S150HA	1	1	1 1/2	4 1/2	●
6676961	H1TE4SE1000R225HA	1	1	2 1/4	5	●
6676962	H1TE4SE1000L300HA	1	1	3	6	●
6676963	H1TE4SE1000X400HA	1	1	4	7	●
6676964	H1TE4SE1250R300HA	1 1/4	1 1/4	3	7	●



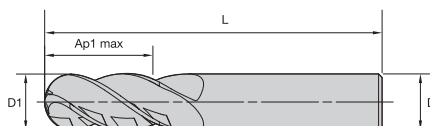
● Primary
○ Secondary

P	●
M	●
K	●
N	●
S	○
H	○

HARVI I TE

Square End • 4 Flutes • Weldon Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
6676965	H1TE4SE0375S050HB	3/8	3/8	1/2	2	●
6676966	H1TE4SE0375R088HB	3/8	3/8	7/8	2 1/2	●
6676967	H1TE4SE0375R100HB	3/8	3/8	1	3	●
6676968	H1TE4SE0375X150HB	3/8	3/8	1 1/2	4	●
6676969	H1TE4SE0438R100HB	7/16	7/16	1	2 3/4	●
6676970	H1TE4SE0500S063HB	1/2	1/2	5/8	2 1/2	●
6676971	H1TE4SE0500R100HB	1/2	1/2	1	3	●
6676972	H1TE4SE0500R125HB	1/2	1/2	1 1/4	3 1/4	●
6676973	H1TE4SE0500L150HB	1/2	1/2	1 1/2	4	●
6676974	H1TE4SE0500X200HB	1/2	1/2	2	4	●
6676975	H1TE4SE0625S075HB	5/8	5/8	3/4	3	●
6676976	H1TE4SE0625R125HB	5/8	5/8	1 1/4	3 1/2	●
6676977	H1TE4SE0625X225HB	5/8	5/8	2 1/4	5	●
6676978	H1TE4SE0750S088HB	3/4	3/4	7/8	3 1/2	●
6676979	H1TE4SE0750R150HB	3/4	3/4	1 1/2	4	●
6676980	H1TE4SE0750L225HB	3/4	3/4	2 1/4	5	●
6676981	H1TE4SE0750X300HB	3/4	3/4	3	6	●
6676982	H1TE4SE1000S150HB	1	1	1 1/2	4 1/2	●
6676983	H1TE4SE1000R225HB	1	1	2 1/4	5	●
6676984	H1TE4SE1000L300HB	1	1	3	6	●
6676985	H1TE4SE1000X400HB	1	1	4	7	●
6676986	H1TE4SE1250R300HB	1 1/4	1 1/4	3	7	●



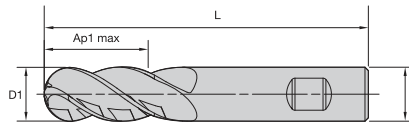
● Primary
○ Secondary

P	●
M	●
K	●
N	●
S	○
H	○

HARVI I TE

Ball Nose • 4 Flutes • Regular • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
6767762	H1TE4BN0063R013HA	1/16	1/8	1/8	1 1/2	●
6767763	H1TE4BN0094R019HA	3/32	1/8	3/16	1 1/2	●
6767764	H1TE4BN0125R025HA	1/8	1/8	1/4	1 1/2	●
6767765	H1TE4BN0188R038HA	3/16	3/16	3/8	2 1/4	●
6767766	H1TE4BN0250R075HA	1/4	1/4	3/4	2 1/2	●
6767768	H1TE4BN0313R075HA	5/16	5/16	3/4	2 1/2	●
6767769	H1TE4BN0375R088HA	3/8	3/8	7/8	2 1/2	●
6767771	H1TE4BN0438R088HA	7/16	7/16	7/8	2 1/2	●
6767772	H1TE4BN0500R100HA	1/2	1/2	1	3	●
6767774	H1TE4BN0625R125HA	5/8	5/8	1 1/4	3 1/2	●
6767775	H1TE4BN0750R150HA	3/4	3/4	1 1/2	4	●
6767777	H1TE4BN1000R150HA	1	1	1 1/2	4 1/2	●



● Primary
○ Secondary

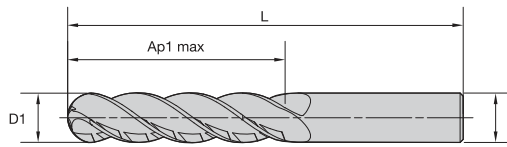
P	●
M	●
K	●
N	●
S	○
H	○

KCPM15

HARVI I TE

Ball Nose • 4 Flutes • Regular • Weldon Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
6767778	H1TE4BN0500R100HB	1/2	1/2	1	3	●
6767780	H1TE4BN0625R125HB	5/8	5/8	1 1/4	3 1/2	●
6767781	H1TE4BN0750R150HB	3/4	3/4	1 1/2	4	●
6767782	H1TE4BN1000R150HB	1	1	1 1/2	4 1/2	●



● Primary
○ Secondary

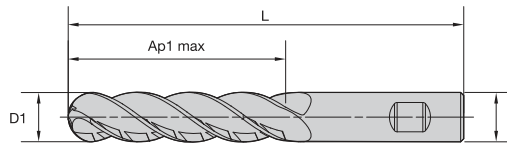
P	●
M	●
K	●
N	●
S	○
H	○

KCPM15

HARVI I TE

Ball Nose • 4 Flutes • Long • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
6767736	H1TE4BN0125L050HA	1/8	1/8	1/2	2	●
6767737	H1TE4BN0188L075HA	3/16	3/16	3/4	2 1/2	●
6767738	H1TE4BN0250L100HA	1/4	1/4	1	3	●
6767739	H1TE4BN0313L125HA	5/16	5/16	1 1/4	3	●
6767740	H1TE4BN0375L125HA	3/8	3/8	1 1/4	3	●
6767751	H1TE4BN0438L150HA	7/16	7/16	1 1/2	4	●
6767752	H1TE4BN0500L175HA	1/2	1/2	1 3/4	4	●
6767754	H1TE4BN0625L225HA	5/8	5/8	2 1/4	5	●
6767755	H1TE4BN0750L263HA	3/4	3/4	2 5/8	6	●
6767757	H1TE4BN1000L325HA	1	1	3 1/4	6	●



● Primary
○ Secondary

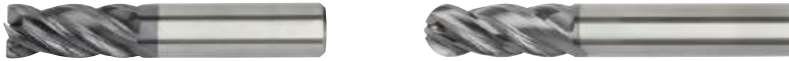
P	●
M	●
K	●
N	●
S	○
H	○

KCPM15

HARVI I TE

Ball Nose • 4 Flutes • Long • Weldon Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
6767758	H1TE4BN0500L175HB	1/2	1/2	1 3/4	4	●
6767759	H1TE4BN0625L225HB	5/8	5/8	2 1/4	5	●
6767760	H1TE4BN0750L263HB	3/4	3/4	2 5/8	6	●
6767761	H1TE4BN1000L325HB	1	1	3 1/4	6	●



HARVI I TE

Side Milling/Slotting • Application Data

Material Group				KCPM15–KCSM15		Recommended feed per tooth (Fz = IPT) for side milling (A). For slotting (B), reduce Fz by 20%.															
						Cutting Speed — Vc SFM		D1 — Diameter													
				A		B	min	max	frac.	1/8	5/32	3/16	1/4	9/32	5/16	3/8	1/2	5/8	3/4	1	
P	0	1.5 x D1	0.5 x D1	1.25 x D1	490	660	IPT	.0009	.0012	.0016	.0019	.0022	.0026	.0031	.0036	.0044	.0049	.0054			
	1	1.5 x D1	0.5 x D1	1.25 x D1	490	660	IPT	.0009	.0012	.0016	.0019	.0022	.0026	.0031	.0036	.0044	.0049	.0054			
	2	1.5 x D1	0.5 x D1	1.25 x D1	460	620	IPT	.0009	.0012	.0016	.0019	.0022	.0026	.0031	.0036	.0044	.0049	.0054			
	3	1.5 x D1	0.5 x D1	1.25 x D1	390	520	IPT	.0007	.0010	.0013	.0016	.0019	.0022	.0026	.0030	.0038	.0044	.0049			
	4	1.5 x D1	0.5 x D1	1.25 x D1	300	490	IPT	.0007	.0009	.0012	.0014	.0017	.0019	.0023	.0027	.0033	.0038	.0042			
	5	1.5 x D1	0.5 x D1	1.25 x D1	200	330	IPT	.0006	.0008	.0011	.0013	.0015	.0017	.0021	.0024	.0030	.0035	.0039			
M	6	1.5 x D1	0.5 x D1	1.25 x D1	160	250	IPT	.0005	.0007	.0009	.0011	.0013	.0015	.0017	.0020	.0025	.0028	.0031			
	1	1.5 x D1	0.5 x D1	1.25 x D1	300	380	IPT	.0007	.0010	.0013	.0016	.0019	.0022	.0026	.0030	.0038	.0044	.0049			
	2	1.5 x D1	0.5 x D1	1.25 x D1	200	260	IPT	.0006	.0008	.0011	.0013	.0015	.0017	.0021	.0024	.0030	.0035	.0039			
K	3	1.5 x D1	0.5 x D1	1.0 x D1	200	230	IPT	.0005	.0007	.0009	.0011	.0013	.0015	.0017	.0020	.0025	.0028	.0031			
	1	1.5 x D1	0.5 x D1	1.0 x D1	390	490	IPT	.0009	.0012	.0016	.0019	.0022	.0026	.0031	.0036	.0044	.0049	.0054			
	2	1.5 x D1	0.5 x D1	1.0 x D1	360	460	IPT	.0007	.0010	.0013	.0016	.0019	.0022	.0026	.0030	.0038	.0044	.0049			
S	3	1.5 x D1	0.5 x D1	1.0 x D1	360	430	IPT	.0006	.0008	.0011	.0013	.0015	.0017	.0021	.0024	.0030	.0035	.0039			
	1	1.5 x D1	0.5 x D1	0.75 x D1	160	300	IPT	.0007	.0010	.0013	.0016	.0019	.0022	.0026	.0030	.0038	.0044	.0049			
	2	1.5 x D1	0.5 x D1	0.75 x D1	160	260	IPT	.0006	.0008	.0011	.0013	.0015	.0017	.0021	.0024	.0030	.0035	.0039			
	3	1.5 x D1	0.5 x D1	0.5 x D1	80	130	IPT	.0004	.0006	.0007	.0008	.0010	.0011	.0014	.0016	.0020	.0023	.0027			
H	4	1.5 x D1	0.5 x D1	1.25 x D1	160	200	IPT	.0005	.0007	.0009	.0011	.0014	.0016	.0019	.0022	.0028	.0032	.0036			
	1	1.5 x D1	0.5 x D1	1.0 x D1	260	460	IPT	.0007	.0009	.0012	.0014	.0017	.0019	.0023	.0027	.0033	.0038	.0042			
	2	1.5 x D1	0.5 x D1	1.0 x D1	230	390	IPT	.0005	.0007	.0009	.0011	.0013	.0015	.0017	.0020	.0025	.0028	.0031			

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions.

For smaller taper machining centers, please adjust parameters accordingly on diameters greater than 1/2".

For tools with reach >4.5 x D, reduce Fz up to 30% and use lower range of cutting speed as starting condition.

HARVI I TE

Adjustment Factor Table for Feed and Speed Calculation

	Ae/D	2%	4%	5%	8%	10%	12%	20%	30%	40%	50%	100%
Speed factor	Kv	2.1—3.6	1.6—3	1.6—2.5	1.6	1.4	1.38	1.3	1.2	1.1	1	0.9
Feed factor	KFz	3.58	2.56	2.3	1.84	1.67	1.54	1.25	1.09	1.02	1	1

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 recommended 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 Kv coefficient table above for adaptation of cutting speed and KFz for feed respectively.

$$Vc_{new} = Vc * Kv$$

$$Fz_{new} = Fz * KFz$$

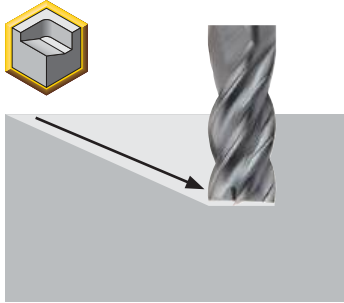
Calculation example:
Application: D1 = 1";
S4 material group;
Ae 0.1" (Ae = 10% D)
Cutting data recommendation: 180 SFM;
Fz = 0.0036 IPT
Adjustment coefficients: Ae = 0.1" equals 10%;
Kv = 1.4; KFz = 1.67

Final cutting data recommendation:
Vc new = 180 SFM * 1.4 = 252 SFM
Fz new = .0036 IPT * 1.67 = .0060 IPT

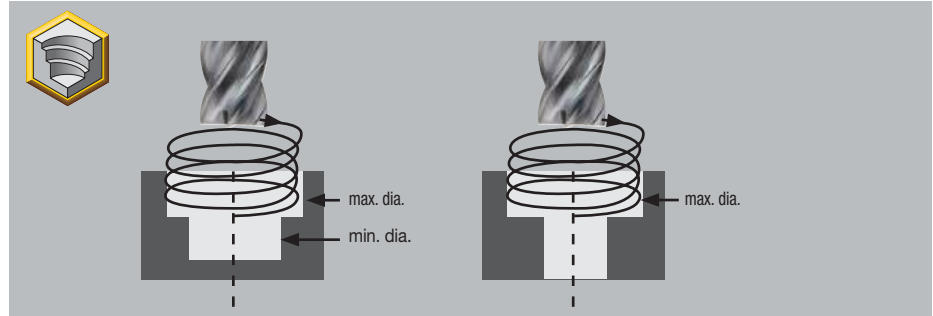
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Application Information • Ramping

Linear Ramping



Helical Ramping



ATTENTION!

For helical ramping operations, the min. and max. hole diameter can be calculated with the following formula:

Min. hole $\varnothing = \text{End mill } \varnothing \times 1,1 + 2 \times \text{corner configuration (Re/CHF) size}$. Hole $\varnothing$ /End mill $\varnothing$ min 1:1,15

Max. hole $\varnothing = 2 \times \text{End mill } \varnothing \times \text{corner configuration (Re/CHF) size}$. Hole $\varnothing$ /End mill $\varnothing$ max 1:1,9



HARVI I TE

Ramping 0°-15° • Application Data

Material Group	Max Depth			Recommended feed per tooth (fz = IPT) for Helical Interpolation and Ramping — zeff = 2																
				KCPM15–KCSM15																
				Cutting Speed — Vc SFM		Diameter – D1 [Ømin–Ømax] for helical interpolation														
				min	max	frac.	1/8	5/32	3/16	7/32	1/4	9/32	5/16	3/8	7/16	1/2	5/8	3/4	1	1 1/4
P	0	1.25 x D1	490	660	IPT	.0009	.0012	.0016	.0017	.0019	.0023	.0026	.0031	.0033	.0036	.0044	.0049	.0054	.0057	
	1	1.25 x D1	490	660	IPT	.0009	.0012	.0016	.0017	.0019	.0023	.0026	.0031	.0033	.0036	.0044	.0049	.0054	.0057	
	2	1.25 x D1	460	620	IPT	.0009	.0012	.0016	.0017	.0019	.0023	.0026	.0031	.0033	.0036	.0044	.0049	.0054	.0057	
	3	1.25 x D1	390	520	IPT	.0007	.0010	.0013	.0014	.0016	.0019	.0022	.0026	.0028	.0030	.0038	.0044	.0049	.0052	
	4	1.25 x D1	300	490	IPT	.0007	.0009	.0012	.0013	.0014	.0017	.0019	.0023	.0025	.0027	.0033	.0038	.0042	.0045	
	5	1.25 x D1	200	330	IPT	.0006	.0008	.0011	.0012	.0013	.0015	.0017	.0021	.0022	.0024	.0030	.0035	.0039	.0041	
M	6	1.25 x D1	160	250	IPT	.0005	.0007	.0009	.0010	.0011	.0013	.0015	.0017	.0018	.0020	.0025	.0028	.0031	.0032	
	1	1.25 x D1	300	380	IPT	.0007	.0010	.0013	.0014	.0016	.0019	.0022	.0026	.0028	.0030	.0038	.0044	.0049	.0052	
	2	1.25 x D1	200	260	IPT	.0006	.0008	.0011	.0012	.0013	.0015	.0017	.0021	.0022	.0024	.0030	.0035	.0039	.0041	
K	3	1.0 x D1	200	230	IPT	.0005	.0007	.0009	.0010	.0011	.0013	.0015	.0017	.0018	.0020	.0025	.0028	.0031	.0032	
	1	1.0 x D1	390	490	IPT	.0009	.0012	.0016	.0017	.0019	.0023	.0026	.0031	.0033	.0036	.0044	.0049	.0054	.0057	
	2	1.0 x D1	360	460	IPT	.0007	.0010	.0013	.0014	.0016	.0019	.0022	.0026	.0028	.0030	.0038	.0044	.0049	.0052	
S	3	1.0 x D1	360	430	IPT	.0006	.0008	.0011	.0012	.0013	.0015	.0017	.0021	.0022	.0024	.0030	.0035	.0039	.0041	
	1	0.75 x D1	160	300	IPT	.0007	.0010	.0013	.0014	.0016	.0019	.0022	.0026	.0028	.0030	.0038	.0044	.0049	.0052	
	2	0.75 x D1	160	260	IPT	.0006	.0008	.0011	.0012	.0013	.0015	.0017	.0021	.0022	.0024	.0030	.0035	.0039	.0041	
	3	0.5 x D1	80	130	IPT	.0004	.0006	.0007	.0007	.0008	.0010	.0011	.0014	.0015	.0016	.0020	.0023	.0027	.0029	
H	4	1.25 x D1	160	200	IPT	.0005	.0007	.0009	.0010	.0011	.0014	.0016	.0019	.0020	.0022	.0028	.0032	.0036	.0039	
	1	1.0 x D1	260	460	IPT	.0007	.0009	.0012	.0013	.0014	.0017	.0019	.0023	.0025	.0027	.0033	.0038	.0042	.0045	
	2	1.0 x D1	230	390	IPT	.0005	.0007	.0009	.0010	.0011	.0013	.0015	.0017	.0018	.0020	.0025	.0028	.0031	.0032	

NOTE: Ø min and Ø max to be calculated with formula for helical ramping above.



HARVI I TE

Ramping 15°-30° • Application Data

Material Group	Max Depth			Recommended feed per tooth (fz = IPT) for Helical Interpolation and Ramping — zeff = 2																
		KCPM15-KCSM15																		
		Cutting Speed — Vc SFM		Diameter – D1 [Ømin–Ømax] for helical interpolation																
		min	max	frac.	1/8	5/32	3/16	7/32	1/4	9/32	5/16	3/8	7/16	1/2	5/8	3/4	1	1 1/4		
P	0	1.25 x D1	490	580	IPT	.0007	.0009	.0012	.0013	.0014	.0017	.0020	.0023	.0025	.0027	.0033	.0037	.0041	.0044	
	1	1.25 x D1	490	580	IPT	.0007	.0009	.0012	.0013	.0014	.0017	.0020	.0023	.0025	.0027	.0033	.0037	.0041	.0044	
	2	1.25 x D1	460	540	IPT	.0007	.0009	.0012	.0013	.0014	.0017	.0020	.0023	.0025	.0027	.0033	.0037	.0041	.0044	
	3	1.25 x D1	390	450	IPT	.0005	.0008	.0010	.0011	.0012	.0014	.0017	.0020	.0021	.0023	.0029	.0033	.0037	.0040	
	4	1.25 x D1	300	400	IPT	.0005	.0007	.0009	.0010	.0011	.0013	.0014	.0017	.0018	.0020	.0025	.0029	.0032	.0034	
	5	1.25 x D1	200	260	IPT	.0005	.0006	.0008	.0009	.0010	.0011	.0013	.0016	.0017	.0018	.0023	.0026	.0029	.0031	
M	6	1.25 x D1	160	200	IPT	.0004	.0005	.0007	.0007	.0008	.0010	.0011	.0013	.0014	.0015	.0019	.0021	.0023	.0024	
	1	1.25 x D1	300	340	IPT	.0005	.0008	.0010	.0011	.0012	.0014	.0017	.0020	.0021	.0023	.0029	.0033	.0037	.0040	
	2	1.25 x D1	200	230	IPT	.0005	.0006	.0008	.0009	.0010	.0011	.0013	.0016	.0017	.0018	.0023	.0026	.0029	.0030	
K	3	1.0 x D1	200	210	IPT	.0004	.0005	.0007	.0007	.0008	.0010	.0011	.0013	.0014	.0015	.0019	.0021	.0023	.0024	
	1	1.0 x D1	390	440	IPT	.0007	.0009	.0012	.0013	.0014	.0017	.0020	.0023	.0025	.0027	.0033	.0037	.0041	.0044	
	2	1.0 x D1	360	410	IPT	.0005	.0008	.0010	.0011	.0012	.0014	.0017	.0020	.0021	.0023	.0029	.0033	.0037	.0040	
S	3	1.0 x D1	360	390	IPT	.0005	.0006	.0008	.0009	.0010	.0011	.0013	.0016	.0017	.0018	.0023	.0026	.0029	.0031	
	1	0.75 x D1	160	230	IPT	.0005	.0008	.0010	.0011	.0012	.0014	.0017	.0020	.0021	.0023	.0029	.0033	.0037	.0040	
	2	0.75 x D1	160	210	IPT	.0005	.0006	.0008	.0009	.0010	.0011	.0013	.0016	.0017	.0018	.0023	.0026	.0029	.0031	
	3	0.5 x D1	80	100	IPT	.0003	.0005	.0005	.0005	.0006	.0008	.0008	.0011	.0011	.0012	.0015	.0017	.002	.0021	
H	4	1.25 x D1	160	180	IPT	.0004	.0005	.0007	.0007	.0008	.0011	.0012	.0014	.0015	.0017	.0021	.0024	.0027	.0028	
	1	1.0 x D1	260	360	IPT	.0005	.0007	.0009	.0010	.0011	.0013	.0014	.0017	.0018	.0020	.0025	.0029	.0032	.0034	
	2	1.0 x D1	230	310	IPT	.0004	.0005	.0007	.0007	.0008	.0010	.0011	.0013	.0014	.0015	.0019	.0021	.0023	.0024	

NOTE: Ø min and Ø max to be calculated with formula for helical ramping above.



HARVI I TE

Ramping 30°-45° • Application Data

Material Group	Max Depth			Recommended feed per tooth (fz = IPT) for Helical Interpolation and Ramping — zeff = 2																
		KCPM15-KCSM15																		
		Cutting Speed — Vc SFM		Diameter – D1 [Ømin–Ømax] for helical interpolation																
		min	max	frac.	1/8	5/32	3/16	7/32	1/4	9/32	5/16	3/8	7/16	1/2	5/8	3/4	1	1 1/4		
P	0	1.25 x D1	420	495	IPT	.0005	.0007	.0010	.0015	.0011	.0014	.0016	.0019	.0020	.0022	.0026	.0029	.0032	.0034	
	1	1.25 x D1	420	495	IPT	.0005	.0007	.0010	.0015	.0011	.0014	.0016	.0019	.0020	.0022	.0026	.0029	.0032	.0034	
	2	1.25 x D1	420	495	IPT	.0005	.0007	.0010	.0015	.0011	.0014	.0016	.0019	.0020	.0022	.0026	.0029	.0032	.0034	
	3	1.25 x D1	315	360	IPT	.0004	.0006	.0008	.0009	.0010	.0011	.0013	.0016	.0017	.0018	.0023	.0026	.0029	.0031	
	4	1.25 x D1	270	330	IPT	.0004	.0005	.0007	.0007	.0008	.0010	.0011	.0014	.0015	.0016	.0020	.0023	.0025	.0026	
	5	1.25 x D1	210	240	IPT	.0004	.0005	.0007	.0007	.0008	.0009	.0010	.0013	.0013	.0014	.0018	.0021	.0023	.0024	
M	6	1.25 x D1	165	195	IPT	.0003	.0004	.0005	.0006	.0007	.0008	.0009	.0010	.0011	.0012	.0015	.0017	.0019	.0020	
	1	1.25 x D1	225	270	IPT	.0004	.0006	.0008	.0009	.0010	.0011	.0013	.0016	.0017	.0018	.0023	.0026	.0029	.0031	
	2	1.25 x D1	150	180	IPT	.0004	.0005	.0007	.0007	.0008	.0009	.0010	.0013	.0013	.0014	.0018	.0021	.0023	.0024	
K	3	1.0 x D1	135	165	IPT	.0003	.0004	.0005	.0006	.0007	.0008	.0009	.0010	.0011	.0012	.0015	.0017	.0019	.0020	
	1	1.0 x D1	330	390	IPT	.0005	.0007	.0010	.0010	.0011	.0014	.0016	.0019	.0020	.0022	.0026	.0029	.0032	.0034	
	2	1.0 x D1	300	360	IPT	.0004	.0006	.0008	.0009	.0010	.0011	.0013	.0016	.0017	.0018	.0023	.0026	.0029	.0031	
S	3	1.0 x D1	270	330	IPT	.0004	.0005	.0007	.0007	.0008	.0009	.0010	.0013	.0013	.0014	.0018	.0021	.0023	.0024	
	1	0.75 x D1	240	270	IPT	.0004	.0006	.0008	.0009	.0010	.0011	.0013	.0016	.0017	.0018	.0023	.0026	.0029	.0030	
	2	0.75 x D1	165	195	IPT	.0004	.0005	.0007	.0007	.0008	.0009	.0010	.0013	.0013	.0014	.0018	.0021	.0023	.0024	
	3	0.5 x D1	60	84	IPT	.0002	.0004	.0004	.0004	.0005	.0006	.0007	.0008	.0090	.0010	.0012	.0014	.0016	.0017	
H	4	1.25 x D1	105	135	IPT	.0003	.0004	.0005	.0006	.0007	.0008	.0010	.0011	.0012	.0013	.0017	.0019	.0022	.0023	
	1	1.0 x D1	225	255	IPT	.0004	.0005	.0007	.0007	.0008	.0010	.0011	.0014	.0015	.0016	.0020	.0023	.0025	.0026	
	2	1.0 x D1	195	225	IPT	.0003	.0004	.0005	.0006	.0007	.0008	.0009	.0010	.0011	.0012	.0015	.0017	.0019	.0020	

NOTE: Ø min and Ø max to be calculated with formula for helical ramping above.



HARVI I TE

Plunging/Drilling • Application Data

Material Group					KCPM15–KCSM15		Recommended feed per revolution (fn = IPR) for plunging and drilling															
					Cutting Speed — Vc SFM		D1 — Diameter															
	Max Depth	Applicable	Coolant	min	max	frac.	1/8	5/32	3/16	7/32	1/4	9/32	5/16	3/8	7/16	1/2	5/8	3/4	1	1-1/4		
P	0	1.5 x D	●	Preferred	420	495	IPR	.0013	.0016	.0018	.002	.0022	.0024	.0026	.0031	.0034	.0037	.0047	.0063	.0071	.0078	
	1	1.5 x D	●	Required	420	495	IPR	.0013	.0016	.0018	.002	.0022	.0024	.0026	.0031	.0034	.0037	.0047	.0063	.0071	.0078	
	2	1.5 x D	●	Required	420	495	IPR	.0013	.0016	.0018	.002	.0022	.0024	.0026	.0031	.0034	.0037	.0047	.0063	.0071	.0078	
	3	1 x D	●	Required	315	360	IPR	.0008	.0011	.0013	.0014	.0016	.0018	.0020	.0024	.0025	.0028	.0039	.0049	.0059	.0067	
	4	1 x D	●	Required	270	330	IPR	.0008	.0011	.0013	.0014	.0016	.0018	.0020	.0024	.0025	.0028	.0039	.0049	.0059	.0067	
	5	0.5 x D	●	Required	210	240	IPR	.0006	.0007	.0008	.0009	.0010	.0012	.0014	.0016	.0018	.0020	.0026	.0033	.0039	.0042	
M	6	0.5 x D	●	Required	165	195	IPR	.0006	.0007	.0008	.0009	.0010	.0012	.0014	.0016	.0018	.0020	.0026	.0033	.0039	.0042	
	1	0.75 x D	●	Required	225	270	IPR	.0008	.0011	.0013	.0014	.0016	.0018	.0020	.0024	.0025	.0028	.00239	.0049	.0059	.0067	
	2	0.5 x D	●	Required	150	180	IPR	.0006	.0007	.0008	.0009	.0010	.0012	.0014	.0016	.0018	.0020	.0026	.0033	.0039	.0042	
K	3	0.5 x D	●	Required	135	165	IPR	.0006	.0007	.0008	.0009	.0010	.0012	.0014	.0016	.0018	.0020	.0026	.0033	.0039	.0042	
	1	1.5 x D	●	Preferred	330	390	IPR	.0013	.0016	.0018	.002	.0022	.0024	.0026	.0031	.0034	.0037	.0047	.0063	.0071	.0078	
	2	1 x D	●	Required	300	360	IPR	.0008	.0011	.0013	.0014	.0016	.0018	.0020	.0024	.0025	.0028	.0039	.0049	.0059	.0067	
S	3	1 x D	●	Required	270	330	IPR	.0008	.0011	.0013	.0014	.0016	.0018	.0020	.0024	.0025	.0028	.0039	.0049	.0059	.0067	
	1	0.3 x D	○	Required	240	270	IPR	.0008	.0011	.0013	.0014	.0016	.0018	.0020	.0024	.0025	.0028	.0039	.0049	.0059	.0067	
	2	0.1 x D	○	Required	165	195	IPR	.0006	.0007	.0008	.0009	.0010	.0012	.0014	.0016	.0018	.0020	.0026	.0033	.0039	.0042	
	3	0.1 x D	○	Required	60	84	IPR	.0004	.0005	.0006	.00065	.0007	.0008	.0009	.0011	.0012	.0013	.0018	.0024	.0028	.003	
H	4	0.2 x D	○	Required	105	135	IPR	.0006	.0007	.0008	.0009	.0010	.0012	.0014	.0016	.0018	.0020	.0026	.0033	.0039	.0042	
	1	0.3 x D	○	Required	225	255	IPR	.0008	.0011	.0013	.0014	.0016	.0018	.0020	.0024	.0025	.0028	.0039	.0049	.0059	.0067	
	2	0.2 x D	○	Required	195	225	IPR	.0006	.0007	.0008	.0009	.0010	.0012	.0014	.0016	.0018	.0020	.0026	.0033	.0039	.0042	

NOTE: Other available diameters are not recommended for plunging applications.

APPLICATION RECOMMENDATION

for Surface Profiling with HARVI I TE



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



Not all four cutting edges reach the center of the HARVI I TE 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 I TE), and also that the rotational velocity is zero in the center. Kennametal recommends tilting the end mill to engage more cutting edges and avoid the zero-speed condition.

As the HARVI I TE 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 the reduced number of cutting edges into the cutting parameter calculations.

HARVI I TE

Ball Nose



0°

In the case of the HARVI I TE ball nose end mill, it is possible to take much larger depths of cut than other standard ball nose end mills.

Therefore, a large depth of cut can result in partial engagement of all four edges at small or zero-tilt angles.



24°

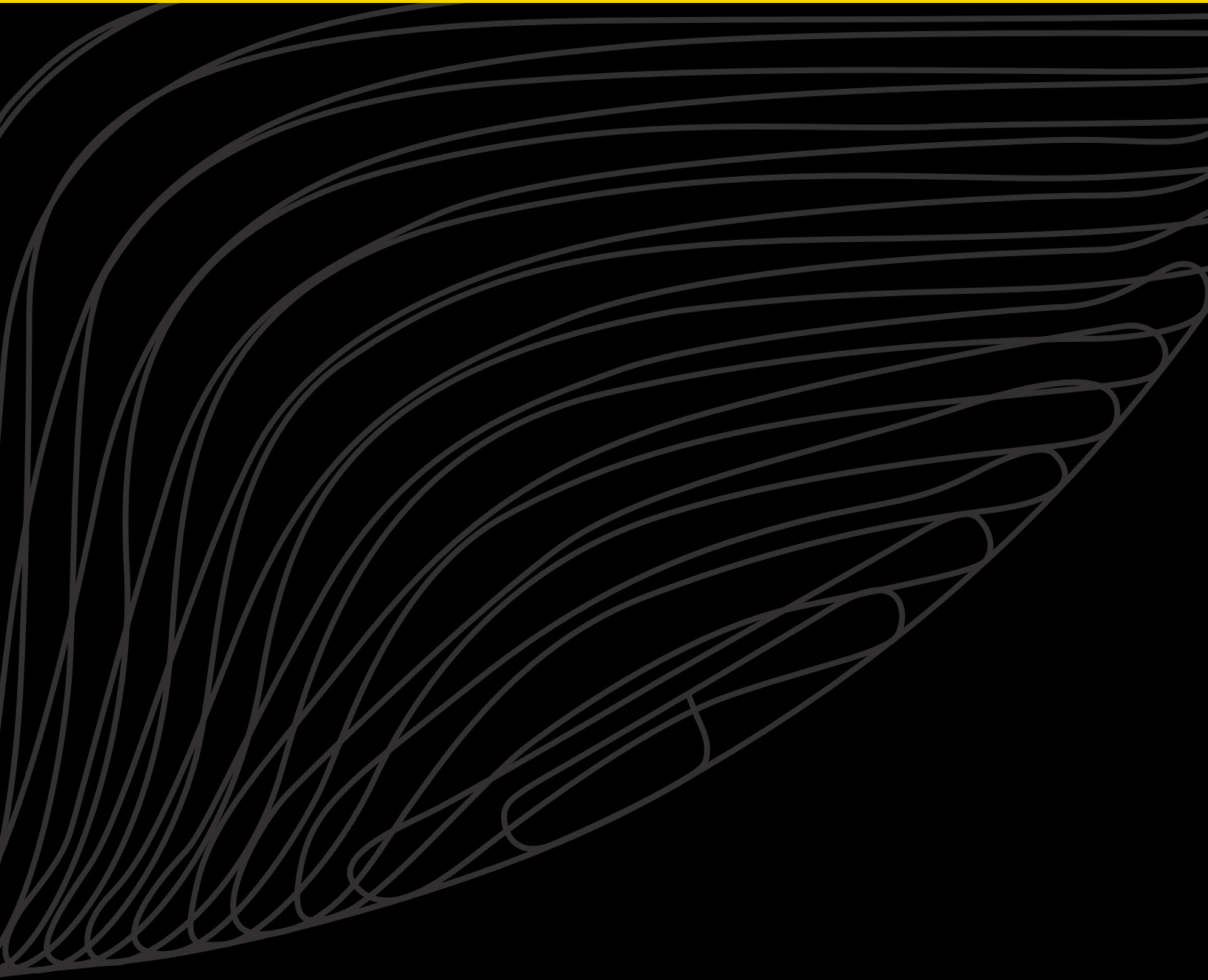
For tilt angles less than 24° and shallow profiling depths, only two cutting edges will be typically engaged.

As the end mill is tilted above this, then all four edges will at least be partially engaged.



52° – 55°

For maximum profiling performance, a tilt angle of 52°—55° will result in full engagement of all edges with a wide range of cutting depths.



HARVI II TE

A Revolutionary 5-Flute End Mill Design
for Ultimate Performance

Materials



Industries



Applications



- Open 5-flute design combined with a stronger core for increased MRR, tool life and chip evacuation capabilities
- Novel centerless end face designed for aggressive ramping, plunging and deep slotting
- Chip gashes for better chip evacuation and improved tool cooling with increased coolant flow from the flute to cutting zone
- Proprietary W-flute shape for better chip evacuation and stronger core
- Eccentric relief increases the edge strength for longer tool life and wide material application range

CHAMFERED



RADIUSED



SQUARE END



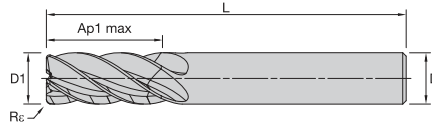
ECCENTRIC RELIEF
DESIGN

NOVEL CENTERLESS
END FACE

NEW RE-DESIGNED
PARABOLIC CORE

CHIP GASHES

With the powerful combination of an extremely broad application range and ultimate productivity and tool life, HARVI II TE can make your general engineering, aerospace and defense and medical projects a cut above the rest. You can count on maximum machining flexibility across materials and efficiency in traditional and dynamic milling applications.



● Primary
○ Secondary

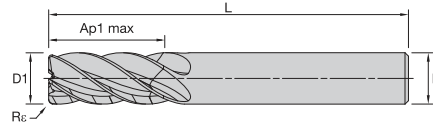
P	○
M	●
K	○
N	●
S	○
H	●

HARVI II TE

Radiused • 5 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	AP1 Max	L	Rε	
7155690	H2TE5RA0125R038HAR010	1/8	1/8	3/8	2	0.01	●
7155721	H2TE5RA0125R038HAR010V	1/8	1/4	3/8	2	0.01	●
7155722	H2TE5RA0125R038HAR015	1/8	1/8	3/8	2	0.015	●
7155723	H2TE5RA0125R038HAR015V	1/8	1/4	3/8	2	0.015	●
7155724	H2TE5RA0125R038HAR020V	1/8	1/4	3/8	2	0.02	●
7155725	H2TE5RA0125R038HAR030	1/8	1/8	3/8	2	0.03	●
7155726	H2TE5RA0125R038HAR030V	1/8	1/4	3/8	2	0.03	●
7155919	H2TE5RA0156R031HAR010	5/32	3/16	5/16	2	0.01	●
7155920	H2TE5RA0156R031HAR010V	5/32	1/4	5/16	2	0.01	●
7155927	H2TE5RA0156R031HAR015	5/32	3/16	5/16	2	0.015	●
7155928	H2TE5RA0156R031HAR015V	5/32	1/4	5/16	2	0.015	●
7155943	H2TE5RA0156R031HAR020V	5/32	1/4	5/16	2	0.02	●
7155945	H2TE5RA0156R031HAR030V	5/32	1/4	5/16	2	0.03	●
7155921	H2TE5RA0188R063HAR010	3/16	3/16	5/8	2 1/4	0.01	●
7155922	H2TE5RA0188R063HAR010V	3/16	1/4	5/8	2 1/2	0.01	●
7155929	H2TE5RA0188R063HAR015	3/16	3/16	5/8	2 1/4	0.015	●
7155931	H2TE5RA0188R063HAR015V	3/16	1/4	5/8	2 1/2	0.015	●
7155944	H2TE5RA0188R063HAR020V	3/16	1/4	5/8	2 1/2	0.02	●
7155946	H2TE5RA0188R063HAR030	3/16	3/16	5/8	2 1/4	0.03	●
7155947	H2TE5RA0188R063HAR030V	3/16	1/4	5/8	2 1/2	0.03	●
7155923	H2TE5RA0219S044HAR010V	7/32	1/4	7/16	2 1/2	0.01	●
7155924	H2TE5RA0219R063HAR010V	7/32	1/4	5/8	2 1/2	0.01	●
7155932	H2TE5RA0219S044HAR015V	7/32	1/4	7/16	2 1/2	0.015	●
7155933	H2TE5RA0219R063HAR015V	7/32	1/4	5/8	2 1/2	0.015	●
7155925	H2TE5RA0250S038HAR010	1/4	1/4	3/8	2	0.01	●
7155935	H2TE5RA0250S038HAR015	1/4	1/4	3/8	2	0.015	●
7155949	H2TE5RA0250S038HAR030	1/4	1/4	3/8	2	0.03	●
7155911	H2TE5RA0250S038HAR060	1/4	1/4	3/8	2	0.06	●
7155926	H2TE5RA0250R075HAR010	1/4	1/4	3/4	2 1/2	0.01	●
7155937	H2TE5RA0250R075HAR015V	1/4	1/4	3/4	2 1/2	0.015	●
7155950	H2TE5RA0250R075HAR030	1/4	1/4	3/4	2 1/2	0.03	●
7155912	H2TE5RA0250R075HAR060	1/4	1/4	3/4	2 1/2	0.06	●
7157107	H2TE5RA0281R075HAR010V	9/32	5/16	3/4	2 1/2	0.01	●
7157108	H2TE5RA0281R075HAR015	9/32	5/16	3/4	2 1/2	0.015	●
7155938	H2TE5RA0313S075HAR015	5/16	5/16	3/4	2 1/2	0.015	●
7155951	H2TE5RA0313S075HAR030	5/16	5/16	3/4	2 1/2	0.03	●
7157099	H2TE5RA0313S075HAR060	5/16	5/16	3/4	2 1/2	0.06	●
7157109	H2TE5RA0313R100HAR015	5/16	5/16	1	3	0.015	●
7155952	H2TE5RA0313R100HAR030	5/16	5/16	1	3	0.03	●
7157100	H2TE5RA0313R100HAR060	5/16	5/16	1	3	0.06	●
7155940	H2TE5RA0375S075HAR015	3/8	3/8	3/4	2 1/2	0.015	●
7155953	H2TE5RA0375S075HAR030	3/8	3/8	3/4	2 1/2	0.03	●
7155914	H2TE5RA0375S075HAR060	3/8	3/8	3/4	2 1/2	0.06	●
7157105	H2TE5RA0375S075HAR090	3/8	3/8	3/4	2 1/2	0.09	●
7155941	H2TE5RA0375R100HAR015	3/8	3/8	1	3	0.015	●
7155954	H2TE5RA0375R100HAR030	3/8	3/8	1	3	0.03	●
7155915	H2TE5RA0375R100HAR060	3/8	3/8	1	3	0.06	●
7157106	H2TE5RA0375R100HAR090	3/8	3/8	1	3	0.09	●
7155942	H2TE5RA0375L125HAR015	3/8	3/8	1 1/4	3	0.015	●
7155955	H2TE5RA0375L125HAR030	3/8	3/8	1 1/4	3	0.03	●
7157101	H2TE5RA0375L125HAR060	3/8	3/8	1 1/4	3	0.06	●
7155993	H2TE5RA0500S063HAR015	1/2	1/2	5/8	2 1/2	0.015	●

KCSM15A



● Primary
○ Secondary

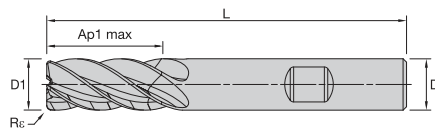
P	○
M	●
K	○
N	●
S	○
H	○

KCSM15A

HARVI II TE

Radiused • 5 Flutes • Plain Shank (continued)

Order Number	Catalog Number	D1	D	AP1 Max	L	Re	
7155999	H2TE5RA0500S063HAR030	1/2	1/2	5/8	2 1/2	0.03	●
7155959	H2TE5RA0500S063HAR060	1/2	1/2	5/8	2 1/2	0.06	●
7155971	H2TE5RA0500S063HAR090	1/2	1/2	5/8	2 1/2	0.09	●
7156018	H2TE5RA0500S063HAR120	1/2	1/2	5/8	2 1/2	0.12	●
7155994	H2TE5RA0500R125HAR015	1/2	1/2	1 1/4	3 1/4	0.015	●
7156000	H2TE5RA0500R125HAR030	1/2	1/2	1 1/4	3 1/4	0.03	●
7155960	H2TE5RA0500R125HAR060	1/2	1/2	1 1/4	3 1/4	0.06	●
7157096	H2TE5RA0500R125HAR090	1/2	1/2	1 1/4	3 1/4	0.09	●
7156019	H2TE5RA0500R125HAR120	1/2	1/2	1 1/4	3 1/4	0.12	●
7155995	H2TE5RA0500L163HAR015	1/2	1/2	1 5/8	4	0.015	●
7156011	H2TE5RA0500L163HAR030	1/2	1/2	1 5/8	4	0.03	●
7155961	H2TE5RA0500L163HAR060	1/2	1/2	1 5/8	4	0.06	●
7155972	H2TE5RA0500L163HAR090	1/2	1/2	1 5/8	4	0.09	●
7156032	H2TE5RA0500L163HAR120	1/2	1/2	1 5/8	4	0.12	●
7155996	H2TE5RA0500X200HAR015	1/2	1/2	2	4	0.015	●
7156012	H2TE5RA0500X200HAR030	1/2	1/2	2	4	0.03	●
7155962	H2TE5RA0500X200HAR060	1/2	1/2	2	4	0.06	●
7155973	H2TE5RA0500X200HAR090	1/2	1/2	2	4	0.09	●
7156033	H2TE5RA0500X200HAR120	1/2	1/2	2	4	0.12	●
7155997	H2TE5RA0625R125HAR015	5/8	5/8	1 1/4	3 1/2	0.015	●
7156013	H2TE5RA0625R125HAR030	5/8	5/8	1 1/4	3 1/2	0.03	●
7155963	H2TE5RA0625R125HAR060	5/8	5/8	1 1/4	3 1/2	0.06	●
7156034	H2TE5RA0625R125HAR120	5/8	5/8	1 1/4	3 1/2	0.12	●
7156014	H2TE5RA0625L250HAR030	5/8	5/8	2 1/2	5	0.03	●
7155964	H2TE5RA0625L250HAR060	5/8	5/8	2 1/2	5	0.06	●
7157055	H2TE5RA0625L250HAR090	5/8	5/8	2 1/2	5	0.09	●
7156035	H2TE5RA0625L250HAR120	5/8	5/8	2 1/2	5	0.12	●
7157066	H2TE5RA0750S150HAR015	3/4	3/4	1 1/2	4	0.015	●
7156015	H2TE5RA0750S150HAR030	3/4	3/4	1 1/2	4	0.03	●
7155965	H2TE5RA0750S150HAR060	3/4	3/4	1 1/2	4	0.06	●
7157073	H2TE5RA0750S150HAR090	3/4	3/4	1 1/2	4	0.09	●
7156036	H2TE5RA0750S150HAR120	3/4	3/4	1 1/2	4	0.12	●
7157067	H2TE5RA0750R225HAR015	3/4	3/4	2 1/4	5	0.015	●
7157072	H2TE5RA0750R225HAR030	3/4	3/4	2 1/4	5	0.03	●
7157035	H2TE5RA0750R225HAR060	3/4	3/4	2 1/4	5	0.06	●
7157074	H2TE5RA0750R225HAR090	3/4	3/4	2 1/4	5	0.09	●
7157078	H2TE5RA0750R225HAR120	3/4	3/4	2 1/4	5	0.12	●
7157068	H2TE5RA0750L275HAR015	3/4	3/4	2 3/4	5	0.015	●
7156016	H2TE5RA0750L275HAR030	3/4	3/4	2 3/4	5	0.03	●
7157036	H2TE5RA0750L275HAR060	3/4	3/4	2 3/4	5	0.06	●
7157075	H2TE5RA0750L275HAR090	3/4	3/4	2 3/4	5	0.09	●
7157079	H2TE5RA0750L275HAR120	3/4	3/4	2 3/4	5	0.12	●
7157069	H2TE5RA1000S175HAR015	1	1	1 3/4	4 1/2	0.015	●
7156017	H2TE5RA1000S175HAR030	1	1	1 3/4	4 1/2	0.03	●
7157037	H2TE5RA1000S175HAR060	1	1	1 3/4	4 1/2	0.06	●
7157080	H2TE5RA1000S175HAR120	1	1	1 3/4	4 1/2	0.12	●
7157031	H2TE5RA1000R325HAR030	1	1	3 1/4	6	0.03	●
7157038	H2TE5RA1000R325HAR060	1	1	3 1/4	6	0.06	●
7157081	H2TE5RA1000R325HAR120	1	1	3 1/4	6	0.12	●



● Primary
○ Secondary

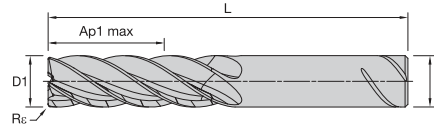
P	Blue	○
M	Yellow	●
K	Red	○
N	Green	●
S	Orange	○
H	Grey	○

HARVI II TE

Radiused • 5 Flutes • Weldon Shank

Order Number	Catalog Number	D1	D	AP1 Max	L	Rε	
7155904	H2TE5RA0250S038HBR030	1/4	1/4	3/8	2	0.03	●
7155905	H2TE5RA0250R075HBR030	1/4	1/4	3/4	2 1/2	0.03	●
7157098	H2TE5RA0313S075HBR030	5/16	5/16	3/4	2 1/2	0.03	●
7155907	H2TE5RA0375S075HBR030	3/8	3/8	3/4	2 1/2	0.03	●
7157102	H2TE5RA0375S075HBR060	3/8	3/8	3/4	2 1/2	0.06	●
7157131	H2TE5RA0375S075HBR090	3/8	3/8	3/4	2 1/2	0.09	●
7157103	H2TE5RA0375R100HBR060	3/8	3/8	1	3	0.06	●
7157132	H2TE5RA0375R100HBR090	3/8	3/8	1	3	0.09	●
7157110	H2TE5RA0375L125HBR015	3/8	3/8	1 1/4	3	0.015	●
7157104	H2TE5RA0375L125HBR060	3/8	3/8	1 1/4	3	0.06	●
7155966	H2TE5RA0500S063HBR060	1/2	1/2	5/8	2 1/2	0.06	●
7156039	H2TE5RA0500R125HBR030	1/2	1/2	1 1/4	3 1/4	0.03	●
7156040	H2TE5RA0500R125HBR060	1/2	1/2	1 1/4	3 1/4	0.06	●
7156051	H2TE5RA0500R125HBR090	1/2	1/2	1 1/4	3 1/4	0.09	●
7155967	H2TE5RA0500L163HBR060	1/2	1/2	1 5/8	4	0.06	●
7156037	H2TE5RA0500L163HBR120	1/2	1/2	1 5/8	4	0.12	●
7155958	H2TE5RA0500X200HBR030	1/2	1/2	2	4	0.03	●
7155998	H2TE5RA0625L250HBR015	5/8	5/8	2 1/2	5	0.015	●
7155968	H2TE5RA0625L250HBR060	5/8	5/8	2 1/2	5	0.06	●
7157070	H2TE5RA0750S150HBR015	3/4	3/4	1 1/2	4	0.015	●
7157082	H2TE5RA0750S150HBR120	3/4	3/4	1 1/2	4	0.12	●
7157039	H2TE5RA0750R225HBR060	3/4	3/4	2 1/4	5	0.06	●
7157076	H2TE5RA0750R225HBR090	3/4	3/4	2 1/4	5	0.09	●
7157083	H2TE5RA0750R225HBR120	3/4	3/4	2 1/4	5	0.12	●
7157032	H2TE5RA1000S175HBR030	1	1	1 3/4	4 1/2	0.03	●
7157040	H2TE5RA1000S175HBR060	1	1	1 3/4	4 1/2	0.06	●
7157084	H2TE5RA1000S175HBR120	1	1	1 3/4	4 1/2	0.12	●
7157089	H2TE5RA1000R325HBR190	1	1	3 1/4	6	0.19	●
7157090	H2TE5RA1000R325HBR250	1	1	3 1/4	6	0.25	●

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H	●

KCSM15A

HARVI II TE

Radiused • 5 Flutes • SAFE-LOCK Shank

Order Number	Catalog Number	D1	D	AP1 Max	L	R6	
7157092	H2TE5RA0500L163SLR030	1/2	1/2	1 5/8	4	0.03	•
7157094	H2TE5RA0500L163SLR060	1/2	1/2	1 5/8	4	0.06	•
7157093	H2TE5RA0500X200SLR030	1/2	1/2	2	4	0.03	•
7157095	H2TE5RA0500X200SLR060	1/2	1/2	2	4	0.06	•
7157051	H2TE5RA0625L250SLR060	5/8	5/8	2 1/2	5	0.06	•
7157085	H2TE5RA0625L250SLR120	5/8	5/8	2 1/2	5	0.12	•
7157071	H2TE5RA0750S150SLR015	3/4	3/4	1 1/2	4	0.015	•
7157086	H2TE5RA0750S150SLR120	3/4	3/4	1 1/2	4	0.12	•
7157033	H2TE5RA0750R225SLR030	3/4	3/4	2 1/4	5	0.03	•
7157052	H2TE5RA0750R225SLR060	3/4	3/4	2 1/4	5	0.06	•
7157077	H2TE5RA0750R225SLR090	3/4	3/4	2 1/4	5	0.09	•
7157087	H2TE5RA0750R225SLR120	3/4	3/4	2 1/4	5	0.12	•
7157053	H2TE5RA1000S175SLR060	1	1	1 3/4	4 1/2	0.06	•
7157034	H2TE5RA1000R325SLR030	1	1	3 1/4	6	0.03	•
7157054	H2TE5RA1000R325SLR060	1	1	3 1/4	6	0.06	•
7157088	H2TE5RA1000R325SLR120	1	1	3 1/4	6	0.12	•
7157091	H2TE5RA1000R325SLR250	1	1	3 1/4	6	0.25	•
7157057	H2TE5RA1250R450SLR060	1 1/4	1 1/4	4 1/2	7	0.06	•



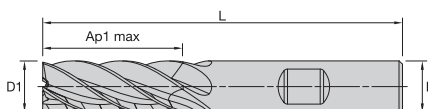
● Primary
○ Secondary

P	●
M	●
K	●
N	●
S	○
H	○

HARVI II TE

Square End • 5 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
7155689	H2TE5SE0125R038HA	1/8	1/8	3/8	2	●
7155865	H2TE5SE0156R031HA	5/32	3/16	5/16	2	●
7155866	H2TE5SE0188R063HA	3/16	3/16	5/8	2 1/4	●
7155867	H2TE5SE0219S044HAV	7/32	1/4	7/16	2 1/2	●
7155868	H2TE5SE0219R063HAV	7/32	1/4	5/8	2 1/2	●
7155869	H2TE5SE0250S038HA	1/4	1/4	3/8	2	●
7155870	H2TE5SE0250R075HA	1/4	1/4	3/4	2 1/2	●
7157097	H2TE5SE0281R075HAV	9/32	5/16	3/4	2 1/2	●
7155902	H2TE5SE0313S075HA	5/16	5/16	3/4	2 1/2	●
7155903	H2TE5SE0313R100HA	5/16	5/16	1	3	●
7155910	H2TE5SE0375S075HA	3/8	3/8	3/4	2 1/2	●
7155916	H2TE5SE0375R100HA	3/8	3/8	1	3	●
7155917	H2TE5SE0375L125HA	3/8	3/8	1 1/4	3	●
7155969	H2TE5SE0500S063HA	1/2	1/2	5/8	2 1/2	●
7155975	H2TE5SE0500R125HA	1/2	1/2	1 1/4	3 1/4	●
7155976	H2TE5SE0500L163HA	1/2	1/2	1 5/8	4	●
7155977	H2TE5SE0500X200HA	1/2	1/2	2	4	●
7157058	H2TE5SE0625R125HA	5/8	5/8	1 1/4	3 1/2	●
7157059	H2TE5SE0625L250HA	5/8	5/8	2 1/2	5	●
7155978	H2TE5SE0750S150HA	3/4	3/4	1 1/2	4	●
7155979	H2TE5SE0750R225HA	3/4	3/4	2 1/4	5	●
7157060	H2TE5SE0750L275HA	3/4	3/4	2 3/4	5	●
7157061	H2TE5SE1000S175HA	1	1	1 3/4	4 1/2	●
7157062	H2TE5SE1000R325HA	1	1	3 1/4	6	●



● Primary
○ Secondary

P	●
M	●
K	●
N	●
S	○
H	○

HARVI II TE

Square End • 5 Flutes • Weldon Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
7155980	H2TE5SE0500S063HB	1/2	1/2	5/8	2 1/2	●
7156038	H2TE5SE0500R125HB	1/2	1/2	1 1/4	3 1/4	●
7155991	H2TE5SE0500L163HB	1/2	1/2	1 5/8	4	●
7155992	H2TE5SE0750S150HB	3/4	3/4	1 1/2	4	●
7157063	H2TE5SE0750R225HB	3/4	3/4	2 1/4	5	●
7157064	H2TE5SE1000S175HB	1	1	1 3/4	4 1/2	●
7157065	H2TE5SE1000R325HB	1	1	3 1/4	6	●

HARVI II TE

Application Data

Material Group	Helical Interpolation / Ramping 0° - 15°			Min - Max Diameter for Helical Interpolation	Recommended feed per tooth (IPT = Inch/th) for Helical Interpolation and Ramping - Zef=2													
		KCPM15A - KCSM15A																
		Cutting Speed Vc																
		SFM			D1 - Diameter													
					.144 - .238	.179 - .296	.216 - .356	.251 - .415	.288 - .475	.323 - .534	.359 - .594	.431 - .713	.575 - .950	.719 - 1.188	.863 - 1.425	1.150 - 1.900	1.437 - 2.375	
	Max Depth	Min	Max	mm	0.1250	0.1563	0.1875	0.2188	0.2500	0.2813	0.3125	0.3750	0.5000	0.6250	0.7500	1.0000	1.2500	
P	P0	1,25 x D1	490	660	IPT	0.0010	0.0012	0.0015	0.0017	0.0020	0.0023	0.0026	0.0030	0.0037	0.0043	0.0048	0.0054	0.0054
	P1	1,25 x D1	490	660	IPT	0.0010	0.0012	0.0015	0.0017	0.0020	0.0023	0.0026	0.0030	0.0037	0.0043	0.0048	0.0054	0.0054
	P2	1,25 x D1	460	620	IPT	0.0010	0.0012	0.0015	0.0017	0.0020	0.0023	0.0026	0.0030	0.0037	0.0043	0.0048	0.0054	0.0054
	P3	1,25 x D1	390	520	IPT	0.0008	0.0010	0.0012	0.0014	0.0017	0.0019	0.0021	0.0025	0.0032	0.0038	0.0042	0.0050	0.0053
	P4	1,25 x D1	300	490	IPT	0.0007	0.0009	0.0011	0.0013	0.0015	0.0017	0.0019	0.0022	0.0028	0.0033	0.0037	0.0042	0.0044
	P5	1,25 x D1	200	330	IPT	0.0007	0.0008	0.0010	0.0012	0.0014	0.0015	0.0017	0.0020	0.0025	0.0030	0.0034	0.0040	0.0043
M	P6	1,25 x D1	160	250	IPT	0.0006	0.0007	0.0008	0.0010	0.0011	0.0013	0.0014	0.0017	0.0021	0.0025	0.0027	0.0031	0.0032
	M1	1,25 x D1	300	380	IPT	0.0008	0.0010	0.0012	0.0014	0.0017	0.0019	0.0021	0.0025	0.0032	0.0038	0.0042	0.0050	0.0053
	M2	1,25 x D1	200	260	IPT	0.0007	0.0008	0.0010	0.0012	0.0014	0.0015	0.0017	0.0020	0.0025	0.0030	0.0034	0.0040	0.0043
K	M3	1,0 x D1	200	230	IPT	0.0006	0.0007	0.0008	0.0010	0.0011	0.0013	0.0014	0.0017	0.0021	0.0025	0.0027	0.0031	0.0032
	K1	1,0 x D1	390	490	IPT	0.0010	0.0012	0.0015	0.0017	0.0020	0.0023	0.0026	0.0030	0.0037	0.0043	0.0048	0.0054	0.0054
	K2	1,0 x D1	360	460	IPT	0.0008	0.0010	0.0012	0.0014	0.0017	0.0019	0.0021	0.0025	0.0032	0.0038	0.0042	0.0050	0.0053
S	K3	1,0 x D1	360	430	IPT	0.0007	0.0008	0.0010	0.0012	0.0014	0.0015	0.0017	0.0020	0.0025	0.0030	0.0034	0.0040	0.0043
	S1	0,75 x D1	160	300	IPT	0.0008	0.0010	0.0012	0.0014	0.0017	0.0019	0.0021	0.0025	0.0032	0.0038	0.0042	0.0050	0.0053
	S2	0,75 x D1	80	160	IPT	0.0004	0.0005	0.0007	0.0008	0.0009	0.0010	0.0011	0.0013	0.0017	0.0020	0.0023	0.0027	0.0029
	S3	0,5 x D1	80	130	IPT	0.0004	0.0005	0.0007	0.0008	0.0009	0.0010	0.0011	0.0013	0.0017	0.0020	0.0023	0.0027	0.0029
H	S4	1,25 x D1	160	200	IPT	0.0005	0.0007	0.0008	0.0010	0.0012	0.0014	0.0016	0.0019	0.0023	0.0028	0.0031	0.0036	0.0039
	H1	1,0 x D1	260	460	IPT	0.0007	0.0009	0.0011	0.0013	0.0015	0.0017	0.0019	0.0022	0.0028	0.0033	0.0037	0.0042	0.0044
	H2	1,0 x D1	230	390	IPT	0.0006	0.0007	0.0008	0.0010	0.0011	0.0013	0.0014	0.0017	0.0021	0.0025	0.0027	0.0031	0.0032

HARVI II TE

Application Data

Material Group		Helical Interpolation / Ramping 15° - 30°			Min - Max Diameter for Helical Interpolation	Recommended feed per tooth (IPT = Inch/th) for Helical Interpolation and Ramping - Zef=2													
			KCPM15A - KCSM15A																
			Cutting Speed Vc																
			SFM			D1 - Diameter													
						.144 - .238	.179 - .296	.216 - .356	.251 - .415	.288 - .475	.323 - .534	.359 - .594	.431 - .713	.575 - .950	.719 - 1.188	.863 - 1.425	1.150 - 1.900	1.437 - 2.375	
	Max Depth	Min	Max	dec	0.1250	0.1563	0.1875	0.2188	0.2500	0.2813	0.3125	0.3750	0.5000	0.6250	0.7500	1.0000	1.2500		
P	P0	1,25 x D1	490	660	IPT	0.0007	0.0009	0.0011	0.0013	0.0015	0.0017	0.0019	0.0022	0.0028	0.0033	0.0036	0.0040	0.0041	
	P1	1,25 x D1	490	660	IPT	0.0007	0.0009	0.0011	0.0013	0.0015	0.0017	0.0019	0.0022	0.0028	0.0033	0.0036	0.0040	0.0041	
	P2	1,25 x D1	460	620	IPT	0.0007	0.0009	0.0011	0.0013	0.0015	0.0017	0.0019	0.0022	0.0028	0.0033	0.0036	0.0040	0.0041	
	P3	1,25 x D1	390	520	IPT	0.0006	0.0008	0.0009	0.0011	0.0013	0.0014	0.0016	0.0019	0.0024	0.0028	0.0032	0.0037	0.0040	
	P4	1,25 x D1	300	490	IPT	0.0005	0.0007	0.0008	0.0010	0.0011	0.0013	0.0014	0.0017	0.0021	0.0025	0.0028	0.0032	0.0033	
	P5	1,25 x D1	200	330	IPT	0.0005	0.0006	0.0007	0.0009	0.0010	0.0012	0.0013	0.0015	0.0019	0.0023	0.0025	0.0030	0.0032	
K	P6	1,25 x D1	160	250	IPT	0.0004	0.0005	0.0006	0.0007	0.0009	0.0010	0.0011	0.0013	0.0016	0.0018	0.0021	0.0023	0.0024	
	K1	1,0 x D1	390	490	IPT	0.0007	0.0009	0.0011	0.0013	0.0015	0.0017	0.0019	0.0022	0.0028	0.0033	0.0036	0.0040	0.0041	
	K2	1,0 x D1	360	460	IPT	0.0006	0.0008	0.0009	0.0011	0.0013	0.0014	0.0016	0.0019	0.0024	0.0028	0.0032	0.0037	0.0040	
S	K3	1,0 x D1	360	430	IPT	0.0005	0.0006	0.0007	0.0009	0.0010	0.0012	0.0013	0.0015	0.0019	0.0023	0.0025	0.0030	0.0032	
	S1	0,75 x D1	160	300	IPT	0.0006	0.0008	0.0009	0.0011	0.0013	0.0014	0.0016	0.0019	0.0024	0.0028	0.0032	0.0037	0.0040	
	S2	0,75 x D1	80	160	IPT	0.0003	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0010	0.0013	0.0015	0.0017	0.0020	0.0022	
	S3	0,5 x D1	80	130	IPT	0.0003	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0010	0.0013	0.0015	0.0017	0.0020	0.0022	
H	S4	1,25 x D1	160	200	IPT	0.0004	0.0005	0.0006	0.0008	0.0009	0.0010	0.0012	0.0014	0.0018	0.0021	0.0023	0.0027	0.0029	
	H1	1,0 x D1	260	460	IPT	0.0005	0.0007	0.0008	0.0010	0.0011	0.0013	0.0014	0.0017	0.0021	0.0025	0.0028	0.0032	0.0033	
	H2	1,0 x D1	230	390	IPT	0.0004	0.0005	0.0006	0.0007	0.0009	0.0010	0.0011	0.0013	0.0016	0.0018	0.0021	0.0023	0.0024	

HARVI II TE

Application Data

Material Group	Helical Interpolation / Ramping 30° - 45°			Min - Max Diameter for Helical Interpolation	Recommended feed per tooth (IPT = Inch/th) for Helical Interpolation and Ramping - Zef=2													
		KCPM15A - KCSM15A																
		Cutting Speed Vc																
		SFM			D1 - Diameter													
					.144 - .238	.179 - .296	.216 - .356	.251 - .415	.288 - .475	.323 - .534	.359 - .594	.431 - .713	.575 - .950	.719 - 1.188	.863 - 1.425	1.150 - 1.900	1.437 - 2.375	
	Max Depth	Min	Max	dec	0.1250	0.1563	0.1875	0.2188	0.2500	0.2813	0.3125	0.3750	0.5000	0.6250	0.7500	1.0000	1.2500	
P	P0	1,25 x D1	490	660	IPT	0.0006	0.0007	0.0009	0.0010	0.0012	0.0014	0.0015	0.0018	0.0022	0.0026	0.0029	0.0032	0.0032
	P1	1,25 x D1	490	660	IPT	0.0006	0.0007	0.0009	0.0010	0.0012	0.0014	0.0015	0.0018	0.0022	0.0026	0.0029	0.0032	0.0032
	P2	1,25 x D1	460	620	IPT	0.0006	0.0007	0.0009	0.0010	0.0012	0.0014	0.0015	0.0018	0.0022	0.0026	0.0029	0.0032	0.0032
	P3	1,25 x D1	390	520	IPT	0.0005	0.0006	0.0007	0.0009	0.0010	0.0011	0.0013	0.0015	0.0019	0.0023	0.0025	0.0030	0.0032
	P4	1,25 x D1	300	490	IPT	0.0004	0.0006	0.0007	0.0008	0.0009	0.0010	0.0012	0.0013	0.0017	0.0020	0.0022	0.0025	0.0027
	P5	1,25 x D1	200	330	IPT	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0010	0.0012	0.0015	0.0018	0.0020	0.0024	0.0026
K	P6	1,25 x D1	160	250	IPT	0.0003	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0010	0.0013	0.0015	0.0016	0.0019	0.0019
	K1	1,0 x D1	390	490	IPT	0.0006	0.0007	0.0009	0.0010	0.0012	0.0014	0.0015	0.0018	0.0022	0.0026	0.0029	0.0032	0.0032
S	K2	1,0 x D1	360	460	IPT	0.0005	0.0006	0.0007	0.0009	0.0010	0.0011	0.0013	0.0015	0.0019	0.0023	0.0025	0.0030	0.0032
	K3	1,0 x D1	360	430	IPT	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0010	0.0012	0.0015	0.0018	0.0020	0.0024	0.0026
	S1	0,75 x D1	160	300	IPT	0.0005	0.0006	0.0007	0.0009	0.0010	0.0011	0.0013	0.0015	0.0019	0.0023	0.0025	0.0030	0.0032
H	S2	0,75 x D1	80	160	IPT	0.0003	0.0003	0.0004	0.0005	0.0005	0.0006	0.0007	0.0008	0.0010	0.0012	0.0014	0.0016	0.0017
	S3	0,5 x D1	80	130	IPT	0.0003	0.0003	0.0004	0.0005	0.0005	0.0006	0.0007	0.0008	0.0010	0.0012	0.0014	0.0016	0.0017
	S4	1,25 x D1	160	200	IPT	0.0003	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0011	0.0014	0.0017	0.0019	0.0022	0.0023
	H1	1,0 x D1	260	460	IPT	0.0004	0.0006	0.0007	0.0008	0.0009	0.0010	0.0012	0.0013	0.0017	0.0020	0.0022	0.0025	0.0027
	H2	1,0 x D1	230	390	IPT	0.0003	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0010	0.0013	0.0015	0.0016	0.0019	0.0019

HARVI SERIES

High-Performance
Roughing and Finishing

Materials



Industries



Automotive



General
Engineering



Wind & Solar



Aerospace



Medical



Oil & Gas

Applications



Ramping



Slotting: Square
End



Trochoidal
Milling



Shoulder Milling



3D Profiling



Helical Interpolation

KCSM15A grade for
high-temp alloys

ROUGHING AND FINISHING IN MULTIPLE MATERIALS

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

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: 6 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 Aero 6-flute end mill that's ideal for high-feed roughing and finishing.

HARVI IV



HARVI IV: Unique design delivers higher MRR and feed rates than 7 flutes and more versatility than traditional 9 flutes. Reliable roughing and finishing capabilities in high-temp alloys, stainless steels, steels and hardened materials.

HARVI II

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

HARVI II Long

5-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 III

6-flute end mill for high-feed roughing and finishing with maximum MRR in titanium and stainless steel with excellent surfaces.

HARVI III Taper Ball Nose

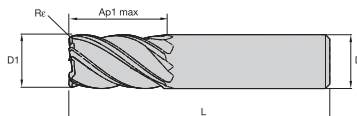
6-flute end mill for 5-axis machining of steels, stainless steels, nickel-based alloys and titanium to significantly increase output and decrease machining time.

HARVI III Ball Nose

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

HARVI IV

8-flute end mill for roughing and finishing in high-temp alloys, stainless steels, steels and hardened materials while achieving powerful chip evacuation from internal coolant channels.



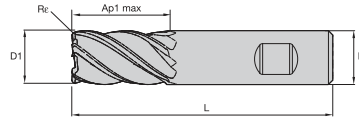
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M	●	●	●
K	●	●	●
N	●	●	●
S	●	●	●
H	○	○	○

● Primary
○ Secondary

HARVI II

Radiused • 5 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Re		KC643M	KCPM15
3580837	UCDE188J5BRA	3/16	3/16	5/8	2 1/4	.015	●	—	
4048709	UCDE188J5BRA	3/16	3/16	5/8	2 1/4	.015	—	●	
3580838	UCDE188J5BRB	3/16	3/16	5/8	2 1/4	.030	●	—	
4048710	UCDE188J5BRB	3/16	3/16	5/8	2 1/4	.030	—	●	
3580840	UCDE250J5BRA	1/4	1/4	3/4	2 1/2	.015	●	—	
4048712	UCDE250J5BRA	1/4	1/4	3/4	2 1/2	.015	—	●	
3580841	UCDE250J5BRB	1/4	1/4	3/4	2 1/2	.030	●	—	
4048713	UCDE250J5BRB	1/4	1/4	3/4	2 1/2	.030	—	●	
3580863	UCDE312J5BRA	5/16	5/16	3/4	2 1/2	.015	●	—	
4048715	UCDE312J5BRA	5/16	5/16	3/4	2 1/2	.015	—	●	
3580864	UCDE312J5BRB	5/16	5/16	3/4	2 1/2	.030	●	—	
4048716	UCDE312J5BRB	5/16	5/16	3/4	2 1/2	.030	—	●	
3580866	UCDE375J5BRA	3/8	3/8	7/8	2 1/2	.015	●	—	
4048718	UCDE375J5BRA	3/8	3/8	7/8	2 1/2	.015	—	●	
3580867	UCDE375J5BRB	3/8	3/8	7/8	2 1/2	.030	●	—	
4048719	UCDE375J5BRB	3/8	3/8	7/8	2 1/2	.030	—	●	
3899137	UCDE375J5CRA	3/8	3/8	1	3	.015	●	—	
3899138	UCDE375J5CRB	3/8	3/8	1	3	.030	●	—	
3580869	UCDE500J5BRA	1/2	1/2	1 1/4	3	.015	●	—	
4048721	UCDE500J5BRA	1/2	1/2	1 1/4	3	.015	—	●	
3580870	UCDE500J5BRB	1/2	1/2	1 1/4	3	.030	●	—	
4048722	UCDE500J5BRB	1/2	1/2	1 1/4	3	.030	—	●	
3899140	UCDE500J5BRD	1/2	1/2	1 1/4	3	.060	●	—	
3580871	UCDE500J5BRF	1/2	1/2	1 1/4	3	.120	●	—	
4048723	UCDE500J5BRF	1/2	1/2	1 1/4	3	.120	—	●	
3899142	UCDE562J5BRA	9/16	5/8	1 1/4	3 1/2	.015	●	—	
3899193	UCDE562J5BRB	9/16	5/8	1 1/4	3 1/2	.030	●	—	
3899194	UCDE625J5BRA	5/8	5/8	1 1/4	3 1/2	.015	●	—	
3580873	UCDE625J5BRB	5/8	5/8	1 1/4	3 1/2	.030	●	—	
4048729	UCDE625J5BRB	5/8	5/8	1 1/4	3 1/2	.030	—	●	
3899195	UCDE625J5BRD	5/8	5/8	1 1/4	3 1/2	.060	●	—	
3899196	UCDE750J5BRA	3/4	3/4	1 1/2	4	.015	●	—	
3580875	UCDE750J5BRB	3/4	3/4	1 1/2	4	.030	●	—	
4048733	UCDE750J5BRB	3/4	3/4	1 1/2	4	.030	—	●	
3580876	UCDE750J5BRD	3/4	3/4	1 1/2	4	.060	●	—	
4048734	UCDE750J5BRD	3/4	3/4	1 1/2	4	.060	—	●	
3580878	UCDE750J5BRF	3/4	3/4	1 1/2	4	.120	●	—	
4048736	UCDE750J5BRF	3/4	3/4	1 1/2	4	.120	—	●	
3899198	UCDE750J5CRB	3/4	3/4	1 5/8	4	.030	●	—	
3899199	UCDE750J5CRD	3/4	3/4	1 5/8	4	.060	●	—	
3899201	UCDE750J5CRF	3/4	3/4	1 5/8	4	.120	●	—	
3899202	UCDE1000J5BRA	1	1	1 3/4	4 1/2	.015	●	—	
3580880	UCDE1000J5BRB	1	1	1 3/4	4 1/2	.030	●	—	
4048661	UCDE1000J5BRB	1	1	1 3/4	4 1/2	.030	—	●	
4048662	UCDE1000J5BRD	1	1	1 3/4	4 1/2	.060	—	●	
3580883	UCDE1000J5BRF	1	1	1 3/4	4 1/2	.120	●	—	



● Primary
○ Secondary

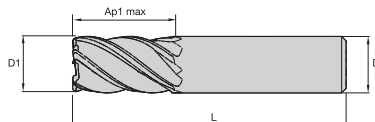
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M	●	●	●
K	●	●	●
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S	●	●	●
H	○	○	○

KC643M
KCPM15

HARVI II

Radiused • 5 Flutes • Weldon Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rr		
3580770	UCDE500K5BRA	1/2	1/2	1 1/4	3	.015	●	—
4048725	UCDE500K5BRA	1/2	1/2	1 1/4	3	.015	—	●
3580771	UCDE500K5BRB	1/2	1/2	1 1/4	3	.030	●	—
4048726	UCDE500K5BRB	1/2	1/2	1 1/4	3	.030	—	●
3580772	UCDE500K5BRF	1/2	1/2	1 1/4	3	.120	●	—
4048727	UCDE500K5BRF	1/2	1/2	1 1/4	3	.120	—	●
3580784	UCDE625K5BRB	5/8	5/8	1 1/4	3 1/2	.030	●	—
4048731	UCDE625K5BRB	5/8	5/8	1 1/4	3 1/2	.030	—	●
3580786	UCDE750K5BRB	3/4	3/4	1 1/2	4	.030	●	—
4048738	UCDE750K5BRB	3/4	3/4	1 1/2	4	.030	—	●
3580787	UCDE750K5BRF	3/4	3/4	1 1/2	4	.120	●	—
3580789	UCDE1000K5BRB	1	1	1 3/4	4 1/2	.030	●	—
4048706	UCDE1000K5BRB	1	1	1 3/4	4 1/2	.030	—	●



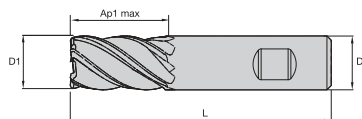
P	●	●	●
M	●	●	●
K	●	●	●
N	●	●	●
S	●	●	●
H	○	○	○

● Primary
○ Secondary

HARVI II

Square End • 5 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	KC643M	KCPM15
3580836	UCDE188J5BS	3/16	3/16	5/8	2 1/4	●	—
4048711	UCDE188J5BS	3/16	3/16	5/8	2 1/4	—	●
3899134	UCDE219J5BS	7/32	1/4	5/8	2 1/2	●	—
3580839	UCDE250J5BS	1/4	1/4	3/4	2 1/2	●	—
4048714	UCDE250J5BS	1/4	1/4	3/4	2 1/2	—	●
3899135	UCDE281J5BS	9/32	5/16	3/4	2 1/2	●	—
3580842	UCDE312J5BS	5/16	5/16	3/4	2 1/2	●	—
4048717	UCDE312J5BS	5/16	5/16	3/4	2 1/2	—	●
3899136	UCDE344J5BS	11/32	3/8	1	2 1/2	●	—
3580865	UCDE375J5BS	3/8	3/8	7/8	2 1/2	●	—
4048720	UCDE375J5BS	3/8	3/8	7/8	2 1/2	—	●
3899139	UCDE438J5BS	7/16	7/16	1	2 1/2	●	—
3580868	UCDE500J5BS	1/2	1/2	1 1/4	3	●	—
4048724	UCDE500J5BS	1/2	1/2	1 1/4	3	—	●
3899141	UCDE562J5BS	9/16	5/8	1 1/4	3 1/2	●	—
3580872	UCDE625J5BS	5/8	5/8	1 1/4	3 1/2	●	—
4048730	UCDE625J5BS	5/8	5/8	1 1/4	3 1/2	—	●
3580874	UCDE750J5BS	3/4	3/4	1 1/2	4	●	—
4048737	UCDE750J5BS	3/4	3/4	1 1/2	4	—	●
3899197	UCDE750J5CS	3/4	3/4	1 5/8	4	●	—
4048705	UCDE1000J5BS	1	1	1 3/4	4 1/2	—	●



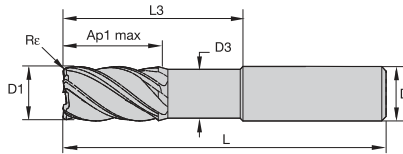
P	●	●	●
M	●	●	●
K	●	●	●
N	●	●	●
S	●	●	●
H	○	○	○

● Primary
○ Secondary

HARVI II

Square End • 5 Flutes • Weldon Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	KC643M	KCPM15
3580769	UCDE500K5BS	1/2	1/2	1 1/4	3	●	—
4048728	UCDE500K5BS	1/2	1/2	1 1/4	3	—	●
3580783	UCDE625K5BS	5/8	5/8	1 1/4	3 1/2	●	—
4048732	UCDE625K5BS	5/8	5/8	1 1/4	3 1/2	—	●
3580785	UCDE750K5BS	3/4	3/4	1 1/2	4	●	—
4048740	UCDE750K5BS	3/4	3/4	1 1/2	4	—	●
3580788	UCDE1000K5BS	1	1	1 3/4	4 1/2	●	—
4048708	UCDE1000K5BS	1	1	1 3/4	4 1/2	—	●



● Primary
○ Secondary

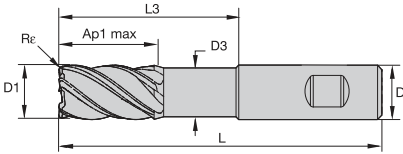
P				
M				
K				
N				
S				
H				

KC643M
KCPM15

HARVI II

Radiused • 5 Flutes • Necked • Plain Shank

Order Number	Catalog Number	D1	D	D3	Ap1 Max	L3	L	Re		
3580522	UCDE250J5ARA	1/4	1/4	.2350	1/2	1 1/4	4	.015	●	—
4048742	UCDE250J5ARA	1/4	1/4	.2350	1/2	1 1/4	4	.015	—	●
3580763	UCDE375J5ARA	3/8	3/8	.3525	7/8	1 7/8	4	.015	●	—
4048743	UCDE375J5ARA	3/8	3/8	.3525	7/8	1 7/8	4	.015	—	●



● Primary
○ Secondary

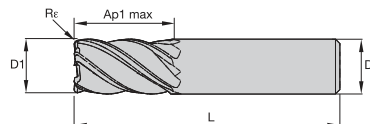
P				
M				
K				
N				
S				
H				

KC643M
KCPM15

HARVI II

Radiused • 5 Flutes • Necked • Weldon Shank

Order Number	Catalog Number	D1	D	D3	Ap1 Max	L3	L	Re		
3580764	UCDE500K5ARB	1/2	1/2	.4720	1 1/4	2 1/4	4	.030	●	—
4048744	UCDE500K5ARB	1/2	1/2	.4720	1 1/4	2 1/4	4	.030	—	●
3580765	UCDE625K5ARB	5/8	5/8	.5900	1 1/4	2 1/4	4	.030	●	—
4048745	UCDE625K5ARB	5/8	5/8	.5900	1 1/4	2 1/4	4	.030	—	●
3580766	UCDE750K5ARB	3/4	3/4	.7040	1 1/2	3 1/4	5 1/2	.030	●	—
4048746	UCDE750K5ARB	3/4	3/4	.7040	1 1/2	3 1/4	5 1/2	.030	—	●
3580767	UCDE1000K5ARB	1	1	.9400	1 3/4	3 1/4	5 1/2	.030	●	—
4048741	UCDE1000K5ARB	1	1	.9400	1 3/4	3 1/4	5 1/2	.030	—	●



HARVI II

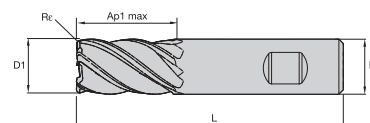
Radiused • 5 Flutes • Plain Shank

● Primary
○ Secondary

P	●
M	●
K	●
N	●
S	○
H	○

KC643M

Order Number	Catalog Number	D1	D	Ap1 Max	L	Re	
3580792	UDDE500J5BRA	1/2	1/2	1 1/4	3	.015	●
3580803	UDDE500J5BRB	1/2	1/2	1 1/4	3	.030	●
3580804	UDDE500J5BRF	1/2	1/2	1 1/4	3	.120	●
3580806	UDDE625J5BRB	5/8	5/8	1 1/4	3 1/2	.030	●
3580808	UDDE750J5BRB	3/4	3/4	1 1/2	4	.030	●
3580809	UDDE750J5BRF	3/4	3/4	1 1/2	4	.120	●
3580811	UDDE1000J5BRB	1	1	1 3/4	4 1/2	.030	●



HARVI II

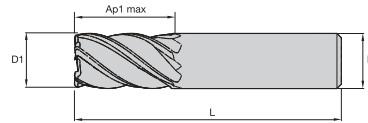
Radiused • 5 Flutes • Weldon Shank

● Primary
○ Secondary

P	●
M	●
K	●
N	●
S	○
H	○

KC643M

Order Number	Catalog Number	D1	D	Ap1 Max	L	Re	
3580814	UDDE500K5BRA	1/2	1/2	1 1/4	3	.015	●
3580815	UDDE500K5BRB	1/2	1/2	1 1/4	3	.030	●
3580818	UDDE625K5BRB	5/8	5/8	1 1/4	3 1/2	.030	●
3580820	UDDE750K5BRB	3/4	3/4	1 1/2	4	.030	●
3580833	UDDE1000K5BRB	1	1	1 3/4	4 1/2	.030	●
3580834	UDDE1000K5BRF	1	1	1 3/4	4 1/2	.120	●



● Primary
○ Secondary

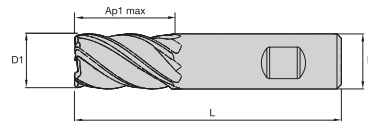
P	●
M	●
K	●
N	●
S	○
H	○

KC643M

HARVI II

Square End • 5 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
3580791	UDDE500J5BS	1/2	1/2	1 1/4	3	●
3580807	UDDE750J5BS	3/4	3/4	1 1/2	4	●
3580810	UDDE1000J5BS	1	1	1 3/4	4 1/2	●



● Primary
○ Secondary

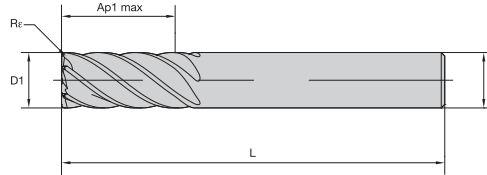
P	●
M	●
K	●
N	●
S	○
H	○

KC643M

HARVI II

Square End • 5 Flutes • Weldon Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
3580813	UDDE500K5BS	1/2	1/2	1 1/4	3	●
3580819	UDDE750K5BS	3/4	3/4	1 1/2	4	●



● Primary
○ Secondary

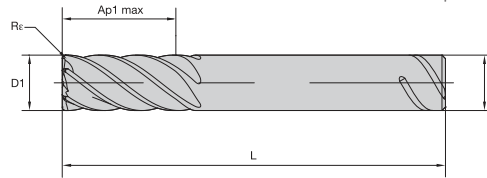
P	○
M	●
K	●
N	●
S	●
H	○

KCSM15A

HARVI III

Radiused • 6 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rε	
7077614	HA3R6RA0375R100HAR015	3/8	3/8	1	3	.015	●
7077615	HA3R6RA0375R100HAR030	3/8	3/8	1	3	.030	●
7077616	HA3R6RA0375R100HAR060	3/8	3/8	1	3	.060	●
7077618	HA3R6RA0500S100HAR030	1/2	1/2	1	3	.030	●
7077619	HA3R6RA0500S100HAR060	1/2	1/2	1	3	.060	●
7077620	HA3R6RA0500R125HAR015	1/2	1/2	1 1/4	3	.015	●
7077701	HA3R6RA0500R125HAR030	1/2	1/2	1 1/4	3	.030	●
7077702	HA3R6RA0500R125HAR060	1/2	1/2	1 1/4	3	.060	●
7077703	HA3R6RA0500R125HAR120	1/2	1/2	1 1/4	3	.120	●
7077705	HA3R6RA0500L200HAR030	1/2	1/2	2	4	.030	●
7077706	HA3R6RA0500L200HAR120	1/2	1/2	2	4	.120	●
7077707	HA3R6RA0625S100HAR015	5/8	5/8	1	3 1/2	.015	●
7077708	HA3R6RA0625R125HAR030	5/8	5/8	1 1/4	3 1/2	.030	●
7077709	HA3R6RA0625R125HAR060	5/8	5/8	1 1/4	3 1/2	.060	●
7077711	HA3R6RA0625L163HAR030	5/8	5/8	1 5/8	3 1/2	.030	●
7077712	HA3R6RA0625L163HAR060	5/8	5/8	1 5/8	3 1/2	.060	●
7077713	HA3R6RA0625L163HAR090	5/8	5/8	1 5/8	3 1/2	.090	●
7077714	HA3R6RA0625L163HAR120	5/8	5/8	1 5/8	3 1/2	.120	●
7077715	HA3R6RA0750S100HAR030	3/4	3/4	1	3	.030	●
7077716	HA3R6RA0750R150HAR030	3/4	3/4	1 1/2	4	.030	●
7077717	HA3R6RA0750R150HAR060	3/4	3/4	1 1/2	4	.060	●
7077718	HA3R6RA0750R150HAR090	3/4	3/4	1 1/2	4	.090	●
7077719	HA3R6RA0750R150HAR120	3/4	3/4	1 1/2	4	.120	●
7077720	HA3R6RA0750R150HAR190	3/4	3/4	1 1/2	4	.190	●
7077722	HA3R6RA0750L163HAR030	3/4	3/4	1 5/8	4	.030	●
7077723	HA3R6RA0750L163HAR060	3/4	3/4	1 5/8	4	.060	●
7077724	HA3R6RA0750L163HAR090	3/4	3/4	1 5/8	4	.090	●
7077725	HA3R6RA0750L163HAR120	3/4	3/4	1 5/8	4	.120	●
7077727	HA3R6RA1000S150HAR030	1	1	1 1/2	4	.030	●
7077728	HA3R6RA1000S150HAR060	1	1	1 1/2	4	.060	●
7077730	HA3R6RA1000R175HAR060	1	1	1 3/4	4 1/2	.060	●
7077731	HA3R6RA1000R175HAR120	1	1	1 3/4	4 1/2	.120	●
7077732	HA3R6RA1000R175HAR250	1	1	1 3/4	4 1/2	.250	●
7077734	HA3R6RA1000L200HAR030	1	1	2	4 1/2	.030	●
7077735	HA3R6RA1000L200HAR060	1	1	2	4 1/2	.060	●
7077736	HA3R6RA1000L200HAR090	1	1	2	4 1/2	.090	●
7077737	HA3R6RA1000L200HAR120	1	1	2	4 1/2	.120	●
7077738	HA3R6RA1000L200HAR190	1	1	2	4 1/2	.190	●
7077739	HA3R6RA1000L200HAR250	1	1	2	4 1/2	.250	●
7077751	HA3R6RA1000X200HAR030	1	1	2	5	.030	●
7077753	HA3R6RA1250R225HAR030	1 1/4	1 1/4	2 1/4	5	.030	●



● Primary
○ Secondary

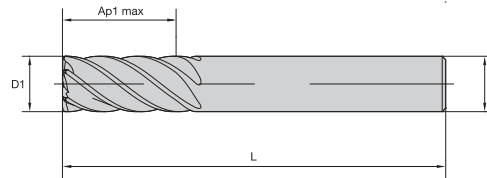
P	Blue	○
M	Yellow	●
K	Red	●
N	Green	●
S	Orange	●
H	Grey	○

KCSM15A

HARVI III

Radiused • 6 Flutes • Safe-Lock Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Re	
7077475	HA3R6RA0500R125SLR015	1/2	1/2	1 1/4	3	.015	●
7077476	HA3R6RA0500R125SLR030	1/2	1/2	1 1/4	3	.030	●
7077477	HA3R6RA0500R125SLR060	1/2	1/2	1 1/4	3	.060	●
7077478	HA3R6RA0500R125SLR120	1/2	1/2	1 1/4	3	.120	●
7077480	HA3R6RA0625R125SLR030	5/8	5/8	1 1/4	3 1/2	.030	●
7077532	HA3R6RA0750R150SLR030	3/4	3/4	1 1/2	4	.030	●
7077533	HA3R6RA0750R150SLR060	3/4	3/4	1 1/2	4	.060	●
7077534	HA3R6RA0750R150SLR120	3/4	3/4	1 1/2	4	.120	●
7077535	HA3R6RA0750L163SLR030	3/4	3/4	1 5/8	4	.030	●
7077536	HA3R6RA0750L163SLR060	3/4	3/4	1 5/8	4	.060	●
7077537	HA3R6RA0750L163SLR120	3/4	3/4	1 5/8	4	.120	●
7077539	HA3R6RA1000R175SLR030	1	1	1 3/4	4 1/2	.030	●
7077540	HA3R6RA1000R175SLR060	1	1	1 3/4	4 1/2	.060	●
7077541	HA3R6RA1000R175SLR120	1	1	1 3/4	4 1/2	.120	●
7077542	HA3R6RA1250R225SLR030	1 1/4	1 1/4	2 1/4	5	.030	●



● Primary
○ Secondary

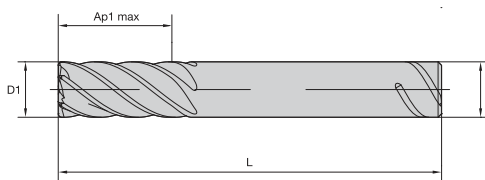
P	Blue	○
M	Yellow	●
K	Red	●
N	Green	●
S	Orange	●
H	Grey	○

KCSM15A

HARVI III

Square End • 6 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
7077617	HA3R6SE0375R100HA	3/8	3/8	1	3	●
7077704	HA3R6SE0500R125HA	1/2	1/2	1 1/4	3	●
7077710	HA3R6SE0625R125HA	5/8	5/8	1 1/4	3 1/2	●
7077721	HA3R6SE0750R150HA	3/4	3/4	1 1/2	4	●
7077726	HA3R6SE0750L163HA	3/4	3/4	1 5/8	4	●
7077729	HA3R6SE1000S150HA	1	1	1 1/2	4	●
7077733	HA3R6SE1000R175HA	1	1	1 3/4	4 1/2	●
7077740	HA3R6SE1000L200HA	1	1	2	4 1/2	●
7077752	HA3R6SE1000X225HA	1	1	2 1/4	5	●



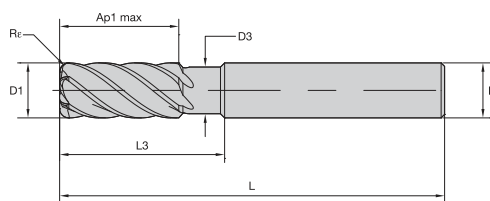
● Primary
○ Secondary

P	Blue	○
M	Yellow	●
K	Red	●
N	Green	●
S	Orange	●
H	Grey	○

HARVI III

Square End • 6 Flutes • Safe-Lock Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
7077479	HA3R6SE0500R125SL	1/2	1/2	1 1/4	3	●
7077531	HA3R6SE0625R125SL	5/8	5/8	1 1/4	3 1/2	●
7077538	HA3R6SE0750L163SL	3/4	3/4	1 5/8	4	●
7077543	HA3R6SE1250R225SL	1 1/4	1 1/4	2 1/4	5	●



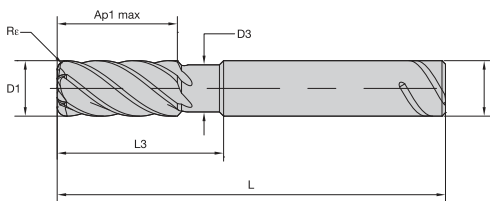
● Primary
○ Secondary

P	Blue	○
M	Yellow	●
K	Red	●
N	Green	●
S	Orange	●
H	Grey	○

HARVI III

Radiused • 6 Flutes • Necked • Plain Shank

Order Number	Catalog Number	D1	D	D3	Ap1 Max	L3	L	Rε	
7077544	HA3R6RA0375N088HAR120	3/8	3/8	.3525	7/8	1 1/4	3	.120	●
7077545	HA3R6RA0375N088HAR015	3/8	3/8	.3525	7/8	1 7/8	4	.015	●
7077546	HA3R6RA0500N075HAR030	1/2	1/2	.4700	3/4	2 1/4	6	.030	●
7077547	HA3R6RA0625N125HAR030	5/8	5/8	.5875	1 1/4	2 1/4	6	.030	●



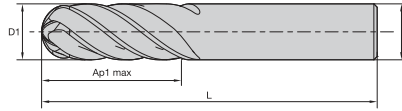
● Primary
○ Secondary

P	Blue	○
M	Yellow	●
K	Red	●
N	Green	●
S	Orange	●
H	Grey	○

HARVI III

Radiused • 6 Flutes • Necked • Safe-Lock Shank

Order Number	Catalog Number	D1	D	D3	Ap1 Max	L3	L	Rε	
7077548	HA3R6RA0500N125SLR030	1/2	1/2	.4700	1 1/4	2 1/4	4	.030	●
7077549	HA3R6RA0625N125SLR030	5/8	5/8	.5875	1 1/4	2 1/4	4	.030	●
7077550	HA3R6RA0750N150SLR030	3/4	3/4	.7050	1 1/2	3 1/4	5 1/2	.030	●
7077551	HA3R6RA1000N175SLR030	1	1	.9400	1 3/4	3 1/4	5 1/2	.030	●



● Primary
○ Secondary

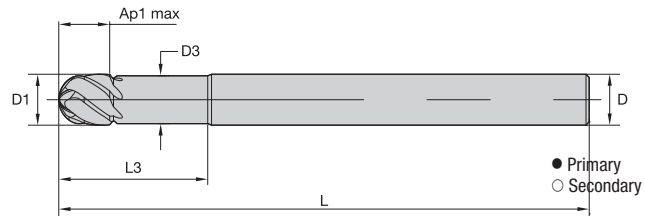


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HARVI III

Ball Nose • 6 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
7077552	HA3R6BN0375R088HA	3/8	3/8	7/8	2 1/2	●
7077553	HA3R6BN0500R100HA	1/2	1/2	1	3	●
7077554	HA3R6BN0500L125HA	1/2	1/2	1 1/4	3	●
7077555	HA3R6BN0625R125HA	5/8	5/8	1 1/4	3 1/2	●
7077556	HA3R6BN0750R150HA	3/4	3/4	1 1/2	4	●
7077557	HA3R6BN1000R150HA	1	1	1 1/2	4	●



● Primary
○ Secondary

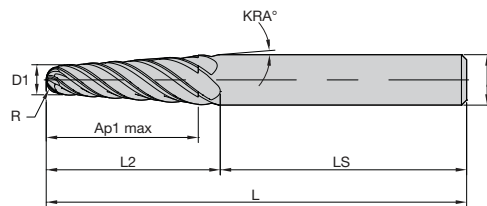


KCSM15A

HARVI III

Ball Nose • 6 Flutes • Necked • Plain Shank

Order Number	Catalog Number	D1	D	D3	Ap1 Max	L3	L	
7077558	HA3R6BN0375N050HA	3/8	3/8	.353	1/2	2.000	6	●
7077559	HA3R6BN0500N063HA	1/2	1/2	.470	5/8	2.250	6	●
7077560	HA3R6BN0625N075HA	5/8	5/8	.588	3/4	2.250	6	●
7077561	HA3R6BN0750N100HA	3/4	3/4	.705	1	2.250	6	●



● Primary
○ Secondary

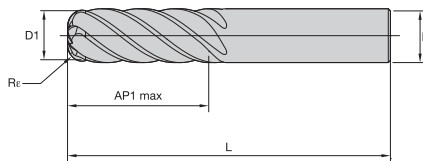


KCSM15A

HARVI III

Taper Ball Nose • 6 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	L2	Ls	R	Kra	
7078261	HA3R6TB0125X119HA	1/8	5/16	1 3/16	3	1.401	1.599	.063	4	●
7078260	HA3R6TB0125L100HA	1/8	3/8	1	3 1/2	1.249	2.252	.063	6	●
7078262	HA3R6TB0188L119HA	3/16	3/8	1 3/16	3 1/2	1.428	2.072	.094	4	●
7078263	HA3R6TB0188X125HA	3/16	1/2	1 1/4	4	1.573	2.427	.094	6	●
7078265	HA3R6TB0250X156HA	1/4	1/2	1 9/16	4	1.908	2.092	.125	4	●
7078264	HA3R6TB0250L150HA	1/4	5/8	1 1/2	5	1.902	3.098	.125	6	●
7078267	HA3R6TB0313X200HA	5/16	5/8	3/38	5	2.389	2.611	.156	4	●
7078266	HA3R6TB0313L125HA	5/16	5/8	1 1/4	5	1.637	3.363	.156	6	●
7078268	HA3R6TB0375L100HA	3/8	5/8	1	5	1.367	3.633	.188	6	●
7078269	HA3R6TB0375X156HA	3/8	5/8	1 9/16	5	1.969	3.032	.188	4	●
7078270	HA3R6TB0438L075HA	7/16	5/8	3/4	5	1.097	3.903	.219	6	●
7078271	HA3R6TB0438X119HA	7/16	5/8	1 3/16	5	1.549	3.452	.219	4	●



● Primary
○ Secondary

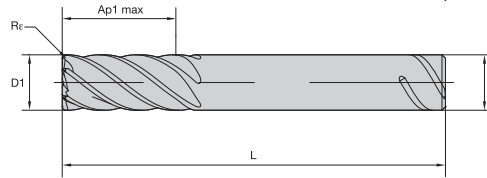
P	○
M	●
K	●
N	●
S	●
H	○

HARVI III Aero

Radiused • 6 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rε	
7077003	HA3A6RA0500S100HAR030	1/2	1/2	1	3	.030	●
7077004	HA3A6RA0500S100HAR060	1/2	1/2	1	3	.060	●
7077005	HA3A6RA0500S100HAR090	1/2	1/2	1	3	.090	●
7077006	HA3A6RA0500S100HAR120	1/2	1/2	1	3	.120	●
7077007	HA3A6RA0500S100HAR190	1/2	1/2	1	3	.190	●
7077008	HA3A6RA0500R150HAR030	1/2	1/2	1 1/2	3 1/2	.030	●
7077009	HA3A6RA0500R150HAR060	1/2	1/2	1 1/2	3 1/2	.060	●
7077010	HA3A6RA0500R150HAR090	1/2	1/2	1 1/2	3 1/2	.090	●
7077021	HA3A6RA0500R150HAR120	1/2	1/2	1 1/2	3 1/2	.120	●
7077022	HA3A6RA0500R150HAR190	1/2	1/2	1 1/2	3 1/2	.190	●
7077023	HA3A6RA0500L200HAR030	1/2	1/2	2	4	.030	●
7077024	HA3A6RA0500L200HAR060	1/2	1/2	2	4	.060	●
7077026	HA3A6RA0500L200HAR090	1/2	1/2	2	4	.090	●
7077027	HA3A6RA0500L200HAR120	1/2	1/2	2	4	.120	●
7077028	HA3A6RA0500L200HAR190	1/2	1/2	2	4	.190	●
7077029	HA3A6RA0500X250HAR030	1/2	1/2	2 1/2	4 1/2	.030	●
7077030	HA3A6RA0500X250HAR060	1/2	1/2	2 1/2	4 1/2	.060	●
7077031	HA3A6RA0500X250HAR090	1/2	1/2	2 1/2	4 1/2	.090	●
7077032	HA3A6RA0500X250HAR120	1/2	1/2	2 1/2	4 1/2	.120	●
7077033	HA3A6RA0500X250HAR190	1/2	1/2	2 1/2	4 1/2	.190	●
7077034	HA3A6RA0750S100HAR030	3/4	3/4	1	3 1/2	.030	●
7077035	HA3A6RA0750S100HAR060	3/4	3/4	1	3 1/2	.060	●
7077036	HA3A6RA0750S100HAR120	3/4	3/4	1	3 1/2	.120	●
7077037	HA3A6RA0750S100HAR190	3/4	3/4	1	3 1/2	.190	●
7077038	HA3A6RA0750S100HAR250	3/4	3/4	1	3 1/2	.250	●
7077039	HA3A6RA0750R200HAR030	3/4	3/4	2	4 1/2	.030	●
7077040	HA3A6RA0750R200HAR060	3/4	3/4	2	4 1/2	.060	●
7077041	HA3A6RA0750R200HAR090	3/4	3/4	2	4 1/2	.090	●
7077042	HA3A6RA0750R200HAR120	3/4	3/4	2	4 1/2	.120	●
7077043	HA3A6RA0750R200HAR190	3/4	3/4	2	4 1/2	.190	●
7077044	HA3A6RA0750R200HAR250	3/4	3/4	2	4 1/2	.250	●
7077045	HA3A6RA0750L300HAR030	3/4	3/4	3	5 1/2	.030	●
7077046	HA3A6RA0750L300HAR060	3/4	3/4	3	5 1/2	.060	●
7077047	HA3A6RA0750L300HAR120	3/4	3/4	3	5 1/2	.120	●
7077048	HA3A6RA0750L300HAR190	3/4	3/4	3	5 1/2	.190	●
7077049	HA3A6RA0750L300HAR250	3/4	3/4	3	5 1/2	.250	●
7077050	HA3A6RA0750X400HAR030	3/4	3/4	4	6 1/2	.030	●
7077051	HA3A6RA0750X400HAR060	3/4	3/4	4	6 1/2	.060	●
7077052	HA3A6RA0750X400HAR120	3/4	3/4	4	6 1/2	.120	●
7077053	HA3A6RA0750X400HAR190	3/4	3/4	4	6 1/2	.190	●
7077054	HA3A6RA0750X400HAR250	3/4	3/4	4	6 1/2	.250	●

KCSM15A



● Primary
○ Secondary

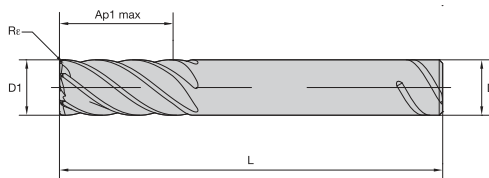
P	●	○
M	●	○
K	●	○
N	●	○
S	●	○
H	●	○

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HARVI III Aero

Radiused • 6 Flutes • Safe-Lock Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Re	
7077055	HA3A6RA1000S100SLR030	1	1	1	4	.030	●
7077056	HA3A6RA1000S100SLR060	1	1	1	4	.060	●
7077057	HA3A6RA1000S100SLR120	1	1	1	4	.120	●
7077058	HA3A6RA1000S100SLR250	1	1	1	4	.250	●
7077059	HA3A6RA1000S100SLR375	1	1	1	4	.375	●
7077060	HA3A6RA1000S150SLR060	1	1	1 1/2	4 1/2	.060	●
7077012	HA3A6RA1000S200SLR030	1	1	2	5	.030	●
7077013	HA3A6RA1000S200SLR060	1	1	2	5	.060	●
7077014	HA3A6RA1000S200SLR090	1	1	2	5	.090	●
7077015	HA3A6RA1000S200SLR120	1	1	2	5	.120	●
7077016	HA3A6RA1000S200SLR190	1	1	2	5	.190	●
7077017	HA3A6RA1000S200SLR250	1	1	2	5	.250	●
7077020	HA3A6RA1000R250SLR090	1	1	2 1/2	5 1/2	.090	●
7077061	HA3A6RA1000R250SLR120	1	1	2 1/2	5 1/2	.120	●
7077062	HA3A6RA1000R250SLR190	1	1	2 1/2	5 1/2	.190	●
7077063	HA3A6RA1000R250SLR250	1	1	2 1/2	5 1/2	.250	●
7077064	HA3A6RA1000R250SLR375	1	1	2 1/2	5 1/2	.375	●
7077018	HA3A6RA1000R250SLR030	1	1	2 1/2	5 1/2	.030	●
7077019	HA3A6RA1000R250SLR060	1	1	2 1/2	5 1/2	.060	●
7077067	HA3A6RA1000R300SLR090	1	1	3	6	.090	●
7077068	HA3A6RA1000R300SLR120	1	1	3	6	.120	●
7077069	HA3A6RA1000R300SLR250	1	1	3	6	.250	●
7077065	HA3A6RA1000R300SLR030	1	1	3	6	.030	●
7077066	HA3A6RA1000R300SLR060	1	1	3	6	.060	●
7077072	HA3A6RA1000L350SLR120	1	1	3 1/2	6 1/2	.120	●
7077073	HA3A6RA1000L350SLR250	1	1	3 1/2	6 1/2	.250	●
7077070	HA3A6RA1000L350SLR030	1	1	3 1/2	6 1/2	.030	●
7077071	HA3A6RA1000L350SLR060	1	1	3 1/2	6 1/2	.060	●
7077076	HA3A6RA1000L400SLR090	1	1	4	7	.090	●
7077077	HA3A6RA1000L400SLR120	1	1	4	7	.120	●
7077078	HA3A6RA1000L400SLR190	1	1	4	7	.190	●
7077079	HA3A6RA1000L400SLR250	1	1	4	7	.250	●
7077074	HA3A6RA1000L400SLR030	1	1	4	7	.030	●
7077075	HA3A6RA1000L400SLR060	1	1	4	7	.060	●
7077080	HA3A6RA1000X450SLR030	1	1	4 1/2	7 1/2	.030	●
7077081	HA3A6RA1000X450SLR060	1	1	4 1/2	7 1/2	.060	●
7077082	HA3A6RA1000X450SLR250	1	1	4 1/2	7 1/2	.250	●
7077083	HA3A6RA1000X500SLR030	1	1	5	8	.030	●
7077084	HA3A6RA1000X500SLR060	1	1	5	8	.060	●
7077085	HA3A6RA1000X500SLR120	1	1	5	8	.120	●
7077086	HA3A6RA1000X500SLR250	1	1	5	8	.250	●
7077087	HA3A6RA1000X500SLR375	1	1	5	8	.375	●
7077088	HA3A6RA1250S200SLR120	1 1/4	1 1/4	2	5	.120	●
7077089	HA3A6RA1250S300SLR060	1 1/4	1 1/4	3	6	.060	●
7077090	HA3A6RA1250S300SLR500	1 1/4	1 1/4	3	6	.500	●
7077111	HA3A6RA1250R350SLR060	1 1/4	1 1/4	3 1/2	6 1/2	.060	●
7077112	HA3A6RA1250R350SLR120	1 1/4	1 1/4	3 1/2	6 1/2	.120	●
7077113	HA3A6RA1250R350SLR250	1 1/4	1 1/4	3 1/2	6 1/2	.250	●
7077114	HA3A6RA1250R400SLR030	1 1/4	1 1/4	4	7	.030	●
7077101	HA3A6RA1250R400SLR120	1 1/4	1 1/4	4	7	.120	●
7077102	HA3A6RA1250R400SLR250	1 1/4	1 1/4	4	7	.250	●
7077103	HA3A6RA1250R400SLR375	1 1/4	1 1/4	4	7	.375	●
7077107	HA3A6RA1250L450SLR375	1 1/4	1 1/4	4 1/2	7 1/2	.375	●
7077104	HA3A6RA1250L450SLR030	1 1/4	1 1/4	4 1/2	7 1/2	.030	●
7077105	HA3A6RA1250L450SLR120	1 1/4	1 1/4	4 1/2	7 1/2	.120	●
7077106	HA3A6RA1250L450SLR250	1 1/4	1 1/4	4 1/2	7 1/2	.250	●



● Primary
○ Secondary

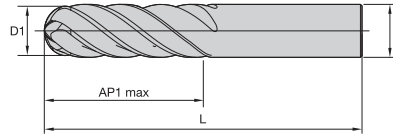
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M	Yellow	●
K	Red	●
N	Green	●
S	Orange	●
H	Grey	○

HARVI III Aero

Radiused • 6 Flutes • Safe-Lock Shank (continued)

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rε	
7077108	HA3A6RA1250L500SLR030	1 1/4	1 1/4	5	8	.030	●
7077110	HA3A6RA1250L500SLR250	1 1/4	1 1/4	5	8	.250	●
7077109	HA3A6RA1250L500SLR060	1 1/4	1 1/4	5	8	.060	●
7077121	HA3A6RA1250L550SLR030	1 1/4	1 1/4	5 1/2	8 1/2	.030	●
7077122	HA3A6RA1250X600SLR030	1 1/4	1 1/4	6	9	.030	●
7077123	HA3A6RA1250X600SLR060	1 1/4	1 1/4	6	9	.060	●
7077124	HA3A6RA1250X600SLR090	1 1/4	1 1/4	6	9	.090	●
7077125	HA3A6RA1250X600SLR120	1 1/4	1 1/4	6	9	.120	●
7077126	HA3A6RA1250X600SLR190	1 1/4	1 1/4	6	9	.190	●
7077127	HA3A6RA1250X600SLR250	1 1/4	1 1/4	6	9	.250	●
7077128	HA3A6RA1250X600SLR375	1 1/4	1 1/4	6	9	.375	●
7077129	HA3A6RA1250X650SLR030	1 1/4	1 1/4	6 1/2	9 1/2	.030	●
7077130	HA3A6RA1250X650SLR060	1 1/4	1 1/4	6 1/2	9 1/2	.060	●
7077131	HA3A6RA1250X650SLR120	1 1/4	1 1/4	6 1/2	9 1/2	.120	●
7077132	HA3A6RA1250X650SLR250	1 1/4	1 1/4	6 1/2	9 1/2	.250	●
7077133	HA3A6RA1250X650SLR375	1 1/4	1 1/4	6 1/2	9 1/2	.375	●
7077134	HA3A6RA1250X650SLR500	1 1/4	1 1/4	6 1/2	9 1/2	.500	●
7077135	HA3A6RA1500R550SLR120	1 1/2	1 1/2	5 1/2	9 1/2	.120	●
7077136	HA3A6RA1500L600SLR250	1 1/2	1 1/2	6	10	.250	●

KCSM15A



● Primary
○ Secondary

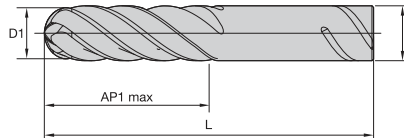
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M	Yellow	●
K	Red	●
N	Green	●
S	Orange	●
H	Grey	○

KCSM15A

HARVI III Aero

Ball Nose • 6 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
7077137	HA3A6BN0500S100HA	1/2	1/2	1	3	●
7077138	HA3A6BN0500R150HA	1/2	1/2	1 1/2	3 1/2	●
7077139	HA3A6BN0500L200HA	1/2	1/2	2	4	●
7077140	HA3A6BN0500X250HA	1/2	1/2	2 1/2	4 1/2	●
7077141	HA3A6BN0750S100HA	3/4	3/4	1	3 1/2	●
7077142	HA3A6BN0750R200HA	3/4	3/4	2	4 1/2	●
7077143	HA3A6BN0750L300HA	3/4	3/4	3	5 1/2	●
7077144	HA3A6BN0750X400HA	3/4	3/4	4	6 1/2	●



● Primary
○ Secondary

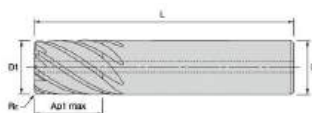
P	Blue	○
M	Yellow	●
K	Red	●
N	Green	●
S	Orange	●
H	Grey	○

KCSM15A

HARVI III Aero

Ball Nose • 6 Flutes • Safe-Lock Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
7077145	HA3A6BN1000S150SL	1	1	1 1/2	4 1/2	●
7077146	HA3A6BN1000S200SL	1	1	2	5	●
7077147	HA3A6BN1000R250SL	1	1	2 1/2	5 1/2	●
7077148	HA3A6BN1000R300SL	1	1	3	6	●
7077149	HA3A6BN1000L350SL	1	1	3 1/2	6 1/2	●
7077150	HA3A6BN1000L400SL	1	1	4	7	●
7077151	HA3A6BN1000X450SL	1	1	4 1/2	7 1/2	●
7077152	HA3A6BN1000X500SL	1	1	5	8	●
7077153	HA3A6BN1250R300SL	1 1/4	1 1/4	3	6	●



● Primary
○ Secondary

P	○
M	●
K	●
N	●
S	●
H	○

HARVI IV

Radiused • 8 Flutes • Internal Coolant • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rε	
7102409	HA4R8RA0375S050HAR015I	3/8	3/8	1/2	2 1/2	0.015	●
7102410	HA4R8RA0375S050HAR030I	3/8	3/8	1/2	2 1/2	.030	●
7102421	HA4R8RA0375S050HAR060I	3/8	3/8	1/2	2 1/2	.060	●
7102423	HA4R8RA0375R075HAR015I	3/8	3/8	3/4	2 1/2	.015	●
7102424	HA4R8RA0375R075HAR030I	3/8	3/8	3/4	2 1/2	.030	●
7102425	HA4R8RA0375R075HAR060I	3/8	3/8	3/4	2 1/2	.060	●
7102427	HA4R8RA0500S063HAR015I	1/2	1/2	5/8	3	0.015	●
7102428	HA4R8RA0500S063HAR030I	1/2	1/2	5/8	3	0.03	●
7102429	HA4R8RA0500S063HAR060I	1/2	1/2	5/8	3	.060	●
7102430	HA4R8RA0500S063HAR090I	1/2	1/2	5/8	3	.090	●
7102431	HA4R8RA0500S063HAR120I	1/2	1/2	5/8	3	.120	●
7102433	HA4R8RA0500R100HAR015I	1/2	1/2	1	3	.015	●
7102434	HA4R8RA0500R100HAR030I	1/2	1/2	1	3	.030	●
7102435	HA4R8RA0500R100HAR060I	1/2	1/2	1	3	.060	●
7102436	HA4R8RA0500R100HAR090I	1/2	1/2	1	3	.090	●
7102437	HA4R8RA0500R100HAR120I	1/2	1/2	1	3	.120	●
7102439	HA4R8RA0625S075HAR030I	5/8	5/8	3/4	3	0.03	●
7102440	HA4R8RA0625S075HAR060I	5/8	5/8	3/4	3	0.06	●
7102441	HA4R8RA0625S075HAR090I	5/8	5/8	3/4	3	0.09	●
7102442	HA4R8RA0625S075HAR120I	5/8	5/8	3/4	3	0.12	●
7102443	HA4R8RA0625S075HAR190I	5/8	5/8	3/4	3	0.19	●
7102448	HA4R8RA0625R125HAR030I	5/8	5/8	1 1/4	3 1/2	.030	●
7102449	HA4R8RA0625R125HAR060I	5/8	5/8	1 1/4	3 1/2	.060	●
7102450	HA4R8RA0625R125HAR090I	5/8	5/8	1 1/4	3 1/2	.090	●
7102451	HA4R8RA0625R125HAR120I	5/8	5/8	1 1/4	3 1/2	.120	●
7102452	HA4R8RA0625R125HAR190I	5/8	5/8	1 1/4	3 1/2	.190	●
7102454	HA4R8RA0750S100HAR030I	3/4	3/4	1	3 1/2	.030	●
7102455	HA4R8RA0750S100HAR060I	3/4	3/4	1	3 1/2	.060	●
7102456	HA4R8RA0750S100HAR090I	3/4	3/4	1	3 1/2	.090	●
7102457	HA4R8RA0750S100HAR120I	3/4	3/4	1	3 1/2	.120	●
7102458	HA4R8RA0750S100HAR190I	3/4	3/4	1	3 1/2	.190	●
7102460	HA4R8RA0750R163HAR030I	3/4	3/4	1 5/8	4	.030	●
7102461	HA4R8RA0750R163HAR060I	3/4	3/4	1 5/8	4	.060	●
7102462	HA4R8RA0750R163HAR090I	3/4	3/4	1 5/8	4	.090	●
7102463	HA4R8RA0750R163HAR120I	3/4	3/4	1 5/8	4	.120	●
7102464	HA4R8RA0750R163HAR190I	3/4	3/4	1 5/8	4	.190	●
7102466	HA4R8RA1000S125HAR030I	1	1	1 1/4	4	.030	●
7102467	HA4R8RA1000S125HAR060I	1	1	1 1/4	4	.060	●

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● Primary
○ Secondary

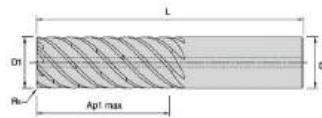
P	Blue	○
M	Yellow	●
K	Red	●
N	Green	●
S	Orange	●
H	Grey	○

KCSM15A

HARVI IV

Radiused • 8 Flutes • Internal Coolant • Plain Shank (continued)

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rε	
7102468	HA4R8RA1000S125HAR120I	1	1	1 1/4	4	.120	●
7102469	HA4R8RA1000S125HAR190I	1	1	1 1/4	4	.190	●
7102470	HA4R8RA1000S125HAR250I	1	1	1 1/4	4	.250	●
7102472	HA4R8RA1000S175HAR030I	1	1	1 3/4	4 1/2	.030	●
7102473	HA4R8RA1000S175HAR060I	1	1	1 3/4	4 1/2	.060	●
7102474	HA4R8RA1000S175HAR120I	1	1	1 3/4	4 1/2	.120	●
7102475	HA4R8RA1000S175HAR190I	1	1	1 3/4	4 1/2	0.19	●
7102476	HA4R8RA1000S175HAR250I	1	1	1 3/4	4 1/2	.250	●
7102478	HA4R8RA1000R200HAR030I	1	1	2	5	.030	●
7102479	HA4R8RA1000R200HAR060I	1	1	2	5	.060	●
7102480	HA4R8RA1000R200HAR120I	1	1	2	5	.120	●
7102481	HA4R8RA1000R200HAR190I	1	1	2	5	.190	●
7102482	HA4R8RA1000R200HAR250I	1	1	2	5	.250	●



● Primary
○ Secondary

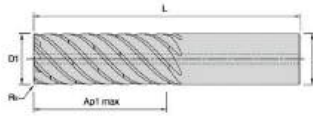
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M	Yellow	●
K	Red	●
N	Green	●
S	Orange	●
H	Grey	○

KCSM15A

HARVI IV

Radiused • 8 Flutes • Chip Splitters • Internal Coolant • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rε	
7102837	HA4R8RA0375R100HAR030D	3/8	3/8	1	3	.030	●
7102838	HA4R8RA0375R100HAR060D	3/8	3/8	1	3	.060	●
7102840	HA4R8RA0375L125HAR015D	3/8	3/8	1 1/4	3	.015	●
7102851	HA4R8RA0375L125HAR030D	3/8	3/8	1 1/4	3	.030	●
7102852	HA4R8RA0375L125HAR060D	3/8	3/8	1 1/4	3	.060	●
7102854	HA4R8RA0375X150HAR030D	3/8	3/8	1 1/2	3 1/2	.030	●
7102855	HA4R8RA0375X150HAR060D	3/8	3/8	1 1/2	3 1/2	.060	●
7102857	HA4R8RA0500R125HAR030D	1/2	1/2	1 1/4	3 1/2	.030	●
7102858	HA4R8RA0500R125HAR060D	1/2	1/2	1 1/4	3 1/2	.060	●
7102859	HA4R8RA0500R125HAR090D	1/2	1/2	1 1/4	3 1/2	.090	●
7102860	HA4R8RA0500R125HAR120D	1/2	1/2	1 1/4	3 1/2	.120	●
7102862	HA4R8RA0500L163HAR015D	1/2	1/2	1 5/8	4	.015	●
7102863	HA4R8RA0500L163HAR030D	1/2	1/2	1 5/8	4	.030	●
7102864	HA4R8RA0500L163HAR060D	1/2	1/2	1 5/8	4	.060	●
7102865	HA4R8RA0500L163HAR090D	1/2	1/2	1 5/8	4	.090	●
7102866	HA4R8RA0500L163HAR120D	1/2	1/2	1 5/8	4	.120	●
7102868	HA4R8RA0500X200HAR030D	1/2	1/2	2	4	.030	●
7102869	HA4R8RA0500X200HAR060D	1/2	1/2	2	4	.060	●
7102870	HA4R8RA0500X200HAR090D	1/2	1/2	2	4	.090	●
7102871	HA4R8RA0500X200HAR120D	1/2	1/2	2	4	.120	●



● Primary
○ Secondary

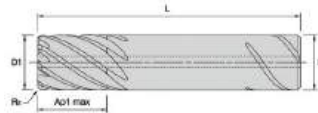
P	Blue	○
M	Yellow	●
K	Red	●
N	Green	●
S	Orange	●
H	Grey	○

HARVI IV

Radiused • 8 Flutes • Chip Splitters • Internal Coolant • Plain Shank (continued)

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rε	
7102873	HA4R8RA0625R163HAR030D	5/8	5/8	1 5/8	4	.030	●
7102874	HA4R8RA0625R163HAR060D	5/8	5/8	1 5/8	4	.060	●
7102875	HA4R8RA0625R163HAR090D	5/8	5/8	1 5/8	4	.090	●
7102876	HA4R8RA0625R163HAR120D	5/8	5/8	1 5/8	4	.120	●
7102877	HA4R8RA0625R163HAR190D	5/8	5/8	1 5/8	4	.190	●
7102879	HA4R8RA0625L188HAR030D	5/8	5/8	1 7/8	4	.030	●
7102880	HA4R8RA0625L188HAR060D	5/8	5/8	1 7/8	4	.060	●
7102881	HA4R8RA0625L188HAR090D	5/8	5/8	1 7/8	4	.090	●
7102882	HA4R8RA0625L188HAR120D	5/8	5/8	1 7/8	4	.120	●
7102883	HA4R8RA0625L188HAR190D	5/8	5/8	1 7/8	4	.190	●
7102885	HA4R8RA0625X250HAR030D	5/8	5/8	2 1/2	5	.030	●
7102886	HA4R8RA0625X250HAR060D	5/8	5/8	2 1/2	5	.060	●
7102887	HA4R8RA0625X250HAR090D	5/8	5/8	2 1/2	5	.090	●
7102888	HA4R8RA0625X250HAR120D	5/8	5/8	2 1/2	5	.120	●
7102889	HA4R8RA0625X250HAR190D	5/8	5/8	2 1/2	5	.190	●
7102891	HA4R8RA0750R163HAR030D	3/4	3/4	1 5/8	4	.030	●
7102892	HA4R8RA0750R163HAR060D	3/4	3/4	1 5/8	4	.060	●
7102893	HA4R8RA0750R163HAR090D	3/4	3/4	1 5/8	4	.090	●
7102894	HA4R8RA0750R163HAR120D	3/4	3/4	1 5/8	4	.120	●
7102895	HA4R8RA0750R163HAR190D	3/4	3/4	1 5/8	4	.190	●
7102897	HA4R8RA0750L225HAR030D	3/4	3/4	2 1/4	5	.030	●
7102898	HA4R8RA0750L225HAR060D	3/4	3/4	2 1/4	5	.060	●
7102899	HA4R8RA0750L225HAR090D	3/4	3/4	2 1/4	5	.090	●
7102900	HA4R8RA0750L225HAR120D	3/4	3/4	2 1/4	5	.120	●
7102901	HA4R8RA0750L225HAR190D	3/4	3/4	2 1/4	5	.190	●
7102903	HA4R8RA0750X325HAR030D	3/4	3/4	3 1/4	6	.030	●
7102904	HA4R8RA0750X325HAR060D	3/4	3/4	3 1/4	6	.060	●
7102905	HA4R8RA0750X325HAR090D	3/4	3/4	3 1/4	6	.090	●
7102907	HA4R8RA0750X325HAR120D	3/4	3/4	3 1/4	6	.120	●
7102908	HA4R8RA0750X325HAR190D	3/4	3/4	3 1/4	6	.190	●
7102910	HA4R8RA1000R250HAR030D	1	1	2 1/2	5 1/2	.030	●
7102911	HA4R8RA1000R250HAR060D	1	1	2 1/2	5 1/2	.060	●
7102912	HA4R8RA1000R250HAR120D	1	1	2 1/2	5 1/2	.120	●
7102913	HA4R8RA1000R250HAR190D	1	1	2 1/2	5 1/2	.190	●
7102914	HA4R8RA1000R250HAR250D	1	1	2 1/2	5 1/2	.250	●
7102916	HA4R8RA1000L325HAR030D	1	1	3 1/4	6	.030	●
7102917	HA4R8RA1000L325HAR060D	1	1	3 1/4	6	.060	●
7102918	HA4R8RA1000L325HAR120D	1	1	3 1/4	6	.120	●
7102919	HA4R8RA1000L325HAR190D	1	1	3 1/4	6	.190	●
7102920	HA4R8RA1000L325HAR250D	1	1	3 1/4	6	.250	●
7102922	HA4R8RA1000X400HAR030D	1	1	4	7	.030	●
7102923	HA4R8RA1000X400HAR060D	1	1	4	7	.060	●
7102924	HA4R8RA1000X400HAR120D	1	1	4	7	.120	●
7102926	HA4R8RA1000X400HAR190D	1	1	4	7	.190	●
7102927	HA4R8RA1000X400HAR250D	1	1	4	7	.250	●

KCSM15A



● Primary
○ Secondary

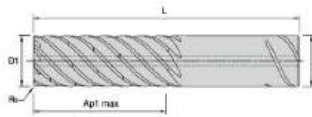
P	○
M	●
K	●
N	●
S	●
H	○

KCSM15A

HARVI IV

Radiused • 8 Flutes • Internal Coolant • Safe-Lock Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rε	
7102484	HA4R8RA0500S063SLR015I	1/2	1/2	5/8	3	.015	●
7102485	HA4R8RA0500S063SLR030I	1/2	1/2	5/8	3	.030	●
7102486	HA4R8RA0500S063SLR060I	1/2	1/2	5/8	3	.060	●
7102487	HA4R8RA0500S063SLR090I	1/2	1/2	5/8	3	.090	●
7102488	HA4R8RA0500S063SLR120I	1/2	1/2	5/8	3	.120	●
7102490	HA4R8RA0500R100SLR015I	1/2	1/2	1	3	.015	●
7102511	HA4R8RA0500R100SLR030I	1/2	1/2	1	3	.030	●
7102512	HA4R8RA0500R100SLR060I	1/2	1/2	1	3	.060	●
7102513	HA4R8RA0500R100SLR090I	1/2	1/2	1	3	.090	●
7102514	HA4R8RA0500R100SLR120I	1/2	1/2	1	3	.120	●
7102516	HA4R8RA0625S075SLR030I	5/8	5/8	3/4	3	.030	●
7102517	HA4R8RA0625S075SLR060I	5/8	5/8	3/4	3	.060	●
7102518	HA4R8RA0625S075SLR090I	5/8	5/8	3/4	3	.090	●
7102519	HA4R8RA0625S075SLR120I	5/8	5/8	3/4	3	.120	●
7102520	HA4R8RA0625S075SLR190I	5/8	5/8	3/4	3	.190	●
7102522	HA4R8RA0625R125SLR030I	5/8	5/8	1 1/4	3 1/2	.030	●
7102523	HA4R8RA0625R125SLR060I	5/8	5/8	1 1/4	3 1/2	.060	●
7102524	HA4R8RA0625R125SLR090I	5/8	5/8	1 1/4	3 1/2	.090	●
7102525	HA4R8RA0625R125SLR120I	5/8	5/8	1 1/4	3 1/2	.120	●
7102526	HA4R8RA0625R125SLR190I	5/8	5/8	1 1/4	3 1/2	.190	●
7102528	HA4R8RA0750S100SLR030I	3/4	3/4	1	3 1/2	.030	●
7102529	HA4R8RA0750S100SLR060I	3/4	3/4	1	3 1/2	.060	●
7102530	HA4R8RA0750S100SLR090I	3/4	3/4	1	3 1/2	.090	●
7102531	HA4R8RA0750S100SLR120I	3/4	3/4	1	3 1/2	.120	●
7102532	HA4R8RA0750S100SLR190I	3/4	3/4	1	3 1/2	.190	●
7102534	HA4R8RA0750R163SLR030I	3/4	3/4	1 5/8	4	.030	●
7102535	HA4R8RA0750R163SLR060I	3/4	3/4	1 5/8	4	.060	●
7102536	HA4R8RA0750R163SLR090I	3/4	3/4	1 5/8	4	.090	●
7102537	HA4R8RA0750R163SLR120I	3/4	3/4	1 5/8	4	.120	●
7102538	HA4R8RA0750R163SLR190I	3/4	3/4	1 5/8	4	.190	●
7102540	HA4R8RA1000S125SLR030I	1	1	1 1/4	4	.030	●
7102541	HA4R8RA1000S125SLR060I	1	1	1 1/4	4	.060	●
7102542	HA4R8RA1000S125SLR120I	1	1	1 1/4	4	.120	●
7102543	HA4R8RA1000S125SLR190I	1	1	1 1/4	4	.190	●
7102544	HA4R8RA1000S125SLR250I	1	1	1 1/4	4	.250	●
7102546	HA4R8RA1000S175SLR030I	1	1	1 3/4	4 1/2	.030	●
7102547	HA4R8RA1000S175SLR060I	1	1	1 3/4	4 1/2	.060	●
7102548	HA4R8RA1000S175SLR120I	1	1	1 3/4	4 1/2	.120	●
7102549	HA4R8RA1000S175SLR190I	1	1	1 3/4	4 1/2	.190	●
7102550	HA4R8RA1000S175SLR250I	1	1	1 3/4	4 1/2	.250	●
7102552	HA4R8RA1000R200SLR030I	1	1	2	5	.030	●
7102553	HA4R8RA1000R200SLR060I	1	1	2	5	.060	●
7102554	HA4R8RA1000R200SLR120I	1	1	2	5	.120	●
7102555	HA4R8RA1000R200SLR190I	1	1	2	5	.190	●
7102556	HA4R8RA1000R200SLR250I	1	1	2	5	.250	●



● Primary
○ Secondary

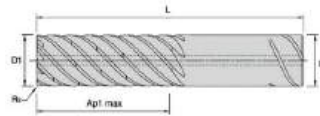
P	Blue	○
M	Yellow	●
K	Red	●
N	Green	●
S	Orange	●
H	Grey	○

HARVI IV

Radiused • 8 Flutes • Chip Splitters • Internal Coolant • Safe-Lock Shank

KCSM15A

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rε	
7102929	HA4R8RA0500R125SLR030D	1/2	1/2	1 1/4	3 1/2	.030	●
7102930	HA4R8RA0500R125SLR060D	1/2	1/2	1 1/4	3 1/2	.060	●
7102931	HA4R8RA0500R125SLR090D	1/2	1/2	1 1/4	3 1/2	.090	●
7102932	HA4R8RA0500R125SLR120D	1/2	1/2	1 1/4	3 1/2	.120	●
7102934	HA4R8RA0500L163SLR015D	1/2	1/2	1 5/8	4	.015	●
7102935	HA4R8RA0500L163SLR030D	1/2	1/2	1 5/8	4	.030	●
7102936	HA4R8RA0500L163SLR060D	1/2	1/2	1 5/8	4	.060	●
7102937	HA4R8RA0500L163SLR090D	1/2	1/2	1 5/8	4	.090	●
7102938	HA4R8RA0500L163SLR120D	1/2	1/2	1 5/8	4	.120	●
7102940	HA4R8RA0500X200SLR030D	1/2	1/2	2	4	.030	●
7102941	HA4R8RA0500X200SLR060D	1/2	1/2	2	4	.060	●
7102942	HA4R8RA0500X200SLR090D	1/2	1/2	2	4	.090	●
7102944	HA4R8RA0500X200SLR120D	1/2	1/2	2	4	.120	●
7102946	HA4R8RA0625R163SLR030D	5/8	5/8	1 5/8	4	.030	●
7102947	HA4R8RA0625R163SLR060D	5/8	5/8	1 5/8	4	.060	●
7102948	HA4R8RA0625R163SLR090D	5/8	5/8	1 5/8	4	.090	●
7102949	HA4R8RA0625R163SLR120D	5/8	5/8	1 5/8	4	.120	●
7102950	HA4R8RA0625R163SLR190D	5/8	5/8	1 5/8	4	.190	●
7102962	HA4R8RA0625L188SLR030D	5/8	5/8	1 7/8	4	.030	●
7102963	HA4R8RA0625L188SLR060D	5/8	5/8	1 7/8	4	.060	●
7102964	HA4R8RA0625L188SLR090D	5/8	5/8	1 7/8	4	.090	●
7102965	HA4R8RA0625L188SLR120D	5/8	5/8	1 7/8	4	.120	●
7102967	HA4R8RA0625L188SLR190D	5/8	5/8	1 7/8	4	.190	●
7102969	HA4R8RA0625X250SLR030D	5/8	5/8	2 1/2	5	.030	●
7102970	HA4R8RA0625X250SLR060D	5/8	5/8	2 1/2	5	.060	●
7102991	HA4R8RA0625X250SLR090D	5/8	5/8	2 1/2	5	.090	●
7102992	HA4R8RA0625X250SLR120D	5/8	5/8	2 1/2	5	.120	●
7102993	HA4R8RA0625X250SLR190D	5/8	5/8	2 1/2	5	.190	●
7102995	HA4R8RA0750R163SLR030D	3/4	3/4	1 5/8	4	.030	●
7102996	HA4R8RA0750R163SLR060D	3/4	3/4	1 5/8	4	.060	●
7102997	HA4R8RA0750R163SLR090D	3/4	3/4	1 5/8	4	.090	●
7102998	HA4R8RA0750R163SLR120D	3/4	3/4	1 5/8	4	.120	●
7102999	HA4R8RA0750R163SLR190D	3/4	3/4	1 5/8	4	.190	●
7103001	HA4R8RA0750L225SLR030D	3/4	3/4	2 1/4	5	.030	●
7103003	HA4R8RA0750L225SLR060D	3/4	3/4	2 1/4	5	.060	●
7103004	HA4R8RA0750L225SLR090D	3/4	3/4	2 1/4	5	.090	●
7103005	HA4R8RA0750L225SLR120D	3/4	3/4	2 1/4	5	.120	●
7103006	HA4R8RA0750L225SLR190D	3/4	3/4	2 1/4	5	.190	●
7103009	HA4R8RA0750X325SLR030D	3/4	3/4	3 1/4	6	.030	●
7103010	HA4R8RA0750X325SLR060D	3/4	3/4	3 1/4	6	.060	●
7103021	HA4R8RA0750X325SLR090D	3/4	3/4	3 1/4	6	.090	●
7103022	HA4R8RA0750X325SLR120D	3/4	3/4	3 1/4	6	.120	●
7103023	HA4R8RA0750X325SLR190D	3/4	3/4	3 1/4	6	.190	●



● Primary
○ Secondary

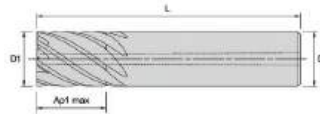
P	Blue	○
M	Yellow	●
K	Red	●
N	Green	●
S	Orange	●
H	Grey	○

KCSM15A

HARVI IV

Radiused • 8 Flutes • Chip Splitters • Internal Coolant • Safe-Lock Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rε	
7103025	HA4R8RA1000R250SLR030D	1	1	2 1/2	5 1/2	.030	●
7103026	HA4R8RA1000R250SLR060D	1	1	2 1/2	5 1/2	.060	●
7103027	HA4R8RA1000R250SLR120D	1	1	2 1/2	5 1/2	.120	●
7103029	HA4R8RA1000R250SLR190D	1	1	2 1/2	5 1/2	.190	●
7103030	HA4R8RA1000R250SLR250D	1	1	2 1/2	5 1/2	.250	●
7103032	HA4R8RA1000L325SLR030D	1	1	3 1/4	6	.030	●
7103033	HA4R8RA1000L325SLR060D	1	1	3 1/4	6	.060	●
7103034	HA4R8RA1000L325SLR120D	1	1	3 1/4	6	.120	●
7103035	HA4R8RA1000L325SLR190D	1	1	3 1/4	6	.190	●
7103036	HA4R8RA1000L325SLR250D	1	1	3 1/4	6	.250	●
7103038	HA4R8RA1000X400SLR030D	1	1	4	7	.030	●
7103039	HA4R8RA1000X400SLR060D	1	1	4	7	.060	●
7103040	HA4R8RA1000X400SLR120D	1	1	4	7	.120	●
7103042	HA4R8RA1000X400SLR190D	1	1	4	7	.190	●
7103043	HA4R8RA1000X400SLR250D	1	1	4	7	.250	●



● Primary
○ Secondary

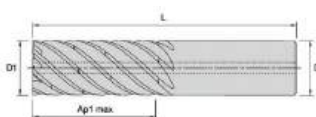
P	Blue	○
M	Yellow	●
K	Red	●
N	Green	●
S	Orange	●
H	Grey	○

KCSM15A

HARVI IV

Square End • 8 Flutes • Internal Coolant • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
7102422	HA4R8SE0375S050HAI	3/8	3/8	1/2	2 1/2	●
7102426	HA4R8SE0375R075HAI	3/8	3/8	3/4	2 1/2	●
7102432	HA4R8SE0500S063HAI	1/2	1/2	5/8	3	●
7102438	HA4R8SE0500R100HAI	1/2	1/2	1	3	●
7102447	HA4R8SE0625S075HAI	5/8	5/8	3/4	3	●
7102453	HA4R8SE0625R125HAI	5/8	5/8	1 1/4	3 1/2	●
7102459	HA4R8SE0750S100HAI	3/4	3/4	1	3 1/2	●
7102465	HA4R8SE0750R163HAI	3/4	3/4	1 5/8	4	●
7102483	HA4R8SE1000R200HAI	1	1	2	5	●
7102471	HA4R8SE1000S125HAI	1	1	1 1/4	4	●
7102477	HA4R8SE1000S175HAI	1	1	1 3/4	4 1/2	●



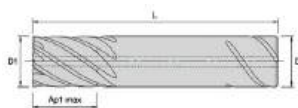
● Primary
○ Secondary

P	Blue	○
M	Yellow	●
K	Red	●
N	Green	●
S	Orange	●
H	Grey	○

HARVI IV

Square End • 8 Flutes • Chip Splitters • Internal Coolant • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
7102839	HA4R8SE0375R100HAD	3/8	3/8	1	3	●
7102853	HA4R8SE0375L125HAD	3/8	3/8	1 1/4	3	●
7102856	HA4R8SE0375X150HAD	3/8	3/8	1 1/2	3 1/2	●
7102861	HA4R8SE0500R125HAD	1/2	1/2	1 1/4	3 1/2	●
7102867	HA4R8SE0500L163HAD	1/2	1/2	1 5/8	4	●
7102872	HA4R8SE0500X200HAD	1/2	1/2	2	4	●
7102878	HA4R8SE0625R163HAD	5/8	5/8	1 5/8	4	●
7102884	HA4R8SE0625L188HAD	5/8	5/8	1 7/8	4	●
7102890	HA4R8SE0625X250HAD	5/8	5/8	2 1/2	5	●
7102896	HA4R8SE0750R163HAD	3/4	3/4	1 5/8	4	●
7102902	HA4R8SE0750L225HAD	3/4	3/4	2 1/4	5	●
7102909	HA4R8SE0750X325HAD	3/4	3/4	3 1/4	6	●
7102915	HA4R8SE1000R250HAD	1	1	2 1/2	5 1/2	●
7102921	HA4R8SE1000L325HAD	1	1	3 1/4	6	●
7102928	HA4R8SE1000X400HAD	1	1	4	7	●



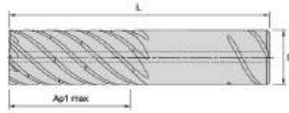
● Primary
○ Secondary

P	Blue	○
M	Yellow	●
K	Red	●
N	Green	●
S	Orange	●
H	Grey	○

HARVI IV

Square End • 8 Flutes • Internal Coolant • Safe-Lock Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
7102489	HA4R8SE0500S063SLI	1/2	1/2	5/8	3	●
7102515	HA4R8SE0500R100SLI	1/2	1/2	1	3	●
7102521	HA4R8SE0625S075SLI	5/8	5/8	3/4	3	●
7102527	HA4R8SE0625R125SLI	5/8	5/8	1 1/4	3 1/2	●
7102533	HA4R8SE0750S100SLI	3/4	3/4	1	3 1/2	●
7102539	HA4R8SE0750R163SLI	3/4	3/4	1 5/8	4	●
7102545	HA4R8SE1000S125SLI	1	1	1 1/4	4	●
7102551	HA4R8SE1000S175SLI	1	1	1 3/4	4 1/2	●
7102557	HA4R8SE1000R200SLI	1	1	2	5	●



● Primary
○ Secondary

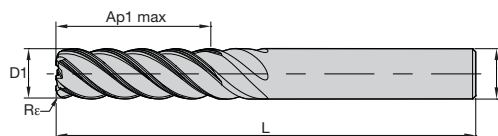
P	Blue	○
M	Yellow	●
K	Red	●
N	Green	●
S	Orange	●
H	Grey	○

KCSM15A

HARVI IV

Square End • 8 Flutes • Chip Splitters • Internal Coolant • Safe-Lock Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
7102933	HA4R8SE0500R125SLD	1/2	1/2	1 1/4	3 1/2	●
7102939	HA4R8SE0500L163SLD	1/2	1/2	1 5/8	4	●
7102945	HA4R8SE0500X200SLD	1/2	1/2	2	4	●
7102961	HA4R8SE0625R163SLD	5/8	5/8	1 5/8	4	●
7102968	HA4R8SE0625L188SLD	5/8	5/8	1 7/8	4	●
7102994	HA4R8SE0625X250SLD	5/8	5/8	2 1/2	5	●
7103000	HA4R8SE0750R163SLD	3/4	3/4	1 5/8	4	●
7103007	HA4R8SE0750L225SLD	3/4	3/4	2 1/4	5	●
7103024	HA4R8SE0750X325SLD	3/4	3/4	3 1/4	6	●
7103031	HA4R8SE1000R250SLD	1	1	2 1/2	5 1/2	●
7103037	HA4R8SE1000L325SLD	1	1	3 1/4	6	●
7103044	HA4R8SE1000X400SLD	1	1	4	7	●



● Primary
○ Secondary

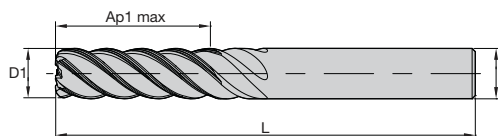
P	●
M	●
K	○
N	●
S	○
H	○

HARVI II Long

Radiused • 5 Flutes • 3xD • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rε	
7077782	HA2L5RA0250L075HAR015	1/4	1/4	3/4	2 1/2	.015	●
7077783	HA2L5RA0250L075HAR030	1/4	1/4	3/4	2 1/2	.030	●
7077786	HA2L5RA0313L094HAR015	5/16	5/16	15/16	3	.015	●
7077788	HA2L5RA0375L113HAR015	3/8	3/8	1 1/8	4	.015	●
7077789	HA2L5RA0375L113HAR030	3/8	3/8	1 1/8	4	.030	●
7077790	HA2L5RA0375L113HAR060	3/8	3/8	1 1/8	4	.060	●
7077802	HA2L5RA0500L150HAR015	1/2	1/2	1 1/2	4	.015	●
7077803	HA2L5RA0500L150HAR030	1/2	1/2	1 1/2	4	.030	●
7077804	HA2L5RA0500L150HAR060	1/2	1/2	1 1/2	4	.060	●
7077806	HA2L5RA0625L188HAR015	5/8	5/8	1 7/8	5	.015	●
7077807	HA2L5RA0625L188HAR030	5/8	5/8	1 7/8	5	.030	●
7077808	HA2L5RA0625L188HAR060	5/8	5/8	1 7/8	5	.060	●
7077809	HA2L5RA0625L188HAR120	5/8	5/8	1 7/8	5	.120	●
7077821	HA2L5RA0750L225HAR015	3/4	3/4	2 1/4	5	.015	●
7077822	HA2L5RA0750L225HAR030	3/4	3/4	2 1/4	5	.030	●
7077823	HA2L5RA0750L225HAR060	3/4	3/4	2 1/4	5	.060	●
7077824	HA2L5RA0750L225HAR120	3/4	3/4	2 1/4	5	.120	●
7077827	HA2L5RA1000L300HAR015	1	1	3	6	.015	●
7077828	HA2L5RA1000L300HAR030	1	1	3	6	.030	●
7077829	HA2L5RA1000L300HAR060	1	1	3	6	.060	●
7077830	HA2L5RA1000L300HAR120	1	1	3	6	.120	●

KCSM15A



● Primary
○ Secondary

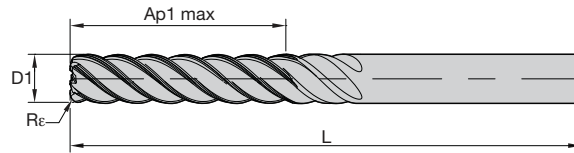
P	●
M	●
K	○
N	●
S	○
H	○

HARVI II Long

Square End • 5 Flutes • 3xD • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
7077784	HA2L5SE0250L075HA	1/4	1/4	3/4	2 1/2	●
7077785	HA2L5RA0313L094HAR030	5/16	5/16	15/16	3	●
7077787	HA2L5SE0313L094HA	5/16	5/16	15/16	3	●
7077801	HA2L5SE0375L113HA	3/8	3/8	1 1/8	4	●
7077805	HA2L5SE0500L150HA	1/2	1/2	1 1/2	4	●
7077810	HA2L5SE0625L188HA	5/8	5/8	1 7/8	5	●
7077825	HA2L5SE0750L225HA	3/4	3/4	2 1/4	5	●
7077831	HA2L5SE1000L300HA	1	1	3	6	●

KCSM15A



● Primary
○ Secondary

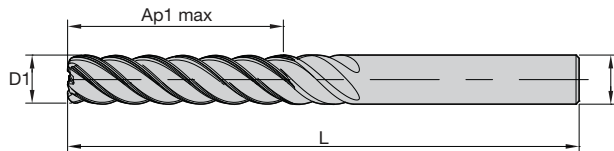
P	●
M	●
K	○
N	●
S	●
H	○

KCSM15A

HARVI II Long

Radiused • 5 Flutes • 5xD • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Re	
7077832	HA2L5RA0250X125HAR015	1/4	1/4	1 1/4	3	.015	●
7077833	HA2L5RA0250X125HAR030	1/4	1/4	1 1/4	3	.030	●
7077835	HA2L5RA0313X156HAR015	5/16	5/16	1 9/16	3 1/2	.015	●
7077836	HA2L5RA0313X156HAR030	5/16	5/16	1 9/16	3 1/2	.030	●
7077838	HA2L5RA0375X188HAR015	3/8	3/8	1 7/8	4	.015	●
7077839	HA2L5RA0375X188HAR030	3/8	3/8	1 7/8	4	.030	●
7077840	HA2L5RA0375X188HAR060	3/8	3/8	1 7/8	4	.060	●
7077842	HA2L5RA0500X250HAR015	1/2	1/2	2 1/2	5	.015	●
7077843	HA2L5RA0500X250HAR030	1/2	1/2	2 1/2	5	.030	●
7077844	HA2L5RA0500X250HAR060	1/2	1/2	2 1/2	5	.060	●
7077846	HA2L5RA0625X313HAR015	5/8	5/8	3 1/8	6	.015	●
7077847	HA2L5RA0625X313HAR030	5/8	5/8	3 1/8	6	.030	●
7077856	HA2L5RA0625X313HAR060	5/8	5/8	3 1/8	6	.060	●
7077857	HA2L5RA0625X313HAR120	5/8	5/8	3 1/8	6	.120	●
7077859	HA2L5RA0750X375HAR015	3/4	3/4	3 3/4	7	.015	●
7077860	HA2L5RA0750X375HAR030	3/4	3/4	3 3/4	7	.030	●
7077922	HA2L5RA0750X375HAR060	3/4	3/4	3 3/4	7	.060	●
7077923	HA2L5RA0750X375HAR120	3/4	3/4	3 3/4	7	.120	●
7077925	HA2L5RA1000X500HAR015	1	1	5	7 1/2	.015	●
7077926	HA2L5RA1000X500HAR030	1	1	5	7 1/2	.030	●
7077927	HA2L5RA1000X500HAR060	1	1	5	7 1/2	.060	●
7077928	HA2L5RA1000X500HAR120	1	1	5	7 1/2	.120	●



● Primary
○ Secondary

P	●
M	●
K	○
N	●
S	●
H	○

KCSM15A

HARVI II Long

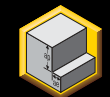
Square End • 5 Flutes • 5xD • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
7077834	HA2L5SE0250X125HA	1/4	1/4	1 1/4	3	●
7077837	HA2L5SE0313X156HA	5/16	5/16	1 9/16	3 1/2	●
7077841	HA2L5SE0375X188HA	3/8	3/8	1 7/8	4	●
7077845	HA2L5SE0500X250HA	1/2	1/2	2 1/2	5	●
7077858	HA2L5SE0625X313HA	5/8	5/8	3 1/8	6	●
7077924	HA2L5SE0750X375HA	3/4	3/4	3 3/4	7	●
7077929	HA2L5SE1000X500HA	1	1	5	7 1/2	●



HARVI II

UCDE • Application Data

Material Group				KC643M		KCPM15		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.							
		A		B	Cutting Speed — Vc SFM				frac.	D1 — Diameter					
										1/4	3/8	1/2	5/8	3/4	1
		Ap	Ae	Ap	min	max	min	max	dec.	.250	.375	.500	.625	.750	1.000
P	0	1.5 x D	0.5 x D	1 x D	490	660	490	660	IPT	.0018	.0027	.0034	.0039	.0044	.0049
	1	1.5 x D	0.5 x D	1 x D	490	660	490	660	IPT	.0018	.0027	.0034	.0039	.0044	.0049
	2	1.5 x D	0.5 x D	1 x D	460	620	460	620	IPT	.0018	.0027	.0034	.0039	.0044	.0049
	3	1.5 x D	0.5 x D	1 x D	390	520	390	520	IPT	.0015	.0023	.0029	.0034	.0039	.0045
	4	1.5 x D	0.5 x D	0.75 x D	300	490	300	490	IPT	.0014	.0020	.0026	.0030	.0034	.0039
	5	1.5 x D	0.5 x D	1 x D	200	330	200	330	IPT	.0012	.0018	.0023	.0027	.0031	.0036
M	6	1.5 x D	0.5 x D	0.75 x D	160	250	160	250	IPT	.0010	.0015	.0019	.0022	.0025	.0028
	1	1.5 x D	0.5 x D	1 x D	300	380	300	380	IPT	.0015	.0023	.0029	.0034	.0039	.0045
	2	1.5 x D	0.5 x D	1 x D	200	260	200	260	IPT	.0012	.0018	.0023	.0027	.0031	.0036
K	3	1.5 x D	0.5 x D	1 x D	200	230	200	230	IPT	.0010	.0015	.0019	.0022	.0025	.0028
	1	1.5 x D	0.5 x D	1 x D	390	490	390	490	IPT	.0018	.0027	.0034	.0039	.0044	.0049
	2	1.5 x D	0.5 x D	1 x D	360	460	360	460	IPT	.0015	.0023	.0029	.0034	.0039	.0045
S	3	1.5 x D	0.5 x D	1 x D	360	430	360	430	IPT	.0012	.0018	.0023	.0027	.0031	.0036
	1	1.5 x D	0.3 x D	0.3 x D	160	300	—	—	IPT	.0015	.0023	.0029	.0034	.0039	.0045
	2	1.5 x D	0.3 x D	0.3 x D	80	130	—	—	IPT	.0008	.0012	.0015	.0018	.0021	.0024
	3	1.5 x D	0.3 x D	0.3 x D	80	130	—	—	IPT	.0008	.0012	.0015	.0018	.0021	.0024
H	4	1.5 x D	0.5 x D	1 x D	160	200	—	—	IPT	.0011	.0017	.0021	.0025	.0028	.0033
	1	1.5 x D	0.5 x D	0.75 x D	260	460	260	460	IPT	.0014	.0020	.0026	.0030	.0034	.0039

NOTE: These guidelines may require variations to achieve optimum results.

Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.



HARVI II

UCDE • With Neck • Application Data

Material Group				KC643M		KCPM15		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.								
		A						B		Cutting Speed — Vc SFM				frac.	D1 — Diameter	
				Ap	Ae	Ap	min	max	min	max	dec.	.250	.375	.500	.625	.750
P	0	0.75 x D	0.5 x D	0.75 x D	490	660	490	660	IPT	.0018	.0027	.0034	.0039	.0044	.0049	
	1	0.75 x D	0.5 x D	0.75 x D	490	660	490	660	IPT	.0018	.0027	.0034	.0039	.0044	.0049	
	2	0.75 x D	0.5 x D	0.75 x D	460	620	460	620	IPT	.0018	.0027	.0034	.0039	.0044	.0049	
	3	0.75 x D	0.5 x D	0.75 x D	390	520	390	520	IPT	.0015	.0023	.0029	.0034	.0039	.0045	
	4	0.75 x D	0.5 x D	0.5 x D	300	490	300	490	IPT	.0014	.0020	.0026	.0030	.0034	.0039	
	5	0.75 x D	0.5 x D	0.75 x D	200	330	200	330	IPT	.0012	.0018	.0023	.0027	.0031	.0036	
M	6	0.75 x D	0.5 x D	0.5 x D	160	250	160	250	IPT	.0010	.0015	.0019	.0022	.0025	.0028	
	1	0.75 x D	0.5 x D	0.75 x D	300	380	300	380	IPT	.0015	.0023	.0029	.0034	.0039	.0045	
	2	0.75 x D	0.5 x D	0.75 x D	200	260	200	260	IPT	.0012	.0018	.0023	.0027	.0031	.0036	
K	3	0.75 x D	0.5 x D	0.75 x D	200	230	200	230	IPT	.0010	.0015	.0019	.0022	.0025	.0028	
	1	0.75 x D	0.5 x D	0.75 x D	390	490	390	490	IPT	.0018	.0027	.0034	.0039	.0044	.0049	
	2	0.75 x D	0.5 x D	0.75 x D	360	460	360	460	IPT	.0015	.0023	.0029	.0034	.0039	.0045	
S	3	0.75 x D	0.5 x D	0.75 x D	360	430	360	430	IPT	.0012	.0018	.0023	.0027	.0031	.0036	
	1	0.75 x D	0.3 x D	0.3 x D	160	300	—	—	IPT	.0015	.0023	.0029	.0034	.0039	.0045	
	2	0.75 x D	0.3 x D	0.3 x D	80	130	—	—	IPT	.0008	.0012	.0015	.0018	.0021	.0024	
	3	0.75 x D	0.3 x D	0.3 x D	80	130	—	—	IPT	.0008	.0012	.0015	.0018	.0021	.0024	
H	4	0.75 x D	0.5 x D	0.75 x D	160	200	—	—	IPT	.0011	.0017	.0021	.0025	.0028	.0033	
	1	0.75 x D	0.5 x D	0.5 x D	260	460	260	460	IPT	.0014	.0020	.0026	.0030	.0034	.0039	

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.

Side milling applications — for longest reach (L3) tools, reduce ae by 30%.

Slot milling applications — for longest reach (L3) tools, reduce ap by 30%.



HARVI II

UCDD • Application Data

Material Group						KC643M		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.				
		A		B								
								D1 — Diameter				
								frac.	1/2	5/8	3/4	1
		Ap	Ae	Ap	min	max	dec.	.500	.625	.750	1.000	
P	5	1.25 x D	0.5 x D	1 x D	200	325	IPT	.0023	.0027	.0003	.0036	
	6	1.25 x D	0.5 x D	0.75 x D	150	225	IPT	.0019	.0022	.0024	.0028	
S	2	1.0 x D	0.3 x D	0.3 x D	70	130	IPT	.0016	.0018	.0020	.0025	
	3	1.25 x D	0.5 x D	1 x D	160	260	IPT	.0023	.0027	.0030	.0036	
	4	1.25 x D	0.5 x D	1 x D	150	210	IPT	.0022	.0025	.0028	.0033	

NOTE: These guidelines may require variations to achieve optimum results.

Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.

HARVI II UCDE & UDDE

Adjustment Factor for Feed and Speed Calculation

	Ae/D	2%	4%	5%	8%	10%	12%	20%	30%	40%	50%	100%
Speed factor	Kv	2.1—3.6	1.6—3	1.6—2.5	1.6	1.4	1.38	1.3	1.2	1.1	1	0.9
Feed factor	KFz	3.58	2.56	2.3	1.84	1.67	1.54	1.25	1.09	1.02	1	1

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 recommended 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 Kv coefficient table above for adaptation of cutting speed and KFz for feed respectively.

$$Vc_{new} = Vc * Kv$$

$$Fz_{new} = Fz * KFz$$

Calculation example:

Application: D1 = 1", S4 material group

(HARVI II UCDE in KC643M);

Ae 0.1" (Ae = 10% D)

Cutting data recommendation: 180 SFM;

Fz = 0.0033 IPT

Adjustment coefficients: Ae = 0.1" equals 10%;

Kv = 1.4; KFz = 1.67

Final cutting data recommendation:

Vc new = 180SFM * 1.4 = 252 SFM

Fz new = .0033 IPT * 1.67 = .0055 IPT



With Neck



Without Neck

HARVI III • HARVI III Aero

Application Data • Inch

Material Group			KCSM15A		Recommended feed per tooth (IPT = inch/th) for side milling.								
						D1 — Diameter							
						frac.	3/8	1/2	5/8	3/4	1	1 1/4	1 1/2
Ap	Ae	min	max	dec.	0.3750	0.5000	0.6250	0.7500	1.0000	1.2500	1.5000		
P	4	Ap max	0.4 x D	300	490	IPT	0.0020	0.0026	0.0030	0.0034	0.0039	0.0040	0.0040
	5	Ap max	0.4 x D	200	330	IPT	0.0018	0.0023	0.0027	0.0031	0.0036	0.0039	0.0039
M	1	Ap max	0.4 x D	300	380	IPT	0.0023	0.0029	0.0034	0.0039	0.0045	0.0048	0.0048
	2	Ap max	0.4 x D	200	260	IPT	0.0018	0.0023	0.0027	0.0031	0.0036	0.0039	0.0039
S	3	Ap max	0.4 x D	200	230	IPT	0.0015	0.0019	0.0022	0.0025	0.0028	0.0029	0.0029
	1	Ap max	0.4 x D	160	300	IPT	0.0023	0.0029	0.0034	0.0039	0.0045	0.0048	0.0048
	2	Ap max	0.4 x D	80	160	IPT	0.0012	0.0015	0.0018	0.0021	0.0024	0.0026	0.0026
	3	Ap max	0.4 x D	80	130	IPT	0.0012	0.0015	0.0018	0.0021	0.0024	0.0026	0.0026
H	4	Ap max	0.4 x D	160	200	IPT	0.0017	0.0021	0.0025	0.0028	0.0033	0.0036	0.0036
	1	Ap max	0.4 x D	260	460	IPT	0.0020	0.0026	0.0030	0.0034	0.0039	0.0040	0.0040
	2	Ap max	0.4 x D	230	390	IPT	0.0015	0.0019	0.0022	0.0025	0.0028	0.0029	0.0029

NOTE: Those guidelines may require variations to achieve optimum results.

Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

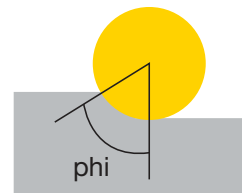
Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.

HARVI III • HARVI III Aero

Adjustment Factor for Feed and Speed Calculation

	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 recommended 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 = SFM * Kv
Fz new = IPT * KFz

Calculation example:
Application: D1 = 0.75"; S4 material group;
Ae 0.1" (Ae = 10% of D)
Cutting data recommendation: Vc = 200 SFM;
Fz = 0.0028 IPT
Adjustment coefficients: Kv = 1.17;
KFz = 1.53

Final cutting data recommendation:
Vc new = 200 * 1.17 = 233 SFM
Fz new = 0.002837 * 1.53 = 0.0043 IPT



Ball Nose



Aero



Taper Ball Nose

HARVI III Ball Nose • HARVI III Taper Ball Nose

HARVI III Aero Ball Nose

Application Data • Roughing

Material Group			KCSM15A		Recommended feed per tooth (IPT = inch/th) for side milling.											
					Cutting Speed — Vc SFM	frac. dec.	D1 — Diameter									
							1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	1
							.1250	.1875	.2500	.3125	.3750	.4375	.5000	.6250	.7500	1.0000
		Ap max	Ae	min	max											
P	0	Ap max	0.4 x D	490	660	IPT	0.0009	0.0013	0.0018	0.0023	0.0027	0.0031	0.0034	0.0039	0.0044	0.0049
	1	Ap max	0.4 x D	490	660	IPT	0.0009	0.0013	0.0018	0.0023	0.0027	0.0031	0.0034	0.0039	0.0044	0.0049
	2	Ap max	0.4 x D	460	620	IPT	0.0009	0.0013	0.0018	0.0023	0.0027	0.0031	0.0034	0.0039	0.0044	0.0049
	3	Ap max	0.4 x D	390	520	IPT	0.0007	0.0011	0.0015	0.0020	0.0023	0.0026	0.0029	0.0034	0.0039	0.0045
	4	Ap max	0.4 x D	300	490	IPT	0.0007	0.0010	0.0014	0.0017	0.0020	0.0023	0.0026	0.0030	0.0034	0.0039
	5	Ap max	0.4 x D	200	330	IPT	0.0006	0.0009	0.0012	0.0016	0.0018	0.0021	0.0023	0.0027	0.0031	0.0036
M	6	Ap max	0.4 x D	160	250	IPT	0.0005	0.0008	0.0010	0.0013	0.0015	0.0017	0.0019	0.0022	0.0025	0.0028
	1	Ap max	0.4 x D	300	380	IPT	0.0007	0.0011	0.0015	0.0020	0.0023	0.0026	0.0029	0.0034	0.0039	0.0045
	2	Ap max	0.4 x D	200	260	IPT	0.0006	0.0009	0.0012	0.0016	0.0018	0.0021	0.0023	0.0027	0.0031	0.0036
S	3	Ap max	0.4 x D	200	230	IPT	0.0005	0.0008	0.0010	0.0013	0.0015	0.0017	0.0019	0.0022	0.0025	0.0028
	1	Ap max	0.4 x D	160	300	IPT	0.0007	0.0011	0.0015	0.0020	0.0023	0.0026	0.0029	0.0034	0.0039	0.0045
	2	Ap max	0.4 x D	80	160	IPT	0.0004	0.0006	0.0008	0.0010	0.0012	0.0014	0.0015	0.0018	0.0021	0.0024
H	3	Ap max	0.4 x D	80	130	IPT	0.0004	0.0006	0.0008	0.0010	0.0012	0.0014	0.0015	0.0018	0.0021	0.0024
	4	Ap max	0.4 x D	160	200	IPT	0.0005	0.0008	0.0011	0.0014	0.0017	0.0019	0.0021	0.0025	0.0028	0.0033
	1	Ap max	0.4 x D	260	460	IPT	0.0007	0.0010	0.0014	0.0017	0.0020	0.0023	0.0026	0.0030	0.0034	0.0039

NOTE: Those guidelines may require variations to achieve optimum results.

Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.



Ball Nose



Aero



Taper Ball Nose

HARVI III Ball Nose • HARVI III Taper Ball Nose

HARVI III Aero Ball Nose

Application Data • Finishing

Material Group				KCSM15A		Recommended feed per tooth (IPT = inch/th) for side milling.												
						D1 — Diameter												
		Cutting Speed — Vc SFM		frac.	1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	1	1 1/4			
					Ap	Ae	min	max	dec.	.1250	.1875	.2500	.3125	.3750	.4375	.5000	.6250	.7500
P	0	Ap max	0.06 x D	940	1250	IPT	0.0011	0.0016	0.0022	0.0028	0.0033	0.0037	0.0041	0.0047	0.0053	0.0059	0.0059	
	1	Ap max	0.06 x D	940	1250	IPT	0.0011	0.0016	0.0022	0.0028	0.0033	0.0037	0.0041	0.0047	0.0053	0.0059	0.0059	
	2	Ap max	0.06 x D	870	1180	IPT	0.0011	0.0016	0.0022	0.0028	0.0033	0.0037	0.0041	0.0047	0.0053	0.0059	0.0059	
	3	Ap max	0.06 x D	750	1000	IPT	0.0009	0.0013	0.0018	0.0023	0.0027	0.0031	0.0035	0.0041	0.0046	0.0054	0.0058	
	4	Ap max	0.06 x D	560	940	IPT	0.0008	0.0012	0.0017	0.0021	0.0025	0.0028	0.0031	0.0036	0.0040	0.0046	0.0048	
	5	Ap max	0.06 x D	370	620	IPT	0.0007	0.0011	0.0015	0.0019	0.0022	0.0025	0.0028	0.0033	0.0037	0.0043	0.0047	
M	6	Ap max	0.06 x D	310	470	IPT	0.0006	0.0009	0.0012	0.0016	0.0018	0.0021	0.0023	0.0027	0.0030	0.0034	0.0035	
	1	Ap max	0.06 x D	560	720	IPT	0.0009	0.0013	0.0018	0.0023	0.0027	0.0031	0.0035	0.0041	0.0046	0.0054	0.0058	
	2	Ap max	0.06 x D	370	500	IPT	0.0007	0.0011	0.0015	0.0019	0.0022	0.0025	0.0028	0.0033	0.0037	0.0043	0.0047	
S	3	Ap max	0.06 x D	370	440	IPT	0.0006	0.0009	0.0012	0.0016	0.0018	0.0021	0.0023	0.0027	0.0030	0.0034	0.0035	
	1	Ap max	0.06 x D	310	560	IPT	0.0009	0.0013	0.0018	0.0023	0.0027	0.0031	0.0035	0.0041	0.0046	0.0054	0.0058	
	2	Ap max	0.06 x D	160	310	IPT	0.0005	0.0007	0.0010	0.0012	0.0015	0.0017	0.0018	0.0022	0.0025	0.0029	0.0032	
	3	Ap max	0.06 x D	160	250	IPT	0.0005	0.0007	0.0010	0.0012	0.0015	0.0017	0.0018	0.0022	0.0025	0.0029	0.0032	
H	4	Ap max	0.06 x D	310	370	IPT	0.0006	0.0009	0.0013	0.0017	0.0020	0.0023	0.0026	0.0030	0.0034	0.0040	0.0043	
	1	Ap max	0.06 x D	500	870	IPT	0.0008	0.0012	0.0017	0.0021	0.0025	0.0028	0.0031	0.0036	0.0040	0.0046	0.0048	

NOTE: Those guidelines may require variations to achieve optimum results.

Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.

APPLICATION RECOMMENDATION

for Surface Profiling with HARVI III Ball Nose & Taper Ball Nose



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



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 that the rotational velocity is zero in the center. 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 the reduced number of cutting edges into the cutting parameter calculations.

HARVI III

Ball Nose & HARVI III Taper Ball Nose



15°

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.



22°

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



40° – 45°

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.



HARVI IV

Side Milling/Slotting • Application Data

Material Group		 Max Ae Factor (KAp)	KCSM15A	Recommended Base Feed per Tooth Value (IPT=Inch/tooth)					
			Base Cutting Speed Vc SFM	D1 - Diameter					
				frac.	3/8	1/2	5/8	3/4	1
				dec.	0.375	0.5	0.625	0.75	1
P	3	1	420	IPT	0.0018	0.0023	0.0027	0.003	0.0037
	4	1	320	IPT	0.0016	0.0021	0.0024	0.0026	0.0031
	5	0.8	210	IPT	0.0014	0.0018	0.0022	0.0024	0.0029
	6	0.7	160	IPT	0.0012	0.0015	0.0018	0.0019	0.0022
M	1	1	275	IPT	0.0018	0.0023	0.0027	0.003	0.0037
	2	0.8	200	IPT	0.0014	0.0018	0.0022	0.0024	0.0029
	3	0.8	200	IPT	0.0012	0.0015	0.0018	0.0019	0.0022
S	1	0.5	160	IPT	0.0018	0.0023	0.0027	0.003	0.0037
	2	0.5	100	IPT	0.0014	0.0018	0.0022	0.0024	0.0029
	3	0.5	80	IPT	0.001	0.0013	0.0014	0.0016	0.002
	4	0.7	160	IPT	0.0016	0.002	0.0024	0.0027	0.0032
H	1	0.8	260	IPT	0.0016	0.0021	0.0024	0.0026	0.0031
	2	0.5	230	IPT	0.0014	0.0018	0.002	0.0022	0.0026

NOTE: These guidelines may require variations to achieve optimum results.

Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.

Maximum ramp angle is 2°. Tools with chip splitters can be used as finishers.

HARVI IV

Maximum Cutting Width and Adjustment Factors for Speed & Feed Calculation

Maximum cutting width (Ae) for given cutting depth (Ap)

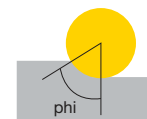
Ap	$\leq 0.125 \times D1$	$> 0.125 \times D1 \leq .5 \times D1$	$> 0.5 \times D1 \leq 1 \times D1$	$> 1 \times D1 \leq 2 \times D1$	$> 2 \times D1 \leq 3 \times D1$	$> 3 \times D1 \leq 4 \times D1$	$> 4 \times D1$
Max Ae	100% x D1	50% x D1 x KAp	40% x D1 x KAp	30% x D1 x KAp	20% x D1 x KAp	15% x D1 x KAp	10% x D1 x KAp

Adjustment factors for speed (Vc) and feed (Fz)

Ae/D1	$\leq 2\%$	$> 2\% \leq 5\%$	$> 5\% \leq 7.5\%$	$> 7.5\% \leq 10\%$	$> 10\% \leq 15\%$	$> 15\% \leq 20\%$	$> 20\% \leq 30\%$	$> 30\% \leq 40\%$	$> 40\% \leq 50\%$	$> 50\% \leq 100\%$
Kv	3	2.5	1.9	1.4	1.35	1.3	1.2	1.1	1	0.9
KFz	3.28	2.3	1.95	1.7	1.5	1.25	1.09	1.02	1	1

Angle of engagement (phi°) relative to cutting width (Ae)

Ae	2%	5%	7.50%	10%	15%	20%	30%	40%	50%	100%
phi°	16.26	25.84	31.79	36.87	45.57	53.13	66.42	78.46	90	180



To calculate application specific cutting data, please use KAp, Kv, and KFz from tables above for adaption of cutting speeds and feeds respectively:

Maximum Ae = $KAp \times D1 \times Ap1Max/D1$

Vc new = $Vc \times Kv$

IPT new = $IPT \times KFz$

Sample Calculation

Material: S4

D1: 1"

Ap: 2xD1

Max Ae: $30\% \times KAp \times D1$	$30\% \times .7 \times D1 = 21\% \times D1$
-------------------------------------	---

SFM: Base x Kv	$160 \times 1.2 = 192$
----------------	------------------------

IPT: Base x KFz	$.0032 \times 1.09 = .0035$
-----------------	-----------------------------

Final cutting data recommendation:

Max Ae = $30\% \times 0.7 \times 1 = 0.21"$

Vc new = $160 \times 1.2 = 192$ SFM

IPT new = $0.0032 \times 1.09 = .0035$ IPT

HARVI IV

Application Data

Minimum Helical Interpolation Diameter

Tool. dia. inch	Interpolation dia. inch
3/8	0.54
1/2	0.67
5/8	0.83
3/4	1.00
1	1.29

Maximum ramp angle is 2° on centerline.



3xD Lengths of Cut



5xD Lengths of Cut

HARVI II Long

3xD & 5xD • Application Data

Material Group				KCSM15A		Recommended feed per tooth (IPT = inch/th) for side milling.								
						Cutting Speed — vc SFM		D1 — Diameter						
								frac.	1/4	5/16	3/8	1/2	5/8	3/4
		ap	ae	min	max	dec.	.2500	.3125	.3750	.5000	.6250	.7500	1.0000	
P	0	Apmax	0.05 x D	980	1310	IPT	0.0018	0.0023	0.0027	0.0034	0.0039	0.0044	0.0049	
	1	Apmax	0.05 x D	980	1310	IPT	0.0018	0.0023	0.0027	0.0034	0.0039	0.0044	0.0049	
	2	Apmax	0.05 x D	920	1250	IPT	0.0018	0.0023	0.0027	0.0034	0.0039	0.0044	0.0049	
	3	Apmax	0.05 x D	790	1050	IPT	0.0015	0.0020	0.0023	0.0029	0.0034	0.0039	0.0045	
	4	Apmax	0.05 x D	590	980	IPT	0.0014	0.0017	0.0020	0.0026	0.0030	0.0034	0.0039	
	5	Apmax	0.05 x D	390	660	IPT	0.0012	0.0016	0.0018	0.0023	0.0027	0.0031	0.0036	
M	6	Apmax	0.05 x D	330	490	IPT	0.0010	0.0013	0.0015	0.0019	0.0022	0.0025	0.0028	
	1	Apmax	0.05 x D	590	750	IPT	0.0015	0.0020	0.0023	0.0029	0.0034	0.0039	0.0045	
	2	Apmax	0.05 x D	390	520	IPT	0.0012	0.0016	0.0018	0.0023	0.0027	0.0031	0.0036	
K	3	Apmax	0.05 x D	390	460	IPT	0.0010	0.0013	0.0015	0.0019	0.0022	0.0025	0.0028	
	1	Apmax	0.05 x D	790	980	IPT	0.0018	0.0023	0.0027	0.0034	0.0039	0.0044	0.0049	
	2	Apmax	0.05 x D	720	920	IPT	0.0015	0.0020	0.0023	0.0029	0.0034	0.0039	0.0045	
S	3	Apmax	0.05 x D	720	850	IPT	0.0012	0.0016	0.0018	0.0023	0.0027	0.0031	0.0036	
	1	Apmax	0.05 x D	330	590	IPT	0.0015	0.0020	0.0023	0.0029	0.0034	0.0039	0.0045	
	2	Apmax	0.05 x D	160	330	IPT	0.0008	0.0010	0.0012	0.0015	0.0018	0.0021	0.0024	
	3	Apmax	0.05 x D	160	260	IPT	0.0008	0.0010	0.0012	0.0015	0.0018	0.0021	0.0024	
H	4	Apmax	0.05 x D	330	390	IPT	0.0011	0.0014	0.0017	0.0021	0.0025	0.0028	0.0033	
	1	Apmax	0.05 x D	520	920	IPT	0.0014	0.0017	0.0020	0.0026	0.0030	0.0034	0.0039	
	2	Apmax	0.05 x D	460	790	IPT	0.0010	0.0013	0.0015	0.0019	0.0022	0.0025	0.0028	

NOTE: Those guidelines may require variations to achieve optimum results.

Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.

KOR SERIES

High-Performance Dynamic Milling

Materials



Industries



Automotive



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Wind & Solar



Aerospace



Medical



Oil & Gas

Applications



Ramping



Trochoidal Milling



Side Milling/Shoulder Milling: Roughing



Side Milling/Shoulder Milling: Finishing



Helical Interpolation



KOR Series

- Designed for dynamic milling with low radial engagement and full length of cut.
- Maximizes capabilities of 5-axis machines, using CAM tool path generation software.

KOR 5^{DA}



Proprietary flute forms reduce vibrations and improve tool life.

KOR 5^{DA}



Helix angles tailored to target material to minimize vibration and optimize tool life.

KOR 6^{DT}



Front end geometries for maximum tool life in helical and ramping operations.

KOR 5^{DA} — Dynamic Rougher for Aluminum

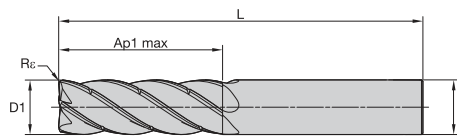
5 flutes with chip splitters for near-perfect chip management.
SAFE-LOCK shanks available for pullout protection.
3xD length of cut with and without internal coolant.
5xD length of cut with internal coolant for a broader application range.

KOR 5^{DS} — Dynamic Rougher for Steel and Stainless Steel

5 flutes with chip deformers for near-perfect chip management at high surface quality.
3xD and 5xD with plain and Weldon shanks.

KOR 6^{DT} — Dynamic Rougher for Titanium

6 flutes with chip splitters for optimized chip management.
3xD and 5xD with plain, weldon and SAFE-LOCK shanks.



KOR 5^{DA}

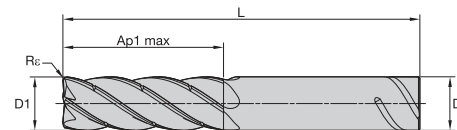
Radiused • 5 Flutes • 3xD • Internal Coolant • Plain Shank

● Primary
○ Secondary

P	
M	
K	
N	
S	
H	

K600

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rc	
6754900	KOR5RA0375R113HAR015I	3/8	3/8	1 1/8	3	.015	•
6754921	KOR5RA0375R113HAR030I	3/8	3/8	1 1/8	3	.030	•
6754922	KOR5RA0375R113HAR060I	3/8	3/8	1 1/8	3	.060	•



KOR 5^{DA}

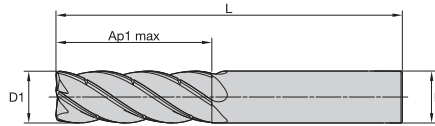
Radiused • 5 Flutes • 3xD • Internal Coolant • Safe-Lock Shank

● Primary
○ Secondary

P	
M	
K	
N	
S	
H	

K600

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rc	
6754924	KOR5RA0500R150SLR015I	1/2	1/2	1 1/2	3 1/2	.015	•
6754925	KOR5RA0500R150SLR030I	1/2	1/2	1 1/2	3 1/2	.030	•
6754926	KOR5RA0500R150SLR060I	1/2	1/2	1 1/2	3 1/2	.060	•
6754928	KOR5RA0625R188SLR030I	5/8	5/8	1 7/8	4	.030	•
6754929	KOR5RA0625R188SLR060I	5/8	5/8	1 7/8	4	.060	•
6754930	KOR5RA0625R188SLR090I	5/8	5/8	1 7/8	4	.090	•
6754932	KOR5RA0750R225SLR030I	3/4	3/4	2 1/4	5	.030	•
6754933	KOR5RA0750R225SLR060I	3/4	3/4	2 1/4	5	.060	•
6754934	KOR5RA0750R225SLR090I	3/4	3/4	2 1/4	5	.090	•
6754935	KOR5RA0750R225SLR120I	3/4	3/4	2 1/4	5	.120	•
6754937	KOR5RA1000R300SLR030I	1	1	3	5 1/2	.030	•
6754938	KOR5RA1000R300SLR060I	1	1	3	5 1/2	.060	•
6754939	KOR5RA1000R300SLR090I	1	1	3	5 1/2	.090	•



● Primary
○ Secondary

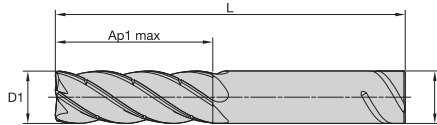
P	
M	
K	
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S	
H	

K600

KOR 5^{DA}

Square End • 5 Flutes • 3xD • Internal Coolant • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
6754899	KOR5SE0375R113HA	3/8	3/8	1 1/8	3	•



● Primary
○ Secondary

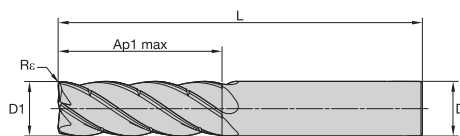
P	
M	
K	
N	
S	
H	

K600

KOR 5^{DA}

Square End • 5 Flutes • 3xD • Internal Coolant • Safe-Lock Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
6754923	KOR5SE0500R150SLI	1/2	1/2	1 1/2	3 1/2	•
6754927	KOR5SE0625R188SLI	5/8	5/8	1 7/8	4	•
6754931	KOR5SE0750R225SLI	3/4	3/4	2 1/4	5	•
6754936	KOR5SE1000R300SLI	1	1	3	5 1/2	•



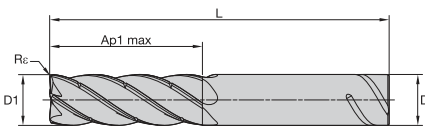
● Primary
○ Secondary

P	
M	
K	
N	
S	
H	

KOR 5^{DA}

Radiused • 5 Flutes • 3xD • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rc	
6754952	KOR5RA0375R113HAR015C	3/8	3/8	1 1/8	3	.015	•
6754953	KOR5RA0375R113HAR030C	3/8	3/8	1 1/8	3	.030	•
6754954	KOR5RA0375R113HAR060C	3/8	3/8	1 1/8	3	.060	•



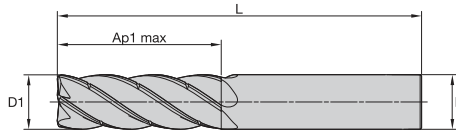
● Primary
○ Secondary

P	
M	
K	
N	
S	
H	

KOR 5^{DA}

Radiused • 5 Flutes • 3xD • Safe-Lock Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rc	
6754956	KOR5RA0500R150SLR015C	1/2	1/2	1 1/2	3 1/2	.015	•
6754957	KOR5RA0500R150SLR030C	1/2	1/2	1 1/2	3 1/2	.030	•
6754958	KOR5RA0500R150SLR060C	1/2	1/2	1 1/2	3 1/2	.060	•
6754960	KOR5RA0625R188SLR030C	5/8	5/8	1 7/8	4	.030	•
6754961	KOR5RA0625R188SLR060C	5/8	5/8	1 7/8	4	.060	•
6754962	KOR5RA0625R188SLR090C	5/8	5/8	1 7/8	4	.090	•
6754964	KOR5RA0750R225SLR030C	3/4	3/4	2 1/4	5	.030	•
6754965	KOR5RA0750R225SLR060C	3/4	3/4	2 1/4	5	.060	•
6754966	KOR5RA0750R225SLR090C	3/4	3/4	2 1/4	5	.090	•
6754967	KOR5RA0750R225SLR120C	3/4	3/4	2 1/4	5	.120	•
6754969	KOR5RA1000R300SLR030C	1	1	3	5 1/2	.030	•
6754970	KOR5RA1000R300SLR060C	1	1	3	5 1/2	.060	•
6754971	KOR5RA1000R300SLR090C	1	1	3	5 1/2	.090	•



● Primary
○ Secondary

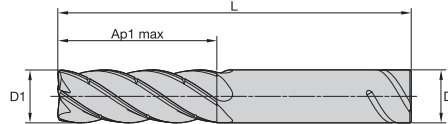
P	
M	
K	
N	
S	
H	

K600

KOR 5^{DA}

Square End • 5 Flutes • 3xD • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
6754951	KOR5SE0375R113HAC	3/8	3/8	1 1/8	3	•



● Primary
○ Secondary

P	
M	
K	
N	
S	
H	

K600

KOR 5^{DA}

Square End • 5 Flutes • 3xD • Safe-Lock Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
6754955	KOR5SE0500R150SLC	1/2	1/2	1 1/2	3 1/2	•
6754959	KOR5SE0625R188SLC	5/8	5/8	1 7/8	4	•
6754963	KOR5SE0750R225SLC	3/4	3/4	2 1/4	5	•
6754968	KOR5SE1000R300SLC	1	1	3	5 1/2	•

KOR 5^{DA}

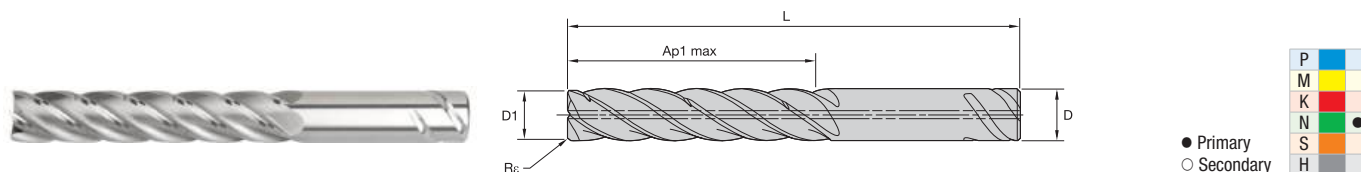
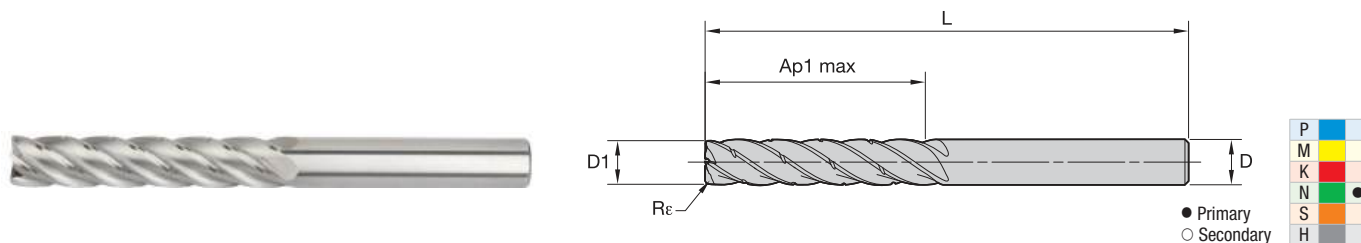
Radiused • 5 Flutes • 5xD • Internal Coolant • Plain Shank

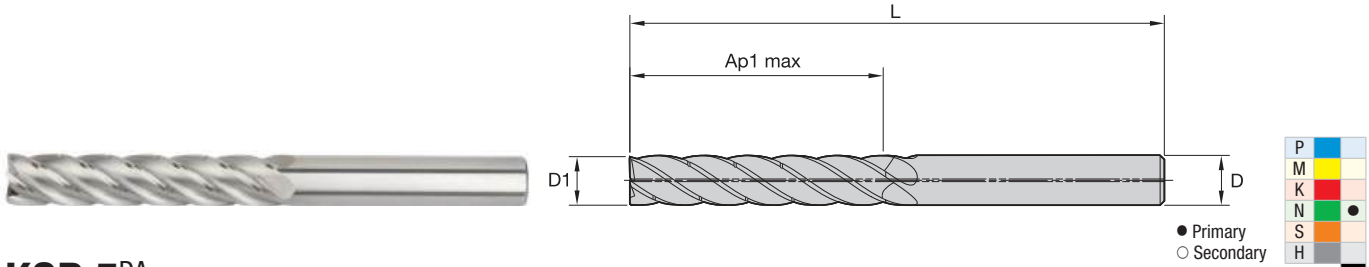
Order Number	Catalog Number	D1	D	Ap1 Max	L	Rε	
6971843	KOR5RA0375L188HAR015I	3/8	3/8	1 7/8	4	.015	•
6971844	KOR5RA0375L188HAR030I	3/8	3/8	1 7/8	4	.030	•
6971845	KOR5RA0375L188HAR060I	3/8	3/8	1 7/8	4	.060	•

KOR 5^{DA}

Radiused • 5 Flutes • 5xD • Internal Coolant • Safe-Lock Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rε	
6971847	KOR5RA0500L250SLR015I	1/2	1/2	2 1/2	4 1/2	.015	•
6971848	KOR5RA0500L250SLR030I	1/2	1/2	2 1/2	4 1/2	.030	•
6971849	KOR5RA0500L250SLR060I	1/2	1/2	2 1/2	4 1/2	.060	•
6971871	KOR5RA0625L313SLR030I	5/8	5/8	3 1/8	5 1/2	.030	•
6971872	KOR5RA0625L313SLR060I	5/8	5/8	3 1/8	5 1/2	.060	•
6971873	KOR5RA0625L313SLR090I	5/8	5/8	3 1/8	5 1/2	.090	•
6971875	KOR5RA0750L375SLR030I	3/4	3/4	3 3/4	6 1/4	.030	•
6971876	KOR5RA0750L375SLR060I	3/4	3/4	3 3/4	6 1/4	.060	•
6971877	KOR5RA0750L375SLR090I	3/4	3/4	3 3/4	6 1/4	.090	•
6971878	KOR5RA0750L375SLR120I	3/4	3/4	3 3/4	6 1/4	.120	•
6971880	KOR5RA1000L500SLR030I	1	1	5	8	.030	•
6971881	KOR5RA1000L500SLR060I	1	1	5	8	.060	•
6971882	KOR5RA1000L500SLR090I	1	1	5	8	.090	•

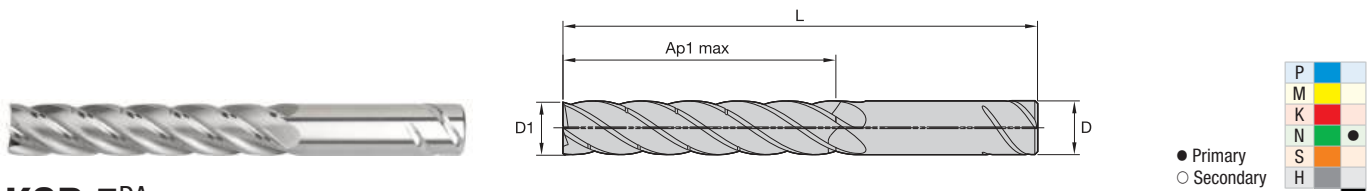




KOR 5^{DA}

Square End • 5 Flutes • 5xD • Internal Coolant • Plain Shank

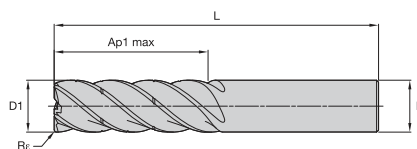
Order Number	Catalog Number	D1	D	Ap1 Max	L	
6971846	KOR5SE0375L188HA	3/8	.375	1 7/8	4	•



KOR 5^{DA}

Square End • 5 Flutes • 5xD • Internal Coolant • Safe-Lock Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
6971850	KOR5SE0500L250SLI	1/2	.500	2 1/2	4 1/2	•
6971874	KOR5SE0625L313SLI	5/8	.625	3 1/8	5 1/2	•
6971879	KOR5SE0750L375SLI	3/4	.750	3 3/4	6 1/4	•
6971883	KOR5SE1000L500SLI	1	1.000	5	8	•



KOR 5^{DS}

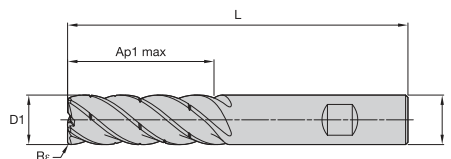
Radiused • 5 Flutes • 3xD • Plain Shank

● Primary
○ Secondary

P	Blue	○
M	Yellow	●
K	Red	○
N	Green	●
S	Orange	●
H	Grey	○

KC643M

Order Number	Catalog Number	D1	D	Ap1 Max	L	Re	
6769720	KOR5RA0250R075HAR030	1/4	1/4	3/4	2 1/2	.030	●
6769781	KOR5RA0375R113HAR030	3/8	3/8	1 1/8	3	.030	●
6769782	KOR5RA0500R150HAR030	1/2	1/2	1 1/2	3 1/2	.030	●
6769783	KOR5RA0625R188HAR030	5/8	5/8	1 7/8	4	.030	●
6769784	KOR5RA0750R225HAR060	3/4	3/4	2 1/4	5	.060	●
6769785	KOR5RA1000R300HAR060	1	1	3	6	.060	●



KOR 5^{DS}

Radiused • 5 Flutes • 3xD • Weldon Shank

● Primary
○ Secondary

P	Blue	○
M	Yellow	●
K	Red	○
N	Green	●
S	Orange	●
H	Grey	○

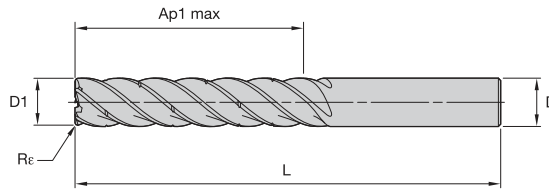
KC643M

Order Number	Catalog Number	D1	D	Ap1 Max	L	Re	
6769786	KOR5RA0250R075HBR030	1/4	1/4	3/4	2 1/2	.030	●
6769787	KOR5RA0375R113HBR030	3/8	3/8	1 1/8	3	.030	●
6769789	KOR5RA0500R150HBR030	1/2	1/2	1 1/2	3 1/2	.030	●
6769790	KOR5RA0625R188HBR030	5/8	5/8	1 7/8	4	.030	●
6769791	KOR5RA0750R225HBR060	3/4	3/4	2 1/4	5	.060	●
6769792	KOR5RA1000R300HBR060	1	1	3	6	.060	●



KOR 5^{DS}

Radiused • 5 Flutes • 5xD • Plain Shank



● Primary
○ Secondary

P	Blue	○
M	Yellow	●
K	Red	○
N	Green	●
S	Orange	●
H	Grey	○

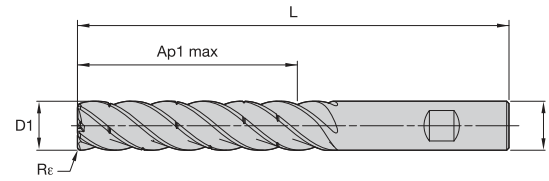
KC643M

Order Number	Catalog Number	D1	D	Ap1 Max	L	Re	
6764360	KOR5RA0250L125HAR030	1/4	1/4	1 1/4	3	.030	●
6764471	KOR5RA0375L188HAR030	3/8	3/8	1 7/8	4	.030	●
6764472	KOR5RA0500L250HAR030	1/2	1/2	2 1/2	5	.030	●
6764473	KOR5RA0625L313HAR030	5/8	5/8	3 1/8	6	.030	●
6764474	KOR5RA0750L375HAR060	3/4	3/4	3 3/4	7	.060	●
6764475	KOR5RA1000L500HAR060	1	1	5	7 1/2	.060	●



KOR 5^{DS}

Radiused • 5 Flutes • 5xD • Weldon Shank

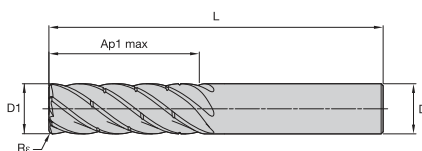


● Primary
○ Secondary

P	Blue	○
M	Yellow	●
K	Red	○
N	Green	●
S	Orange	●
H	Grey	○

KC643M

Order Number	Catalog Number	D1	D	Ap1 Max	L	Re	
6764476	KOR5RA0250L125HBR030	1/4	1/4	1 1/4	3	.030	●
6764477	KOR5RA0375L188HBR030	3/8	3/8	1 7/8	4	.030	●
6764478	KOR5RA0500L250HBR030	1/2	1/2	2 1/2	5	.030	●
6764479	KOR5RA0625L313HBR030	5/8	5/8	3 1/8	6	.030	●
6764480	KOR5RA0750L375HBR060	3/4	3/4	3 3/4	7	.060	●
6764491	KOR5RA1000L500HBR060	1	1	5	7 1/2	.060	●



● Primary
○ Secondary

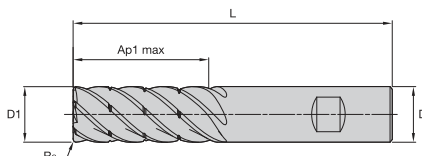
P	Blue	○
M	Yellow	●
K	Red	○
N	Green	○
S	Orange	●
H	Grey	○

KOR 6^{DT}

Radiused • 6 Flutes • 3xD • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Re	
6767671	KOR6RA0375R113HAR030C	3/8	3/8	1 1/8	3	.030	●

KCSM15



● Primary
○ Secondary

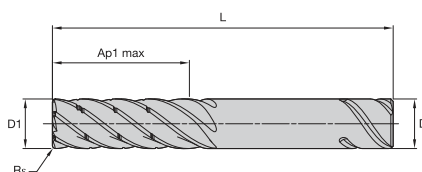
P	Blue	○
M	Yellow	●
K	Red	○
N	Green	○
S	Orange	●
H	Grey	○

KOR 6^{DT}

Radiused • 6 Flutes • 3xD • Weldon Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Re	
6767676	KOR6RA0375R113HBR030C	3/8	3/8	1 1/8	3	.030	●
6767677	KOR6RA0500R150HBR030C	1/2	1/2	1 1/2	3 1/2	.030	●
6767678	KOR6RA0625R188HBR030C	5/8	5/8	1 7/8	4	.030	●
6767679	KOR6RA0750R225HBR060C	3/4	3/4	2 1/4	5	.060	●
6767691	KOR6RA1000R300HBR060C	1	1	3	6	.060	●

KCSM15



● Primary
○ Secondary

P	Blue	○
M	Yellow	●
K	Red	○
N	Green	○
S	Orange	●
H	Grey	○

KOR 6^{DT}

Radiused • 6 Flutes • 3xD • Safe-Lock Shank

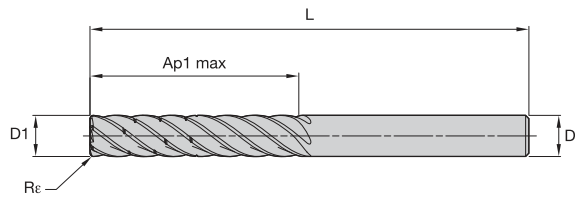
Order Number	Catalog Number	D1	D	Ap1 Max	L	Re	
6767672	KOR6RA0500R150SLR030C	1/2	1/2	1 1/2	3 1/2	.030	●
6767673	KOR6RA0625R188SLR030C	5/8	5/8	1 7/8	4	.030	●
6767674	KOR6RA0750R225SLR060C	3/4	3/4	2 1/4	5	.060	●
6767675	KOR6RA1000R300SLR060C	1	1	3	6	.060	●

KCSM15



KOR 6^{DT}

Radiused • 6 Flutes • 5xD • Plain Shank



● Primary
○ Secondary

P	Blue	○
M	Yellow	●
K	Red	○
N	Green	○
S	Orange	●
H	Grey	○

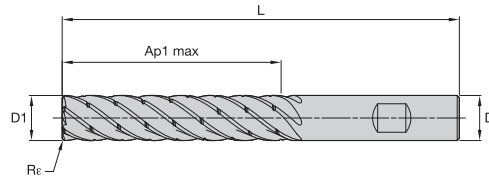
KCSM15

Order Number	Catalog Number	D1	D	Ap1 Max	L	Re	
6767706	KOR6RA0375L188HAR030C	3/8	3/8	1 7/8	4	.030	●



KOR 6^{DT}

Radiused • 6 Flutes • 5xD • Weldon Shank



● Primary
○ Secondary

P	Blue	○
M	Yellow	●
K	Red	○
N	Green	○
S	Orange	●
H	Grey	○

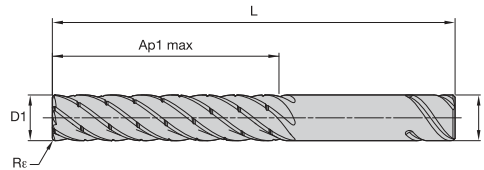
KCSM15

Order Number	Catalog Number	D1	D	Ap1 Max	L	Re	
6767722	KOR6RA0375L188HBR030C	3/8	3/8	1 7/8	4	.030	●
6767727	KOR6RA0500L250HBR030C	1/2	1/2	2 1/2	5	.030	●
6767728	KOR6RA0625L313HBR030C	5/8	5/8	3 1/8	6	.030	●
6767729	KOR6RA0750L375HBR060C	3/4	3/4	3 3/4	7	.060	●
6767730	KOR6RA1000L500HBR060C	1	1	5	7 1/2	.060	●



KOR 6^{DT}

Radiused • 6 Flutes • 5xD • Safe-Lock Shank

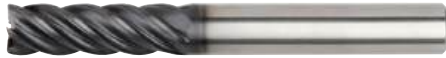


● Primary
○ Secondary

P	Blue	○
M	Yellow	●
K	Red	○
N	Green	○
S	Orange	●
H	Grey	○

KCSM15

Order Number	Catalog Number	D1	D	Ap1 Max	L	Re	
6767707	KOR6RA0500L250SLR030C	1/2	1/2	2 1/2	5	.030	●
6767708	KOR6RA0625L313SLR030C	5/8	5/8	3 1/8	6	.030	●
6767710	KOR6RA0750L375SLR060C	3/4	3/4	3 3/4	7	.060	●
6767721	KOR6RA1000L500SLR060C	1	1	5	7 1/2	.060	●



KOR 5^{DS} • 3xD



KOR 6^{DT} • 3xD

KOR 5^{DS} & KOR 6^{DT}

3xD Application Data

Material Group				KC643M		Recommended feed per tooth (IPT = inch/th) for side milling (A).						
		A		Cutting Speed — vc SFM		D1 — Diameter						
						frac.	1/4	3/8	1/2	5/8	3/4	1
		Ap	Ae	min	max	dec.	.2500	.3750	.5000	.6250	.7500	1.0000
P	0	3 x D	0.1 x D	500	1440	IPT	.0022	.0033	.0041	.0047	.0053	.0059
	1	3 x D	0.1 x D	500	1440	IPT	.0022	.0033	.0041	.0047	.0053	.0059
	2	3 x D	0.1 x D	460	1370	IPT	.0022	.0033	.0041	.0047	.0053	.0059
	3	3 x D	0.1 x D	400	1150	IPT	.0018	.0027	.0035	.0041	.0046	.0054
	4	3 x D	0.1 x D	300	1080	IPT	.0017	.0025	.0031	.0036	.0040	.0046
	5	3 x D	0.1 x D	200	720	IPT	.0015	.0022	.0028	.0033	.0037	.0043
M	6	3 x D	0.1 x D	170	540	IPT	.0012	.0018	.0023	.0027	.0030	.0034
	1	3 x D	0.1 x D	300	830	IPT	.0018	.0027	.0035	.0041	.0046	.0054
	2	3 x D	0.1 x D	200	580	IPT	.0015	.0022	.0028	.0033	.0037	.0043
K	3	3 x D	0.1 x D	200	510	IPT	.0012	.0018	.0023	.0027	.0030	.0034
	1	3 x D	0.1 x D	400	1080	IPT	.0022	.0033	.0041	.0047	.0053	.0059
	2	3 x D	0.1 x D	370	1010	IPT	.0018	.0027	.0035	.0041	.0046	.0054
S	3	3 x D	0.1 x D	370	940	IPT	.0015	.0022	.0028	.0033	.0037	.0043
	1	3 x D	0.1 x D	170	650	IPT	.0018	.0027	.0035	.0041	.0046	.0054
	2	3 x D	0.1 x D	80	580	IPT	.0015	.0022	.0028	.0033	.0037	.0043
	3	3 x D	0.1 x D	80	290	IPT	.0010	.0015	.0018	.0022	.0025	.0029
H	4	3 x D	0.1 x D	170	430	IPT	.0013	.0020	.0026	.0030	.0034	.0040
	1	3 x D	0.1 x D	270	1010	IPT	.0017	.0025	.0031	.0036	.0040	.0046
	2	3 x D	0.1 x D	230	870	IPT	.0012	.0018	.0023	.0027	.0030	.0034

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
 Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
 Side milling applications - for longest reach (L3) tools, reduce Ae by 30%. For better surface finish reduce feed per tooth.


KOR 5^{DS} • 5xD

KOR 6^{DT} • 5xD

KOR 5^{DS} & KOR 6^{DT}

5xD Application Data

Material Group				KC643M		Recommended feed per tooth (IPT = inch/th) for side milling (A).						
		A		Cutting Speed — vc SFM		D1 — Diameter						
						frac.	1/4	3/8	1/2	5/8	3/4	1
		Ap	Ae	min	max	dec.	.2500	.3750	.5000	.6250	.7500	1.0000
P	0	5 x D	0.05 x D	500	1770	IPT	.0029	.0044	.0054	.0063	.0070	.0078
	1	5 x D	0.05 x D	500	1770	IPT	.0029	.0044	.0054	.0063	.0070	.0078
	2	5 x D	0.05 x D	460	1680	IPT	.0029	.0044	.0054	.0063	.0070	.0078
	3	5 x D	0.05 x D	400	1420	IPT	.0024	.0037	.0046	.0055	.0062	.0072
	4	5 x D	0.05 x D	300	1330	IPT	.0022	.0033	.0041	.0048	.0054	.0062
	5	5 x D	0.05 x D	200	890	IPT	.0020	.0029	.0037	.0044	.0049	.0058
M	6	5 x D	0.05 x D	170	660	IPT	.0017	.0024	.0031	.0036	.0040	.0045
	1	5 x D	0.05 x D	300	1020	IPT	.0024	.0037	.0046	.0055	.0062	.0072
	2	5 x D	0.05 x D	200	710	IPT	.0020	.0029	.0037	.0044	.0049	.0058
K	3	5 x D	0.05 x D	200	620	IPT	.0017	.0024	.0031	.0036	.0040	.0045
	1	5 x D	0.05 x D	400	1330	IPT	.0029	.0044	.0054	.0063	.0070	.0078
	2	5 x D	0.05 x D	370	1240	IPT	.0024	.0037	.0046	.0055	.0062	.0072
S	3	5 x D	0.05 x D	370	1150	IPT	.0020	.0029	.0037	.0044	.0049	.0058
	1	5 x D	0.05 x D	170	800	IPT	.0024	.0037	.0046	.0055	.0062	.0072
	2	5 x D	0.05 x D	80	710	IPT	.0020	.0029	.0037	.0044	.0049	.0058
	3	5 x D	0.05 x D	80	350	IPT	.0013	.0019	.0025	.0029	.0033	.0039
H	4	5 x D	0.05 x D	170	530	IPT	.0017	.0027	.0034	.0040	.0045	.0053
	1	5 x D	0.05 x D	270	1240	IPT	.0022	.0033	.0041	.0048	.0054	.0062
	2	5 x D	0.05 x D	230	1060	IPT	.0017	.0024	.0031	.0036	.0040	.0045

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Side milling applications - for longest reach (L3) tools, reduce Ae by 30%. For better surface finish reduce feed per tooth.

KOR 5^{DS} & KOR 6^{DT}**3xD • Adjustment Factor Table for Feed Calculation**

	Ae/D1	0.50%	1.00%	1.50%	2.00%	4.00%	5.00%	8.00%	10.00%
Speed factor	Kv	2.15	2.11	2.07	1.48	1.11	1.07	1.04	1.00
Feed factor	KFz	1.65	1.53	1.47	1.41	1.35	1.29	1.18	1.00

KOR 5^{DS} & KOR 6^{DT}**5xD • Adjustment Factor Table for Feed Calculation**

	Ae/D1	0.50%	1.00%	1.50%	2.00%	4.00%	5.00%
Speed factor	Kv	2.00	1.97	1.93	1.38	1.03	1.00
Feed factor	KFz	1.27	1.18	1.14	1.09	1.05	1.00

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

$V_c \text{ new} = V_c * K_v$
 $F_z \text{ new} = IPT * K_{Fz}$

Calculation example:

Application: D1 = 1", KOR5DS / KOR6DT 3 x D;

S4 material group;

Ae 0.05" (Ae = 5% D)

Cutting data recommendation: 500 SFM;

Fz = 0.0053 IPT

Adjustment coefficients: Ae = 0.02" equals 2.00%; Kv = 1.38;
 KFz = 1.09

Final cutting data recommendation:

$V_c \text{ new} = 350 \text{ SFM} * 1.38 = 483 \text{ SFM}$

$F_z \text{ new} = .0053 \text{ IPT} * 1.09 = .0058 \text{ IPT}$



KOR 5^{DA}

5 Flutes • Application Data

Material Group				K600		Recommended feed per tooth (IPT = inch/th)						
		A		B	Cutting Speed — vc SFM		frac.	D1 — Diameter				
								3/8	1/2	5/8	3/4	1
		Ap	Ae	Ap	min	max	dec.	.3750	.5000	.6250	.7500	1.0000
N	1	0.5 x D1	0.5 x D1	0.25 x D1	640	6560	IPT	0.0030	0.0050	0.0060	0.0080	0.0090
	2	0.5 x D1	0.5 x D1	0.25 x D1	640	4920	IPT	0.0025	0.0045	0.0055	0.0070	0.0085

NOTE: These guidelines may require variations to achieve optimum results. For better surface finish, reduce feed per tooth.

For cutting aluminum with high silicon, TiCN coating is recommended.

Ap for milling machine with ceramic bearings spindle, multiply by 0.5.

Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.

KOR 5^{DA}

3xD & 5xD • 5 Flutes • Adjustment Factor Table for Feed Calculation

Ae/D1	2%	5%	10%	20%	30%	40%	50%	100%
Max Ap	Ap1 Max	Ap1 Max	Ap1 Max	Ap1 Max	2 x D1	1 x D1	.5 x D1	.25 x D1
Feed Multiplier	3.60	2.30	1.70	1.25	1.09	1.02	1.00	.90

To calculate application specific cutting data, please use coefficient table to the right for adaptation of feed.

Fz new = IPT * Feed Multiplier

Calculation example:

Application: D = 1";

N1 material group;

Ae 0.1"

Cutting data recommendation: 3600 SFM;

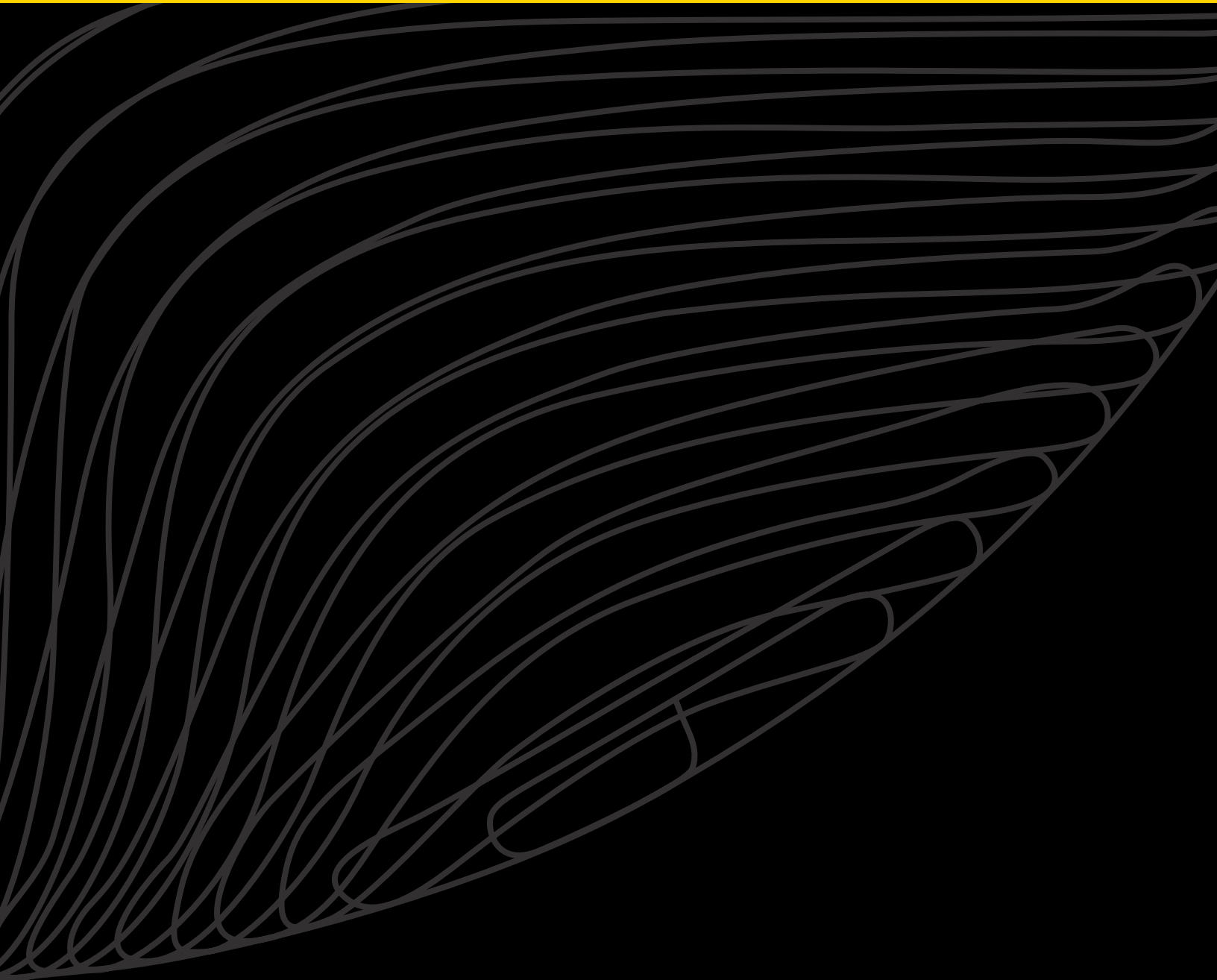
Fz = 0.0090 IPT

Adjustment coefficients: Ae = 0.1" equals 10.00%;

Feed Multiplier = 1.7

Final cutting data recommendation:

Fz new = .0090 IPT * 1.7 = .0153 IPT



TOOL SELECTOR

	ROUGHERS			FINISHERS		
	KenCut RR			KenCut FF		
						
Series	HPRSS	MDRHEC	HPRST	HPFSS	HPFT	RSM II
Tool type						
Rougher	●	●	●			
Finisher				●	●	●
Chamfering						
Main operations						
Workpiece material						
Primary	P M K	P M K	M S H	P M S	P M K S	M S
Secondary	H	H	P K	K H	H	P H
Corner style						
Corner radius [Re]	.020-.030"	—	.030-.050"	—	—	.015-.120"
Corner chamfer width [BCH]	—	.012-.020"	—	—	—	—
Cutting diameter [D1]	1/4-3/4"	1/4-1"	1/4-1"	1/8-1"	1/4-1"	3/8-1"
Length of cut	2.2-3 x D	1.2-3 x D	1.2-3 x D	1.2-5 x D	1.3-4 x D	2 x D
Maximum cutting depth [Ap1 max]	3/4-1-5/8"	3/8-1-1/2"	3/8-1-1/2"	1/4-3-1/4"	3/4-4"	3/4-2"
Flute helix angle	35°	20°	45°	45°	45°	36°
Number of flutes [ZU]	3	3-5	3-6	5	6	9-19
Center cutting	✓	✓	✓	✓	✓	
Additional Operations	 	 	 	 	 	

● Primary
○ Secondary

 Available
Online Only

KenCut RR

High-Performance Roughing

Materials



Industries



Automotive



Wind & Solar



General
Engineering



Oil & Gas

Applications



Ramping



Shoulder Milling



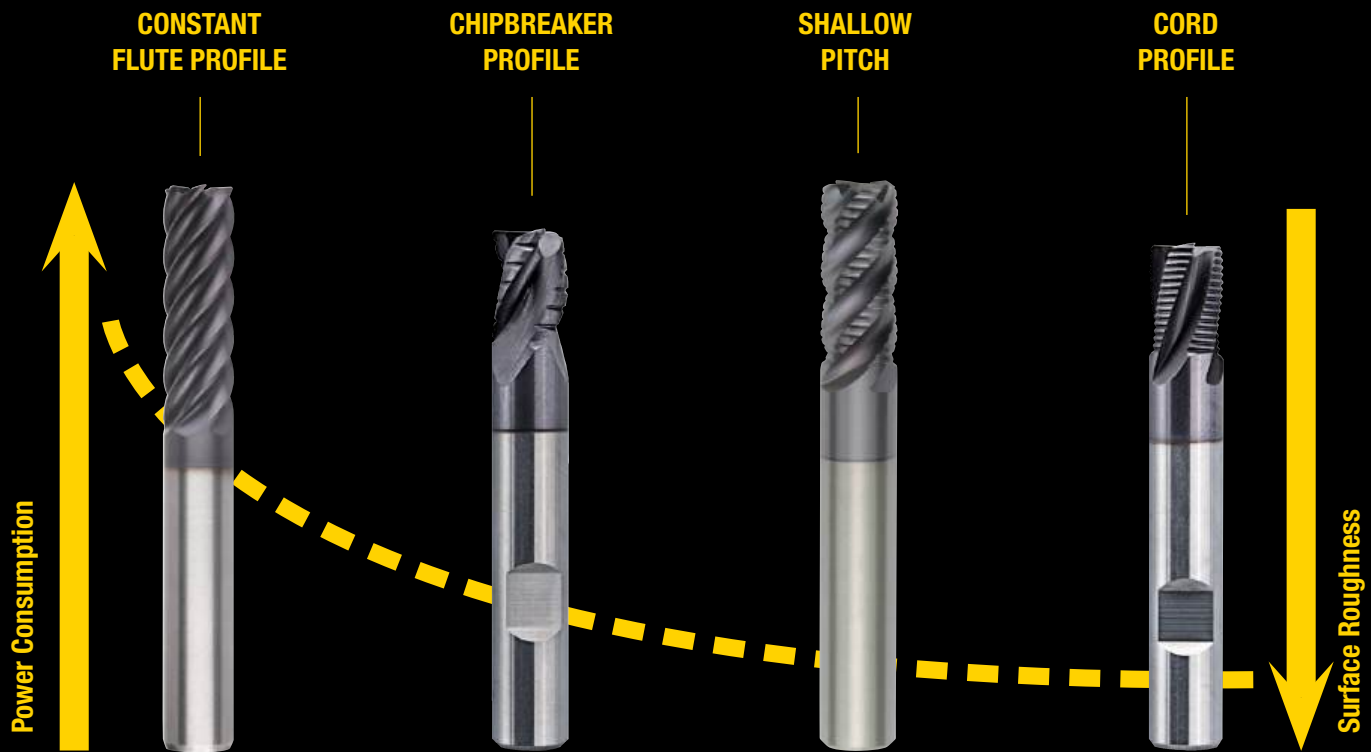
Slotting: Square End



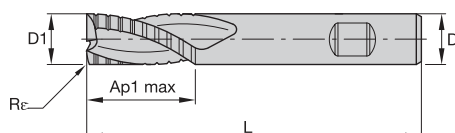
Plunge Milling



- Solid carbide end mill with roughing geometries for low cutting forces and low spindle power consumption even in unstable conditions.
- The KenCut RR solid carbide end mill series is designed for high MRR in a wide range of workpiece materials such as steels, stainless steels, cast iron, high-temp alloys and in certain cases hardened materials.



Tailored geometries for low cutting forces and low spindle power consumption.
Center cutting for plunging, ramping, profiling, high-feed slotting and side milling.
Roughing and semi-finishing for fewer tool changes and less downtime.
Internal coolant for improved chip evacuation and extended tool life.



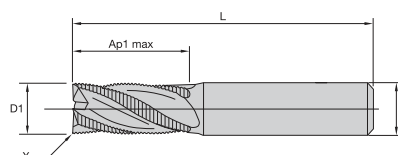
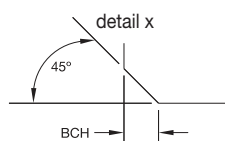
● Primary
○ Secondary

P	●
M	●
K	●
N	●
S	●
H	○

KenCut RR

HPRSS • Radiused • 3 Flutes • Weldon Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rε	
4048683	HPRSS250S3075	1/4	1/4	3/4	2 1/2	.020	●
4048684	HPRSS375S3100	3/8	3/8	1	2 1/2	.020	●
4048685	HPRSS500S3125	1/2	1/2	1 1/4	3	.030	●
4048686	HPRSS625S3163	5/8	5/8	1 5/8	3 1/2	.030	●
4048687	HPRSS750S3163	3/4	3/4	1 5/8	4	.030	●



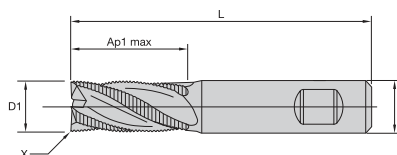
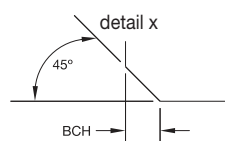
● Primary
○ Secondary

P	●
M	●
K	●
N	●
S	●
H	○

KenCut RR

MDRHEC • Chamfered • 3-4 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	BCH	Z U	
4048689	MDRHEC250S4025	1/4	1/4	3/8	2	.012	3	●
4048690	MDRHEC250S4075	1/4	1/4	3/4	2 1/2	.012	3	●
4048691	MDRHEC312S4081	5/16	5/16	13/16	2 1/2	.012	4	●



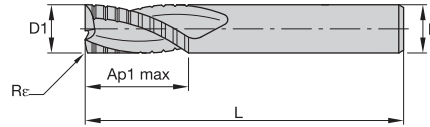
● Primary
○ Secondary

P	●
M	●
K	●
N	●
S	●
H	○

KenCut RR

MDRHEC • Chamfered • 4-5 Flutes • Weldon Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	BCH	Z U	
4048692	MDRHEC375S4038	3/8	3/8	1/2	2	.020	4	●
4048693	MDRHEC375S4088	3/8	3/8	7/8	2 1/2	.020	4	●
4048694	MDRHEC500S4050	1/2	1/2	5/8	2 1/2	.020	4	●
4048695	MDRHEC500S4100	1/2	1/2	1	3	.020	4	●
4048696	MDRHEC625S4063	5/8	5/8	3/4	3	.020	4	●
4048697	MDRHEC625S4125	5/8	5/8	1 1/4	3 1/2	.020	4	●
4048698	MDRHEC750S4075	3/4	3/4	7/8	3 1/2	.020	4	●
4048699	MDRHEC750S4150	3/4	3/4	1 1/2	4	.020	4	●
4048688	MDRHEC100S5150	1	1	1 1/2	4	.020	5	●



● Primary
○ Secondary

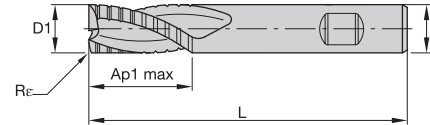
P	●
M	●
K	●
N	●
S	●
H	○

KC643M

KenCut RR

HPRST • Radiused • 3-4 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rε	Z U	
3331481	HPRST250S4038	1/4	1/4	3/8	2	.030	3	●
3331482	HPRST250S4075	1/4	1/4	3/4	2 1/2	.030	4	●
3331483	HPRST375S4050	3/8	3/8	1/2	2	.030	4	●
3331484	HPRST375S4088	3/8	3/8	7/8	2 1/2	.030	4	●



● Primary
○ Secondary

P	●
M	●
K	●
N	●
S	●
H	○

KC643M

KenCut RR

HPRST • Radiused • 4-6 Flutes • Weldon Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rε	Z U	
3331485	HPRST500S4063	1/2	1/2	5/8	2 1/2	.040	4	v
3331486	HPRST500S4125	1/2	1/2	1 1/4	3 1/2	.040	4	v
3331487	HPRST625S4075	5/8	5/8	3/4	3	.040	4	v
3331488	HPRST625S4125	5/8	5/8	1 1/4	3 1/2	.040	4	v
3331489	HPRST625S6125	5/8	5/8	1 1/4	3 1/2	.040	6	v
3331490	HPRST750S4088	3/4	3/4	7/8	3 1/2	.050	4	v
3331491	HPRST750S4150	3/4	3/4	1 1/2	4	.050	4	v
3331492	HPRST750S6150	3/4	3/4	1 1/2	4	.050	6	v
3331493	HPRST1000S4150	1	1	1 1/2	4	.050	4	v
3331494	HPRST1000S6150	1	1	1 1/2	4	.050	6	v



KenCut RR

HPRSS • Application Data

Material Group				KCPM15		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.							
		A				B	Cutting Speed — Vc SFM		D1 — Diameter				
				Ap	Ae				Ap	min	max	frac.	1/4
		dec.	.250			.313	.375	.500				.625	.750
P	1	1 x D	0.5 x D	0.75 x D	500	650	fz	.0018	.0023	.0027	.0035	.0039	.0043
	2	1 x D	0.5 x D	0.75 x D	450	625	fz	.0018	.0023	.0027	.0035	.0039	.0043
	3	1 x D	0.5 x D	0.75 x D	400	525	fz	.0015	.0020	.0023	.0029	.0034	.0038
	4	1 x D	0.4 x D	0.3 x D	350	475	fz	.0014	.0018	.0020	.0026	.0030	.0033
	5	1 x D	0.5 x D	0.75 x D	200	325	fz	.0012	.0016	.0018	.0023	.0027	.0030
	6	1 x D	0.4 x D	0.3 x D	150	225	fz	.0010	.0013	.0015	.0019	.0022	.0024
M	1	1 x D	0.5 x D	0.75 x D	250	325	fz	.0015	.0020	.0023	.0029	.0034	.0038
	2	1 x D	0.5 x D	0.75 x D	190	260	fz	.0012	.0016	.0018	.0023	.0027	.0030
	3	1 x D	0.5 x D	0.75 x D	200	260	fz	.0010	.0013	.0015	.0019	.0022	.0024
K	1	1 x D	0.5 x D	0.75 x D	400	525	fz	.0018	.0023	.0027	.0035	.0039	.0043
	2	1 x D	0.5 x D	0.75 x D	360	460	fz	.0015	.0020	.0023	.0029	.0034	.0038
	3	1 x D	0.5 x D	0.75 x D	330	430	fz	.0012	.0016	.0018	.0023	.0027	.0030
H	1	1 x D	0.4 x D	0.3 x D	300	450	fz	.0014	.0018	.0020	.0026	.0030	.0033

NOTE: These guidelines may require variations to achieve optimum results.

Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.



KenCut RR

MDRHEC • Application Data

Material Group				KCPM15		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.									
		A				B		Cutting Speed — Vc SFM			D1 — Diameter				
				frac.	1/4						5/16	3/8	1/2	5/8	3/4
		Ap	Ae			Ap	min	max	dec.	.250					
P	0	1.0 x D	0.5 x D	0.5 x D	490	660	IPT	.0016	.0020	.0023	.0029	.0034	.0037	.0042	
	1	1.0 x D	0.5 x D	0.5 x D	490	660	IPT	.0016	.0020	.0023	.0029	.0034	.0037	.0042	
	2	1.0 x D	0.4 x D	0.5 x D	460	620	IPT	.0016	.0020	.0023	.0029	.0034	.0037	.0042	
	3	1.0 x D	0.4 x D	0.5 x D	390	520	IPT	.0013	.0017	.0019	.0025	.0029	.0033	.0038	
	4	1.0 x D	0.3 x D	0.4 x D	300	490	IPT	.0012	.0015	.0017	.0022	.0026	.0029	.0033	
	5	1.0 x D	0.4 x D	0.5 x D	200	330	IPT	.0010	.0013	.0016	.0020	.0023	.0026	.0031	
M	1	1.0 x D	0.4 x D	0.5 x D	300	380	IPT	.0013	.0017	.0019	.0025	.0029	.0033	.0038	
	2	1.0 x D	0.4 x D	0.5 x D	200	260	IPT	.0010	.0013	.0016	.0020	.0023	.0026	.0031	
	3	1.0 x D	0.4 x D	0.5 x D	200	230	IPT	.0009	.0011	.0013	.0016	.0019	.0021	.0024	
K	1	1.0 x D	0.5 x D	0.5 x D	390	490	IPT	.0016	.0020	.0023	.0029	.0034	.0037	.0042	
	2	1.0 x D	0.4 x D	0.5 x D	360	460	IPT	.0013	.0017	.0019	.0025	.0029	.0033	.0038	
	3	1.0 x D	0.4 x D	0.5 x D	360	430	IPT	.0010	.0013	.0016	.0020	.0023	.0026	.0031	
S	1	1.0 x D	0.4 x D	0.5 x D	—	—	IPT	.0013	.0017	.0019	.0025	.0029	.0033	.0038	
	2	1.0 x D	0.4 x D	0.5 x D	—	—	IPT	.0007	.0009	.0010	.0013	.0015	.0018	.0021	
H	1	1.0 x D	0.3 x D	0.4 x D	260	460	IPT	.0012	.0015	.0017	.0022	.0026	.0029	.0033	

NOTE: These guidelines may require variations to achieve optimum results.

Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.



KenCut RR

HPRST • Application Data

Material Group				KC643M		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.								
		A		B	Cutting Speed — Vc SFM			D1 — Diameter						
								frac.	1/4	5/16	3/8	1/2	5/8	3/4
		Ap	Ae	Ap	min	max	dec.	.250	.313	.378	.500	.625	.750	1.000
P	3	1.0 x D	0.5 x D	0.75 x D	390	520	IPT	.0015	.0020	.0023	.0029	.0034	.0039	.0045
	4	1.0 x D	0.3 x D	0.75 x D	300	490	IPT	.0014	.0017	.0020	.0026	.0030	.0034	.0039
	5	1.0 x D	0.5 x D	0.75 x D	200	330	IPT	.0012	.0016	.0018	.0023	.0027	.0031	.0036
	6	1.0 x D	0.3 x D	0.3 x D	160	250	IPT	.0010	.0013	.0015	.0019	.0022	.0025	.0028
M	1	1.0 x D	0.5 x D	0.75 x D	300	380	IPT	.0015	.0020	.0023	.0029	.0034	.0039	.0045
	2	1.0 x D	0.5 x D	0.75 x D	200	260	IPT	.0012	.0016	.0018	.0023	.0027	.0031	.0036
	3	1.0 x D	0.5 x D	0.75 x D	200	230	IPT	.0010	.0013	.0015	.0019	.0022	.0025	.0028
K	1	1.0 x D	0.5 x D	1 x D	390	490	IPT	.0018	.0023	.0027	.0034	.0039	.0044	.0049
	2	1.0 x D	0.5 x D	1 x D	360	460	IPT	.0015	.0020	.0023	.0029	.0034	.0039	.0045
	3	1.0 x D	0.5 x D	1 x D	360	430	IPT	.0012	.0016	.0018	.0023	.0027	.0031	.0036
S	1	1.0 x D	0.3 x D	0.75 x D	160	300	IPT	.0015	.0020	.0023	.0029	.0034	.0039	.0045
	2	1.0 x D	0.3 x D	0.75 x D	80	130	IPT	.0008	.0010	.0012	.0015	.0018	.0021	.0024
	3	1.0 x D	0.3 x D	0.75 x D	80	130	IPT	.0008	.0010	.0012	.0015	.0018	.0021	.0024
	4	1.0 x D	0.4 x D	0.75 x D	160	200	IPT	.0011	.0014	.0017	.0021	.0025	.0028	.0033
H	1	1.0 x D	0.3 x D	0.3 x D	260	460	IPT	.0014	.0017	.0020	.0026	.0030	.0034	.0039
	2	1.0 x D	0.2 x D	0.2 x D	230	390	IPT	.0010	.0013	.0015	.0019	.0022	.0025	.0028
	3	1.0 x D	0.2 x D	0.2 x D	200	300	IPT	.0008	.0010	.0012	.0015	.0018	.0021	.0024

NOTE: These guidelines may require variations to achieve optimum results.

Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.

TOOL SELECTOR

ALUMINUM MACHINING							
MaxiMet				KenCut AL		KenCut ALR	
Series	MaxiMet ABDF	MaxiMet ABDF Extended Neck	MaxiMet ABDE	MaxiMet ABDE Extended Neck	AADF	AADE	SFRHEC
Tool type							
Rougher	●	●	●	●	●	●	●
Finisher	○	○	○	○	○	○	
Chamfering							
Main operation							
Workpiece material							
Primary	N	N	N	N	N	N	N
Secondary							
Corner style	 	 	 	 	 	 	
Corner radius [Re]	.015-.120"	.030-.120"	.015-.120"	.030-.120"	.015-.060"	.015-.120"	—
Corner chamfer width [BCH]	—	—	—	—	—	—	.24-.039"
Cutter diameter [D1]	3/16-1"	1/4-1"	3/16-1"	1/4-1"	1/8-3/4"	1/8-1"	1/4-1"
Length of cut	1.5-2.6 x D	1.2-1.5 x D	1.2-2.6 x D	1.2-1.5 x D	1.3-7.0 x D	1.2-7.0 x D	2-4 x D
Maximum cutting depth [Ap1 max]	3/8-2"	3/8-1-1/4"	7/32-2"	3/8-1-1/4"	1/4-3-1/4"	1/4-4-1/8"	3/4-2-1/4"
Flute helix angle	45°	45°	38°	38°	45°	37°	30°
Number of flutes [ZU]	2	2	3	3	2	3	3
Center cutting	✓	✓	✓	✓	✓	✓	✓
Additional operations	  	  	  	 	  	 	 

- Primary
○ Secondary

TOOL SELECTOR

ALUMINUM MACHINING					
KenCut AQ					
Series	ALCB	ALCC	ALCR	ALSR	ALSB
Tool type					
Rougher	●	●	●	●	●
Finisher	●	●	●	●	●
Main operations					
Workpiece material					
Primary	N	N	N	N	N
Secondary					
Corner style					
Corner radius [Re]	.010-.015"	.010-.015"	.015"	.015"	.015"
Corner chamfer width [BCH]	—	—	—	—	—
Cutting diameter [D1]	1/4-3/4"	1/4-3/4"	1/2-3/4"	1-1-1/2"	1-2"
Maximum cutting depth [Ap1 max]	1/4-3/4"	3/8-1"	1-1-1/2"	1-1/4 - 2"	5/8"
Axial rake angle	3°	3°	9°-12°	6°	6°
Effective cutting edges [ZU]	2	2	2	2-3	4-5
Center cutting		✓	✓		
Additional operations	    	         	         	    	    

- Primary
○ Secondary

MaxiMet and KenCut Aluminum

High-Performance Aluminum
Roughing and Finishing

Materials

N

Industries



Automotive



General
Engineering



Oil & Gas



Aerospace



Wind & Solar

Applications



Face Milling



Shoulder Milling



Trochoidal Milling



Plunge Milling



Pocketing



Helical Milling



Ramping



- Center-cutting design enables plunging, slotting and profiling applications in any type of aluminum workpiece materials.
- Designed to deliver exceptional chip evacuation and generate the highest floor-to-wall straightness.

KenCut AL & ALR



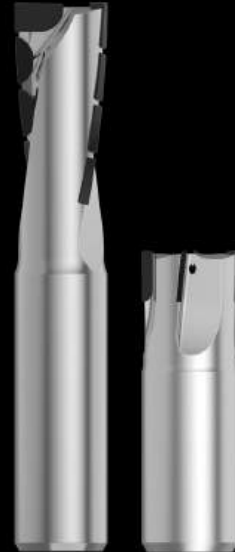
2- and 3-fluted roughers and finishers for a variety of aluminum applications.

MaxiMet



2- and 3-fluted MaxiMet solid end mill series provides exceptional MRR and combines roughing and finishing operations in any aluminum plunging, slotting and profiling application.

KenCut AQ



PCD tools for high-speed aluminum machining reduce machining time drastically, providing up to 10 times higher productivity compared to solid carbide solutions.

KenCut AL & ALR

Roughers with cord profile available.
Multiple corner radii and extended neck configurations available as standard.

KenCut AQ

Ideal for roughing and finishing operations, all tools are minimum quantity lubrication (MQL) ready.

The sharp cutting edges and low-friction rake surfaces guarantee high-quality surface finishes.

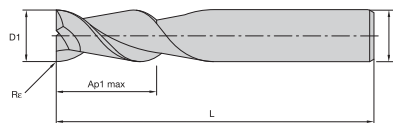
MaxiMet

Unequal 3-flute spacing reduces vibrations and provides chatter-free machining.

1xD slotting capability and side milling capability up to 0.5xD radial and 1.5xD axial engagement result in fewer tool passes and increased productivity.

Suitable for MQL.

Exceptional wall-to-floor perpendicularity in thin-wall applications.



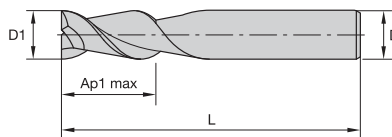
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MaxiMet

Radiused • 2 Flutes • Wiper Facet • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rε	
4041061	ABDF0188J2ARA	3/16	3/16	3/8	2	.015	•
4041062	ABDF0250J2ARA	1/4	1/4	1/2	2 1/2	.015	•
3660397	ABDF0250J2ARB	1/4	1/4	1/2	2 1/2	.030	•
3660398	ABDF0312J2ARB	5/16	5/16	5/8	2 1/2	.030	•
3660400	ABDF0375J2ARB	3/8	3/8	3/4	2 1/2	.030	•
3660427	ABDF0500J2ARB	1/2	1/2	1 1/4	3	.030	•
3660428	ABDF0500J2ARC	1/2	1/2	1 1/4	3	.060	•
4041075	ABDF0500J2ARE	1/2	1/2	1 1/4	3	.120	•
4041077	ABDF0625J2BRB	5/8	5/8	1 5/8	3 1/2	.030	•
4041078	ABDF0625J2BRC	5/8	5/8	1 5/8	3 1/2	.060	•
3660435	ABDF0750J2ARC	3/4	3/4	1 1/2	4	.060	•
3660436	ABDF0750J2ARE	3/4	3/4	1 1/2	4	.120	•
4041081	ABDF0750J2BRB	3/4	3/4	1 5/8	4	.030	•
4041082	ABDF0750J2BRC	3/4	3/4	1 5/8	4	.060	•
3660439	ABDF1000J2ARC	1	1	1 1/2	4	.060	•



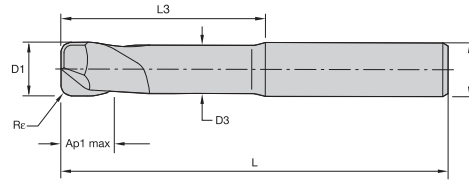
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MaxiMet

Square End • 2 Flutes • Wiper Facet • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
4041060	ABDF0188J2AS	3/16	3/16	3/8	2	•
3660396	ABDF0250J2AS	1/4	1/4	1/2	2 1/2	•
4041073	ABDF0312J2AS	5/16	5/16	5/8	2 1/2	•
3660399	ABDF0375J2AS	3/8	3/8	3/4	2 1/2	•
3660426	ABDF0500J2AS	1/2	1/2	1 1/4	3	•
3660432	ABDF0625J2AS	5/8	5/8	1 1/4	3 1/2	•
4041076	ABDF0625J2BS	5/8	5/8	1 5/8	3 1/2	•
3660433	ABDF0750J2AS	3/4	3/4	1 1/2	4	•
4041080	ABDF0750J2BS	3/4	3/4	1 5/8	4	•
4041084	ABDF1000J2BS	1	1	2	5	•



● Primary
○ Secondary

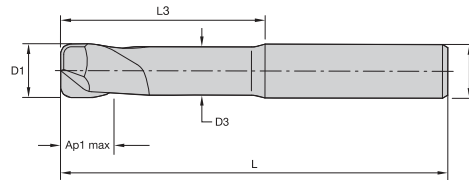
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K600

MaxiMet

Radiused • 2 Flutes • Wiper Facet • Necked • Plain Shank

Order Number	Catalog Number	D1	D	D3	Ap1 Max	L3	L	Re	
3755865	ABDF0250J2BQB	1/4	1/4	.2346	3/8	1 1/8	4	.030	•
3755867	ABDF0250J2CQB	1/4	1/4	.2346	3/8	2 1/8	4	.030	•
3755868	ABDF0312J2AQB	5/16	5/16	.2937	7/16	1 1/8	4	.030	•
3755872	ABDF0375J2BQB	3/8	3/8	.3524	1/2	2 1/8	4	.030	•
3755874	ABDF0500J2AQB	1/2	1/2	.4685	5/8	1 3/8	4	.030	•
3755875	ABDF0500J2AQE	1/2	1/2	.4685	5/8	1 3/8	4	.120	•
3755877	ABDF0500J2BQB	1/2	1/2	.4685	5/8	2 1/4	4	.030	•
3755878	ABDF0500J2BQC	1/2	1/2	.4685	5/8	2 1/4	4	.060	•
3755879	ABDF0500J2BQD	1/2	1/2	.4685	5/8	2 1/4	4	.090	•
3755880	ABDF0500J2BQE	1/2	1/2	.4685	5/8	2 1/4	4	.120	•
3755882	ABDF0500J2CQB	1/2	1/2	.4685	5/8	3 3/8	6	.030	•
3755883	ABDF0500J2CQC	1/2	1/2	.4685	5/8	3 3/8	6	.060	•
3755885	ABDF0500J2CQE	1/2	1/2	.4685	5/8	3 3/8	6	.120	•
3755846	ABDF0750J2AQE	3/4	3/4	.7047	1	1 5/8	4	.120	•
3755848	ABDF0750J2BQB	3/4	3/4	.7047	1	2 1/2	6	.030	•
3755849	ABDF0750J2BQC	3/4	3/4	.7047	1	2 1/2	6	.060	•
3755851	ABDF0750J2BQE	3/4	3/4	.7047	1	2 1/2	6	.120	•
3755853	ABDF0750J2CQB	3/4	3/4	.7047	1	3 3/8	6	.030	•
3755858	ABDF1000J2BQB	1	1	.9398	1 1/4	3 3/8	7	.030	•



● Primary
○ Secondary

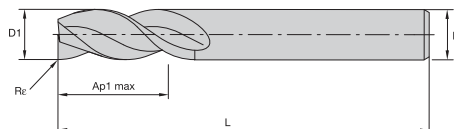
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K600

MaxiMet

Square End • 2 Flutes • Wiper Facet • Necked • Plain Shank

Order Number	Catalog Number	D1	D	D3	Ap1 Max	L3	L	
3755864	ABDF0250J2BQ	1/4	1/4	.2346	3/8	1 1/8	4	•
3755866	ABDF0250J2CQ	1/4	1/4	.2346	3/8	2 1/8	4	•
3755869	ABDF0375J2AQ	3/8	3/8	.3524	1/2	1 1/8	4	•
3755871	ABDF0375J2BQ	3/8	3/8	.3524	1/2	2 1/8	4	•
3755873	ABDF0500J2AQ	1/2	1/2	.4685	5/8	1 3/8	4	•
3755876	ABDF0500J2BQ	1/2	1/2	.4685	5/8	2 1/4	4	•
3755881	ABDF0500J2CQ	1/2	1/2	.4685	5/8	3 3/8	6	•
3755847	ABDF0750J2BQ	3/4	3/4	.7047	1	2 1/2	6	•



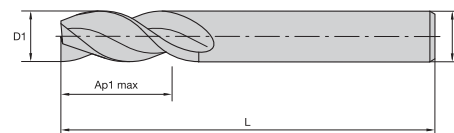
● Primary
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MaxiMet

Radiused • 3 Flutes • Wiper Facet • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Re	
4041089	ABDE0188J3ARA	3/16	3/16	7/32	2	.015	•
3660402	ABDE0250J3ARB	1/4	1/4	1/2	2 1/2	.030	•
3660423	ABDE0312J3ARB	5/16	5/16	5/8	2 1/2	.030	•
3660425	ABDE0375J3ARB	3/8	3/8	3/4	2 1/2	.030	•
3660430	ABDE0500J3ARB	1/2	1/2	1 1/4	3	.030	•
3660431	ABDE0500J3ARC	1/2	1/2	1 1/4	3	.060	•
4041091	ABDE0500J3ARE	1/2	1/2	1 1/4	3	.120	•
4041093	ABDE0625J3BRB	5/8	5/8	1 5/8	3 1/2	.030	•
3660443	ABDE0750J3ARB	3/4	3/4	1 1/2	4	.030	•
3660444	ABDE0750J3ARC	3/4	3/4	1 1/2	4	.060	•
3660445	ABDE0750J3ARE	3/4	3/4	1 1/2	4	.120	•
4041095	ABDE0750J3BRB	3/4	3/4	1 5/8	4	.030	•
4041096	ABDE0750J3BRC	3/4	3/4	1 5/8	4	.060	•
4041097	ABDE0750J3BRE	3/4	3/4	1 5/8	4	.120	•
3660447	ABDE1000J3ARB	1	1	1 1/2	4	.030	•
3660448	ABDE1000J3ARC	1	1	1 1/2	4	.060	•
3660449	ABDE1000J3ARE	1	1	1 1/2	4	.120	•
4041099	ABDE1000J3BRB	1	1	2	5	.030	•
4041101	ABDE1000J3BRE	1	1	2	5	.120	•



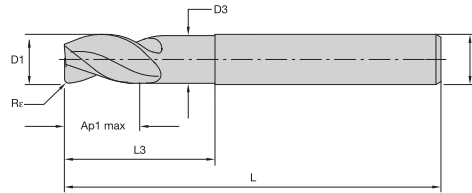
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MaxiMet

Square End • 3 Flutes • Wiper Facet • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
4041088	ABDE0188J3AS	3/16	3/16	7/32	2	•
3660401	ABDE0250J3AS	1/4	1/4	1/2	2 1/2	•
4041090	ABDE0312J3AS	5/16	5/16	5/8	2 1/2	•
3660424	ABDE0375J3AS	3/8	3/8	3/4	2 1/2	•
3660429	ABDE0500J3AS	1/2	1/2	1 1/4	3	•
3660441	ABDE0625J3AS	5/8	5/8	1 1/4	3 1/2	•
4041092	ABDE0625J3BS	5/8	5/8	1 5/8	3 1/2	•
3660442	ABDE0750J3AS	3/4	3/4	1 1/2	4	•
4041094	ABDE0750J3BS	3/4	3/4	1 5/8	4	•
3660446	ABDE1000J3AS	1	1	1 1/2	4	•
4041098	ABDE1000J3BS	1	1	2	5	•



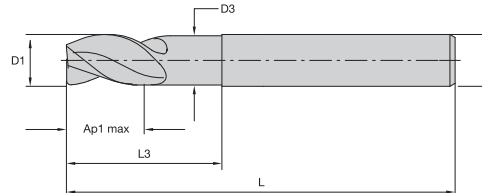
● Primary
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MaxiMet

Radiused • 3 Flutes • Wiper Facet • Necked • Plain Shank

Order Number	Catalog Number	D1	D	D3	Ap1 Max	L3	L	Rε	
3755893	ABDE0250J3AQB	1/4	1/4	.2342	3/8	3/4	4	.030	•
3755895	ABDE0250J3BQB	1/4	1/4	.2342	3/8	1 1/8	4	.030	•
3755897	ABDE0250J3CQB	1/4	1/4	.2342	3/8	2 1/8	4	.030	•
3755898	ABDE0312J3AQB	5/16	5/16	.2930	7/16	1 1/8	4	.030	•
3755900	ABDE0375J3AQB	3/8	3/8	.3512	1/2	1 1/8	4	.030	•
3755902	ABDE0375J3BQB	3/8	3/8	.3512	1/2	2 1/8	4	.030	•
3755904	ABDE0500J3AQB	1/2	1/2	.4685	5/8	1 3/8	4	.030	•
3755905	ABDE0500J3AQE	1/2	1/2	.4685	5/8	1 3/8	4	.120	•
3755907	ABDE0500J3BQB	1/2	1/2	.4685	5/8	2 1/4	4	.030	•
3755908	ABDE0500J3BQC	1/2	1/2	.4685	5/8	2 1/4	4	.060	•
3755909	ABDE0500J3BQD	1/2	1/2	.4685	5/8	2 1/4	4	.090	•
3755910	ABDE0500J3BQE	1/2	1/2	.4685	5/8	2 1/4	4	.120	•
3755912	ABDE0500J3CQB	1/2	1/2	.4685	5/8	3 3/8	6	.030	•
3755913	ABDE0500J3CQC	1/2	1/2	.4685	5/8	3 3/8	6	.060	•
3755915	ABDE0500J3CQE	1/2	1/2	.4685	5/8	3 3/8	6	.120	•
3755917	ABDE0625J3AQB	5/8	5/8	.5854	3/4	1 5/8	4	.030	•
3755919	ABDE0625J3BQB	5/8	5/8	.5854	3/4	3 3/8	6	.030	•
3755920	ABDE0625J3BQE	5/8	5/8	.5854	3/4	3 3/8	6	.120	•
3755922	ABDE0750J3AQB	3/4	3/4	.7047	1	1 5/8	4	.030	•
3755925	ABDE0750J3BQB	3/4	3/4	.7047	1	2 1/2	6	.030	•
3755926	ABDE0750J3BQC	3/4	3/4	.7047	1	2 1/2	6	.060	•
3755927	ABDE0750J3BQD	3/4	3/4	.7047	1	2 1/2	6	.090	•
3755928	ABDE0750J3BQE	3/4	3/4	.7047	1	2 1/2	6	.120	•
3755930	ABDE0750J3CQB	3/4	3/4	.7047	1	3 3/8	6	.030	•
3755932	ABDE1000J3AQB	1	1	.9398	1 1/4	2 3/8	5	.030	•
3755935	ABDE1000J3BQB	1	1	.9398	1 1/4	3 3/8	7	.030	•
3755936	ABDE1000J3BQE	1	1	.9398	1 1/4	3 3/8	7	.120	•



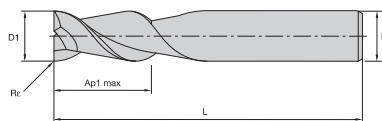
● Primary
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MaxiMet

Square End • 3 Flutes • Wiper Facet • Necked • Plain Shank

Order Number	Catalog Number	D1	D	D3	Ap1 Max	L3	L	
3755802	ABDE0250J3AQ	1/4	1/4	.2342	3/8	3/4	4	•
3755894	ABDE0250J3BQ	1/4	1/4	.2342	3/8	1 1/8	4	•
3755896	ABDE0250J3CQ	1/4	1/4	.2342	3/8	2 1/8	4	•
3755899	ABDE0375J3AQ	3/8	3/8	.3512	1/2	1 1/8	4	•
3755901	ABDE0375J3BQ	3/8	3/8	.3512	1/2	2 1/8	4	•
3755903	ABDE0500J3AQ	1/2	1/2	.4685	5/8	1 3/8	4	•
3755906	ABDE0500J3BQ	1/2	1/2	.4685	5/8	2 1/4	4	•
3755911	ABDE0500J3CQ	1/2	1/2	.4685	5/8	3 3/8	6	•
3755918	ABDE0625J3BQ	5/8	5/8	.5854	3/4	3 3/8	6	•
3755924	ABDE0750J3BQ	3/4	3/4	.7047	1	2 1/2	6	•
3755929	ABDE0750J3CQ	3/4	3/4	.7047	1	3 3/8	6	•
3755931	ABDE1000J3AQ	1	1	.9398	1 1/4	2 3/8	5	•
3755934	ABDE1000J3BQ	1	1	.9398	1 1/4	3 3/8	7	•
3755937	ABDE1000J3CQ	1	1	.9398	1 1/4	4 3/8	7	•



● Primary
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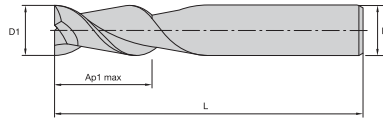
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KenCut AL

AADF • Radiused • 2 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rε	
3658881	AADF0250J2BRA	1/4	1/4	3/4	2 1/2	.015	•
3658882	AADF0250J2BRB	1/4	1/4	3/4	2 1/2	.030	•
3876364	AADF0250J2FRB	1/4	1/4	1	3	.030	•
3876375	AADF0375J2DRA	3/8	3/8	1	3	.015	•
3876376	AADF0375J2DRB	3/8	3/8	1	3	.030	•
3658902	AADF0375J2CRB	3/8	3/8	1 1/2	4	.030	•
3658903	AADF0375J2CRC	3/8	3/8	1 1/2	4	.060	•
3876389	AADF0500J2FRB	1/2	1/2	1	3	.030	•
3876391	AADF0500J2BRA	1/2	1/2	1 1/4	3	.015	•
3658907	AADF0500J2BRB	1/2	1/2	1 1/4	3	.030	•
3876393	AADF0500J2GRA	1/2	1/2	1 5/8	4	.015	•
3876394	AADF0500J2GRB	1/2	1/2	1 5/8	4	.030	•
3876395	AADF0500J2GRC	1/2	1/2	1 5/8	4	.060	•
3876396	AADF0500J2CRA	1/2	1/2	2	4	.015	•
3658911	AADF0500J2CRB	1/2	1/2	2	4	.030	•
3658912	AADF0500J2CRC	1/2	1/2	2	4	.060	•
3876620	AADF0625J2BRB	5/8	5/8	2 1/4	5	.030	•
3876623	AADF0625J2FRB	5/8	5/8	2 1/2	5	.030	•
3658920	AADF0750J2BRB	3/4	3/4	1 1/2	4	.030	•
3876635	AADF0750J2CRA	3/4	3/4	2 1/4	5	.015	•
3658924	AADF0750J2CRB	3/4	3/4	2 1/4	5	.030	•
3876637	AADF0750J2GRA	3/4	3/4	3 1/4	6	.015	•

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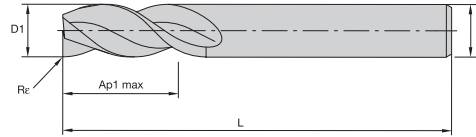
● Primary
○ Secondary

K600

KenCut AL

AADF • Square End • 2 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
3658875	AADF0125J2A	1/8	1/8	1/4	2	•
2402999	AADF0125J2B	1/8	1/8	1/2	2	•
3658877	AADF0188J2A	3/16	3/16	5/16	2	•
3876352	AADF0188J2D	3/16	3/16	9/16	2 1/2	•
2403000	AADF0188J2B	3/16	3/16	5/8	2	•
3658879	AADF0250J2A	1/4	1/4	3/8	2	•
3876359	AADF0250J2E	1/4	1/4	5/8	2 1/2	•
2403001	AADF0250J2B	1/4	1/4	3/4	2 1/2	•
3876362	AADF0250J2F	1/4	1/4	1	3	•
5058618	AADF250J2I	1/4	1/4	1 1/8	3	•
3658893	AADF0250J2C	1/4	1/4	1 1/4	3 1/4	•
3876365	AADF0250J2G	1/4	1/4	1 3/4	4	•
2403013	AADF0375J2B	3/8	3/8	7/8	2 1/2	•
3876374	AADF0375J2D	3/8	3/8	1	3	•
5058633	AADF375J2H	3/8	3/8	1 1/8	3	•
3876378	AADF0375J2E	3/8	3/8	1 1/4	3 1/2	•
3658901	AADF0375J2C	3/8	3/8	1 1/2	4	•
5058615	AADF375J2G	3/8	3/8	1 3/4	4	•
3658904	AADF0500J2A	1/2	1/2	5/8	2 1/2	•
3876383	AADF0500J2E	1/2	1/2	5/8	3	•
3876387	AADF0500J2F	1/2	1/2	1	3	•
5058612	AADF500J2F	1/2	1/2	1	3	•
2403014	AADF0500J2B	1/2	1/2	1 1/4	3	•
5058542	AADF500J2B	1/2	1/2	1 1/4	3	•
3876392	AADF0500J2G	1/2	1/2	1 5/8	4	•
3658910	AADF0500J2C	1/2	1/2	2	4	•
3658913	AADF0500J2D	1/2	1/2	2	5	•
3876629	AADF0750J2F	3/4	3/4	1	4	•
2403016	AADF0750J2B	3/4	3/4	1 1/2	4	•
3658923	AADF0750J2C	3/4	3/4	2 1/4	5	•



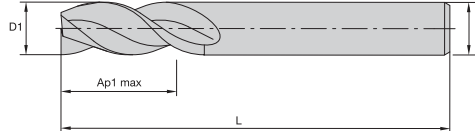
● Primary
○ Secondary



KenCut AL

AADE • Radiused • 3 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rε	
3658816	AADE0250J3ARB	1/4	1/4	3/8	2	.030	•
3658817	AADE0250J3BRA	1/4	1/4	3/4	2 1/2	.015	•
3658818	AADE0250J3BRB	1/4	1/4	3/4	2 1/2	.030	•
3870460	AADE0250J3FRA	1/4	1/4	1	3	.015	•
3658820	AADE0250J3CRA	1/4	1/4	1 1/4	3 1/4	.015	•
3658821	AADE0250J3CRB	1/4	1/4	1 1/4	3 1/4	.030	•
5051946	AADE0312J3DRB	5/16	5/16	1 1/4	3 1/4	.030	•
3658825	AADE0375J3BRB	3/8	3/8	7/8	2 1/2	.030	•
3658826	AADE0375J3BRC	3/8	3/8	7/8	2 1/2	.060	•
3870469	AADE0375J3DRA	3/8	3/8	1	3	.015	•
3870470	AADE0375J3DRB	3/8	3/8	1	3	.030	•
3870473	AADE0375J3ERA	3/8	3/8	1 1/4	3 1/2	.015	•
3870474	AADE0375J3ERB	3/8	3/8	1 1/4	3 1/2	.030	•
3870475	AADE0375J3ERC	3/8	3/8	1 1/4	3 1/2	.060	•
3658828	AADE0375J3CRB	3/8	3/8	1 1/2	4	.030	•
3658829	AADE0375J3CRC	3/8	3/8	1 1/2	4	.060	•
5051949	AADE0375J3KRB	3/8	3/8	2 1/2	4	.030	•
5052000	AADE0375J3KRC	3/8	3/8	2 1/2	4	.060	•
3866253	AADE0500J3FRA	1/2	1/2	1	3	.015	•
3866254	AADE0500J3FRB	1/2	1/2	1	3	.030	•
3866255	AADE0500J3FRC	1/2	1/2	1	3	.060	•
3866256	AADE0500J3BRA	1/2	1/2	1 1/4	3	.015	•
3658833	AADE0500J3BRB	1/2	1/2	1 1/4	3	.030	•
3658834	AADE0500J3BRC	1/2	1/2	1 1/4	3	.060	•
3658835	AADE0500J3BRE	1/2	1/2	1 1/4	3	.120	•
5052001	AADE0500J3KRB	1/2	1/2	1 1/2	4	.030	•
5052002	AADE0500J3KRC	1/2	1/2	1 1/2	4	.060	•
3866259	AADE0500J3GRB	1/2	1/2	1 5/8	4	.030	•
3866260	AADE0500J3GRC	1/2	1/2	1 5/8	4	.060	•
3866261	AADE0500J3GRD	1/2	1/2	1 5/8	4	.090	•
3866262	AADE0500J3CRA	1/2	1/2	2	4	.015	•
3658837	AADE0500J3CRB	1/2	1/2	2	4	.030	•
3658838	AADE0500J3CRC	1/2	1/2	2	4	.060	•
3658840	AADE0500J3DRB	1/2	1/2	2 1/2	5	.030	•
3658841	AADE0500J3DRC	1/2	1/2	2 1/2	5	.060	•
5052003	AADE0500J3LRB	1/2	1/2	3	5	.030	•
5052004	AADE0500J3LRC	1/2	1/2	3	5	.060	•
3866269	AADE0625J3DRA	5/8	5/8	1 5/8	3 1/2	.015	•
5052007	AADE0625J3HRC	5/8	5/8	3	5 1/4	.060	•
5052008	AADE0750J3ARB	3/4	3/4	7/8	3	.030	•
5052040	AADE0750J3ARC	3/4	3/4	7/8	3	.060	•
3658846	AADE0750J3BRB	3/4	3/4	1 1/2	4	.030	•
3658847	AADE0750J3BRC	3/4	3/4	1 1/2	4	.060	•
3658848	AADE0750J3BRE	3/4	3/4	1 1/2	4	.120	•
3866282	AADE0750J3HRB	3/4	3/4	1 5/8	4	.030	•
3866284	AADE0750J3HRD	3/4	3/4	1 5/8	4	.090	•
3866286	AADE0750J3CRA	3/4	3/4	2 1/4	5	.015	•
3658850	AADE0750J3CRB	3/4	3/4	2 1/4	5	.030	•
3658851	AADE0750J3CRC	3/4	3/4	2 1/4	5	.060	•
3866288	AADE0750J3CRE	3/4	3/4	2 1/4	5	.120	•
3658863	AADE0750J3DRB	3/4	3/4	3	5 1/4	.030	•
3658864	AADE0750J3DRC	3/4	3/4	3	5 1/4	.060	•
3866290	AADE0750J3GRA	3/4	3/4	3 1/4	6	.015	•
3866291	AADE0750J3GRB	3/4	3/4	3 1/4	6	.030	•
3866293	AADE0750J3GRD	3/4	3/4	3 1/4	6	.090	•
3866294	AADE0750J3GRE	3/4	3/4	3 1/4	6	.120	•
3658871	AADE1000J3BRC	1	1	2 1/4	5	.060	•
3866065	AADE1000J3GRB	1	1	2 5/8	6	.030	•
3658873	AADE1000J3CRB	1	1	3	5 1/2	.030	•
3866068	AADE1000J3ERA	1	1	3 1/4	6	.015	•
3866069	AADE1000J3ERB	1	1	3 1/4	6	.030	•
3866072	AADE1000J3ERE	1	1	3 1/4	6	.120	•
3866074	AADE1000J3HRA	1	1	4 1/8	7	.015	•



● Primary
○ Secondary

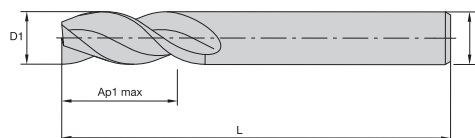
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K600

KenCut AL

AADE • Square End • 3 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
5059218	AADE125J3G	1/8	1/8	1/4	1 1/2	•
5059213	AADE125J3F	1/8	1/8	3/8	1 1/2	•
3870444	AADE0125J3D	1/8	1/8	1/2	3	•
3870446	AADE0125J3E	1/8	1/8	3/4	3	•
3870448	AADE0188J3C	3/16	3/16	5/16	3	•
5059209	AADE188J3F	3/16	3/16	9/16	2	•
3870450	AADE0188J3D	3/16	3/16	9/16	3	•
3870452	AADE0188J3E	3/16	3/16	3/4	3	•
3658815	AADE0250J3A	1/4	1/4	3/8	2	•
3870455	AADE0250J3D	1/4	1/4	1/2	2 1/2	•
3870457	AADE0250J3E	1/4	1/4	5/8	2 1/2	•
3854632	AADE0250J3B	1/4	1/4	3/4	2 1/2	•
5059219	AADE250J3B	1/4	1/4	3/4	2 1/2	•
3870459	AADE0250J3F	1/4	1/4	1	3	•
5059206	AADE250J3H	1/4	1/4	1 1/4	3	•
3658819	AADE0250J3C	1/4	1/4	1 1/4	3 1/4	•
3870461	AADE0250J3G	1/4	1/4	1 3/4	4	•
3854739	AADE0312J3A	5/16	5/16	13/16	2 1/2	•
3870462	AADE0312J3B	5/16	5/16	1	3	•
5051941	AADE0312J3D	5/16	5/16	1 1/4	3 1/4	•
3658824	AADE0375J3A	3/8	3/8	1/2	2	•
3870464	AADE0375J3F	3/8	3/8	1/2	3	•
3870466	AADE0375J3G	3/8	3/8	3/4	2 1/2	•
3854756	AADE0375J3B	3/8	3/8	7/8	2 1/2	•
3870468	AADE0375J3D	3/8	3/8	1	3	•
5059203	AADE375J3I	3/8	3/8	1 1/8	3	•
3870472	AADE0375J3E	3/8	3/8	1 1/4	3 1/2	•
3658827	AADE0375J3C	3/8	3/8	1 1/2	4	•
3870476	AADE0375J3H	3/8	3/8	2	4	•
5059202	AADE438J3A	7/16	7/16	9/16	2 1/2	•
5051942	AADE0438J3A	7/16	7/16	7/8	2 1/2	•
3658830	AADE0500J3A	1/2	1/2	5/8	2 1/2	•
3866202	AADE0500J3F	1/2	1/2	1	3	•
3854759	AADE0500J3B	1/2	1/2	1 1/4	3	•
5051855	AADE0500J3K	1/2	1/2	1 1/2	4	•
3866257	AADE0500J3G	1/2	1/2	1 5/8	4	•
3658836	AADE0500J3C	1/2	1/2	2	4	•
5059167	AADE500J3H	1/2	1/2	2	4 1/2	•
3658839	AADE0500J3D	1/2	1/2	2 1/2	5	•
5051858	AADE0500J3L	1/2	1/2	3	5	•
3866263	AADE0500J3H	1/2	1/2	3 1/8	6	•
3854761	AADE0625J3A	5/8	5/8	1 1/4	3 1/2	•
3866268	AADE0625J3D	5/8	5/8	1 5/8	3 1/2	•
3866273	AADE0625J3E	5/8	5/8	2 1/8	4	•
3658843	AADE0625J3B	5/8	5/8	2 1/4	5	•
5051857	AADE0625J3H	5/8	5/8	3	5 1/4	•
3866276	AADE0625J3G	5/8	5/8	3 1/4	6	•
3658845	AADE0750J3A	3/4	3/4	7/8	3	•
5059165	AADE750J3K	3/4	3/4	1	3	•
3866277	AADE0750J3F	3/4	3/4	1	4	•
3854762	AADE0750J3B	3/4	3/4	1 1/2	4	•
3866280	AADE0750J3H	3/4	3/4	1 5/8	4	•
3658849	AADE0750J3C	3/4	3/4	2 1/4	5	•
3658852	AADE0750J3D	3/4	3/4	3	5 1/4	•
3866289	AADE0750J3G	3/4	3/4	3 1/4	6	•
5051852	AADE0750J3K	3/4	3/4	4	6 1/4	•



● Primary
○ Secondary

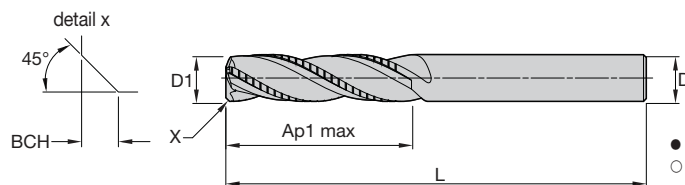
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KenCut AL

AADE • Square End • 3 Flutes • Plain Shank (continued)

Order Number	Catalog Number	D1	D	Ap1 Max	L	
5059163	AADE750J3J	3/4	3/4	4	6 1/2	•
3658865	AADE1000J3A	1	1	1 1/2	4	•
5051854	AADE1000J3K	1	1	2	4 1/2	•
3866058	AADE1000J3D	1	1	2	5	•
3658869	AADE1000J3B	1	1	2 1/4	5	•
3658872	AADE1000J3C	1	1	3	5 1/2	•
3866067	AADE1000J3E	1	1	3 1/4	6	•
5051853	AADE1000J3I	1	1	4	7	•
3866073	AADE1000J3H	1	1	4 1/8	7	•

K600



● Primary
○ Secondary

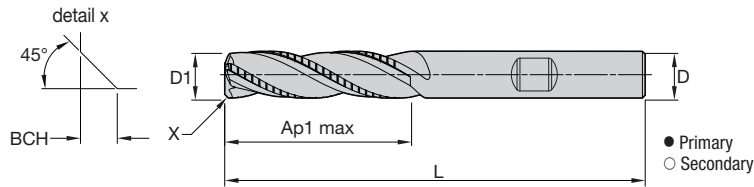
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KenCut ALR

SFRHEC • Chamfered • 3 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	BCH	
2658352	SFRHEC250S3075	1/4	1/4	3/4	2 1/2	.024	•

K600



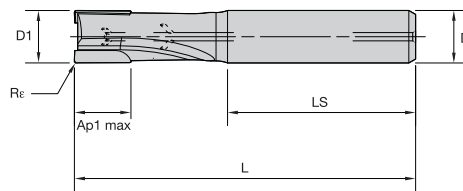
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K600

KenCut ALR

SFRHEC • Chamfered • 3 Flutes • Weldon Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	BCH	
2658444	SFRHEC375S3088	3/8	3/8	7/8	2 1/2	.024	•
2658445	SFRHEC500S3100	1/2	1/2	1	3	.039	•
2658446	SFRHEC500S3200	1/2	1/2	2	4 1/2	.039	•
2658448	SFRHEC625S3225	5/8	5/8	2 1/4	5	.039	•
2658449	SFRHEC750S3150	3/4	3/4	1 1/2	4	.039	•
2658450	SFRHEC750S3225	3/4	3/4	2 1/4	5	.039	•
2658452	SFRHEC100S3225	1	1	2 1/4	5	.039	•


● Primary
○ Secondary

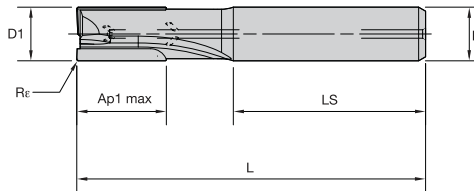
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KD1410

KenCut AQ

ALCB • Radiused • 2 Flutes • 1xD • Internal Coolant • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Ls	Re	
6752728	ALCB2RA0250N025HAR010I	1/4	1/4	1/4	2.250	1.437	.010	•
6752729	ALCB2RA0313N031HAR010I	5/16	5/16	5/16	2.500	1.516	.010	•
6752730	ALCB2RA0375N038HAR010I	3/8	3/8	3/8	3.000	1.575	.010	•
6752751	ALCB2RA0500N050HAR015I	1/2	1/2	1/2	3.250	1.791	.015	•
6752752	ALCB2RA0625N063HAR015I	5/8	5/8	5/8	3.750	1.909	.015	•
6752753	ALCB2RA0750N075HAR015I	3/4	3/4	3/4	4.250	1.988	.015	•



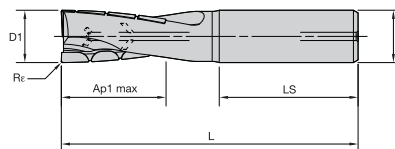
● Primary
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KenCut AQ

ALCC • Radiused • 2 Flutes • 1.5xD • Internal Coolant • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Ls	Re	
6752754	ALCC2RA0250N038HAR010I	1/4	1/4	3/8	2.250	1.437	.010	•
6752755	ALCC2RA0313N063HAR010I	5/16	5/16	5/8	2.500	1.516	.010	•
6752756	ALCC2RA0375N063HAR010I	3/8	3/8	5/8	3.000	1.575	.010	•
6752757	ALCC2RA0500N075HAR015I	1/2	1/2	3/4	3.250	1.791	.015	•
6752758	ALCC2RA0625N100HAR015I	5/8	5/8	1	3.750	1.909	.015	•
6752759	ALCC2RA0750N113HAR015I	3/4	3/4	1	4.250	1.988	.015	•



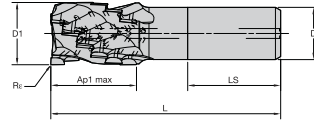
● Primary
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KenCut AQ

ALCR • Radiused • 2 Flutes • 2xD • Internal Coolant • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Ls	Re	
6752761	ALCR2RA0500N100HAR015I	1/2	1/2	1	3.250	1.791	.015	•
6752762	ALCR2RA0625N125HAR015I	5/8	5/8	1 1/4	3.750	1.909	.015	•
6752763	ALCR2RA0750N150HAR015I	3/4	3/4	1 1/2	4.250	1.988	.015	•



● Primary
○ Secondary

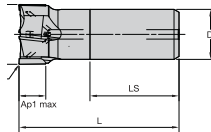
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KD1410

KenCut AQ

ALSR • Radiused • 2-3 Flutes • 1.25xD • Internal Coolant • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Ls	Re	Z U
6752768	ALSR2RA1000N125HAR015I	1	1	1 1/4	4.250	2.224	.015	2 •
6752769	ALSR2RA1250N150HAR015I	1 1/4	1 1/4	1 1/2	5.000	2.224	.015	2 •
6752770	ALSR2RA1500N200HAR015I	1 1/2	1 1/4	2	5.500	2.224	.015	3 •



● Primary
○ Secondary

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KD1410

KenCut AQ

ALSB • Radiused • 4-5 Flutes • Internal Coolant • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Ls	Re	Z U
6752764	ALSB4RA1000N063HAR015I	1	1	5/8	4.000	2.224	.015	4 •
6752765	ALSB4RA1250N063HAR015I	1 1/4	1 1/4	5/8	4.000	2.224	.015	4 •
6752766	ALSB4RA1500N063HAR015I	1 1/2	1 1/4	5/8	4.000	2.224	.015	4 •
6752767	ALSB5RA2000N063HAR015I	2	1 1/4	5/8	4.000	2.224	.015	5 •



MaxiMet ABDE



MaxiMet ABDF

MaxiMet

ABDF • ABDE • Application Data

Material Group						K600		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.							
		A		B		Cutting Speed — Vc SFM		D1 — Diameter							
		Ap	Ae	Ap	min	max	frac. dec.	3/16	1/4	5/16	3/8	1/2	5/8	3/4	1
N	1	1.5 x D	0.5 x D	1.0 x D	1640	6560	IPT	.0017	.0023	.0028	.0034	.0045	.0056	.0068	.0090
	2	1.5 x D	0.5 x D	1.0 x D	1640	4920	IPT	.0014	.0018	.0023	.0027	.0036	.0045	.0054	.0072
	3	1.5 x D	0.5 x D	1.0 x D	1640	4920	IPT	.0012	.0016	.0020	.0024	.0032	.0039	.0047	.0063
	4	1.5 x D	0.5 x D	1.0 x D	1310	2460	IPT	.0012	.0016	.0020	.0024	.0032	.0039	.0047	.0063
	5	1.5 x D	0.5 x D	1.0 x D	820	3280	IPT	.0015	.0020	.0025	.0030	.0041	.0051	.0061	.0081

NOTE: These guidelines may require variations to achieve optimum results. For better surface finish, reduce feed per tooth.
 Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.
 For cutting aluminum with high silicon, coating is recommended.
 Ap for spindle with ceramic bearings, multiply by 0.5.
 For better surface finish, reduce feed per tooth.
 For tools with reach > 3 x D, reduce fz by 20%.
 For tools with reach > 5 x D, reduce fz by 30%.
 For tools with reach > 10 x D, reduce vc and fz by 30%.



MaxiMet ABDF — with Neck



MaxiMet ABDE — with Neck

MaxiMet

ABDF • ABDE • Extended Neck • Application Data

Material Group						K600		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.							
		A		B											
							D1 — Diameter								
				Ap	Ae	Ap	min	max	frac.	1/4	5/16	3/8	1/2	5/8	3/4
N	1	1 x D	0.5 x D	1.0 x D	1640	6560	IPT	.0025	.0031	.0038	.0050	.0063	.0075	.0100	
	2	1 x D	0.5 x D	1.0 x D	1640	4920	IPT	.0020	.0025	.0030	.0040	.0050	.0060	.0080	
	3	1 x D	0.5 x D	1.0 x D	1640	4920	IPT	.0018	.0022	.0026	.0035	.0044	.0053	.0070	
	4	1 x D	0.5 x D	1.0 x D	1310	2460	IPT	.0018	.0022	.0026	.0035	.0044	.0053	.0070	
	5	1 x D	0.5 x D	1.0 x D	820	3280	IPT	.0023	.0028	.0034	.0045	.0056	.0068	.0090	

NOTE: These guidelines may require variations to achieve optimum results. For better surface finish, reduce feed per tooth.
 Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.
 For cutting aluminum with high silicon, coating is recommended.
 Ap for spindle with ceramic bearings, multiply by 0.5.
 For better surface finish, reduce feed per tooth.
 For tools with reach > 3 x D, reduce fz by 20%.
 For tools with reach > 5 x D, reduce fz by 30%.
 For tools with reach > 10 x D, reduce vc and fz by 30%.

MaxiMet

Adjustment Factor for Feed and Speed Calculation

	Ae/D	2%	4%	5%	8%	10%	12%	20%	30%	40%	50%	100%
Speed factor	Kv	2.1—3.6	1.6—3	1.6—2.5	1.6	1.4	1.38	1.3	1.2	1.1	1	0.9
Feed factor	KFz	3.58	2.56	2.3	1.84	1.67	1.54	1.25	1.09	1.02	1	1

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 recommended 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 Kv coefficient table to the right for adaptation of cutting speed and KFz for feed respectively.

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

Calculation example:

Application: D1 = 1";

N5 material group

(ABDE/ABDF without neck)

Ae 0.1" (Ae = 10% D)

Cutting data recommendation: 2050 SFM;

Fz = 0.0081 IPT

Adjustment coefficients: Ae = 0.1" equals 10%;

Kv = 1.4; KFz = 1.67

Final cutting data recommendation:

Vc new = 2050 SFM * 1.4 = 2870 SFM

Fz new = .0081 IPT * 1.67 = .0135 IPT



KenCut AL — AADF



KenCut AL — AADE

KenCut

AL • AADF • AADE • Application Data

Material Group				K600		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.											
		A				B	Cutting Speed — Vc SFM			D1 — Diameter							
				frac.	1/8				3/16	1/4	5/16	3/8	1/2	5/8	3/4	1	
		Ap	Ae	Ap	min	max	dec.	0.125	0.188	0.250	0.313	0.375	0.500	0.625	0.750	1.000	
N	1	1.5 x D	0.5 x D	1.0 x D	1640	6560	IPT	.0011	.0017	.0023	.0028	.0034	.0045	.0056	.0068	.0090	
	2	1.5 x D	0.5 x D	1.0 x D	1640	4920	IPT	.0009	.0014	.0018	.0023	.0027	.0036	.0045	.0054	.0072	
	3	1.5 x D	0.5 x D	1.0 x D	1640	4920	IPT	.0008	.0012	.0016	.0020	.0024	.0032	.0039	.0047	.0063	
	4	1.5 x D	0.5 x D	1.0 x D	1310	2460	IPT	.0008	.0012	.0016	.0020	.0024	.0032	.0039	.0047	.0063	
	5	1.5 x D	0.5 x D	1.0 x D	820	3280	IPT	.0010	.0015	.0020	.0025	.0030	.0041	.0051	.0061	.0081	

NOTE: These guidelines may require variations to achieve optimum results.

Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.



KenCut

ALR • SFRHEC • Application Data

Material Group				K600/KC625M		Feed per Tooth — fz information is for side milling (A). For slotting (B), reduce fz by 20%.							
		A				B		Cutting Speed — Vc SFM		D1 — Diameter			
				frac.									
		Ap	Ae	Ap	min	max	dec.	1/4	3/8	1/2	5/8	3/4	1
N	1	1.25 x D	0.5 x D	1 x D	1650	6500	fz	.0028	.0041	.0055	.0070	.0085	.0110
	2	1.25 x D	0.5 x D	1 x D	1650	5050	fz	.0025	.0037	.0050	.0060	.0075	.0010

NOTE: These guidelines may require variations to achieve optimum results.

Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.

KenCut

Adjustment Factor for Feed and Speed Calculation

	Ae/D	2%	4%	5%	8%	10%	12%	20%	30%	40%	50%	100%
Speed factor	Kv	2.1—3.6	1.6—3	1.6—2.5	1.6	1.4	1.38	1.3	1.2	1.1	1	0.9
Feed factor	KFz	3.58	2.56	2.3	1.84	1.67	1.54	1.25	1.09	1.02	1	1

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 recommended 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 Kv coefficient table to the right for adaptation of cutting speed and KFz for feed respectively.

$Vc_{new} = Vc * Kv$
 $Fz_{new} = IPT * KFz$

Calculation example:

Application: D1 = 1";

N5 material group
 (example AADF/AADE)
 Ae 0.1" (Ae = 10% D)

Cutting data recommendation: 2050 SFM;

Fz = 0.0081 IPT

Adjustment coefficients: Ae = 0.1" equals 10%;

Kv = 1.4; KFz = 1.67

Final cutting data recommendation:

$Vc_{new} = 2050 \text{ SFM} * 1.4 = 2870 \text{ SFM}$

$Fz_{new} = .0081 \text{ IPT} * 1.67 = .0135 \text{ IPT}$



KenCut AQ

PCD End Mill • ALCB • Application Data

Material Group				KD1410		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.								
		A		B		Cutting Speed — Vc SFM			D1 — Diameter					
								frac.	1/4	5/16	3/8	1/2	5/8	3/4
		Ap	Ae	Ap	min	max	dec.	0.2500	0.3125	0.3750	0.5000	0.6250	0.7500	
N	1	1 x D	0.25 x D	0.5 x D	660	9840	IPT	0.0029	0.0031	0.0034	0.0058	0.0063	0.0060	
	2	1 x D	0.25 x D	0.5 x D	660	9840	IPT	0.0029	0.0031	0.0034	0.0058	0.0063	0.0060	
	3	1 x D	0.25 x D	0.5 x D	590	4590	IPT	0.0025	0.0027	0.0030	0.0050	0.0055	0.0053	
	4	1 x D	0.25 x D	0.5 x D	660	2620	IPT	0.0025	0.0027	0.0030	0.0042	0.0047	0.0045	
	5	1 x D	0.25 x D	0.5 x D	660	3280	IPT	0.0021	0.0023	0.0026	0.0038	0.0039	0.0038	
	6	1 x D	0.25 x D	0.5 x D	490	2620	IPT	0.0017	0.0020	0.0023	0.0025	0.0031	0.0030	
	7	1 x D	0.25 x D	0.5 x D	820	1640	IPT	0.0025	0.0027	0.0030	0.0050	0.0055	0.0053	



KenCut AQ

PCD End Mill • ALCC • Application Data

Material Group					KD1410		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.					
	A		B		Cutting Speed — Vc SFM			D1 — Diameter				
	Ap	Ae	Ap		min	max	frac. dec.	1/4	5/16	3/8	1/2	5/8
N	1	1.5 x D	0.15 x D	0.5 x D	660	9840	IPT	0.0029	0.0031	0.0034	0.0058	0.0063
	2	1.5 x D	0.15 x D	0.5 x D	660	9840	IPT	0.0029	0.0031	0.0034	0.0058	0.0063
	3	1.5 x D	0.15 x D	0.5 x D	590	4590	IPT	0.0025	0.0027	0.0030	0.0050	0.0055
	4	1.5 x D	0.15 x D	0.5 x D	660	2620	IPT	0.0025	0.0027	0.0030	0.0042	0.0047
	5	1.5 x D	0.15 x D	0.5 x D	660	3280	IPT	0.0021	0.0023	0.0026	0.0038	0.0039
	6	1.5 x D	0.15 x D	0.5 x D	490	2620	IPT	0.0017	0.0020	0.0023	0.0025	0.0031
	7	1.5 x D	0.15 x D	0.5 x D	820	1640	IPT	0.0025	0.0027	0.0030	0.0050	0.0055



KenCut AQ

PCD Helical End Mill • ALCR • Application Data

Material Group						KD1410		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.			
		A		B		Cutting Speed — Vc SFM		frac. dec.	D1 — Diameter		
		ap	ae	ap		min	max		1/2	5/8	3/4
N	1	2 x D	0.2 x D	0.5 x D		660	—	IPT	0.0058	0.0063	0.0060
	2	2 x D	0.2 x D	0.5 x D		660	—	IPT	0.0058	0.0063	0.0060
	3	2 x D	0.2 x D	0.5 x D		590	—	IPT	0.0050	0.0055	0.0053
	4	2 x D	0.2 x D	0.5 x D		660	—	IPT	0.0042	0.0047	0.0045
	5	2 x D	0.2 x D	0.5 x D		660	—	IPT	0.0038	0.0039	0.0038
	6	2 x D	0.2 x D	0.5 x D		490	—	IPT	0.0025	0.0031	0.0030
	7	2 x D	0.2 x D	0.5 x D		820	—	IPT	0.0050	0.0055	0.0053



KenCut AQ

PCD End Mill • ALSB • Application Data

Material Group					KD1410		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.			
	A		B		Cutting Speed — Vc SFM		frac. dec.	D1 — Diameter		
	Ap	Ae	Ap		min	max		1	1 1/4	1 1/2
N	1	L10	0.25 x D	0.5*L10	660	9840	IPT	0.0072	0.0078	0.0078
	2	L10	0.25 x D	0.5*L10	660	9840	IPT	0.0072	0.0078	0.0078
	3	L10	0.25 x D	0.5*L10	590	4590	IPT	0.0064	0.0070	0.0070
	4	L10	0.25 x D	0.5*L10	660	2620	IPT	0.0056	0.0063	0.0063
	5	L10	0.25 x D	0.5*L10	660	3280	IPT	0.0048	0.0047	0.0047
	6	L10	0.25 x D	0.5*L10	490	2620	IPT	0.0040	0.0039	0.0039
	7	L10	0.25 x D	0.5*L10	820	1640	IPT	0.0064	0.0070	0.0070



KenCut AQ

PCD Helical End Mill • ALSR • Application Data

Material Group					KD1410			Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.			
	A		B		Cutting Speed — Vc SFM				D1 — Diameter		
	Ap	Ae	Ap	min		max	frac. dec.	1	1 1/4	1 1/2	
N	1	1.25 x D	0.2 x D	0.25 x D	660	—	9840	IPT	0.0072	0.0078	0.0078
	2	1.25 x D	0.2 x D	0.25 x D	660	—	9840	IPT	0.0072	0.0078	0.0078
	3	1.25 x D	0.2 x D	0.25 x D	590	—	4590	IPT	0.0064	0.0070	0.0070
	4	1.25 x D	0.2 x D	0.25 x D	660	—	2620	IPT	0.0056	0.0063	0.0063
	5	1.25 x D	0.2 x D	0.25 x D	660	—	3280	IPT	0.0048	0.0047	0.0047
	6	1.25 x D	0.2 x D	0.25 x D	490	—	2620	IPT	0.0040	0.0039	0.0039
	7	1.25 x D	0.2 x D	0.25 x D	820	—	1640	IPT	0.0064	0.0070	0.0070

TOOL SELECTOR

	CFRP MACHINING			HIGH-TEMP MACHINING	
	KenCut CF			KenCut HT	
					
Series	CCNC	CDDC	CBDB	EADE	EADE
Tool type					
Rougher				●	●
Finisher	●	●	●		
Chamfering					
Main operations					
Workpiece material					
Primary	C	C	C	S	S
Secondary					
Corner style					
Corner radius [Re]	—	—	—	.023–.063"	.023–.063"
Corner chamfer width [BCH]	.0050"	.010"	.020–.045"	—	—
Cutting diameter [D1]	1/4–1/2"	1/4–1/2"	1/4–1/2"	3/16–1/2"	3/16–1/2"
Length of cut	1.5–3 x D	1.5–6 x D	1.5–6 x D	.7–.8 x D	—
Maximum cutting depth [Ap1 max]	3/4	3/4–1-1/2"	3/4–1-1/2"	9/64–3/8"	9/64–3/8"
Flute helix angle	25°	25°	15°	40°	40°
Number of flutes [ZU]	3–4	6	12	4	6
Center cutting	✓	✓			
Additional operations		 	 	 	  

● Primary
○ Secondary

 Available
Online Only

TOOL SELECTOR

HARD MACHINING		
KenCut HM		
		
Series	HPRDM	HPBNDM
Tool type		
Rougher	●	
Finisher		●
Chamfering		
Main operations		
Workpiece material		
Primary	P H	P H
Secondary	M K S	
Corner style		
Corner radius [Re]	.030-.040"	—
Corner chamfer width [BCH]	—	—
Cutting diameter [D1]	3/16-1/2"	1/8-5/8"
Length of cut	1 x D	1 x D
Maximum cutting depth [Ap1 max]	3/16-1/2 x D	1/8-5/8"
Flute helix angle	45°	15°
Number of flutes [ZU]	3-4	4
Center cutting	✓	✓
Additional operations	 	

● Primary
○ Secondary

Available
Online Only

KenCut HT

High-Performance
High-Temp Alloys Machining

Materials

S

Industries



General
Engineering



Aerospace

Applications



Face Milling



Ramping



3D Profiling



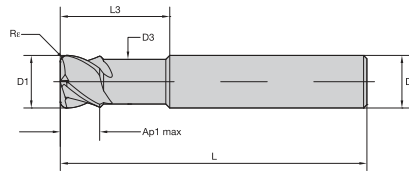
Shoulder Milling



Slotting



- Solid ceramic end mill for high-speed roughing of nickel-based high-temp alloys.
- The solid ceramic end mills offer extremely high tool life even at cutting speeds up to 3.300SFM.
- SiAlON solid ceramic grade for exceptionally high MRR in nickel-based high-temp alloys machining.
- Up to 5x higher tool life compared to solid carbide end mills, resulting in fewer tool changes and less downtime.
- Highest cutting speed capability for drastically reduced machining time.
- 4-flute version for pocketing and slotting, 6-flute version for face milling and profiling.



● Primary
○ Secondary

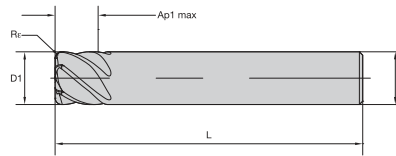
P	
M	
K	
N	
S	
H	

KYS40

KenCut HT

EADE • Radiused • 4 Flutes • Necked • Plain Shank

Order Number	Catalog Number	D1	D	D3	Ap1 Max	L3	L	Rε	
5352350	EADE0188J4AQX	3/16	1/4	.1800	9/64	3/8	2	.023	•
5352352	EADE0250J4AQB	1/4	1/4	.2400	3/16	1/2	2	.031	•
5352356	EADE0375J4AQX	3/8	3/8	.3600	9/32	3/4	2 1/2	.047	•
5352358	EADE0500J4AQC	1/2	1/2	.4800	3/8	1	2 3/4	.063	•



● Primary
○ Secondary

P	
M	
K	
N	
S	
H	

KYS40

KenCut HT

EADE • Radiused • 6 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	Rε	
5352359	EADE0188J6ARX	3/16	3/16	9/64	2	.023	•
5352360	EADE0250J6ARB	1/4	1/4	3/16	2	.031	•
5352361	EADE0313J6ARX	5/16	5/16	15/64	2 1/4	.039	•
5352362	EADE0375J6ARX	3/8	3/8	9/32	2 1/2	.047	•
5352363	EADE0500J6ARC	1/2	1/2	3/8	2 3/4	.063	•



KenCut HT

EADE • 4 Flutes • Application Data

Material Group	3				KYS40		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.					
		A		B	Cutting Speed — Vc SFM		frac.	D1 — Diameter				
								3/16	1/4	5/16	3/8	1/2
		Ap	Ae	Ap	min	max	dec.	.1875	.2500	.3125	.3750	.5000
S	3	Ap1 max	0.1 x D*	0.5 x D*	825	3300	IPT	.0094	.0100	.0109	.0113	.0133

NOTE: *For above cutting data, do not exceed an overall ae of .039".
Use ap of .039" as starting condition.

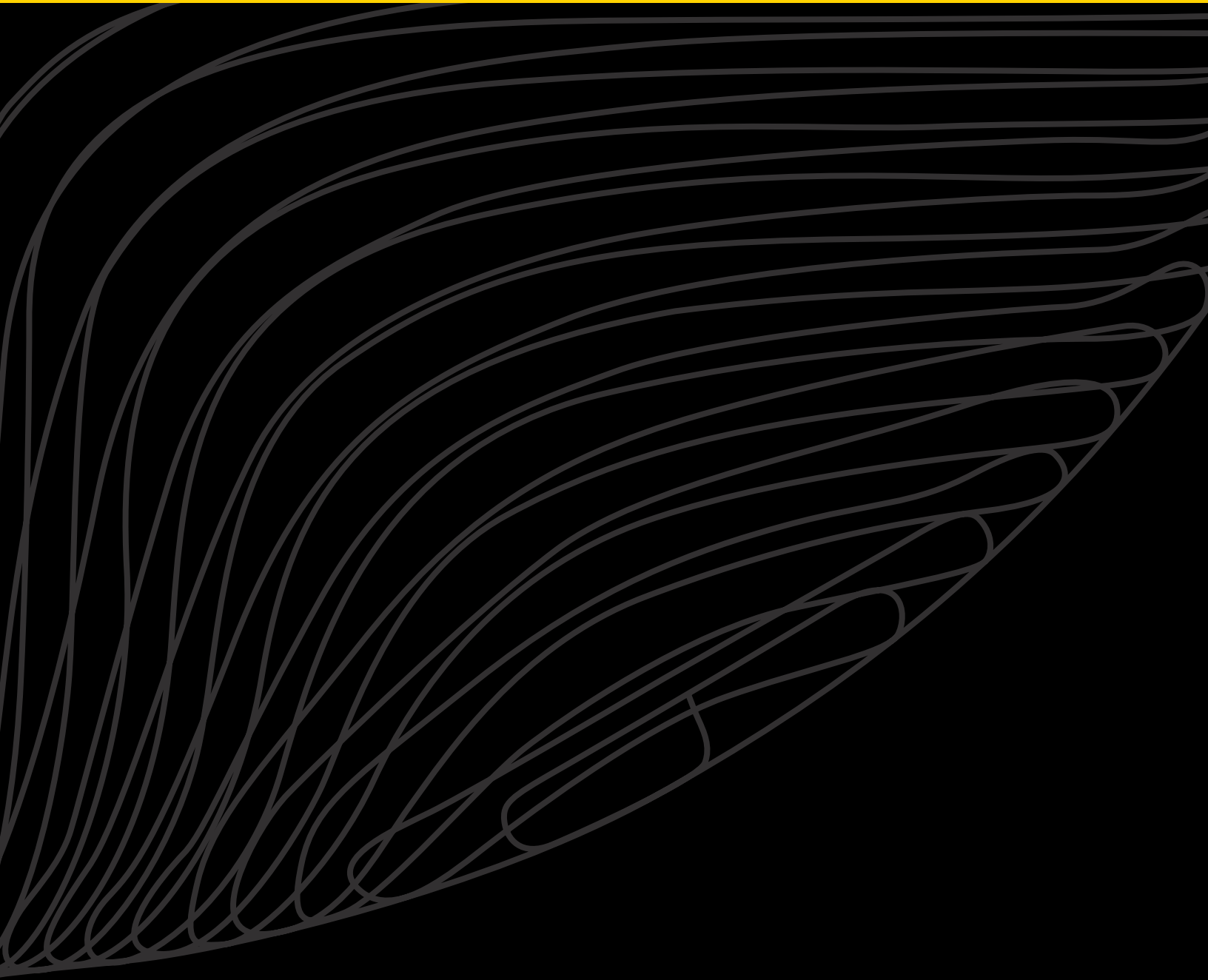


KenCut HT

EADE • 6 Flutes • Application Data

Material Group	3			KYS40		Recommended feed per tooth (IPT = inch/th) for side milling (A).					
		A		Cutting Speed — Vc SFM		frac.	D1 — Diameter				
							3/16	1/4	5/16	3/8	1/2
		Ap	Ae	min	max	dec.	.1875	.2500	.3125	.3750	.5000
S	3	Ap1 max*	0.1 x D*	825	3300	IPT	.0094	.0100	.0109	.0113	.0133

NOTE: *For above cutting data, do not exceed an overall ae of .039".
Use ap of .039" as starting condition.



KENCUT HT APPLICATION RECOMMENDATION



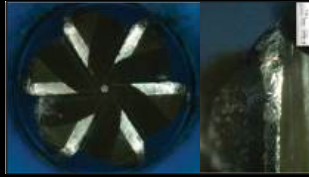
Materials to cut	Cutting speed	Coolant
• Nickel-based high-temp alloys. • Cobalt-based alloys after consulting technical assistance. • P6 and M1-3 stainless steels after consulting technical assistance. • Do not apply on iron-based high-temp alloys.	• Maximum RPM machine can provide recommended cutting speed: 1.300–3.300 SFM. • Highly dynamic machines recommended. • Use of spindle speeders applicable (no wet coolant).	• Power cool nozzle preferred to flush chips away. • Pressurized air applicable. • MQL and dry applicable. • No coolant with emulsion or oil due to thermal shock.
Adaptation	Milling strategy	Reconditioning service
• Hydraulic chuck with or without sleeve preferred. • Collet or milling power chucks applicable. • Balancing at 25,000 RPM preferred.	• Conventional milling preferred at lower speeds. • Climb milling preferred at higher speeds.	Not applicable.

Wear Indication

New

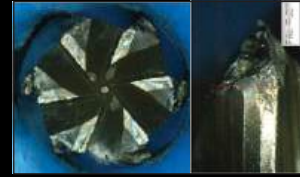


Used



Wear rate 0,48mm.
Still good to use.

End of Tool Life



Wear rate 1,4mm.
End of tool life reached.

Chip Formation

Carbide



Regular curled chips. Shape and length depend on end mill geometry and cutting data.

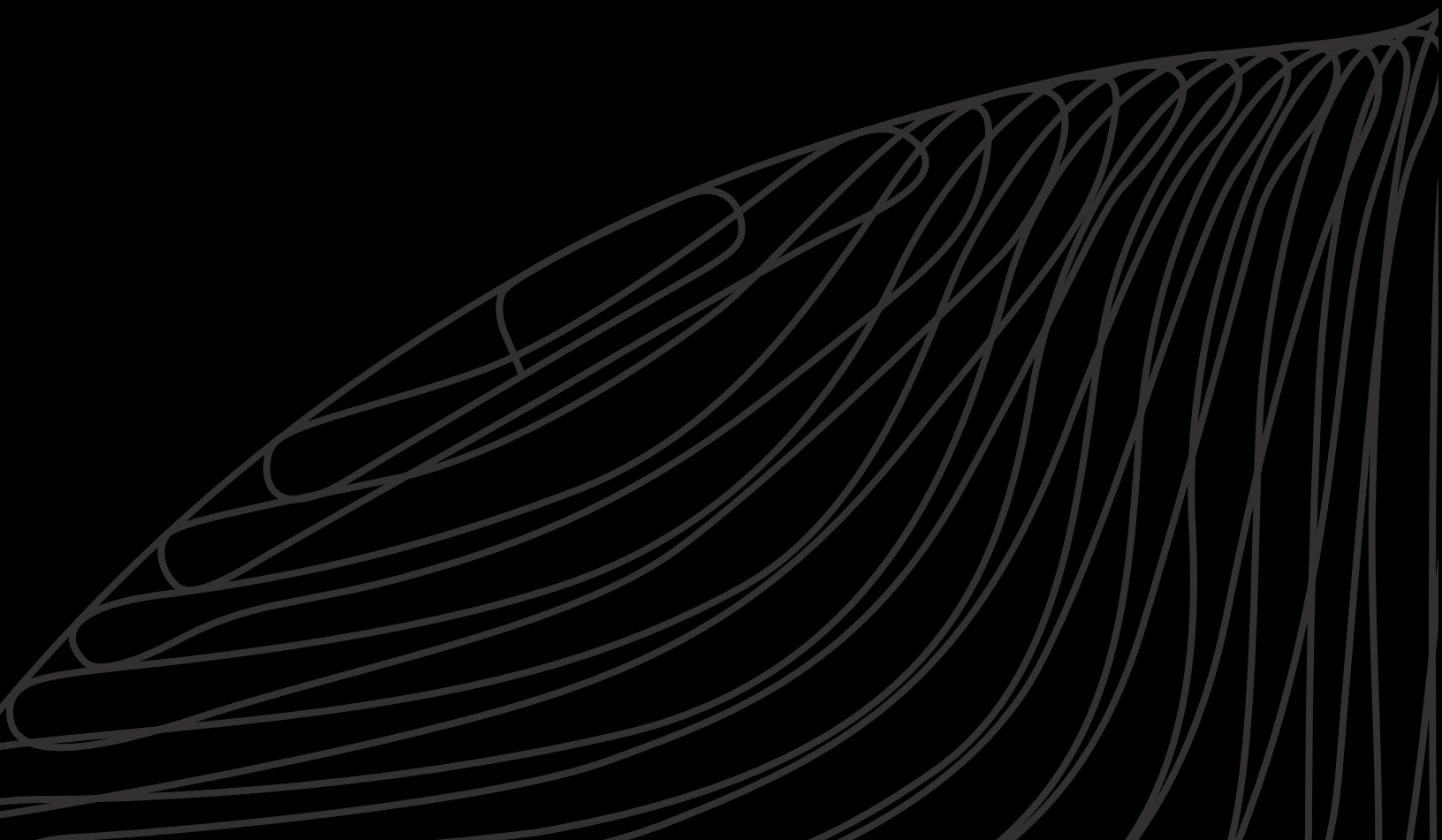
Ceramic



Chips are like dust. Pressurized air coolant recommended to blow away chips.

KenCut HT Application Recommendation

Problem	Cause	Remedy
Excessive bur formation	- Softness of material to cut. - Excessive wear on radii.	- Use undersize end mills that leave stock for finishing operation. - Replace tool as end of tool life reached. - Check tool runout.
Sudden breakage	- Vibration of the workpiece. - Unstable tool clamping. - Use of 6-flute tooling in slotting.	- Check workpiece and tool clamping. - Use of 4-flute EADE recommended.
Chips sticking	Lack of cutting speed.	Increase cutting speed.
Chipping	- Unstable tool and/or workpiece clamping. - Initial cutting speed too high.	- Check workpiece and tool clamping. - Reduce cutting speed during initial cut and increase as cutting continues.
Thermal cracks	Wet coolant.	Do not use wet coolant.



TOOL SELECTOR

HIGH-FEED MACHINING		
KenFeed		
		
Series	KHDA	KMDA
Tool type		
Rougher		
Finisher	●	●
Chamfering		
Main operations		
Workpiece material		
Primary	H	H
Secondary		P
Corner style		
Corner radius [Re]	.016–.040"	.016–.047"
Corner chamfer width [BCH]	—	—
Cutting diameter [D1]	1/4–3/4"	1/4–3/4"
Length of cut	.03 x D	.05 x D
Maximum cutting depth [Ap1 max]	8/977–1/40"	1/75–1/25"
Flute helix angle	20°	20°
Number of flutes [ZU]	6	6
Center cutting		
Additional operations		

- Primary
- Secondary

KENFEED AND KENCUT KS

High-Feed Machining and
Keyway Machining

Materials



Industries



Applications



KenFeed

- The KenFeed solid carbide end mill series is designed for maximum MRR in heat-treated steels up to 67 HRC by taking very shallow-depth cuts at extremely high feed rates.
- During face milling, the proprietary front-end geometry is entirely in contact with the workpiece, providing up to 55% engagement compared to regular ball nose-type tooling with only 5–10%.
- The 3xD neck and the extended-reach design is ideal for multiple applications like ramping, circular interpolation, 3D profiling, face milling and pocketing.
- 6-flute design for increased MRR and higher productivity.



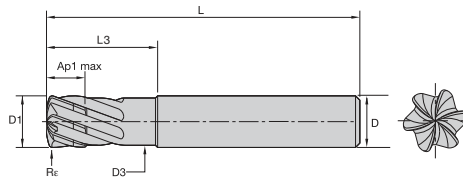
**6-flute solid carbide end mill
for high-feed roughing and
finishing of medium and hard
steels.**



**2- and 3-fluted end mills
providing highest precision
when machining slots for a
shaft-to-hub connection.**

KenCut KS

- Key slot radii transition between floor and wall increases durability of machined components by preventing cracks through stress peaks.
- True 90° wall straightness due to tapered peripheral edges creates a defined passive force during finishing cut using conventional milling.
- 2-fluted tools for unstable machining conditions.
- 3-fluted tools with unequally spaced flutes for chatter-free machining at high feed rates.



● Primary
○ Secondary

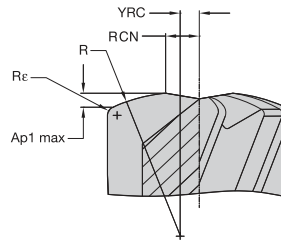
P	Blue	○
M	Yellow	
K	Red	
N	Green	
S	Orange	
H	Grey	●

KC639M

KenFeed

KHDA • Torus • 6 Flutes • Plain Shank

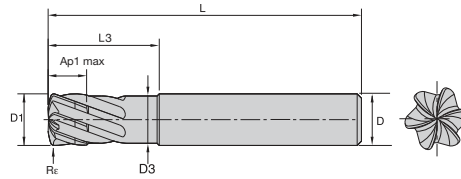
Order Number	Catalog Number	D1	D	D3	Ap1 Max	L3	L	Re	
3352730	KHDA0250J6ANA	1/4	1/4	.2110	.008	3/4	2 1/2	.016	●
3352731	KHDA0312J6ANA	5/16	5/16	.2730	.010	1	3	.020	●
3352732	KHDA0375J6ANA	3/8	3/8	.3360	.012	1 1/4	3 1/2	.020	●
3352773	KHDA0500J6ANA	1/2	1/2	.4610	.016	1 1/2	4	.023	●
3352774	KHDA0625J6ANA	5/8	5/8	.5860	.021	2	4 1/2	.032	●
3352775	KHDA0750J6ANA	3/4	3/4	.7110	.025	2 1/2	5	.040	●



KenFeed

KHDA • Torus • 6 Flutes • Programming Data

Geometrical Parameters							Ramping Guide for Circular and Linear Ramping						
							Circular Interpolation		Linear Ramping				
							Optimal Range of Circle Diameter for a Single Pass		Calculated Length per Ramp Angle				
Catalog Number	D1	Ap1 max	R	Re	YRC	RCN	Smallest	Largest	1°	2°	3°	4°	5°
KHDA0250J6ANA	1/4	0.0082	0.375	0.0160	0.0313	0.0550	0.360	0.500	0.470	0.235	0.157	0.117	0.094
KHDA0312J6ANA	5/16	0.0103	0.469	0.0200	0.0391	0.0688	0.450	0.625	0.588	0.294	0.196	0.147	0.117
KHDA0375J6ANA	3/8	0.0123	0.563	0.0240	0.0469	0.0825	0.540	0.750	0.706	0.353	0.235	0.176	0.141
KHDA0500J6ANA	1/2	0.0164	0.750	0.0320	0.0625	0.1100	0.720	1.000	0.941	0.470	0.313	0.235	0.188
KHDA0625J6ANA	5/8	0.0205	0.938	0.0400	0.0781	0.1375	0.900	1.250	1.176	0.588	0.392	0.294	0.235
KHDA0750J6ANA	3/4	0.0246	1.125	0.0470	0.0938	0.1650	1.080	1.500	1.411	0.705	0.470	0.352	0.282
Recommended % of programmed feed rate to use while ramping									100%	70%	50%	30%	10%



● Primary
○ Secondary

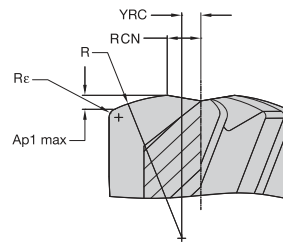
P	
M	
K	
N	
S	
H	

KC639M

KenFeed

KMDA • Torus • 6 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	D3	Ap1 Max	L3	L	Re	
3352573	KMDA0250J6ANA	1/4	1/4	.2110	.013	3/4	2 1/2	.016	•
3352574	KMDA0312J6ANA	5/16	5/16	.2730	.017	1	3	.020	•
3352575	KMDA0375J6ANA	3/8	3/8	.3360	.023	1 1/4	3 1/2	.023	•
3352576	KMDA0500J6ANA	1/2	1/2	.4610	.027	1 1/2	4	.032	•
3352577	KMDA0625J6ANA	5/8	5/8	.5860	.033	2	5	.040	•
3352578	KMDA0750J6ANA	3/4	3/4	.7110	.040	2 1/2	5	.047	•



KenFeed

KMDA • Torus • 6 Flutes • Programming Data

Geometrical Parameters							Ramping Guide for Circular and Linear Ramping						
							Circular Interpolation		Linear Ramping				
							Optimal Range of Circle Diameter for a Single Pass		Calculated Length per Ramp Angle				
Catalog Number	D1	Ap1 max	R	Re	YRC	RCN	Smallest	Largest	1°	2°	3°	4°	5°
KMDA0250J6ANA	1/4	0.0133	0.250	0.0160	0.0313	0.0525	0.355	0.500	0.762	0.381	0.254	0.190	0.152
KMDA0312J6ANA	5/16	0.0166	0.313	0.0200	0.0391	0.0656	0.444	0.625	0.953	0.476	0.317	0.238	0.190
KMDA0375J6ANA	3/8	0.0200	0.375	0.0235	0.0469	0.0788	0.533	0.750	1.143	0.572	0.381	0.285	0.228
KMDA0500J6ANA	1/2	0.0266	0.500	0.0320	0.0625	0.1050	0.710	1.000	1.525	0.762	0.508	0.381	0.304
KMDA0625J6ANA	5/8	0.0333	0.625	0.0400	0.0781	0.1313	0.888	1.250	1.906	0.953	0.635	0.476	0.380
KMDA0750J6ANA	3/4	0.0399	0.750	0.0470	0.0938	0.1575	1.065	1.500	2.287	1.143	0.762	0.571	0.456
Recommended % of programmed feed rate to use while ramping									100%	70%	50%	30%	10%



KenFeed

KHDA • Application Data

Material Group			KC639M		frac.	D1 — Diameter							
			3D Milling/Profiling			Cutting Speed — Vc SFM		1/4	5/16	3/8	1/2	5/8	3/4
			Ap	Ae		min	max	dec.	0.250	0.313	0.375	0.500	0.625
H	2	0.03 x D	0.55 x D	330	396	fz	.0080	.0090	.0110	.0150	.0190	.0230	
	3	0.03 x D	0.55 x D	265	330	fz	.0080	.0090	.0110	.0150	.0190	.0230	
	4	0.03 x D	0.55 x D	165	230	fz	.0060	.0080	.0090	.0130	.0160	.0190	

NOTE: These guidelines may require variations to achieve optimum results.

Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.



KenFeed

KMDA • Application Data

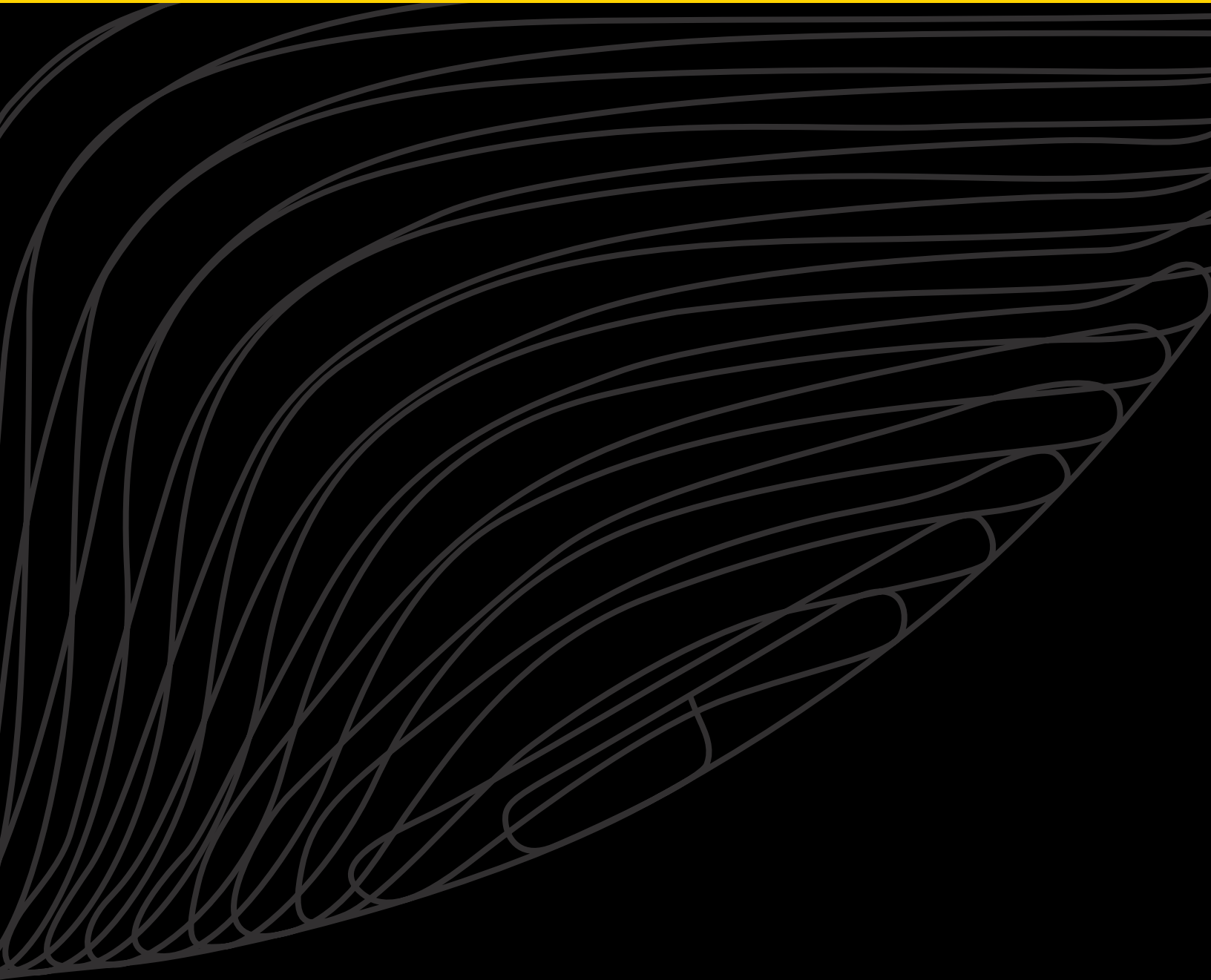
Material Group			KC639M		frac.	D1 — Diameter						
		3D Milling/Profiling		Cutting Speed — Vc SFM		1/4	5/16	3/8	1/2	5/8	3/4	
		Ap	Ae	min		max	dec.	0.250	0.313	0.375	0.500	0.625
P	4	0.05 x D	0.55 x D	528	594	fz	.0130	.0160	.0190	.0250	.0260	.0280
H	1	0.05 x D	0.55 x D	462	528	fz	.0130	.0160	.0190	.0250	.0260	.0280
	2	0.05 x D	0.55 x D	330	396	fz	.0080	.0090	.0110	.0150	.0190	.0230

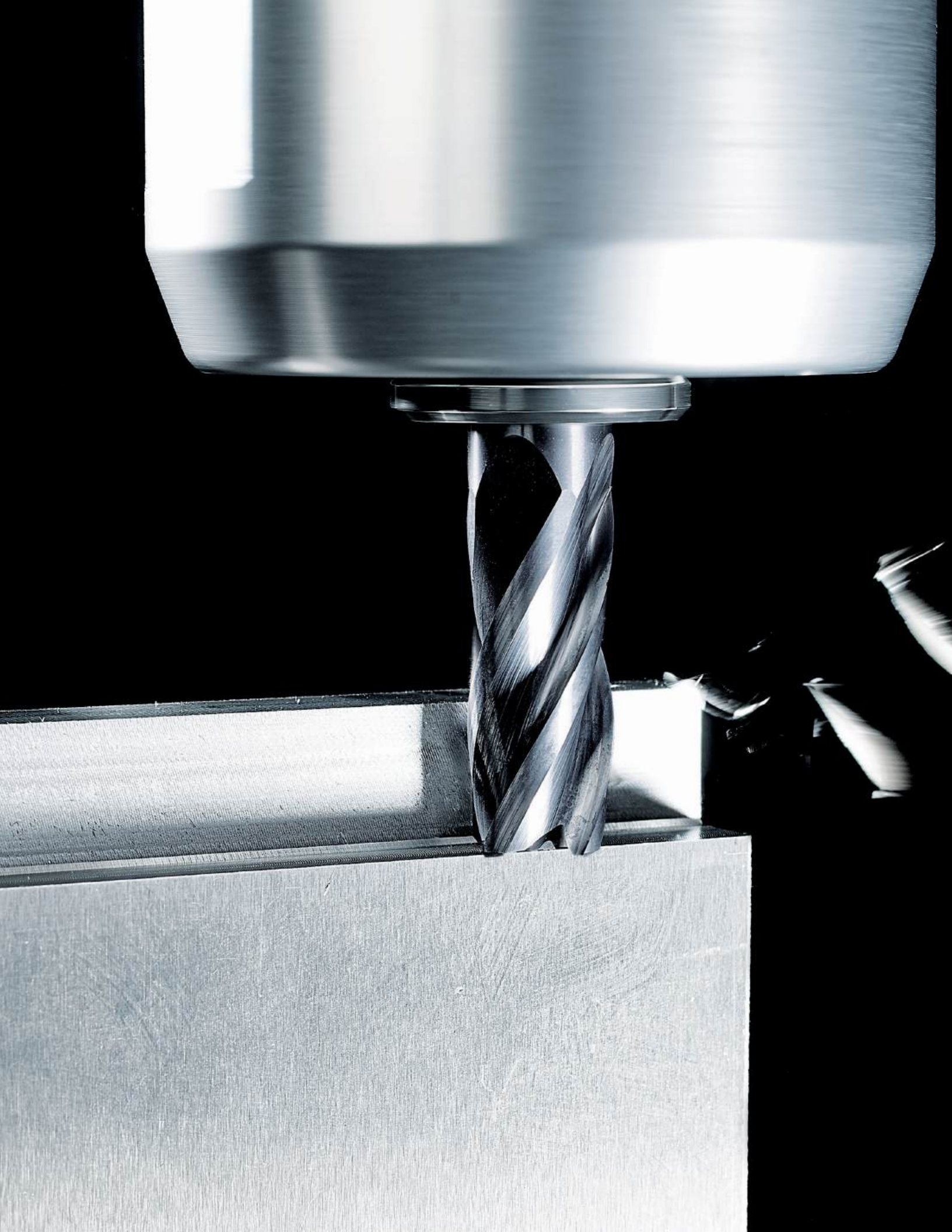
NOTE: These guidelines may require variations to achieve optimum results.

Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.

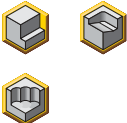
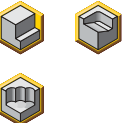
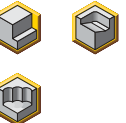
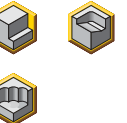




ECONOMY & GENERAL-PURPOSE APPLICATIONS



TOOL SELECTOR

GENERAL PURPOSE ROUGHING AND FINISHING							
G0mill GP							
							
Series	2CH..I..S-X..	2SE..I..S-X..	2BN..I..S-X..	3SE..I..S-X..	4CH..I..S-X..	4SE..I..S-X..	4BN..I..S-X..
Tool type							
Rougher	●	●					
Finisher	○	○					
Chamfering							
Main operations							
Workpiece material							
Primary	P M K	P M K	P M K	P M K	P M K	P M K	P M K
Secondary	N	N	N	N	N	N	N
Corner style							
Corner radius [Re]	—	—	—	—	—	—	—
Corner chamfer width [BCH]	.010-.020"	—	—	—	—	—	—
Cutting diameter [D1]	1/8-1"	1/64-1"	1/32-1"	1/32-1"	1/8-1"	1/64-1"	1/32-1"
Length of cut	1.5-6 x D	1.2-8 x D	1.3-8 x D	1.2-6 x D	1.2-8 x D	1.2-8 x D	1.5-6 x D
Maximum cutting depth [Ap1 max]	1/4-4"	1/32-4"	5/64-3"	5/64-2-1/4"	1/4-4"	1/32-4"	5/64-3"
Flute helix angle	30°	30°	30°	30°	30°	30°	30°
Number of flutes [ZU]	2	2	2	3	4	4	4
Center cutting	✓	✓	✓	✓	✓	✓	✓
Additional operations							

● Primary
○ Secondary

 Available
Online Only

TOOL SELECTOR

ROUGHING AND FINISHING				
G0mill				
				
Series	G0mill UEBD 2FL	G0mill UEDE 3FL	G0mill UEBD 3FL	G0mill UEDE 4FL
Tool type				
Rougher	●	●	●	●
Finisher	○	○	○	○
Chamfering				
Main operations				
Workpiece material				
Primary	P K	P M K S	P K	P M K S
Secondary	M S H	H	M S H	H
Corner style				
Corner radius [Re]	—	—	—	—
Corner chamfer width [BCH]	—	—	—	.0157"
Cutting diameter [D1]	5/64–1/2"	5/64–1/2"	5/64–1/2"	12/77–1/2"
Length of cut	1.3–2 x D	1.3–2 x D	1.3–2 x D	1.3–1.7 x D
Maximum cutting depth [Ap1 max]	5/32–5/8"	5/32–5/8"	5/32–5/8"	21/79–1/2"
Flute helix angle	30°	38°	38°	38°
Number of flutes [ZU]	2	3	3	4
Center cutting	✓	✓	✓	✓
Additional operations	 	  	  	  

● Primary
○ Secondary

 Available
Online Only

GOmill

Economic Roughing and Finishing

Materials



Industries



Automotive



General Engineering



Wind & Solar



Aerospace



Medical



Oil & Gas

Applications



Ramping



Slotting: Square End

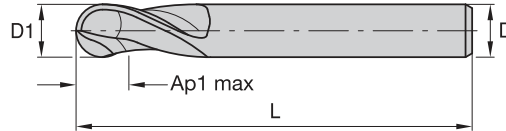


Shoulder Milling



Short length-of-cut end mills

- Economic, short length-of-cut solid carbide end mills for roughing and finishing in multiple materials.
- The GOmill solid carbide end mill series provides extremely stable cutting conditions.
- Short overall length and a soft cutting geometry makes this line a perfect fit for mill-turn machines and driven units in lathes.
- Compatible with any adapter. Clamping sleeve in hydraulic chucks are recommended.
- Unequally spaced 3- and 4-flute versions minimize vibrations and provide high tool life and superior surface quality.
- Economic solution due to shorter than regular shanks, reducing overall tooling cost.
- Short length and high-performance geometry enable chatter-free, 1xD full slot machining in multiple materials.
- Center cutting for plunging and ramping.



● Primary
○ Secondary

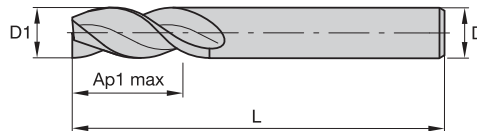
P	●
M	●
K	●
N	●
S	●
H	○

KC643M

G0mill

Ball Nose • 2 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
4173826	UEBD0078J2A	5/64	1/4	5/32	1 1/2	●
4173827	UEBD0094J2A	3/32	1/4	5/32	1 1/2	●
4173828	UEBD0125J2A	1/8	1/4	13/64	1 1/2	●
4173830	UEBD0188J2A	3/16	1/4	19/64	1 1/2	●
4173831	UEBD0250J2A	1/4	1/4	21/64	1 1/2	●
4173913	UEBD0375J2A	3/8	3/8	31/64	2	●
4173915	UEBD0500J2A	1/2	1/2	5/8	3	●



● Primary
○ Secondary

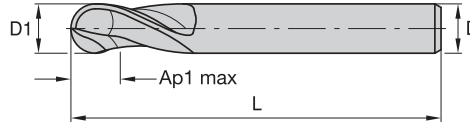
P	●
M	●
K	●
N	●
S	●
H	○

KC643M

G0mill

Square End • 3 Flutes • Sharp Edge • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
4169351	UEDE0078J3AS	5/64	1/4	5/32	1 1/2	●
4169352	UEDE0094J3AS	3/32	1/4	5/32	1 1/2	●
4169513	UEDE0125J3AS	1/8	1/4	13/64	1 1/2	●
4169514	UEDE0156J3AS	5/32	1/4	17/64	1 1/2	●
4169515	UEDE0188J3AS	3/16	1/4	19/64	1 1/2	●
4169516	UEDE0250J3AS	1/4	1/4	21/64	1 1/2	●
4169517	UEDE0312J3AS	5/16	5/16	27/64	1 3/4	●
4169518	UEDE0375J3AS	3/8	3/8	31/64	2	●
4169519	UEDE0437J3AS	7/16	7/16	9/16	2 5/32	●
4169520	UEDE0500J3AS	1/2	1/2	5/8	2 5/32	●



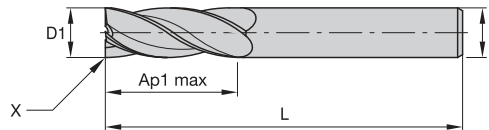
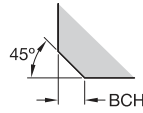
● Primary
○ Secondary

P	●
M	●
K	●
N	●
S	●
H	○

GOMill

Ball Nose • 3 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	
4169660	UEBD0078J3A	5/64	1/4	5/32	1 1/2	●
4169661	UEBD0094J3A	3/32	1/4	5/32	1 1/2	●
4169662	UEBD0125J3A	1/8	1/4	13/64	1 1/2	●
4169833	UEBD0156J3A	5/32	1/4	17/64	1 1/2	●
4169834	UEBD0188J3A	3/16	1/4	19/64	1 1/2	●
4169835	UEBD0250J3A	1/4	1/4	21/64	1 1/2	●
4169836	UEBD0312J3A	5/16	5/16	27/64	1 3/4	●
4169837	UEBD0375J3A	3/8	3/8	31/64	2	●
4169838	UEBD0437J3A	7/16	7/16	9/16	2 5/32	●
4169839	UEBD0500J3A	1/2	1/2	5/8	2 5/32	●



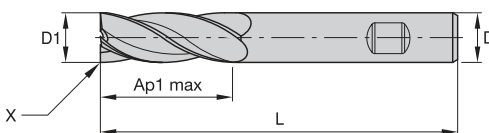
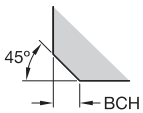
● Primary
○ Secondary

P	●
M	●
K	●
N	●
S	●
H	○

GOMill

Chamfered • 4 Flutes • Plain Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	BCH	
4169805	UEDE0156J4AH	5/32	1/4	17/64	1 1/2	.016	●
4169806	UEDE0188J4AH	3/16	1/4	19/64	1 1/2	.016	●
4169807	UEDE0250J4AH	1/4	1/4	21/64	1 1/2	.016	●
4169808	UEDE0312J4AH	5/16	5/16	27/64	1 3/4	.016	●
4169809	UEDE0375J4AH	3/8	3/8	31/64	2	.016	●
4169810	UEDE0437J4AH	7/16	7/16	9/16	2 5/32	.016	●
4169811	UEDE0500J4AH	1/2	1/2	5/8	2 5/32	.016	●



● Primary
○ Secondary

P	●
M	●
K	●
N	●
S	●
H	○

GOMill

Chamfered • 4 Flutes • Weldon Shank

Order Number	Catalog Number	D1	D	Ap1 Max	L	BCH	
4169826	UEDE0375K4AH	3/8	3/8	31/64	2	.016	●
4169828	UEDE0500K4AH	1/2	1/2	5/8	2 5/32	.016	●



G0mill — 2 Flutes — UEED



G0mill — 3 Flutes — UEED



G0mill — 3 Flutes — UEDE



G0mill — 4 Flutes — UEDE

G0mill

Application Data

Material Group				KC643M		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.										
		A				B		Cutting Speed — Vc SFM			D1 — Diameter					
				frac.	5/64						1/8	5/32	3/16	1/4	5/16	3/8
		Ap	Ae	Ap	min	max	dec.	0.08	0.13	.1563	0.19	0.250	0.31	0.38	0.50	
P	0	1.5 x D	0.5 x D	1 x D	490	660	IPT	.0005	.0009	.0011	.0013	.0018	.0023	.0027	.0034	
	1	1.5 x D	0.5 x D	1 x D	490	660	IPT	.0005	.0009	.0011	.0013	.0018	.0023	.0027	.0034	
	2	1.5 x D	0.5 x D	1 x D	460	620	IPT	.0005	.0009	.0011	.0013	.0018	.0023	.0027	.0034	
	3	1.5 x D	0.5 x D	1 x D	390	520	IPT	.0004	.0007	.0009	.0011	.0015	.0020	.0023	.0029	
	4	1.5 x D	0.5 x D	0.75 x D	300	490	IPT	.0004	.0007	.0008	.0010	.0014	.0017	.0020	.0026	
	5	1.5 x D	0.5 x D	1 x D	200	330	IPT	.0004	.0006	.0007	.0009	.0012	.0016	.0018	.0023	
M	6	1.5 x D	0.5 x D	0.75 x D	160	250	IPT	.0003	.0005	.0006	.0008	.0010	.0013	.0015	.0019	
	1	1.5 x D	0.5 x D	1 x D	300	380	IPT	.0004	.0007	.0009	.0011	.0015	.0020	.0023	.0029	
	2	1.5 x D	0.5 x D	1 x D	200	260	IPT	.0004	.0006	.0007	.0009	.0012	.0016	.0018	.0023	
K	3	1.5 x D	0.5 x D	1 x D	200	230	IPT	.0003	.0005	.0006	.0008	.0010	.0013	.0015	.0019	
	1	1.5 x D	0.5 x D	1 x D	390	490	IPT	.0005	.0009	.0011	.0013	.0018	.0023	.0027	.0034	
S	2	1.5 x D	0.5 x D	1 x D	360	460	IPT	.0004	.0007	.0009	.0011	.0015	.0020	.0023	.0029	
	3	1.5 x D	0.5 x D	1 x D	360	430	IPT	.0004	.0006	.0007	.0009	.0012	.0016	.0018	.0023	
	1	1.5 x D	0.3 x D	0.3 x D	160	300	IPT	.0004	.0007	.0009	.0011	.0015	.0020	.0023	.0029	
	2	1.5 x D	0.3 x D	0.3 x D	80	130	IPT	.0002	.0004	.0005	.0006	.0008	.0010	.0012	.0015	
	3	1.5 x D	0.3 x D	0.3 x D	80	130	IPT	.0002	.0004	.0005	.0006	.0008	.0010	.0012	.0015	
H	4	1.5 x D	0.5 x D	1 x D	160	200	IPT	.0003	.0005	.0006	.0008	.0011	.0014	.0017	.0021	
	1	1.5 x D	0.5 x D	0.75 x D	260	460	IPT	.0004	.0007	.0008	.0010	.0014	.0017	.0020	.0026	

NOTE: Those guidelines may require variations to achieve optimum results.

Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

For better surface finish, reduce feed per tooth.

G0mill Series

Adjustment Factor for Feed and Speed Calculation

	Ae/D	2%	4%	5%	8%	10%	12%	20%	30%	40%	50%	100%
Speed factor	Kv	2.1—3.6	1.6—3	1.6—2.5	1.6	1.4	1.38	1.3	1.2	1.1	1	0.9
Feed factor	KFz	3.58	2.56	2.3	1.84	1.67	1.54	1.25	1.09	1.02	1	1

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 recommended 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 Kv coefficient table to the right for adaptation of cutting speed and KFz for feed respectively.

$$Vc_{new} = Vc * Kv$$

$$Fz_{new} = IPT * KFz$$

Calculation example:

Application: D1 = 1/2";

P5 material group;

Ae 0.05" (Ae = 10% D)

Cutting data recommendation: 265 SFM;

Fz = 0.0023 IPT

Adjustment coefficients: Ae = 0.1" equals 10%;

Kv = 1.4; KFz = 1.67

Final cutting data recommendation:

Vc new = 265 SFM * 1.4 = 371 SFM

Fz new = .0023 IPT * 1.67 = .0038 IPT

HARVI • KOR • PCD • Catalog Numbering System

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

H1TE4SE1200S016HAM									
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	1 = 1-Flute	SE = Sharp Edge	Metric = D1 in mm	N = Neck	Metric = Ap1 Max in mm	HA = Plain	Radius Inch	C = Chip Splitter	M = Metric
H2TE = HARVI II TE	2 = 2-Flute			E = Extended Neck		HB = Weldon	R010 = .010"	I = Internal Coolant	Blank = Inch
HA2L = HARVI II Long		CH = Chamfer	Inch = D1 in decimal inch		Inch = Ap1 Max in decimal inch				
HA3R = HARVI III	3 = 3-Flute	RA = Radius		S = Short Without Neck		SL = Safe-Lock	R015 = .015"	O = Coolant Grooves in Shank	
HA3A = HARVI III Aero	4 = 4-Flute	BN = Ball Nose		R = Regular Without Neck		DL = DUO-LOCK	R030 = .030"		
RSMF = RSM II	5 = 5-Flute						R060 = .060"	P = Polished Flutes	
KOR = KOR	6 = 6-Flute	TB = Taper Ball Nose		L = Long Without Neck			R090 = .090"		
ALCB = Basic PCD end mill with carbide body	7 = 7-Flute	TO = Torroid		X = Extra Long Without Neck			R120 = .120"		
	8 = 8-Flute						R160 = .160"		
ALCC = Complex PCD end mill carbide body	9 = 9-Flute						R250 = .250"		
	M = Multi-flute						R190 = .190"		
ALCR = Roughing PCD end mill with carbide body							R375 = .375"		
							R045 = .045"		
ALSB = Basic PCD end mill with steel body									
ALSR = Basic PCD end mill with steel body									

Catalog Numbering System

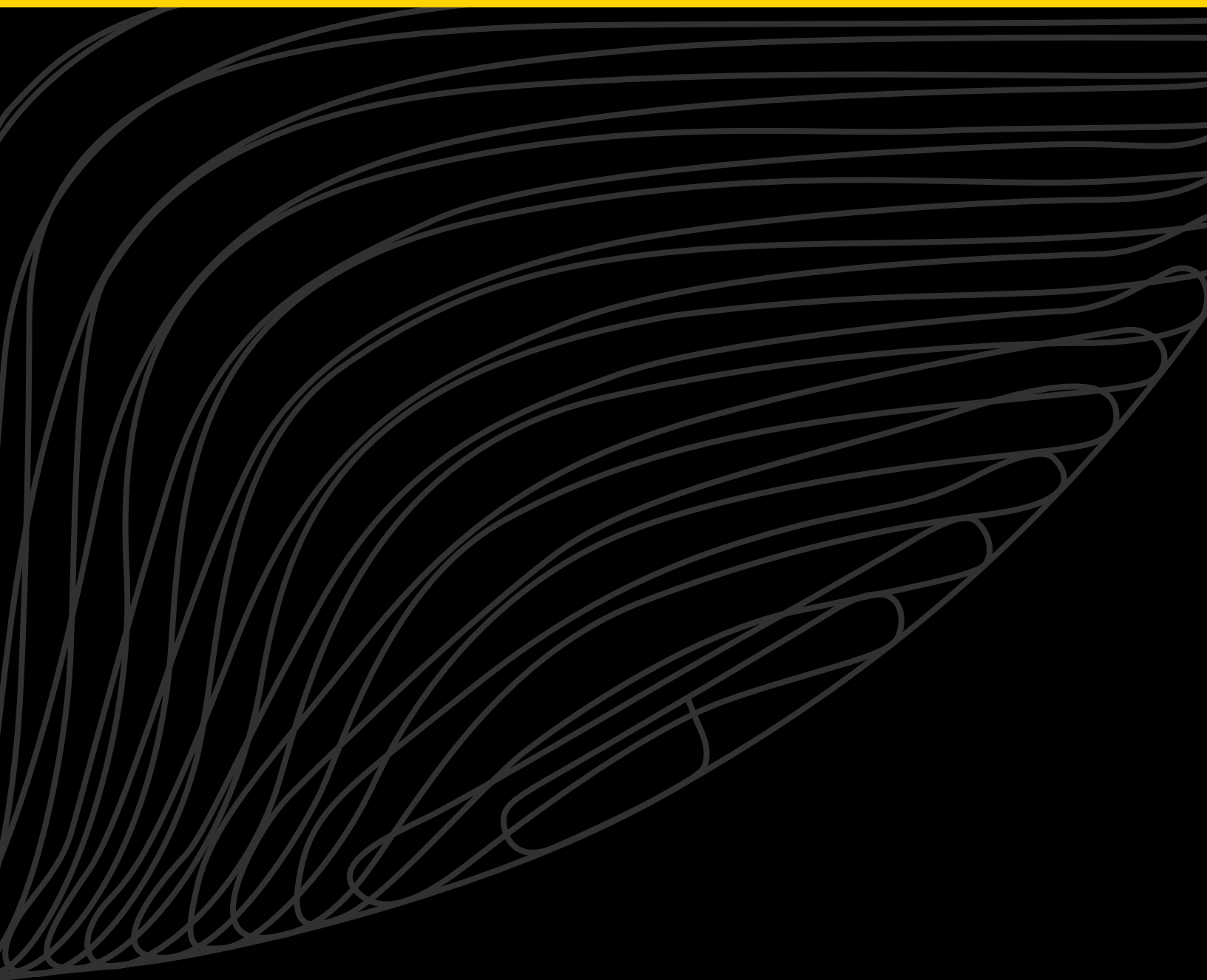
Each character in our catalog number signifies a specific trait of that product. Use the following key columns to easily identify which attributes apply.

UDDE1000A5ARA								
UD	D	E	1000	A	5	A	R	A
Series	Front End Style	Helix Angle	Cutting Diameter D1	Shank Style	Number of Flutes	Length of Cut AP1 Max	Specific Features	Radius
AA = Aluminum AB = MaxiMet	B = Ballnose RH	A = 0-10 B = 11-20	Metric = D1 in mm	Metric A = Plain	1 2 3	A = Regular B = Long	B = HARVI III Aero C = Coolant	Metric A = 0,20 B = 0,25 C = 0,30
CB = CFPR Burr CC = CFRP Compression CD = CFPR Downcutter CR = CFRP Ball	D = Square End RH	C = 21-30 D = 31-35 E = 36-40	Inch = D1 in decimal inch	B = Weldon C = Whistle Notch D = Weldon & Whistle Notch	4 5 6 7 8 9	C = Extra Long D = XX Long	H = Chamfer K = Extended Reach + Neck + Radius	D = 0,40 E = 0,50 F = 0,75 G = 1,00 H = 1,25 J = 1,50
GA = General Application KH = KenFeed (Hard Steels) KM = KenFeed (Medium Steels)		F = 41-45 G = 46-60 V = Variable Helix		E = Plain & Safe-Lock X = DUO-LOCK Inch J = Plain K = Weldon N = Safe-Lock Y = DUO-LOCK	A = 10 B = 11 C = 12 D = 13 E = 14 F = 15 G = 16 H = 17 I = 18 J = 19 M = multi		L = Extended Reach + Neck + Chamfer M = Extended Reach + Neck + Sharp Edge N = Necked P = Tapered Q = Necked +Radius R = Radius S = Square (Sharp Edge) T = Toroid U = Necked + Sharp Edge V = Necked + Chamfer Y = Necked + Radius + Coolant	K = 2,00 L = 2,50 M = 3,00 N = 4,00 P = 6,00 Q = 5,00 S = Sharp Edge X = Custom Inch A = .015 B = .030 C = .060 D = .090 E = .120 F = .250 H = .190 J = .375 K = .500
RU = Rougher (Flat Shallow Profile)								
UC = HARVI II (Material Group M)								
UD = HARVI II (Material Group S)								
UE = GOMill EA = Ceramic End Mill (Nickel- Based Alloys)								

Catalog Numbering System

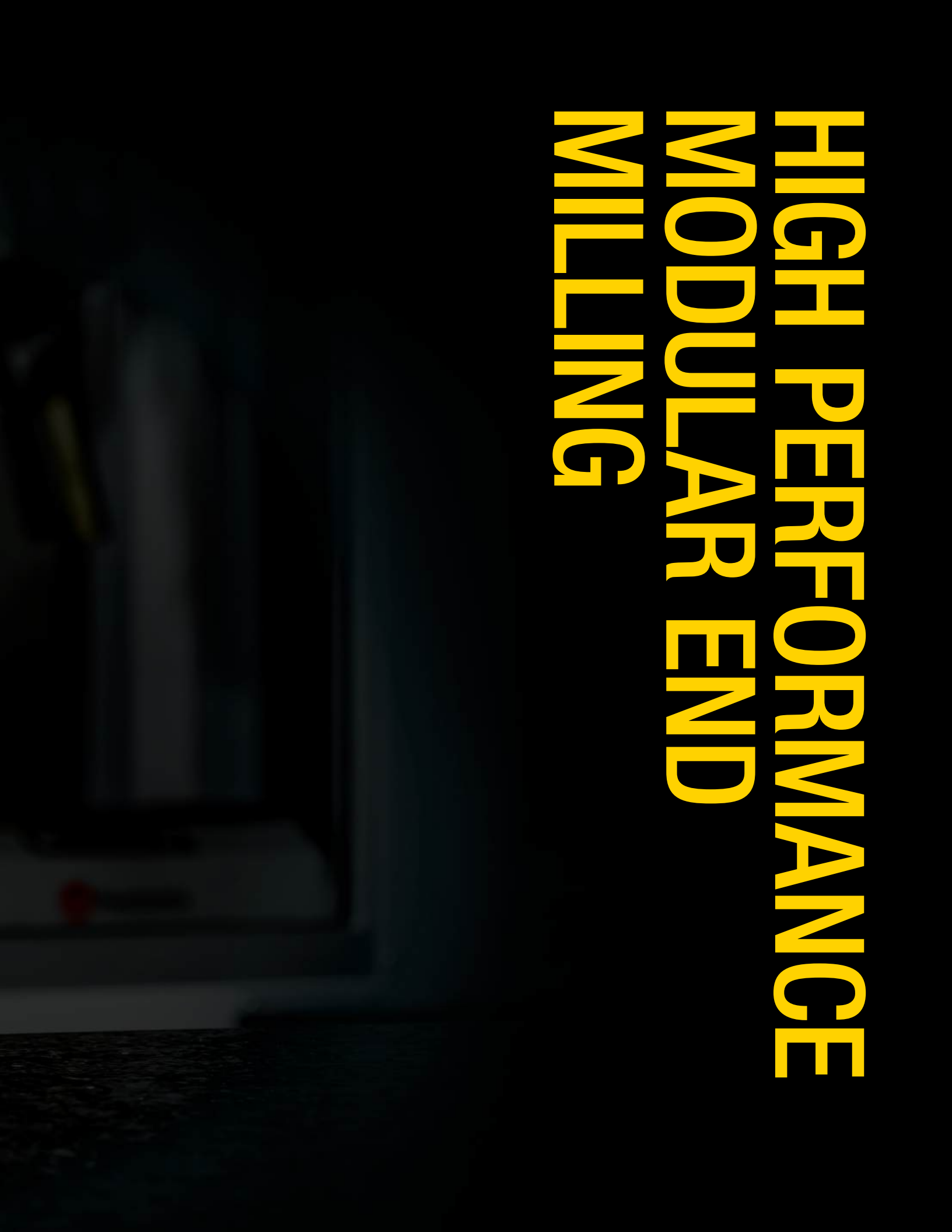
Each character in our catalog number signifies a specific trait of that product.
Use the following key columns to easily identify which attributes apply.

H1TE4SE1200S016HAM			
HPFSS	125	S3	025
Tool Type Series	Cutting Diameter D1	Number of Flutes	Length of Cut
HPBNM = Ball Nose for Steels, Hardened Materials	Metric = D1 in mm	S3 = 3 Flutes	Ap1 max in decimal inch
HPFDM = Finisher Steels, Hardened Materials	Inch = D1 in decimal inch	S4 = 4 Flutes	
HPFSS = Finisher Steel, Stainless, HTA		S5 = 5 Flutes	
HPFT = Finisher Steels		S6 = 6 Flutes	
HPRSS = Chip Breaker Style Rougher			
HPRST = Flat Shallow Style Rougher			
MDRHEC = Cord Style Rougher			
SFRHEC = Aluminum Cord Style Rougher			





HIGH PERFORMANCE MODULAR END MILLING



TOOL SELECTOR

HIGH-PERFORMANCE ROUGHING & FINISHING						
	HARVI I TE		HARVI II		HARVI III	
						
Series	H1TE4RA..R	H1TE4SE..R	UCDV	UDDV	UJDV	UJBV
Tool type						
Rougher	●	●	○	○		
Finisher	○	○	●	●	●	●
Chamfering						
Main operation						
Workpiece material						
Primary	P M K S	P M K	P M	S	S	P M
Secondary	H	S H	K S H	P H	P M H	K S H
Corner style			 			
Corner radius [Re]	0.015–0.06"	—	—	.015–.250"	.015–.250"	—
Corner chamfer width [BCH]	—	—	.020"	—	—	—
Cutter diameter [D1]	0.375–1.0"	0.375–1.5"	3/8–1-1/4"	3/8–1-1/4"	3/8–1-1/4"	3/8–1"
Length of cut	1.5 x D	1.5 x D	1.5 x D	1.5 x D	1.5 x D	1.5 x D
Maximum cutting depth [Ap1 max]	0.5625–1.5"	0.5625–1.875"	9/16–1-7/8"	9/16–1-7/8"	9/16–1-7/8"	9/16–1-1/2"
Flute helix angle	36°/39°	36°/39°	37°/39°	37°/39°	37°/39°	37°/39°
Number of flutes [ZU]	4	4	5	5	6	6
Center cutting	✓	✓	—	—	✓	✓
Additional operations	 	 	 	 	 	 

● Primary
○ Secondary

 Available
Online Only

TOOL SELECTOR

	ROUGHER		FINISHER	
	KenCut RR		KenCut FF	RSM II
				
Series	RQDB	RKDF	FMDF	FSDE
Tool type				
Rougher	●	●		
Finisher			●	●
Chamfering				
Main operation				
Workpiece material				
Primary	P M	S	P M	S
Secondary	K S H	P M K H	K S H	P M H
Corner style				
Corner radius [Re]	—	.015–.030"	.015–.030"	.015–.250"
Corner chamfer width [BCH]	.020"	—	—	—
Cutter diameter [D1]	3/8–1"	3/8–1"	3/8–1"	3/8–1"
Length of cut	1.5 x D	1.5 x D	1.5 x D	1.5 x D
Maximum cutting depth [Ap1 max]	9/16–1-1/2"	9/16–1-1/2"	9/16–1-1/2"	9/16–1-1/2"
Flute helix angle	20°	45°	45°	36°
Number of flutes [ZU]	4 & 5	4 & 6	6	9, 11, 15, & 19
Center cutting	—	✓	✓	—
Additional operations	 	 		

- Primary
○ Secondary

TOOL SELECTOR

ALUMINUM MACHINING			
MaxiMet			
			
Series	ABDF	ABDE	ABBE
Tool type			
Rougher	●	●	●
Finisher	○	●	●
Chamfering			
Main operation			
Workpiece material			
Primary	N	N	N
Secondary			
Corner style			
Corner radius [Re]	—	.015–.250"	—
Corner chamfer width [BCH]	—	—	—
Cutter diameter [D1]	3/8–3/4"	3/8–1"	3/8–1"
Length of cut	1.5 x D	1.5 x D	1.5 x D
Maximum cutting depth [Ap1 max]	9/16–1-1/8"	9/16–1-1/2"	9/16–1-1/2"
Flute helix angle	45°	38°	38°
Number of flutes [ZU]	2	3	3
Center cutting	✓	✓	✓
Additional operations	  	  	 

- Primary
- Secondary

TOOL SELECTOR

	HIGH-FEED		DRIVEN TOOLING		CHAMFERER	
	KenFeed		KenCut RR	KenCut FF	KenCut CM	
						
Series	KMDA	KSDB	RFDD	FGDF	XADA	XRDA
Tool type						
Rougher	●	●	●	●		
Finisher	●	●		○		
Chamfering					●	●
Main operation						
Workpiece material						
Primary	H	S	P M	P M	P M	P M
Secondary	P	P M	K H	K S H	K N S H	K N S H
Corner style					—	—
Corner radius [Re]	.020–.040"	.020–.040"	.015"	.015–.030"	—	—
Corner chamfer width [BCH]	—	—	—	—	—	—
Cutter diameter [D1]	3/8–3/4"	3/8–3/4"	3/8–3/4"	3/8–3/4"	3/8–5/8"	3/8–5/8"
Length of cut	—	—	0.75 x D	0.75 x D	.075–.178"	.030–.120"
Maximum cutting depth [Ap1 max]	.023–.040"	.023–.040"	9/32–3/4"	9/32–3/4"	.075–.178"	.030–.120"
Flute helix angle	20°	20°	35°	42°/45°/48°	0°	0°
Number of flutes [ZU]	6	6	3	3	4, 5, & 6	4, 5, & 6
Center cutting	—	—	✓	✓	—	—
Additional operations			 	 		

- Primary
○ Secondary

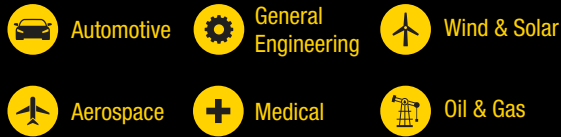
DUO-LOCK

Modular End Milling

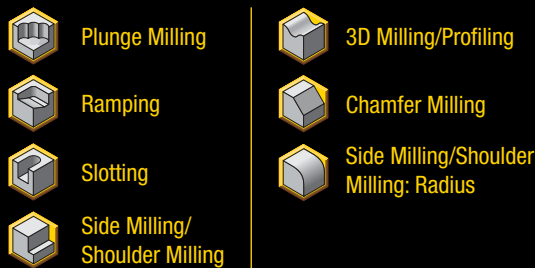
Materials



Industries



Applications



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

The ONLY modular system with the performance of a solid carbide end mill.

To adapt DUO-LOCK perfectly to your spindle, a vast array of adapters and extensions is available.

- Standard-length extensions with SAFE-LOCK, cylindrical and conical
- Cut-to-size extensions, cylindrical and conical
- Integral adapters with HSK, PSC, DV and BT back ends
- Steel sealed ER collets offer industry standard grip and runout while being compatible with standard adapters

Intermediate diameters are available upon request as custom solutions.

Reconditioning will maximize tool life and your investment.

Double cone eliminates expensive presetting processes by providing an axial 10µm repeatability. Length repeatability from insert tip-to-tip within 50µm.

Third contact surface delivers high stiffness and highest accuracy below 5µm runout.



Vast array of roughing, finishing, profiling and chamfering tools, and blanks available, covering all end milling applications.

Intelligent thread ensures stress level to remain below critical values, allowing >25% higher transmittable torque.

With a DUO-LOCK wrench, the tool change becomes easy and can be done in a few seconds.

Adapters



HSK

PSC

BT

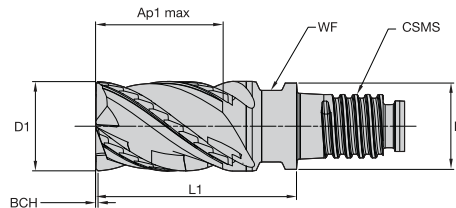
DV

Extensions



SAFE-LOCK

Cut-to-length



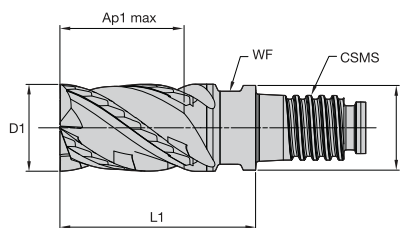
● Primary
○ Secondary

P	●	●
M	●	●
K	●	●
N	●	●
S	○	○
H	○	○

DUO-LOCK HARVI I TE

H1TE • Chamfered • 4 Flutes

Order Number	Catalogue Number	D1	D	Ap1 Max	L1	CSMS	WF	BCH	
7136410	H1TE4CH0375R056DL	3/8	.359	9/16	.843	DL10	.315	.020	●
7136461	H1TE4CH0500R075DL	1/2	.480	3/4	1.126	DL12	.374	.020	●
7136462	H1TE4CH0625R094DL	5/8	.605	15/16	1.406	DL16	.512	.020	●
7136463	H1TE4CH0750R113DL	3/4	.730	1 1/8	1.689	DL20	.630	.020	●
7136466	H1TE4CH1000R150DL	1	.961	1 1/2	2.252	DL25	.827	.020	●
7136467	H1TE4CH1250R188DL	1 1/4	1.211	1 7/8	2.815	DL32	1.102	.020	●



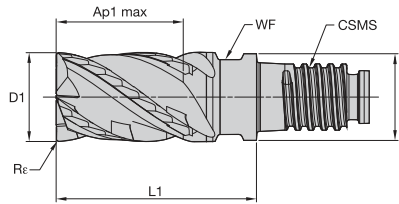
● Primary
○ Secondary

P	●	●
M	●	●
K	●	●
N	●	●
S	○	○
H	○	○

DUO-LOCK HARVI I TE

H1TE • Square End • 4 Flutes

Order Number	Catalog Number	D1	D	Ap1 Max	L1	CSMS	WF	
6953266	H1TE4SE0375R056DL	3/8	.359	9/16	.843	DL10	.315	●
6953267	H1TE4SE0500R075DL	1/2	.480	3/4	1.126	DL12	.374	●
6953268	H1TE4SE0625R094DL	5/8	.605	15/16	1.406	DL16	.512	●
6953269	H1TE4SE0750R113DL	3/4	.730	1 1/8	1.689	DL20	.630	●
6953270	H1TE4SE1000R150DL	1	.961	1 1/2	2.252	DL25	.827	●
6953291	H1TE4SE1250R188DL	1 1/4	1.211	1 7/8	2.815	DL32	1.102	●



● Primary
○ Secondary

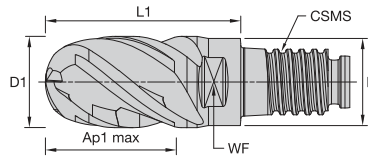
P	●
M	●
K	○
N	●
S	●
H	○

KCPM15

DUO-LOCK HARVI I TE

H1TE • Radiused • 4 Flutes

Order Number	Catalogue Number	D1	D	Ap1 Max	L1	CSMS	WF	Re	
6953292	H1TE4RA0375R056DLR015	3/8	0.359	9/16	0.843	DL10	0.315	0.015	●
7136468	H1TE4RA0375R056DLR030	3/8	0.359	9/16	0.843	DL10	0.315	0.03	●
7136469	H1TE4RA0375R056DLR060	3/8	0.359	9/16	0.843	DL10	0.315	0.06	●
7136470	H1TE4RA0500R075DLR015	1/2	0.48	3/4	1.126	DL12	0.374	0.015	●
6953293	H1TE4RA0500R075DLR030	1/2	0.48	3/4	1.126	DL12	0.374	0.03	●
6953294	H1TE4RA0500R075DLR060	1/2	0.48	3/4	1.126	DL12	0.374	0.06	●
7136471	H1TE4RA0500R075DLR090	1/2	0.48	3/4	1.126	DL12	0.374	0.09	●
7136472	H1TE4RA0500R075DLR120	1/2	0.48	3/4	1.126	DL12	0.374	0.12	●
6953295	H1TE4RA0625R094DLR030	5/8	0.605	15/16	1.406	DL16	0.512	0.03	●
7136473	H1TE4RA0625R094DLR060	5/8	0.605	15/16	1.406	DL16	0.512	0.06	●
7136474	H1TE4RA0625R094DLR120	5/8	0.605	15/16	1.406	DL16	0.512	0.12	●
6953296	H1TE4RA0750R113DLR030	3/4	0.73	1 1/8	1.689	DL20	0.63	0.03	●
7136475	H1TE4RA0750R113DLR060	3/4	0.73	1 1/8	1.689	DL20	0.63	0.06	●
7136476	H1TE4RA0750R113DLR120	3/4	0.73	1 1/8	1.689	DL20	0.63	0.12	●
6953297	H1TE4RA1000R150DLR030	1	0.961	1 1/2	2.252	DL25	0.827	0.03	●
6953298	H1TE4RA1000R150DLR060	1	0.961	1 1/2	2.252	DL25	0.827	0.06	●
7136477	H1TE4RA1000R150DLR120	1	0.961	1 1/2	2.252	DL25	0.827	0.12	●
7136478	H1TE4RA1000R150DLR250	1	0.961	1 1/2	2.252	DL25	0.827	0.25	●
7136479	H1TE4RA1250R188DLR250	1 1/4	1.211	1 7/8	2.815	DL32	1.102	0.25	●



● Primary
○ Secondary

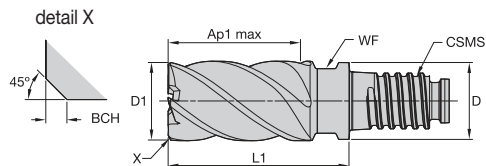
P	●
M	●
K	○
N	●
S	○
H	○

KCPM15

DUO-LOCK HARVI I TE

H1TE • Ball Nose • 4 Flutes

Order Number	Catalog Number	D1	D	Ap1 Max	L1	CSMS	WF	
7136713	H1TE4BN0375R056DL	3/8	.359	9/16	.843	DL10	.315	●
7136714	H1TE4BN0500R075DL	1/2	.480	3/4	1.126	DL12	.374	●
7136715	H1TE4BN0625R094DL	5/8	.605	15/16	1.406	DL16	.512	●
7136716	H1TE4BN0750R113DL	3/4	.730	1 1/8	1.689	DL20	.630	●
7136717	H1TE4BN1000R150DL	1	.961	1 1/2	2.252	DL25	.827	●



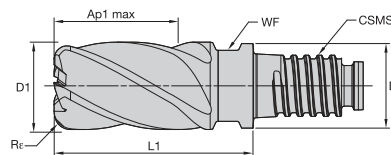
● Primary
○ Secondary



DUO-LOCK • HARVI II

Chamfered • 5 Flutes

Order Number	Catalog Number	D1	D	Ap1 Max	L1	CSMS	WF	BCH	
6072205	UCDV0375Y5CV	3/8	.359	9/16	.843	DL10	.315	.020	●
6072206	UCDV0500Y5CV	1/2	.480	3/4	1.126	DL12	.374	.020	●
6072207	UCDV0625Y5CV	5/8	.605	15/16	1.406	DL16	.512	.020	●
6072208	UCDV0750Y5CV	3/4	.730	1 1/8	1.689	DL20	.630	.020	●
6072209	UCDV1000Y5CV	1	.961	1 1/2	2.252	DL25	.827	.020	●
6072210	UCDV1250Y5CV	1 1/4	1.211	1 7/8	2.803	DL32	1.102	.020	●



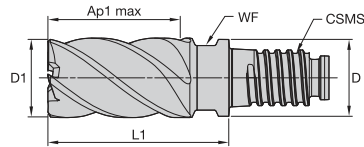
● Primary
○ Secondary



DUO-LOCK • HARVI II

Radiused • 5 Flutes

Order Number	Catalog Number	D1	D	Ap1 Max	L1	CSMS	WF	Rε	
6072231	UDDV0375Y5CQA	3/8	.359	9/16	.843	DL10	.315	.015	●
6072232	UDDV0375Y5CQB	3/8	.359	9/16	.843	DL10	.315	.030	●
6072235	UDDV0500Y5CQA	1/2	.480	3/4	1.126	DL12	.374	.015	●
6072236	UDDV0500Y5CQB	1/2	.480	3/4	1.126	DL12	.374	.030	●
6072237	UDDV0500Y5CQC	1/2	.480	3/4	1.126	DL12	.374	.060	●
6072238	UDDV0500Y5CQD	1/2	.480	3/4	1.126	DL12	.374	.090	●
6072239	UDDV0500Y5CQE	1/2	.480	3/4	1.126	DL12	.374	.120	●
6072240	UDDV0625Y5CQA	5/8	.605	15/16	1.406	DL16	.512	.015	●
6072251	UDDV0625Y5CQB	5/8	.605	15/16	1.406	DL16	.512	.030	●
6072252	UDDV0625Y5CQC	5/8	.605	15/16	1.406	DL16	.512	.060	●
6072255	UDDV0750Y5CQB	3/4	.730	1 1/8	1.689	DL20	.630	.030	●
6072256	UDDV0750Y5CQC	3/4	.730	1 1/8	1.689	DL20	.630	.060	●
6072257	UDDV0750Y5CQD	3/4	.730	1 1/8	1.689	DL20	.630	.090	●
6072258	UDDV0750Y5CQE	3/4	.730	1 1/8	1.689	DL20	.630	.120	●
6072259	UDDV1000Y5CQB	1	.961	1 1/2	2.252	DL25	.827	.030	●
6072260	UDDV1000Y5CQC	1	.961	1 1/2	2.252	DL25	.827	.060	●
6072272	UDDV1000Y5CQE	1	.961	1 1/2	2.252	DL25	.827	.120	●
6072273	UDDV1000Y5CQF	1	.961	1 1/2	2.252	DL25	.827	.250	●
6072275	UDDV1250Y5CQF	1 1/4	1.211	1 7/8	2.803	DL32	1.102	.250	●



● Primary
○ Secondary

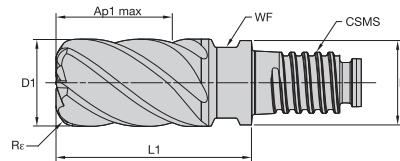
P	●	○
M	●	○
K	●	○
N	●	○
S	●	○
H	●	○

KCPM15

DUO-LOCK • HARVI II

Square End • 5 Flutes

Order Number	Catalog Number	D1	D	Ap1 Max	L1	CSMS	WF	
6072178	UCDV0375Y5CU	3/8	.359	9/16	.843	DL10	.315	●
6072180	UCDV0500Y5CU	1/2	.480	3/4	1.126	DL12	.374	●
6072201	UCDV0625Y5CU	5/8	.605	15/16	1.406	DL16	.512	●
6072202	UCDV0750Y5CU	3/4	.730	1 1/8	1.689	DL20	.630	●
6072203	UCDV1000Y5CU	1	.961	1 1/2	2.252	DL25	.827	●
6072204	UCDV1250Y5CU	1 1/4	1.211	1 7/8	2.803	DL32	1.102	●



● Primary
○ Secondary

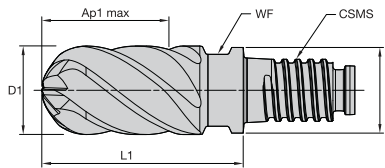
P	●	○
M	●	○
K	●	○
N	●	○
S	●	○
H	●	○

KCSM15

DUO-LOCK • HARVI III

Radiused • 6 Flutes

Order Number	Catalog Number	D1	D	Ap1 Max	L1	CSMS	WF	Re	
6072211	UJDV0375Y6CQA	3/8	.359	9/16	.843	DL10	.315	.015	●
6072212	UJDV0375Y6CQB	3/8	.359	9/16	.843	DL10	.315	.030	●
6072213	UJDV0375Y6CQC	3/8	.359	9/16	.843	DL10	.315	.060	●
6072214	UJDV0375Y6CQD	3/8	.359	9/16	.843	DL10	.315	.090	●
6072215	UJDV0500Y6CQA	1/2	.480	3/4	1.126	DL12	.374	.015	●
6072216	UJDV0500Y6CQB	1/2	.480	3/4	1.126	DL12	.374	.030	●
6072217	UJDV0500Y6CQC	1/2	.480	3/4	1.126	DL12	.374	.060	●
6072218	UJDV0500Y6CQD	1/2	.480	3/4	1.126	DL12	.374	.090	●
6072219	UJDV0500Y6CQE	1/2	.480	3/4	1.126	DL12	.374	.120	●
6072220	UJDV0625Y6CQA	5/8	.605	15/16	1.406	DL16	.512	.015	●
6072241	UJDV0625Y6CQB	5/8	.605	15/16	1.406	DL16	.512	.030	●
6072242	UJDV0625Y6CQC	5/8	.605	15/16	1.406	DL16	.512	.060	●
6072243	UJDV0625Y6CQD	5/8	.605	15/16	1.406	DL16	.512	.090	●
6072244	UJDV0625Y6CQE	5/8	.605	15/16	1.406	DL16	.512	.120	●
6072245	UJDV0750Y6CQB	3/4	.730	1 1/8	1.689	DL20	.630	.030	●
6072246	UJDV0750Y6CQC	3/4	.730	1 1/8	1.689	DL20	.630	.060	●
6072247	UJDV0750Y6CQD	3/4	.730	1 1/8	1.689	DL20	.630	.090	●
6072248	UJDV0750Y6CQE	3/4	.730	1 1/8	1.689	DL20	.630	.120	●
6072262	UJDV1000Y6CQE	1	.961	1 1/2	2.252	DL25	.827	.120	●
6072261	UJDV1000Y6CQD	1	.961	1 1/2	2.252	DL25	.827	.090	●
6072249	UJDV1000Y6CQB	1	.961	1 1/2	2.252	DL25	.827	.030	●
6072250	UJDV1000Y6CQC	1	.961	1 1/2	2.252	DL25	.827	.060	●
6072263	UJDV1000Y6CQF	1	.961	1 1/2	2.252	DL25	.827	.250	●
6072264	UJDV1250Y6CQD	1 1/4	1.211	1 7/8	2.803	DL32	1.102	.090	●
6072265	UJDV1250Y6CQF	1 1/4	1.211	1 7/8	2.803	DL32	1.102	.250	●



● Primary
○ Secondary

P	●	○
M	●	○
K	●	○
N	●	○
S	●	○
H	●	○

DUO-LOCK • HARVI III

Ball Nose • 6 Flutes

Order Number	Catalog Number	D1	D	Ap1 Max	L1	CSMS	WF	
6072144	UJBV0375Y6CN	3/8	.359	9/16	.843	DL10	.315	●
6072145	UJBV0500Y6CN	1/2	.480	3/4	1.126	DL12	.374	●
6072147	UJBV0625Y6CN	5/8	.605	15/16	1.406	DL16	.512	●
6072149	UJBV0750Y6CN	3/4	.730	1 1/8	1.689	DL20	.630	●
6072150	UJBV1000Y6CN	1	.961	1 1/2	2.252	DL25	.827	●

KCPM15



DUO-LOCK • HARVI I TE

Side Milling/Slotting • Application Data

Material Group						Short		Medium		Long		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.												
																								
		A		B		adapter reach						D1 — Diameter												
						KCPM15 Cutting Speed — Vc SFM		KCPM15 Cutting Speed — Vc SFM		KCPM15 Cutting Speed — Vc = SFM														
Ap		Ae		Ap		min		max		min		max		min		max		frac.	3/8	1/2	5/8	3/4	1	1 1/4
						min		max		min		max		min		max		dec.	.3750	.5000	.6250	.7500	1.2500	1.2500
P	0	1.5 x D	0.5 x D	1 x D	490	660	441	594	441	594	IPT	0.0027	0.0034	0.0039	0.0044	0.0049	0.0049							
	1	1.5 x D	0.5 x D	1 x D	490	660	441	594	441	594	IPT	0.0027	0.0034	0.0039	0.0044	0.0049	0.0049							
	2	1.5 x D	0.5 x D	1 x D	460	620	414	558	414	558	IPT	0.0027	0.0034	0.0039	0.0044	0.0049	0.0049							
	3	1.5 x D	0.5 x D	1 x D	390	520	351	468	351	468	IPT	0.0023	0.0029	0.0034	0.0039	0.0045	0.0048							
	4	1.5 x D	0.5 x D	0.75 x D	300	490	270	441	270	441	IPT	0.0020	0.0026	0.0030	0.0034	0.0039	0.0040							
	5	1.5 x D	0.5 x D	1 x D	200	330	170	281	160	264	IPT	0.0018	0.0023	0.0027	0.0031	0.0036	0.0039							
M	6	1.5 x D	0.5 x D	0.75 x D	160	250	136	213	128	200	IPT	0.0015	0.0019	0.0022	0.0025	0.0028	0.0029							
	1	1.5 x D	0.5 x D	1 x D	300	380	240	304	210	266	IPT	0.0023	0.0029	0.0034	0.0039	0.0045	0.0048							
	2	1.5 x D	0.5 x D	1 x D	200	260	160	208	140	182	IPT	0.0018	0.0023	0.0027	0.0031	0.0036	0.0039							
K	3	1.5 x D	0.5 x D	1 x D	200	230	160	184	140	161	IPT	0.0015	0.0019	0.0022	0.0025	0.0028	0.0029							
	1	1.5 x D	0.5 x D	1 x D	390	490	351	441	351	441	IPT	0.0027	0.0034	0.0039	0.0044	0.0049	0.0049							
	2	1.5 x D	0.5 x D	1 x D	360	460	324	414	324	414	IPT	0.0023	0.0029	0.0034	0.0039	0.0045	0.0048							
S	3	1.5 x D	0.5 x D	1 x D	360	430	324	387	324	387	IPT	0.0018	0.0023	0.0027	0.0031	0.0036	0.0039							
	1	1.5 x D	0.3 x D	0.3 x D	160	300	128	240	96	180	IPT	0.0023	0.0029	0.0034	0.0039	0.0045	0.0048							
	2	1.5 x D	0.3 x D	0.3 x D	160	260	128	208	96	156	IPT	0.0018	0.0023	0.0027	0.0031	0.0036	0.0039							
	3	1.5 x D	0.5 x D	1 x D	80	130	64	104	48	78	IPT	0.0012	0.0015	0.0018	0.0021	0.0024	0.0026							
H	4	1.5 x D	0.5 x D	1 x D	160	200	128	160	96	120	IPT	0.0017	0.0021	0.0025	0.0028	0.0033	0.0036							
	1	1.5 x D	0.5 x D	0.75 x D	260	460	208	368	156	276	IPT	0.0020	0.0026	0.0030	0.0034	0.0039	0.0040							
	2	1.5 x D	0.2 x D	0.5 x D	230	390	184	312	138	234	IPT	0.0015	0.0019	0.0022	0.0025	0.0028	0.0029							

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on diameters greater than 1/2".

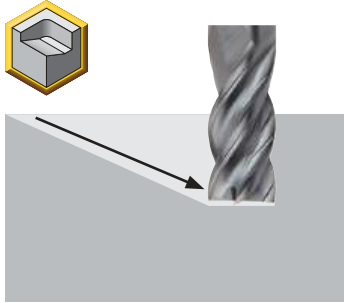
For side milling with Ap larger than 1 x D, reduce Fz by 20%.

Cylindrical shanks not recommended for full slotting.

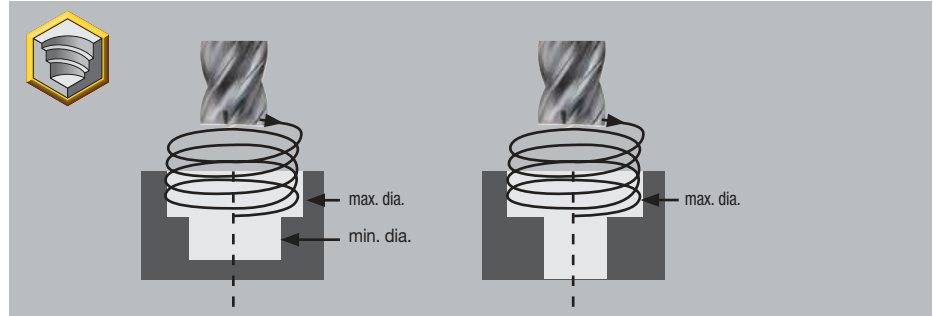
HARVI I TE

Application Information • Ramping

Linear Ramping



Helical Ramping



ATTENTION!

For helical ramping operations, the min. and max. hole diameter can be calculated with the following formula:

Min. hole $\varnothing = \text{End mill } \varnothing \times 1,1 + 2 \times \text{corner configuration (Re/CHF) size. Hole } \varnothing / \text{End mill } \varnothing \text{ min } 1:1,15$

Max. hole $\varnothing = 2 \times \text{End mill } \varnothing \times \text{corner configuration (Re/CHF) size. Hole } \varnothing / \text{End mill } \varnothing \text{ max } 1:1,9$



DUO-LOCK • HARVI I TE

Ramping 0°-15° • Application Data

Material Group	Max Depth	 		Recommended feed per tooth (fz = IPT) for Helical Interpolation and Ramping — zeff = 2							
		KCPM15–KCSM15		Diameter – D1 [Ømin–Ømax] for helical interpolation							
		Cutting Speed — Vc SFM									
		min	max	frac.	3/8	1/2	5/8	3/4	1	1 1/4	
P	0	1 x D	410	580	IPT	0.0022	0.0026	0.003	0.0034	0.0037	0.0041
	1	1 x D	410	580	IPT	0.0022	0.0026	0.003	0.0034	0.0037	0.0041
	2	1 x D	410	580	IPT	0.0022	0.0026	0.003	0.0034	0.0037	0.0041
	3	1 x D	360	490	IPT	0.0019	0.0021	0.0026	0.0031	0.0035	0.0037
	4	1 x D	250	460	IPT	0.0016	0.0019	0.0023	0.0027	0.003	0.0032
	5	0.75 x D	160	300	IPT	0.0015	0.0017	0.0021	0.0024	0.0028	0.003
M	6	0.75 x D	130	230	IPT	0.0012	0.0014	0.0017	0.002	0.0022	0.0024
	1	0.75 x D	250	330	IPT	0.0019	0.0021	0.0026	0.0031	0.0035	0.0037
	2	0.75 x D	150	220	IPT	0.0015	0.0017	0.0021	0.0024	0.0028	0.003
K	3	0.5 x D	130	210	IPT	0.0012	0.0014	0.0017	0.002	0.0022	0.0024
	1	1 x D	360	460	IPT	0.0022	0.0026	0.003	0.0034	0.0037	0.0041
	2	1 x D	330	430	IPT	0.0019	0.0021	0.0026	0.0031	0.0035	0.0037
S	3	0.75 x D	300	390	IPT	0.0015	0.0017	0.0021	0.0024	0.0028	0.003
	1	0.5 x D	130	260	IPT	0.0019	0.0021	0.0026	0.0031	0.0035	0.0037
	2	0.5 x D	130	230	IPT	0.0015	0.0017	0.0021	0.0024	0.0028	0.003
	3	0.3 x D	60	110	IPT	0.0009	0.0011	0.0014	0.0016	0.0019	0.002
H	4	0.75 x D	130	160	IPT	0.0013	0.0016	0.002	0.0022	0.0025	0.0028
	1	0.75 x D	230	390	IPT	0.0016	0.0019	0.0023	0.0027	0.003	0.0032
	2	0.75 x D	185	315	IPT	0.0011	0.0013	0.0016	0.0019	0.0021	0.0022

NOTE: Ø min and Ø max to be calculated with formula for helical ramping above.



DUO-LOCK • HARVI I TE

Plunging/Drilling • Application Data

Material Group		 			KCPM15–KCSM15		Recommended feed per revolution (IPR = In/rev) for plunging and drilling						
		Max Depth	Applicable	Coolant	Cutting Speed — Vc m/min		D1 — Diameter						
					min	max	frac.	3/8	1/2	5/8	3/4	1	1-1/4
P	0	1 x D	●	Preferred	360	490	IPR	0.0022	0.0026	0.0033	0.0044	0.0051	0.006
	1	1 x D	●	Required	360	490	IPR	0.0022	0.0026	0.0033	0.0044	0.0051	0.006
	2	1 x D	●	Required	360	490	IPR	0.0022	0.0026	0.0033	0.0044	0.0051	0.006
	3	1 x D	●	Required	330	390	IPR	0.0017	0.0019	0.003	0.0035	0.0041	0.0053
	4	1 x D	●	Required	220	330	IPR	0.0017	0.0019	0.003	0.0035	0.0041	0.0053
	5	0.75 x D	○	Required	150	210	IPR	0.0011	0.0014	0.0018	0.0024	0.0028	0.003
M	6	0.75 x D	○	Required	130	190	IPR	0.0011	0.0014	0.0018	0.0024	0.0028	0.003
	1	0.75 x D	●	Required	190	260	IPR	0.0017	0.0019	0.003	0.0035	0.0041	0.0053
	2	0.75 x D	○	Required	130	190	IPR	0.0011	0.0014	0.0018	0.0024	0.0028	0.003
K	3	0.5 x D	○	Required	110	160	IPR	0.0011	0.0014	0.0018	0.0024	0.0028	0.003
	1	1 x D	●	Preferred	330	390	IPR	0.0022	0.0026	0.0033	0.0044	0.0051	0.006
	2	1 x D	●	Required	300	360	IPR	0.0017	0.0019	0.003	0.0035	0.0041	0.0053
S	3	0.75 x D	○	Required	250	330	IPR	0.0017	0.0019	0.003	0.0035	0.0041	0.0053
	1	0.5 x D	○	Required	100	180	IPR	0.0017	0.0019	0.003	0.0035	0.0041	0.0053
	2	0.5 x D	○	Required	100	150	IPR	0.0011	0.0014	0.0018	0.0024	0.0028	0.003
	3	0.3 x D	○	Required	50	90	IPR	0.0007	0.0009	0.0012	0.0017	0.0019	0.0023
H	4	0.75 x D	○	Required	100	130	IPR	0.0011	0.0014	0.0018	0.0024	0.0028	0.003
	1	0.75 x D	○	Required	190	260	IPR	0.0017	0.0019	0.003	0.0035	0.0041	0.0053
	2	0.75 x D	○	Required	150	210	IPR	0.0012	0.0013	0.0021	0.0025	0.0029	0.0037

NOTE: Other available diameters are not recommended for plunging applications.



UCDV



UDDV

DUO-LOCK • HARVI II

Application Data

Material Group						short		medium		long		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.						
			A		B	adapter reach						D1 — Diameter						
						KCPM15		KCPM15		KCPM15								
						Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		frac.	3/8	1/2	5/8	3/4	1	1 1/4
	UCDV	UDDV	Ap	Ae	Ap	min	max	min	max	min	max	dec.	.3750	.5000	.6250	.7500	1.2500	1.2500
P	0	—	1.5 x D	0.5 x D	1 x D	490	660	441	594	441	594	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	1	—	1.5 x D	0.5 x D	1 x D	490	660	441	594	441	594	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	2	—	1.5 x D	0.5 x D	1 x D	460	620	414	558	414	558	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	3	—	1.5 x D	0.5 x D	1 x D	390	520	351	468	351	468	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	4	—	1.5 x D	0.4 x D	0.75 x D	300	490	270	441	270	441	IPT	.0017	.0022	.0026	.0029	.0034	.0034
	5	5	1.5 x D	0.4 x D	1 x D	200	330	170	280.5	160	264	IPT	.0016	.0020	.0023	.0026	.0033	.0033
M	6	6	1.5 x D	0.4 x D	0.75 x D	160	250	136	212.5	128	200	IPT	.0013	.0016	.0019	.0021	.0024	.0024
	1	—	1.5 x D	0.4 x D	1 x D	300	380	240	304	210	266	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	2	—	1.5 x D	0.4 x D	1 x D	200	260	160	208	140	182	IPT	.0016	.0020	.0023	.0026	.0033	.0033
K	3	—	1.5 x D	0.4 x D	1 x D	200	230	160	184	140	161	IPT	.0013	.0016	.0019	.0021	.0024	.0024
	1	—	1.5 x D	0.5 x D	1 x D	390	490	351	441	351	441	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	2	—	1.5 x D	0.5 x D	1 x D	360	460	324	414	324	414	IPT	.0019	.0025	.0029	.0033	.0041	.0041
S	3	—	1.5 x D	0.5 x D	1 x D	360	430	324	387	324	387	IPT	.0016	.0020	.0023	.0026	.0033	.0033
	1	1	1.5 x D	0.3 x D	0.3 x D	160	300	128	240	96	180	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	2	2	1.5 x D	0.3 x D	0.3 x D	80	130	64	104	48	78	IPT	.0010	.0013	.0015	.0018	.0022	.0022
	3	3	1.5 x D	0.3 x D	0.3 x D	80	130	64	104	48	78	IPT	.0010	.0013	.0015	.0018	.0022	.0022
H	4	4	1.5 x D	0.4 x D	1 x D	160	200	128	160	96	120	IPT	.0014	.0018	.0021	.0024	.0030	.0030
	1	1	1.5 x D	0.4 x D	0.75 x D	260	460	208	368	156	276	IPT	.0017	.0022	.0026	.0029	.0034	.0034
	2	2	1.5 x D	0.2 x D	0.5 x D	230	390	184	312	138	234	IPT	.0013	.0016	.0019	.0021	.0024	.0024

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. Please adjust parameters according to system stability.

For side milling with Ap bigger than 1 x D reduce Fz by 20%!

Cylindrical shanks not recommended for full slotting.



DUO-LOCK • HARVI III

Application Data • Roughing

Material Group				Short		Medium		Long		Roughing — Recommended feed per tooth (IPT = inch/th) for side milling (A).							
				A		adapter reach						D1 — Diameter					
						KCSM15		KCSM15		KCSM15							
				Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		frac.	3/8	1/2	5/8	3/4	1	1 1/4	
		Ap	Ae	min	max	min	max	min	max	dec.	.3750	.5000	.6250	.7500	1.2500	1.2500	
P	4	Ap max	0.4 x D	300	490	270	441	270	441	IPT	.0017	.0022	.0026	.0029	.0034	.0034	
	5	Ap max	0.4 x D	200	330	170	280.5	160	264	IPT	.0016	.0020	.0023	.0026	.0033	.0033	
M	1	Ap max	0.4 x D	300	380	240	304	210	266	IPT	.0019	.0025	.0029	.0033	.0041	.0041	
	2	Ap max	0.4 x D	200	260	160	208	140	182	IPT	.0016	.0020	.0023	.0026	.0033	.0033	
S	3	Ap max	0.4 x D	200	230	160	184	140	161	IPT	.0013	.0016	.0019	.0021	.0024	.0024	
	1	Ap max	0.4 x D	160	300	128	240	96	180	IPT	.0019	.0025	.0029	.0033	.0041	.0041	
H	2	Ap max	0.4 x D	80	130	64	104	48	78	IPT	.0010	.0013	.0015	.0018	.0022	.0022	
	3	Ap max	0.4 x D	80	130	64	104	48	78	IPT	.0010	.0013	.0015	.0018	.0022	.0022	
H	4	Ap max	0.4 x D	160	200	128	160	96	120	IPT	.0014	.0018	.0021	.0024	.0030	.0030	
	1	Ap max	0.4 x D	260	460	208	368	156	276	IPT	.0017	.0022	.0026	.0029	.0034	.0034	
H	2	Ap max	0.4 x D	230	390	184	312	138	234	IPT	.0013	.0016	.0019	.0021	.0024	.0024	



DUO-LOCK • HARVI III

Application Data • Finishing

Material Group			Short		Medium		Long		Finishing — Recommended feed per tooth (IPT = inch/th) for side milling (A).							
			A	adapter reach						D1 — Diameter						
				KCSM15		KCSM15		KCSM15								
		Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		frac.	3/8	1/2	5/8	3/4	1	1 1/4		
		Ap	Ae	min	max	min	max	min	max	dec.	.3750	.5000	.6250	.7500	1.2500	1.2500
P	4	Ap max	0.6 x D	560	940	504	846	504	846	IPT	.0021	.0026	.0031	.0034	.0041	.0041
	5	Ap max	0.6 x D	370	620	314.5	527	296	496	IPT	.0019	.0024	.0028	.0031	.0040	.0040
M	1	Ap max	0.6 x D	560	720	448	576	392	504	IPT	.0023	.0029	.0035	.0039	.0049	.0049
	2	Ap max	0.6 x D	370	500	296	400	259	350	IPT	.0019	.0024	.0028	.0031	.0040	.0040
	3	Ap max	0.6 x D	370	440	296	352	259	308	IPT	.0016	.0020	.0023	.0025	.0029	.0029
S	1	Ap max	0.6 x D	310	560	248	448	186	336	IPT	.0023	.0029	.0035	.0039	.0049	.0049
	2	Ap max	0.6 x D	160	250	128	200	96	150	IPT	.0012	.0016	.0019	.0021	.0027	.0027
	3	Ap max	0.6 x D	160	250	128	200	96	150	IPT	.0012	.0016	.0019	.0021	.0027	.0027
H	4	Ap max	0.6 x D	310	370	248	296	186	222	IPT	.0017	.0022	.0026	.0029	.0036	.0036
	1	Ap max	0.6 x D	500	870	400	696	300	522	IPT	.0021	.0026	.0031	.0034	.0041	.0041
	2	Ap max	0.6 x D	440	750	352	600	264	450	IPT	.0016	.0020	.0023	.0025	.0029	.0029

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. Please adjust parameters according to system stability.

For side milling with Ap bigger than 1 x D, reduce fz by 20%!

Cylindrical shanks not recommended for full slotting.



DUO-LOCK • HARVI III

Ball Nose • Application Data • Roughing

Material Group			Short		Medium		Long		Roughing — Recommended feed per tooth (IPT = inch/th) for side milling (A).							
			A		adapter reach						D1 — Diameter					
					KCSM15		KCSM15		KCSM15							
		Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		frac.	3/8	1/2	5/8	3/4	1			
		Ap	Ae	min	max	min	max	min	max	dec.	.3750	.5000	.6250	.7500	1.2500	
P	0	Ap max	0.4 x D	490	660	441	594	441	594	IPT	.0023	.0029	.0034	.0037	.0042	
	1	Ap max	0.4 x D	490	660	441	594	441	594	IPT	.0023	.0029	.0034	.0037	.0042	
	2	Ap max	0.4 x D	460	620	414	558	414	558	IPT	.0023	.0029	.0034	.0037	.0042	
	3	Ap max	0.4 x D	390	520	351	468	351	468	IPT	.0019	.0025	.0029	.0033	.0041	
	4	Ap max	0.4 x D	300	490	270	441	270	441	IPT	.0017	.0022	.0026	.0029	.0034	
	5	Ap max	0.4 x D	200	330	170	280.5	160	264	IPT	.0016	.0020	.0023	.0026	.0033	
M	6	Ap max	0.4 x D	160	250	136	212.5	128	200	IPT	.0013	.0016	.0019	.0021	.0024	
	1	Ap max	0.4 x D	300	380	240	304	210	266	IPT	.0019	.0025	.0029	.0033	.0041	
	2	Ap max	0.4 x D	200	260	160	208	140	182	IPT	.0016	.0020	.0023	.0026	.0033	
K	3	Ap max	0.4 x D	200	230	160	184	140	161	IPT	.0013	.0016	.0019	.0021	.0024	
	1	Ap max	0.4 x D	390	490	351	441	351	441	IPT	.0023	.0029	.0034	.0037	.0042	
	2	Ap max	0.4 x D	360	460	324	414	324	414	IPT	.0019	.0025	.0029	.0033	.0041	
S	3	Ap max	0.4 x D	360	430	324	387	324	387	IPT	.0016	.0020	.0023	.0026	.0033	
	1	Ap max	0.4 x D	160	300	128	240	96	180	IPT	.0019	.0025	.0029	.0033	.0041	
	2	Ap max	0.4 x D	80	130	64	104	48	78	IPT	.0010	.0013	.0015	.0018	.0022	
	3	Ap max	0.4 x D	80	130	64	104	48	78	IPT	.0010	.0013	.0015	.0018	.0022	
H	4	Ap max	0.4 x D	160	200	128	160	96	120	IPT	.0014	.0018	.0021	.0024	.0030	
	1	Ap max	0.4 x D	260	460	208	368	156	276	IPT	.0017	.0022	.0026	.0029	.0034	
	2	Ap max	0.4 x D	230	390	184	312	138	234	IPT	.0013	.0016	.0019	.0021	.0024	



DUO-LOCK • HARVI III

Ball Nose • Application Data • Finishing

Material Group			Short		Medium		Long		Finishing — Recommended feed per tooth (IPT = inch/th) for side milling (A).							
									D1 — Diameter							
			A		adapter reach						frac.	3/8	1/2	5/8	3/4	1
					KCSM15 Cutting Speed — Vc SFM		KCSM15 Cutting Speed — Vc SFM		KCSM15 Cutting Speed — Vc SFM							
		Ap	Ae	min	max	min	max	min	max	dec.	.3750	.5000	.6250	.7500	1.2500	
P	0	Ap max	0.06 x D	940	1250	846	1125	846	1125	IPT	.0028	.0035	.0040	.0045	.0050	
	1	Ap max	0.06 x D	940	1250	846	1125	846	1125	IPT	.0028	.0035	.0040	.0045	.0050	
	2	Ap max	0.06 x D	870	1180	783	1062	783	1062	IPT	.0028	.0035	.0040	.0045	.0050	
	3	Ap max	0.06 x D	750	1000	675	900	675	900	IPT	.0023	.0029	.0035	.0039	.0049	
	4	Ap max	0.06 x D	560	940	504	846	504	846	IPT	.0021	.0026	.0031	.0034	.0041	
	5	Ap max	0.06 x D	370	620	314.5	527	296	496	IPT	.0019	.0024	.0028	.0031	.0040	
M	6	Ap max	0.06 x D	310	470	263.5	399.5	248	376	IPT	.0016	.0020	.0023	.0025	.0029	
	1	Ap max	0.06 x D	560	720	448	576	392	504	IPT	.0023	.0029	.0035	.0039	.0049	
	2	Ap max	0.06 x D	370	500	296	400	259	350	IPT	.0019	.0024	.0028	.0031	.0040	
K	3	Ap max	0.06 x D	370	440	296	352	259	308	IPT	.0016	.0020	.0023	.0025	.0029	
	1	Ap max	0.06 x D	750	940	675	846	675	846	IPT	.0028	.0035	.0040	.0045	.0050	
	2	Ap max	0.06 x D	690	870	621	783	621	783	IPT	.0023	.0029	.0035	.0039	.0049	
S	3	Ap max	0.06 x D	690	810	621	729	621	729	IPT	.0019	.0024	.0028	.0031	.0040	
	1	Ap max	0.06 x D	310	560	248	448	186	336	IPT	.0023	.0029	.0035	.0039	.0049	
	2	Ap max	0.06 x D	160	250	128	200	96	150	IPT	.0012	.0016	.0019	.0021	.0027	
	3	Ap max	0.06 x D	160	250	128	200	96	150	IPT	.0012	.0016	.0019	.0021	.0027	
H	4	Ap max	0.06 x D	310	370	248	296	186	222	IPT	.0017	.0022	.0026	.0029	.0036	
	1	Ap max	0.06 x D	500	870	400	696	300	522	IPT	.0021	.0026	.0031	.0034	.0041	
	2	Ap max	0.06 x D	440	750	352	600	264	450	IPT	.0016	.0020	.0023	.0025	.0029	

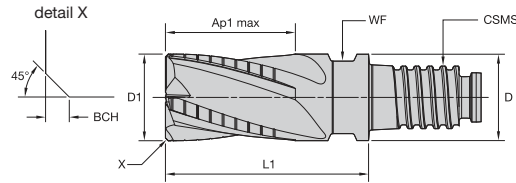
NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. Please adjust parameters according to system stability.

For side milling with Ap bigger than 1 x D, reduce fz by 20%!

Cylindrical shanks not recommended for full slotting.



● Primary
○ Secondary

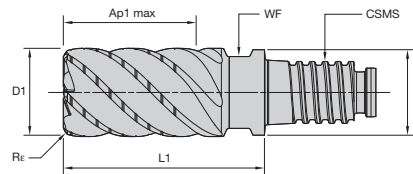
P	●
M	●
K	●
N	●
S	○
H	○

KCPM15

DUO-LOCK • KenCut RR

RQDB • Chamfered • 4-5 Flutes

Order Number	Catalog Number	D1	D	Ap1 Max	L1	CSMS	WF	BCH	
6127415	RQDB0375Y4CV	3/8	.359	9/16	.843	DL10	.315	.020	●
6127416	RQDB0500Y4CV	1/2	.480	3/4	1.126	DL12	.374	.020	●
6127417	RQDB0625Y4CV	5/8	.605	15/16	1.406	DL16	.512	.020	●
6127418	RQDB0750Y4CV	3/4	.730	1 1/8	1.689	DL20	.630	.020	●
6127419	RQDB1000Y5CV	1	.961	1 1/2	2.252	DL25	.827	.020	●



● Primary
○ Secondary

P	○
M	○
K	○
N	○
S	○
H	○

KCSM15

DUO-LOCK • KenCut RR

RKDF • Radiused • 4 & 6 Flutes

Order Number	Catalog Number	D1	D	Ap1 Max	L1	CSMS	WF	Re	Z U	
6126918	RKDF0375Y4CQA	3/8	.359	9/16	.843	DL10	.315	.015	4	●
6126919	RKDF0500Y4CQB	1/2	.480	3/4	1.126	DL12	.374	.030	4	●
6126920	RKDF0625Y4CQB	5/8	.605	15/16	1.406	DL16	.512	.030	4	●
6127051	RKDF0750Y6CQB	3/4	.730	1 1/8	1.689	DL20	.630	.030	6	●
6127052	RKDF1000Y6CQB	1	.961	1 1/2	2.252	DL25	.827	.030	6	●



DUO-LOCK • KenCut RR

RQDB • Application Data

Material Group				Short		Medium		Long		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.							
		A		B		adapter reach						D1 — Diameter					
						KCPM15		KCPM15		KCPM15							
						Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		frac.	3/8	1/2	5/8	3/4	1
Ap	Ae	Ap	min	max	min	max	min	max	dec.	.3750	.5000	.6250	.7500	1.2500			
P	0	1.5 x D	0.5 x D	1 x D	390	520	351	468	351	468	IPT	.0020	.0025	.0029	.0032	.0036	
	1	1.5 x D	0.5 x D	1 x D	390	520	351	468	351	468	IPT	.0020	.0025	.0029	.0032	.0036	
	2	1.5 x D	0.5 x D	1 x D	370	500	333	450	333	450	IPT	.0020	.0025	.0029	.0032	.0036	
	3	1.5 x D	0.4 x D	0.75 x D	310	420	279	378	279	378	IPT	.0017	.0021	.0025	.0028	.0035	
	4	1.5 x D	0.3 x D	0.3 x D	240	390	216	351	216	351	IPT	.0015	.0019	.0022	.0024	.0029	
M	5	1.5 x D	0.4 x D	0.75 x D	160	260	136	221	128	208	IPT	.0013	.0017	.0020	.0022	.0028	
	1	1.5 x D	0.4 x D	0.75 x D	240	300	192	240	168	210	IPT	.0017	.0021	.0025	.0028	.0035	
	2	1.5 x D	0.4 x D	0.75 x D	160	210	128	168	112	147	IPT	.0013	.0017	.0020	.0022	.0028	
K	3	1.5 x D	0.4 x D	0.75 x D	160	180	128	144	112	126	IPT	.0011	.0014	.0016	.0018	.0021	
	1	1.5 x D	0.5 x D	1 x D	310	390	279	351	279	351	IPT	.0020	.0025	.0029	.0032	.0036	
	2	1.5 x D	0.4 x D	1 x D	290	370	261	333	261	333	IPT	.0017	.0021	.0025	.0028	.0035	
S	3	1.5 x D	0.4 x D	1 x D	290	340	261	306	261	306	IPT	.0013	.0017	.0020	.0022	.0028	
	1	1.5 x D	0.4 x D	0.75 x D	130	240	104	192	78	144	IPT	.0017	.0021	.0025	.0028	.0035	
	3	1.5 x D	0.4 x D	0.75 x D	70	100	56	80	42	60	IPT	.0009	.0011	.0013	.0015	.0019	
H	1	1.5 x D	0.3 x D	0.3 x D	210	370	168	296	126	222	IPT	.0015	.0019	.0022	.0024	.0029	

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. Please adjust parameters according to system stability.

For side milling with Ap bigger than 1 x D, reduce fz by 20%!

Cylindrical shanks not recommended for full slotting.



DUO-LOCK • KenCut RR

RKDF • Application Data

Material Group						Short		Medium		Long		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.					
		A		B		adapter reach						D1 — Diameter					
						KCSM15		KCSM15		KCSM15							
						Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		frac.	3/8	1/2	5/8	3/4	1
		Ap	Ae	Ap	min	max	min	max	min	max	dec.	.3750	.5000	.6250	.7500	1.000	
P	3	1.0 x D	0.5 x D	0.75 x D	390	520	351	468	351	468	IPT	.0019	.0025	.0029	.0033	.0033	
	4	1.0 x D	0.3 x D	0.75 x D	300	490	270	441	270	441	IPT	.0017	.0022	.0026	.0029	.0028	
	5	1.0 x D	0.4 x D	0.75 x D	200	330	170	280.5	160	264	IPT	.0016	.0020	.0023	.0026	.0026	
	6	1.0 x D	0.3 x D	0.3 x D	160	250	136	212.5	128	200	IPT	.0013	.0016	.0019	.0021	.0020	
M	1	1.0 x D	0.4 x D	0.75 x D	300	380	240	304	210	266	IPT	.0019	.0025	.0029	.0033	.0033	
	2	1.0 x D	0.4 x D	0.75 x D	200	260	160	208	140	182	IPT	.0016	.0020	.0023	.0026	.0026	
	3	1.0 x D	0.4 x D	0.75 x D	200	230	160	184	140	161	IPT	.0013	.0016	.0019	.0021	.0020	
K	1	1.0 x D	0.5 x D	1 x D	390	490	351	441	351	441	IPT	.0023	.0029	.0034	.0037	.0035	
	2	1.0 x D	0.5 x D	1 x D	360	460	324	414	324	414	IPT	.0019	.0025	.0029	.0033	.0033	
	3	1.0 x D	0.5 x D	1 x D	360	430	324	387	324	387	IPT	.0016	.0020	.0023	.0026	.0026	
S	1	1.0 x D	0.3 x D	0.75 x D	160	300	128	240	96	180	IPT	.0019	.0025	.0029	.0033	.0033	
	2	1.0 x D	0.3 x D	0.75 x D	80	130	64	104	48	78	IPT	.0010	.0013	.0015	.0018	.0018	
	3	1.0 x D	0.3 x D	0.75 x D	80	130	64	104	48	78	IPT	.0010	.0013	.0015	.0018	.0018	
	4	1.0 x D	0.4 x D	0.75 x D	160	200	128	160	96	120	IPT	.0014	.0018	.0021	.0024	.0024	
H	1	1.0 x D	0.3 x D	0.3 x D	260	460	208	368	156	276	IPT	.0017	.0022	.0026	.0029	.0028	
	2	1.0 x D	0.2 x D	0.2 x D	230	390	184	312	138	234	IPT	.0013	.0016	.0019	.0021	.0020	
	3	1.0 x D	0.2 x D	0.2 x D	200	300	160	240	120	180	IPT	.0010	.0013	.0015	.0018	.0018	

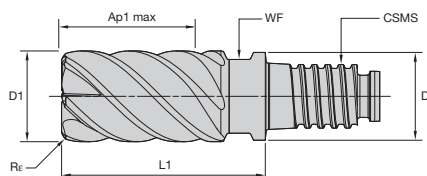
NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. Please adjust parameters according to system stability.

For side milling with A_p bigger than $1 \times D$ reduce f_z by 20%!

Cylindrical shanks not recommended for full slotting.



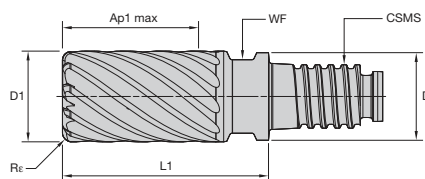
● Primary
○ Secondary

P	●	○
M	●	○
K	●	○
N	●	○
S	●	○
H	●	○

DUO-LOCK • KenCut FF

FMDF • Radiused • 6 Flutes

Order Number	Catalog Number	D1	D	Ap1 Max	L1	CSMS	WF	Re	
6127558	FMD0375Y6CQA	3/8	.359	9/16	.843	DL10	.315	.015	●
6127559	FMD0500Y6CQB	1/2	.480	3/4	1.126	DL12	.374	.030	●
6127560	FMD0625Y6CQB	5/8	.605	15/16	1.406	DL16	.512	.030	●
6127581	FMD0750Y6CQB	3/4	.730	1 1/8	1.689	DL20	.630	.030	●
6127582	FMD1000Y6CQB	1	.961	1 1/2	2.252	DL25	.827	.030	●



● Primary
○ Secondary

P	●	○
M	●	○
K	●	○
N	●	○
S	●	○
H	●	○

DUO-LOCK RSM II

FSDE • Radiused • Multi-Flute

Order Number	Catalog Number	D1	D	Ap1 Max	L1	CSMS	WF	Re	Z U	
6127058	FSDE0375Y9CQA	3/8	.359	9/16	.843	DL10	.315	.015	9	●
6127059	FSDE0375Y9CQB	3/8	.359	9/16	.843	DL10	.315	.030	9	●
6127060	FSDE0375Y9CQC	3/8	.359	9/16	.843	DL10	.315	.060	9	●
6127212	FSDE0500Y9CQA	1/2	.480	3/4	1.126	DL12	.374	.015	9	●
6127214	FSDE0500Y9CQC	1/2	.480	3/4	1.126	DL12	.374	.060	9	●
6127216	FSDE0500Y9CQE	1/2	.480	3/4	1.126	DL12	.374	.120	9	●
6127217	FSDE0625Y11CQA	5/8	.605	15/16	1.406	DL16	.512	.015	11	●
6127218	FSDE0625Y11CQB	5/8	.605	15/16	1.406	DL16	.512	.030	11	●
6127219	FSDE0625Y11CQC	5/8	.605	15/16	1.406	DL16	.512	.060	11	●
6127232	FSDE0750Y15CQB	3/4	.730	1 1/8	1.689	DL20	.630	.030	15	●
6127234	FSDE0750Y15CQD	3/4	.730	1 1/8	1.689	DL20	.630	.090	15	●
6127235	FSDE0750Y15CQE	3/4	.730	1 1/8	1.689	DL20	.630	.120	15	●
6127236	FSDE1000Y19CQB	1	.961	1 1/2	2.252	DL25	.827	.030	19	●
6127237	FSDE1000Y19CQC	1	.961	1 1/2	2.252	DL25	.827	.060	19	●
6127238	FSDE1000Y19CQD	1	.961	1 1/2	2.252	DL25	.827	.090	19	●
6127239	FSDE1000Y19CQE	1	.961	1 1/2	2.252	DL25	.827	.120	19	●
6127240	FSDE1000Y19CQF	1	.961	1 1/2	2.252	DL25	.827	.250	19	●



DUO-LOCK • KenCut FF

FMDf • Application Data

Material Group			Short		Medium		Long		Recommended feed per tooth (IPT = inch/th for side milling (A)).								
			A	adapter reach								D1 — Diameter					
				KCPM15		KCPM15		KCPM15		frac.	3/8	1/2	5/8	3/4	1		
				Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		Cutting Speed — Vc SFM									
	Ap	Ae	min	max	min	max	min	max	dec.	.375	.500	.625	.750	1.000			
P	0	1.5 x D	0.1 x D	490	660	441	594	441	594	IPT	.0027	.0034	.0039	.0044	.0049		
	1	1.5 x D	0.1 x D	490	660	441	594	441	594	IPT	.0027	.0034	.0039	.0044	.0049		
	2	1.5 x D	0.1 x D	460	620	414	558	414	558	IPT	.0027	.0034	.0039	.0044	.0049		
	3	1.5 x D	0.1 x D	390	520	351	468	351	468	IPT	.0023	.0029	.0034	.0039	.0045		
	4	1.5 x D	0.1 x D	300	490	270	441	270	441	IPT	.0020	.0026	.0030	.0034	.0039		
	5	1.5 x D	0.1 x D	200	330	170	280.5	160	264	IPT	.0018	.0023	.0027	.0031	.0036		
	6	1.5 x D	0.1 x D	160	250	136	212.5	128	200	IPT	.0015	.0019	.0022	.0025	.0028		
M	1	1.5 x D	0.1 x D	300	380	240	304	210	266	IPT	.0023	.0029	.0034	.0039	.0045		
	2	1.5 x D	0.1 x D	200	260	160	208	140	182	IPT	.0018	.0023	.0027	.0031	.0036		
	3	1.5 x D	0.1 x D	200	230	160	184	140	161	IPT	.0015	.0019	.0022	.0025	.0028		
K	1	1.5 x D	0.1 x D	390	490	351	441	351	441	IPT	.0027	.0034	.0039	.0044	.0049		
	2	1.5 x D	0.1 x D	360	460	324	414	324	414	IPT	.0023	.0029	.0034	.0039	.0045		
	3	1.5 x D	0.1 x D	360	430	324	387	324	387	IPT	.0018	.0023	.0027	.0031	.0036		
S	1	1.5 x D	0.1 x D	160	300	128	240	96	180	IPT	.0023	.0029	.0034	.0039	.0045		
	2	1.5 x D	0.1 x D	80	130	64	104	48	78	IPT	.0012	.0015	.0018	.0021	.0024		
	3	1.5 x D	0.1 x D	80	130	64	104	48	78	IPT	.0012	.0015	.0018	.0021	.0024		
	4	1.5 x D	0.15 x D	160	200	128	160	96	120	IPT	.0017	.0021	.0025	.0028	.0033		
H	1	1.5 x D	0.1 x D	260	460	208	368	156	276	IPT	.0020	.0026	.0030	.0034	.0039		
	2	1.5 x D	0.1 x D	230	390	184	312	138	234	IPT	.0015	.0019	.0022	.0025	.0028		

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group. Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group. Above parameters are based on ideal conditions. Please adjust parameters according to system stability. For side milling with Ap bigger than 1 x D, reduce fz by 20%! Cylindrical shanks not recommended for full slotting.

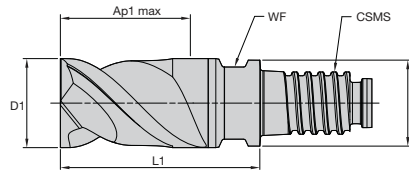


DUO-LOCK • RSM II

FSDE • Application Data

Material Group			Short		Medium		Long		Recommended feed per tooth (IPT = inch/th for side milling (A)).							
			A		adapter reach						D1 — Diameter					
					KC643M		KC643M		KC643M							
			Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		frac.	3/8	1/2	5/8	3/4	1		
Ap		Ae		min	max	min	max	min	max	dec.	.375	.500	.625	.750	1.000	
P	4	Ap max	0.008–0.012"	445	1628	401	1465	401	1465	IPT	.0045	.0053	.0058	.0061	.0066	
	5	Ap max	0.008–0.012"	295	1078	251	916	236	862	IPT	.0040	.0048	.0052	.0056	.0061	
M	1	Ap max	0.008–0.012"	445	1243	356	994	312	870	IPT	.0050	.0060	.0066	.0070	.0077	
	2	Ap max	0.008–0.012"	295	869	236	695	207	608	IPT	.0040	.0048	.0052	.0056	.0061	
S	3	Ap max	0.008–0.012"	295	759	236	607	207	531	IPT	.0033	.0040	.0043	.0045	.0048	
	1	Ap max	0.008–0.012"	245	979	196	783	147	587	IPT	.0050	.0060	.0066	.0070	.0077	
	2	Ap max	0.008–0.012"	125	429	100	343	75	257	IPT	.0026	.0032	.0035	.0037	.0041	
	3	Ap max	0.008–0.012"	125	429	100	343	75	257	IPT	.0026	.0032	.0035	.0037	.0041	
	4	Ap max	0.008–0.012"	245	649	196	519	147	389	IPT	.0037	.0044	.0048	.0051	.0056	
	1	Ap max	0.008–0.012"	395	1518	316	1214	237	911	IPT	.0045	.0053	.0058	.0061	.0066	
H	2	Ao max	0.008–0.012"	345	1298	276	1038	207	779	IPT	.0033	.0040	.0043	.0045	.0048	

NOTE: For better surface, finish reduce feed per tooth. For side milling with Ap bigger than 1 x D, reduce fz by 20%! Cylindrical shanks not recommended for full slotting.



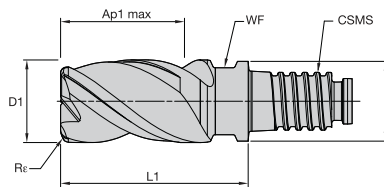
● Primary
○ Secondary



DUO-LOCK • MaxiMet

Square End • 2 Flutes

Order Number	Catalog Number	D1	D	Ap1 Max	L1	CSMS	WF	
6151112	ABDF0375Y2CU	3/8	.359	9/16	.843	DL10	.315	•
6151113	ABDF0500Y2CU	1/2	.480	3/4	1.126	DL12	.374	•
6151114	ABDF0625Y2CU	5/8	.605	15/16	1.406	DL16	.512	•
6151115	ABDF0750Y2CU	3/4	.730	1 1/8	1.689	DL20	.630	•



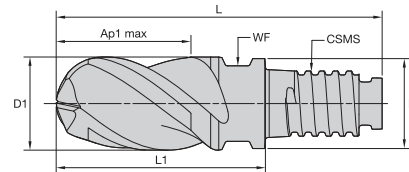
● Primary
○ Secondary



DUO-LOCK • MaxiMet

Radiused • 3 Flutes

Order Number	Catalog Number	D1	D	Ap1 Max	L1	CSMS	WF	Re	
6153950	ABDE0375Y3CQC	3/8	.359	9/16	.843	DL10	.315	.060	•
6153951	ABDE0375Y3CQD	3/8	.359	9/16	.843	DL10	.315	.090	•
6153952	ABDE0500Y3CQA	1/2	.480	3/4	1.126	DL12	.374	.060	•
6153953	ABDE0500Y3CQB	1/2	.480	3/4	1.126	DL12	.374	.030	•
6153954	ABDE0500Y3CQC	1/2	.480	3/4	1.126	DL12	.374	.060	•
6153955	ABDE0500Y3CQD	1/2	.480	3/4	1.126	DL12	.374	.090	•
6153956	ABDE0500Y3CQE	1/2	.480	3/4	1.126	DL12	.374	.120	•
6153957	ABDE0625Y3CQA	5/8	.605	15/16	1.406	DL16	.512	.015	•
6153958	ABDE0625Y3CQB	5/8	.605	15/16	1.406	DL16	.512	.030	•
6153959	ABDE0625Y3CQC	5/8	.605	15/16	1.406	DL16	.512	.060	•
6153963	ABDE0750Y3CQB	3/4	.730	1 1/8	1.689	DL20	.630	.030	•
6153964	ABDE0750Y3CQC	3/4	.730	1 1/8	1.689	DL20	.630	.060	•
6153965	ABDE0750Y3CQD	3/4	.730	1 1/8	1.689	DL20	.630	.090	•
6153966	ABDE0750Y3CQE	3/4	.730	1 1/8	1.689	DL20	.630	.120	•
6153967	ABDE1000Y3CQB	1	.961	1 1/2	2.252	DL25	.827	.030	•
6153968	ABDE1000Y3CQC	1	.961	1 1/2	2.252	DL25	.827	.060	•
6153970	ABDE1000Y3CQE	1	.961	1 1/2	2.252	DL25	.827	.120	•



● Primary
○ Secondary



DUO-LOCK • MaxiMet

Ball Nose • 3 Flutes

Order Number	Catalog Number	D1	D	Ap1 Max	L	L1	CSMS	WF	
6626767	ABBE0375Y3CN	3/8	.359	9/16	1.335	.843	DL10	.315	•
6626768	ABBE0500Y3CN	1/2	.480	3/4	1.717	1.126	DL12	.374	•
6626769	ABBE0625Y3CN	5/8	.605	15/16	2.193	1.406	DL16	.512	•
6626770	ABBE0750Y3CN	3/4	.730	1 1/8	2.630	1.689	DL20	.630	•



MaxiMet ABDF



MaxiMet ABDE

DUO-LOCK • MaxiMet

ABDF & ABDE • Application Data

Material Group				Short		Medium		Long		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.					
		A		B	adapter reach						D1 — Diameter				
					K600		K600		K600						
				Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		frac.	3/8	1/2	5/8	3/4	
		Ap	Ae	Ap	min	max	min	max	min	max	dec.	.3750	.5000	.6250	.7500
N	1	1.5 x D	0.3 x D	1.0 x D	1640	6560	1312	3936	984	3936	IPT	.0029	.0038	.0048	.0057
	2	1.5 x D	0.3 x D	1.0 x D	1640	4920	1312	2952	984	2952	IPT	.0023	.0031	.0038	.0046
	3	1.5 x D	0.3 x D	1.0 x D	1640	4920	1312	2952	984	2952	IPT	.0020	.0027	.0033	.0040
	4	1.5 x D	0.3 x D	1.0 x D	1310	2460	1048	1476	786	1476	IPT	.0020	.0027	.0033	.0040
	5	1.5 x D	0.3 x D	1.0 x D	820	3280	656	1968	492	1968	IPT	.0026	.0034	.0043	.0052

NOTE: Ap for spindle with ceramic bearings multiply by 0.5.

For better surface finish reduce feed per tooth.

Above parameters are based on ideal conditions.

Please adjust parameters according to system stability.

For side milling with Ap bigger than 1 x D reduce Fz by 20%!

Cylindrical shanks not recommended for full slotting.



DUO-LOCK • MaxiMet

ABBE • Application Data

Material Group				Short		Medium		Long		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.						
	A		B	adapter reach								D1 — Diameter				
				K600		K600		K600								
			Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		frac.	3/8	1/2	5/8	3/4			
	Ap	Ae	Ap	min	max	min	max	min	max	dec.	.3750	.5000	.6250	.7500		
N	1	1.0 x D	0.5 x D	1.0 x D	1640	6560	1312	5248	984	3936	IPT	.0028	.0038	.0047	.0056	
	2	1.0 x D	0.5 x D	1.0 x D	1640	4920	1312	3936	984	2952	IPT	.0023	.0030	.0038	.0045	
	3	1.0 x D	0.5 x D	1.0 x D	1640	4920	1312	3936	984	2952	IPT	.0020	.0026	.0033	.0039	
	4	1.0 x D	0.5 x D	1.0 x D	1310	2460	1048	1968	786	1476	IPT	.0020	.0026	.0033	.0039	
	5	1.0 x D	0.5 x D	1.0 x D	820	3280	656	2624	492	1968	IPT	.0025	.0034	.0042	.0051	
	6	1.0 x D	0.5 x D	1.0 x D	330	2460	264	1968	198	1476	IPT	.0028	.0038	.0047	.0056	
	7	1.0 x D	0.5 x D	1.0 x D	330	2460	264	1968	198	1476	IPT	.0020	.0026	.0033	.0039	

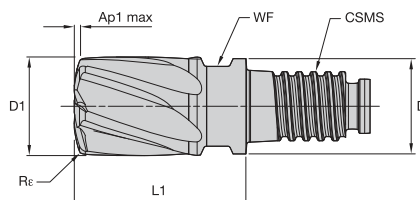
NOTE: These guidelines may require variations to achieve optimum results.

Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on diameters greater than 1/2".

For better surface finish, reduce feed per tooth.



● Primary
○ Secondary



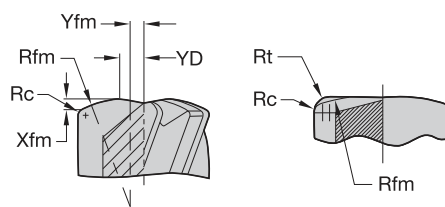
DUO-LOCK • KenFeed

KMDA • Radiused • 6 Flutes

Order Number	Catalog Number	D1	D	Ap1 Max	L1	CSMS	WF	Re	
6197711	KMDA0375Y6BQX	3/8	.359	0.0201	.655	DL10	.315	.023	●
6197713	KMDA0500Y6BQX	1/2	.480	0.0268	.876	DL12	.374	.031	●
6197714	KMDA0625Y6BQX	5/8	.605	0.0335	1.093	DL16	.512	.039	●
6197715	KMDA0750Y6BQX	3/4	.730	0.0399	1.314	DL20	.630	.047	●

DUO-LOCK • KenFeed

6 Flutes • Programming Data



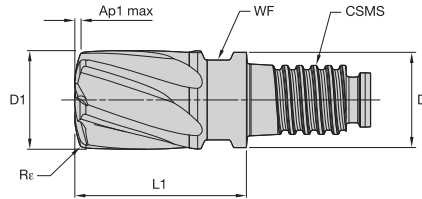
Geometrical Parameters							Ramping Guide for Circular and Linear Ramping						
							Circular Interpolation		Linear Ramping				
							Optimal Range of Circle Diameter for a Single Pass		Calculated Length per Ramp Angle				
Catalog Number	D1	Ap1 Max	R	Re	Yrc	Rcn	Smallest	Largest	1°	2°	3°	4°	5°
KMDA0375Y6BQX	3/8	0.0123	0.375	0.0240	0.0469	0.0825	0.540	0.750	0.706	0.353	0.235	0.176	0.141
KMDA0500Y6BQX	1/2	0.0164	0.500	0.0320	0.0625	0.1100	0.720	1.000	0.941	0.470	0.313	0.235	0.188
KMDA0625Y6BQX	5/8	0.0205	0.625	0.0400	0.0781	0.1375	0.900	1.250	1.176	0.588	0.392	0.294	0.235
KMDA0750Y6BQX	3/4	0.0246	0.750	0.0470	0.0938	0.1650	1.080	1.500	1.411	0.705	0.470	0.352	0.282
recommended % of programmed feed rate to use while ramping									100%	70%	50%	30%	10%

NOTE: YRC = distance from centerline to the crown of the R radius.

RCN = distance from centerline to the start of the cutting edge. This dimension can also help determine the minimum circle size when helical ramping.

R = the head radius size.

Rc = the shoulder radius or radius at the corner of the cutter.



● Primary
○ Secondary

P	Blue	○
M	Yellow	○
K	Red	○
N	Green	○
S	Orange	●
H	Grey	●

KC643M

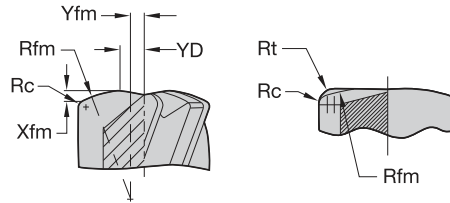
DUO-LOCK • KenFeed

KSDB • Radiused • 6 Flutes

Order Number	Catalog Number	D1	D	Ap1 Max	L1	CSMS	WF	Re	
6626700	KSDB0375Y6BQX	3/8	.359	0.0201	.655	DL10	.315	.023	●
6626761	KSDB0500Y6BQX	1/2	.480	0.0268	1.126	DL12	.374	.031	●
6626763	KSDB0625Y6BQX	5/8	.605	0.0335	1.093	DL16	.512	.039	●
6626764	KSDB0750Y6BQX	3/4	.730	0.0398	1.314	DL20	.630	.047	●
6531738	KSDB1000Y6BQX	1	.961	0.5000	1.752	DL25	.827	.063	●

DUO-LOCK • KenFeed

6 Flutes • Programming Data



Geometrical Parameters										ramping guide for circular and linear interpolation						
										Circular Interpolation		linear interpolation				
										allowed range of hole diameter		Calculated Length per Ramp Angle				
Catalog Number	D1	Ap1 Max	Rfm	Rt	Rc	Xfm	Yfm	Yd	Number Of Flutes	Smallest	Largest	1°	2°	3°	4°	5°
KSDB0375Y6BQX	3/8	.020	3/8	.0399	.0235	.0200	.0469	.0788	6	.5325	.75	1.14	.57	.38	.29	.23
KSDB0500Y6BQX	1/2	.027	1/2	.0538	.0320	.0266	.0625	.1050	6	.7100	1.00	1.52	.76	.51	.38	.30
KSDB0625Y6BQX	5/8	.034	5/8	.0672	.0400	.0333	.0781	.1313	6	.8875	1.25	1.91	.95	.63	.48	.38
KSDB0750Y6BQX	3/4	.040	3/4	.0798	.0470	.0399	.0938	.1575	6	1.0650	1.50	2.29	1.14	.76	.57	.46
recommended degree of programmed feed rate to use while ramping												100%	70%	50%	30%	10%

NOTE: YRC = distance from centerline to the crown of the R radius.

RCN = distance from centerline to the start of the cutting edge. This dimension can also help determine the minimum circle size when helical ramping.

R = the head radius size.

Rc = the shoulder radius or radius at the corner of the cutter.



DUO-LOCK • KenFeed

KMDA • Application Data

Material Group			Straight Short		Conical Medium		Conical Long		Recommended feed per tooth (IPT = inch/th) for side milling (A).						
			A		KC639M		KC639M		KC639M		D1 — Diameter				
					Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		frac.	3/8	1/2	5/8	3/4
			Ap	Ae	min	max	min	max	min	max	dec.	0.3750	0.5000	0.6250	0.7500
P	3	0.05 x D	0.55 x D	390	520	351	468	351	468	IPT	0.0160	0.0202	0.0239	0.0270	
	4	0.05 x D	0.55 x D	300	490	270	441	270	441	IPT	0.0143	0.0180	0.0211	0.0236	
H	1	0.05 x D	0.55 x D	260	460	208	368	156	276	IPT	0.0143	0.0180	0.0211	0.0236	
	2	0.05 x D	0.55 x D	230	390	184	312	138	234	IPT	0.0107	0.0134	0.0156	0.0174	

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 diameters >1/2".

For better surface finish, reduce feed per tooth.

For tools with reach > 3 x D, reduce fz by 20%.

For tools with reach >5 x D, reduce fz by 30%.

For tools with reach >10 x D, reduce vc and fz by 30%.



DUO-LOCK • KenFeed

KSDB • Application Data

Material Group			Short		Medium		Long		Recommended feed per tooth (IPT = inch/th) for side milling (A).					
			A	adapter reach						D1 — Diameter				
				KC643M		KC643M		KC643M		frac.	3/8	1/2	5/8	3/4
				Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		Cutting Speed — Vc SFM						
		Ap	Ae	min	max	min	max	min	max	dec.	.3750	.5000	.6250	.7500
P	5	0.05 x D	0.55 x D	200	330	170	281	160	264	IPT	.0110	.0139	.0164	.0185
	6	0.05 x D	0.55 x D	160	250	136	213	128	200	IPT	.0092	.0115	.0134	.0149
M	1	0.05 x D	0.55 x D	300	380	240	304	210	266	IPT	.0137	.0173	.0205	.0232
	2	0.05 x D	0.55 x D	200	260	160	208	140	182	IPT	.0110	.0139	.0164	.0185
S	3	0.05 x D	0.55 x D	200	230	160	184	140	161	IPT	.0092	.0115	.0134	.0149
	1	0.05 x D	0.55 x D	160	300	128	240	96	180	IPT	.0137	.0173	.0205	.0232
	2	0.05 x D	0.55 x D	80	130	64	104	48	78	IPT	.0073	.0092	.0109	.0124
	3	0.05 x D	0.55 x D	80	130	64	104	48	78	IPT	.0073	.0092	.0109	.0124
	4	0.05 x D	0.55 x D	160	200	128	160	96	120	IPT	.0101	.0128	.0151	.0170

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 diameters greater than 1/2".

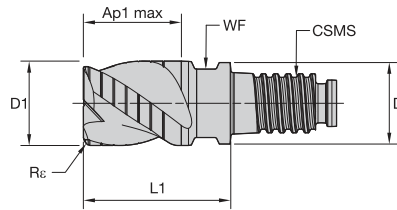
For cutting aluminum, with high silicon TiCN coating is recommended.

For better surface finish, reduce feed per tooth.

For tools with reach >3 x D, reduce fz by 20%.

For tools with reach >5 x D, reduce fz by 30%.

For tools with reach >10 x D, reduce Vc and fz by 30%.



● Primary
○ Secondary

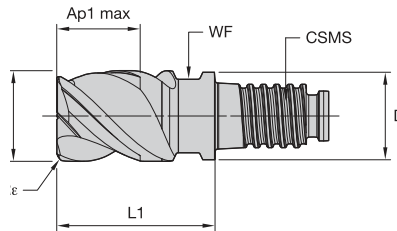
P	●
M	●
K	●
N	●
S	●
H	○

KCPM15

DUO-LOCK • KenCut RR

RFDD • Radiused • 3 Flutes

Order Number	Catalog Number	D1	D	Ap1 Max	L1	CSMS	WF	Rε	
6441025	RFDD0375Y3AQA	3/8	.359	9/32	.655	DL10	.315	.015	●
6441026	RFDD0500Y3AQA	1/2	.480	3/8	.876	DL12	.374	.015	●
6441027	RFDD0625Y3AQA	5/8	.605	15/32	1.093	DL16	.512	.015	●
6441028	RFDD0750Y3AQA	3/4	.730	9/16	1.314	DL20	.630	.015	●



● Primary
○ Secondary

P	●
M	●
K	●
N	●
S	●
H	○

KCPM15

DUO-LOCK • KenCut FF

FGDF • Radiused • 3 Flutes

Order Number	Catalog Number	D1	D	Ap1 Max	L1	CSMS	WF	Rε	
6440977	FGDF0375Y3AQA	3/8	.359	9/32	.655	DL10	.315	.015	●
6441021	FGDF0375Y3AQB	3/8	.359	9/32	.655	DL10	.315	.030	●
6440978	FGDF0500Y3AQA	1/2	.480	3/8	.876	DL12	.374	.015	●
6441022	FGDF0500Y3AQB	1/2	.480	3/8	.876	DL12	.374	.030	●
6440979	FGDF0625Y3AQA	5/8	.605	15/32	1.093	DL16	.512	.015	●
6441023	FGDF0625Y3AQB	5/8	.605	15/32	1.093	DL16	.512	.030	●
6440980	FGDF0750Y3AQA	3/4	.730	9/16	1.314	DL20	.630	.015	●
6441024	FGDF0750Y3AQB	3/4	.730	9/16	1.314	DL20	.630	.030	●



DUO-LOCK • KenCut RR

RFDD • Application Data

Material Group						Straight Short		Conical Medium		Conical Long		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.				
		A		B		KCPM15		KCPM15		KCPM15		D1 — Diameter				
						Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		frac.	3/8	1/2	5/8	3/4
		Ap	Ae	Ap		min	max	min	max	min	max	dec.	0.3750	0.5000	0.6250	0.7500
P	0	0.75 x D	0.5 x D	0.5 x D		490	660	441	594	441	594	IPT	0.0023	0.0029	0.0034	0.0037
	1	0.75 x D	0.5 x D	0.5 x D		490	660	441	594	441	594	IPT	0.0023	0.0029	0.0034	0.0037
	2	0.75 x D	0.5 x D	0.5 x D		460	620	414	558	414	558	IPT	0.0023	0.0029	0.0034	0.0037
	3	0.75 x D	0.5 x D	0.5 x D		390	520	351	468	351	468	IPT	0.0019	0.0025	0.0029	0.0033
	4	0.75 x D	0.4 x D	0.5 x D		300	490	270	441	270	441	IPT	0.0017	0.0022	0.0026	0.0029
	5	0.75 x D	0.5 x D	0.5 x D		200	330	170	281	160	264	IPT	0.0016	0.0020	0.0023	0.0026
M	6	0.75 x D	0.4 x D	0.5 x D		160	250	136	213	128	200	IPT	0.0013	0.0016	0.0019	0.0021
	1	0.75 x D	0.4 x D	0.5 x D		300	380	240	304	210	266	IPT	0.0019	0.0025	0.0029	0.0033
	2	0.75 x D	0.4 x D	0.5 x D		200	260	160	208	140	182	IPT	0.0016	0.0020	0.0023	0.0026
K	3	0.75 x D	0.4 x D	0.5 x D		200	230	160	184	140	161	IPT	0.0013	0.0016	0.0019	0.0021
	1	0.75 x D	0.5 x D	0.5 x D		390	490	351	441	351	441	IPT	0.0023	0.0029	0.0034	0.0037
	2	0.75 x D	0.5 x D	0.5 x D		360	460	324	414	324	414	IPT	0.0019	0.0025	0.0029	0.0033
H	3	0.75 x D	0.4 x D	0.5 x D		360	430	324	387	324	387	IPT	0.0016	0.0020	0.0023	0.0026
	1	0.75 x D	0.2 x D	0.3 x D		260	460	208	368	156	276	IPT	0.0017	0.0022	0.0026	0.0029

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 diameters >1/2". For tools with reach > 3 x D, reduce fz by 20%. For tools with reach >5 x D, reduce fz by 30%. For tools with reach >10 x D, reduce Vc and fz by 30%.

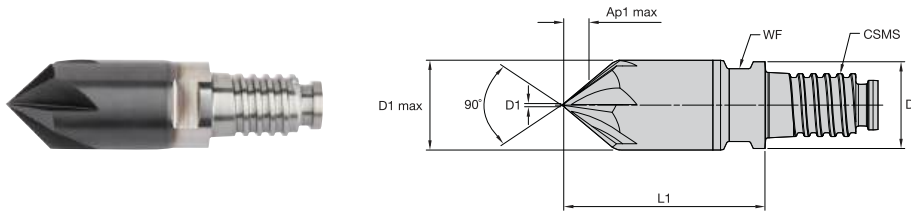


DUO-LOCK • KenCut FF

FGDF • Application Data

Material Group						Straight Short		Conical Medium		Conical Long		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.				
		A		B		KCPM15		KCPM15		KCPM15		D1 — Diameter				
						Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		frac.	3/8	1/2	5/8	3/4
		Ap	Ae	Ap		min	max	min	max	min	max	dec.	0.3750	0.5000	0.6250	0.7500
P	0	0.75 x D	0.5 x D	0.5 x D		490	660	441	594	441	594	IPT	0.0023	0.0029	0.0034	0.0037
	1	0.75 x D	0.5 x D	0.5 x D		490	660	441	594	441	594	IPT	0.0023	0.0029	0.0034	0.0037
	2	0.75 x D	0.5 x D	0.5 x D		460	620	414	558	414	558	IPT	0.0023	0.0029	0.0034	0.0037
	3	0.75 x D	0.4 x D	0.5 x D		390	520	351	468	351	468	IPT	0.0019	0.0025	0.0029	0.0033
	4	0.75 x D	0.3 x D	0.5 x D		300	490	270	441	270	441	IPT	0.0017	0.0022	0.0026	0.0029
	5	0.75 x D	0.4 x D	0.5 x D		200	330	170	281	160	264	IPT	0.0016	0.0020	0.0023	0.0026
M	6	0.75 x D	0.3 x D	0.5 x D		160	250	136	213	128	200	IPT	0.0013	0.0016	0.0019	0.0021
	1	0.75 x D	0.4 x D	0.5 x D		300	380	240	304	210	266	IPT	0.0019	0.0025	0.0029	0.0033
	2	0.75 x D	0.4 x D	0.5 x D		200	260	160	208	140	182	IPT	0.0016	0.0020	0.0023	0.0026
K	3	0.75 x D	0.4 x D	0.5 x D		200	230	160	184	140	161	IPT	0.0013	0.0016	0.0019	0.0021
	1	0.75 x D	0.5 x D	0.5 x D		390	490	351	441	351	441	IPT	0.0023	0.0029	0.0034	0.0037
	2	0.75 x D	0.5 x D	0.5 x D		360	460	324	414	324	414	IPT	0.0019	0.0025	0.0029	0.0033
S	3	0.75 x D	0.4 x D	0.5 x D		360	430	324	387	324	387	IPT	0.0016	0.0020	0.0023	0.0026
	1	0.3 x D	0.3 x D	0.5 x D		160	300	128	240	96	180	IPT	0.0019	0.0025	0.0029	0.0033
	2	0.3 x D	0.3 x D	0.5 x D		80	130	64	104	48	78	IPT	0.0010	0.0013	0.0015	0.0018
	3	0.75 x D	0.3 x D	0.5 x D		80	130	64	104	48	78	IPT	0.0010	0.0013	0.0015	0.0018
H	4	0.75 x D	0.3 x D	0.5 x D		160	200	128	160	96	120	IPT	0.0014	0.0018	0.0021	0.0024
	1	0.75 x D	0.2 x D	0.3 x D		260	460	208	368	156	276	IPT	0.0017	0.0022	0.0026	0.0029

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 diameters >1/2". For tools with reach > 3 x D, reduce fz by 20%. For tools with reach >5 x D, reduce fz by 30%. For tools with reach >10 x D, reduce Vc and fz by 30%.



● Primary
○ Secondary

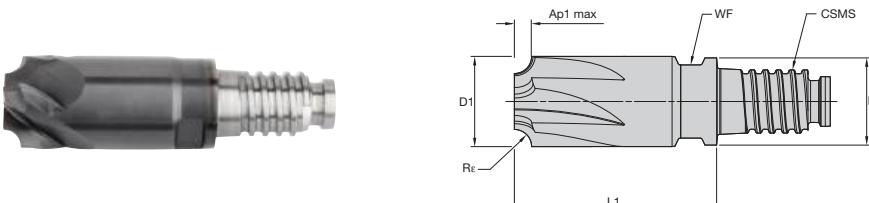
P	●
M	●
K	●
N	●
S	○
H	○

KCPM15

DUO-LOCK • KenCut CM

XADA • Multi-Flute

Order Number	Catalog Number	D1 Max	D1	D	Ap1 Max	L1	CSMS	WF	Z U	
6127351	XADA0375Y4CU45	.375	3/8	.359	.075	.847	DL10	.315	4	●
6408092	XADA0375Y4CU60	.375	3/8	.359	.075	.847	DL10	.315	4	●
6127352	XADA0500Y5CU45	.500	1/2	.480	.100	1.130	DL12	.374	5	●
6408093	XADA0500Y5CU60	.500	1/2	.480	.100	1.130	DL12	.374	5	●
6127353	XADA0625Y6CU45	.625	5/8	.605	.125	1.402	DL16	.512	6	●
6408094	XADA0625Y6CU60	.625	5/8	.605	.125	1.402	DL16	.512	6	●



● Primary
○ Secondary

P	●
M	●
K	●
N	●
S	○
H	○

KCPM15

DUO-LOCK • KenCut CM

XRDA • Multi-Flute

Order Number	Catalog Number	D1	D	Ap1 Max	L1	CSMS	WF	Re	Z U	
6127709	XRDA0375Y4CUC	3/8	.359	.060	.847	DL10	.315	.060	4	●
6127710	XRDA0375Y4CUE	3/8	.359	.120	.852	DL10	.315	.120	4	●
6127711	XRDA0500Y5CUB	1/2	.480	.030	1.132	DL12	.374	.030	5	●
6127712	XRDA0500Y5CUC	1/2	.480	.060	1.131	DL12	.374	.060	5	●
6127713	XRDA0500Y5CUE	1/2	.480	.120	1.136	DL12	.374	.120	5	●
6127714	XRDA0625Y6CUC	5/8	.605	.060	1.410	DL16	.512	.060	6	●



KenCut CM – XADA



KenCut CM – XRDA

DUO-LOCK • Corner Machining

XADA & XRDA • Application Data

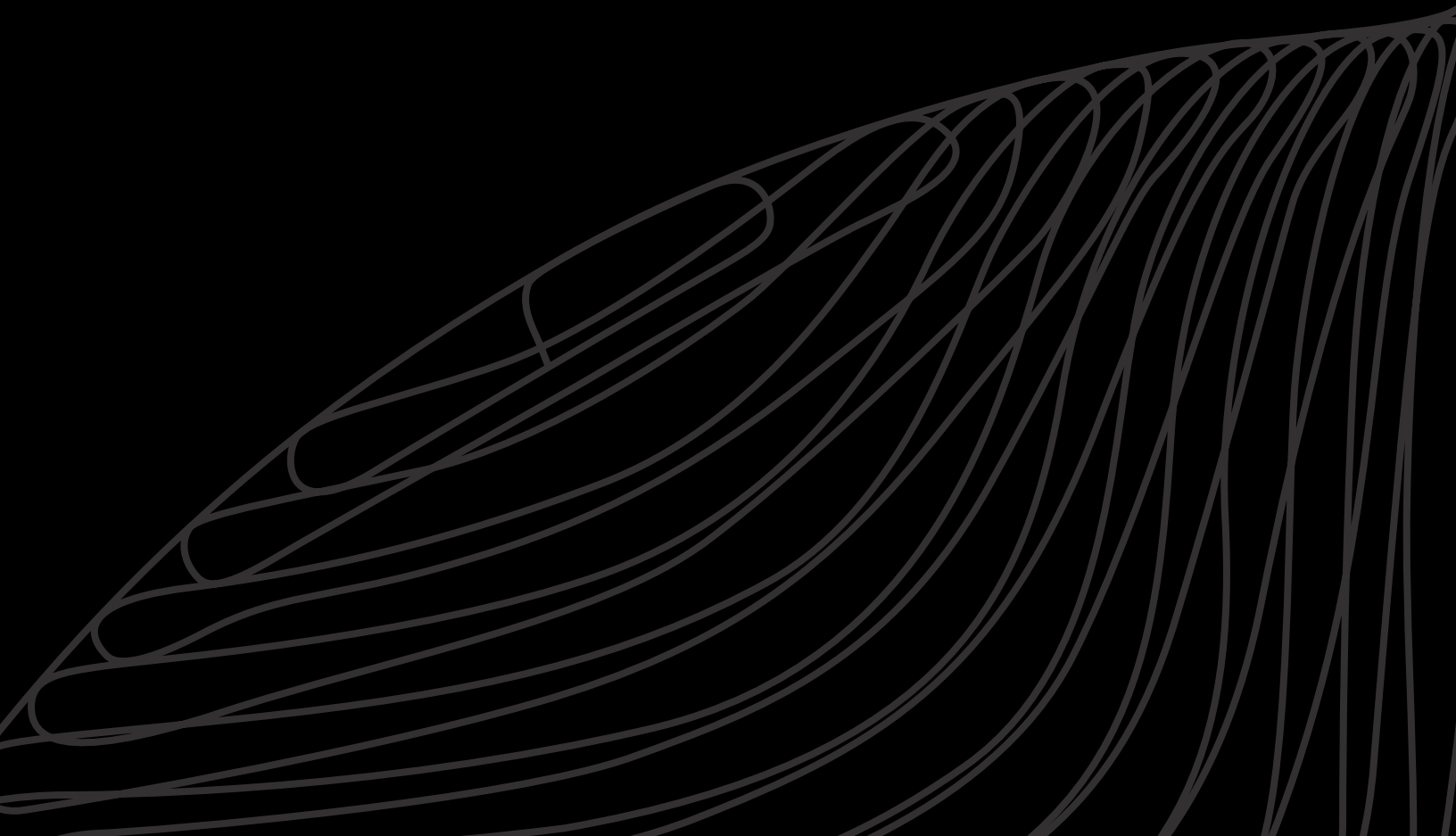
Material Group				Short		Medium		Long		Recommended feed per tooth (IPT = inch/th) for side milling (A).			
				adapter reach						D1 — Diameter			
				KCPM15		KCPM15		KCPM15					
A		Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		Cutting Speed — Vc SFM		frac.	3/8	1/2	5/8		
Ap		Ae		min	max	min	max	min	max	dec.	.375	.500	.625
P	0	0.35 x D	0.35 x D	490	660	441	594	441	594	IPT	.0022	.0027	.0032
	1	0.35 x D	0.35 x D	490	660	441	594	441	594	IPT	.0022	.0027	.0032
	2	0.35 x D	0.35 x D	460	620	414	558	414	558	IPT	.0022	.0027	.0032
	3	0.35 x D	0.35 x D	390	520	351	468	351	468	IPT	.0018	.0023	.0027
	4	0.35 x D	0.35 x D	300	490	270	441	270	441	IPT	.0016	.0021	.0024
	5	0.35 x D	0.35 x D	200	330	170	280.5	160	264	IPT	.0015	.0018	.0022
M	6	0.35 x D	0.35 x D	160	250	136	212.5	128	200	IPT	.0012	.0015	.0018
	1	0.35 x D	0.35 x D	300	380	240	304	210	266	IPT	.0018	.0023	.0027
	2	0.35 x D	0.35 x D	200	260	160	208	140	182	IPT	.0015	.0018	.0022
K	3	0.35 x D	0.35 x D	200	230	160	184	140	161	IPT	.0012	.0015	.0018
	1	0.35 x D	0.35 x D	390	490	351	441	351	441	IPT	.0022	.0027	.0032
	2	0.35 x D	0.35 x D	360	460	324	414	324	414	IPT	.0018	.0023	.0027
N	3	0.35 x D	0.35 x D	360	430	324	387	324	387	IPT	.0015	.0018	.0022
	1	0.35 x D	0.35 x D	1640	6560	1312	5248	984	3936	IPT	.0030	.0040	.0050
	2	0.35 x D	0.35 x D	1640	4920	1312	3936	984	2952	IPT	.0024	.0032	.0040
	3	0.35 x D	0.35 x D	1640	4920	1312	3936	984	2952	IPT	.0021	.0028	.0035
	4	0.35 x D	0.35 x D	1310	2460	1048	1968	786	1476	IPT	.0021	.0028	.0035
	5	0.35 x D	0.35 x D	820	3280	656	2624	492	1968	IPT	.0027	.0036	.0045
	6	0.35 x D	0.35 x D	330	2460	264	1968	198	1476	IPT	.0030	.0040	.0050
S	7	0.35 x D	0.35 x D	330	2460	264	1968	198	1476	IPT	.0021	.0028	.0035
	1	0.35 x D	0.35 x D	160	300	128	240	96	180	IPT	.0018	.0023	.0027
	2	0.35 x D	0.35 x D	80	130	64	104	48	78	IPT	.0010	.0012	.0015
	3	0.35 x D	0.35 x D	80	130	64	104	48	78	IPT	.0010	.0012	.0015
H	4	0.35 x D	0.35 x D	160	200	128	160	96	120	IPT	.0013	.0017	.0020
	1	0.35 x D	0.35 x D	260	460	208	368	156	276	IPT	.0016	.0021	.0024

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.

Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.

Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on diameters >1/2".

For side milling with ap larger than 1 x D, reduce fz by 20%!



DUO-LOCK INTELLIGENT THREAD

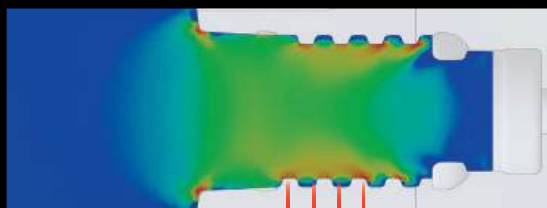
The DUO-LOCK Intelligent Thread eliminates the force peaks all regular threads have in the first groove.

3 GOLDEN RULES TO SUCCESS:

1. Clean both sides of the coupling. Thread needs to be free of any lubricant, such as oil, anti seize, grease, etc.
2. Apply recommended torque values.
3. When using DUO-LOCK cylindrical extensions, never clamp on the coupling.

Finite Element Analysis (FEA)

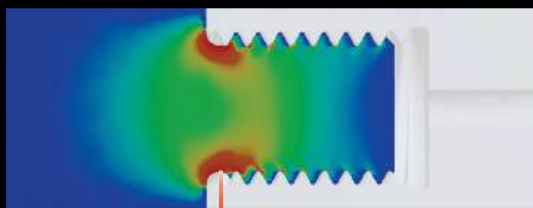
DUO-LOCK Intelligent Thread



DUO-LOCK Intelligent Thread at maximum load.

The DUO-LOCK Intelligent Thread evenly distributes the forces across the entire length of the thread. This allows a greater than 25% torque transmission than known competitors.

Regular threads



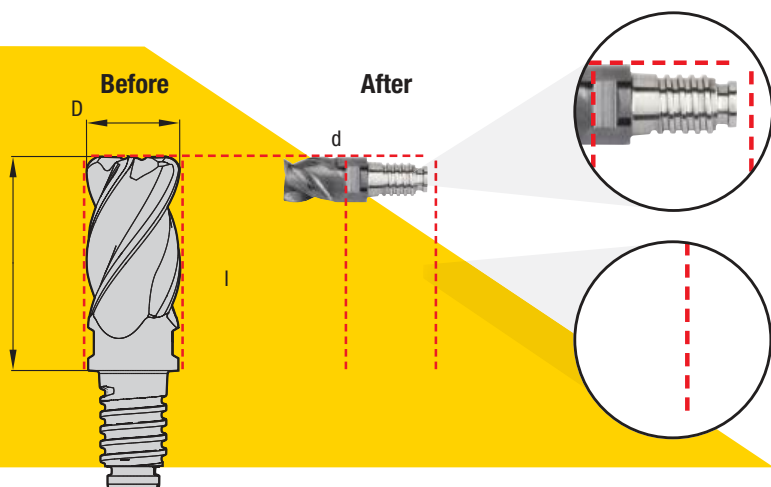
Typical for any regular thread at maximum load.

High force peak in the first groove, limiting the performance of the connection.

DUO-LOCK RECONDITIONING

Wear and/or chipping determines to what extent and how often DUO-LOCK tips can be reconditioned. To ensure integrity of the wrench flats, the neck portion cannot be modified.

NOTE: The cutting diameter of reconditioned DUO-LOCK tips might be smaller than the neck diameter, and therefore may not have a clearance anymore. To prevent collisions, precautions need to be taken.



DUO-LOCK

Tool Clamping



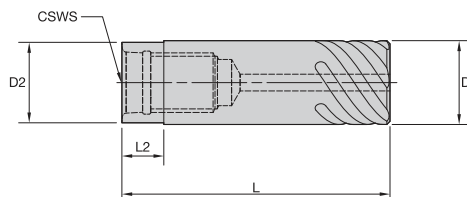
		Cylindrical Extension (Steel and Heavy Metal)						Conical Extension (Steel)							
DUO-LOCK Extension Shank Diameter [D2]		10	12	16	20	25	32		12	16	20	25	32	40	50
HydroForce™		—	—	—	● ●	—	●		—	—	●	—	●	—	●
HydroForce with Sleeve		● ●	● ●	● ●	● ●	●	—		●	●	●	●	—	●	—
HydroForce with Safe-Lock Sleeve *		—	●	●	●	●	—		●	●	●	●	—	—	—
Shrink Fit		● ●	● ●	● ●	● ●	●	●		●	●	●	●	—	—	—
Safe-Lock Shrink Fit *		—	●	●	●	●	●		●	●	●	●	●	●	●
Milling Chuck		—	—	—	● ●	—	●		—	—	●	—	●	—	—
Milling Chuck with Sleeve		● ●	● ●	● ●	● ●	●	—		●	●	●	●	—	—	—
ER Collet Chuck		■	■	○ ○	○ ○	○	—		■	■	○	○	—	—	—
TG Collet Chuck		■	■	■	○ ○	○	—		■	■	■	○	—	—	—

* Features SAFE-LOCK pullout protection

● Recommended (Steel) ■ Suitable with limitations (Steel) ○ Not recommended (Steel) — Not available

● Recommended (HM) ■ Suitable with limitations (HM) ○ Not recommended (HM)

NOTE: DUO-LOCK steel extensions require high power shrinking units greater than 10kW. All SAFE-LOCK extensions can be clamped in a cylindrical shank adapter.

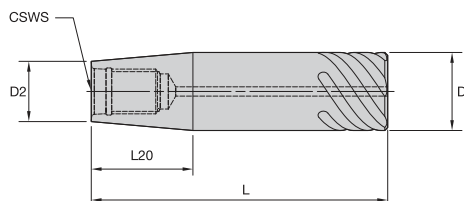


DUO-LOCK

Steel Extension • Cylindrical • Safe-Lock

Order Number	Catalog Number	Csws	D	D2	L	L2	Ft. Lbs.
6136800	SS038SLDL100225	DL10	.38	.36	2.25	.19	18.40
6136868	SS050SLDL120250	DL12	.50	.48	2.50	.25	22.10
6136874	SS062SLDL160275	DL16	.63	.61	2.75	.33	44.20
6136880	SS075SLDL200300	DL20	.75	.73	3.00	.39	59.00
6136884	SS100SLDL250350	DL25	1.00	.96	3.50	.52	73.80
6136888	SS125SLDL320400	DL32	1.25	1.21	4.00	.64	95.90

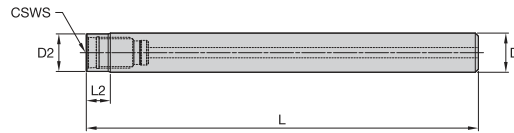
NOTE: Cylindrical shanks not recommended for full slotting.



DUO-LOCK

Steel Extension • Conical • Safe-Lock

Order Number	Catalog Number	Csws	D	D2	L	L20	Lbs
6136862	SS050SLDL100250	DL10	.50	.36	2.50	.80	.11
6136864	SS062SLDL100350	DL10	.63	.36	3.50	1.52	.24
6136866	SS075SLDL100450	DL10	.75	.36	4.50	2.23	.42
6136870	SS062SLDL120325	DL12	.63	.48	3.25	.82	.24
6136872	SS075SLDL120425	DL12	.75	.48	4.25	1.53	.45
6136876	SS075SLDL160325	DL16	.75	.61	3.25	.82	.34
6136878	SS100SLDL160450	DL16	1.00	.61	4.50	2.25	.78
6136882	SS100SLDL200375	DL20	1.00	.73	3.75	1.53	.67
6136886	SS125SLDL250425	DL25	1.25	.96	4.25	1.64	1.19
6136890	SS150SLDL320550	DL32	1.50	1.21	5.50	1.64	2.29
6136892	SS200SLDL320750	DL32	2.00	1.21	7.50	4.50	4.92

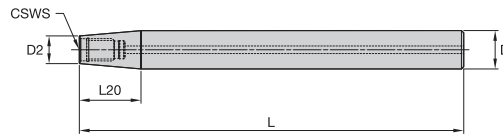


DUO-LOCK

Steel Extension • Cylindrical • Straight Shank

Order Number	Catalog Number	Csws	D	D2	L	L2	Ft. Lbs.
6136861	SS038DL100375	DL10	.38	.36	3.75	.19	18.40
6136869	SS050DL120500	DL12	.50	.48	5.00	.25	22.10
6136875	SS062DL160625	DL16	.63	.61	6.25	.31	44.20
6136881	SS075DL200750	DL20	.75	.73	7.50	.38	59.00
6136885	SS100DL251000	DL25	1.00	.96	10.00	.50	73.80
6136889	SS125DL321000	DL32	1.25	1.21	10.00	.63	95.90

NOTE: Standard catalog cutting data does not apply. Consult tooling application expert before use.

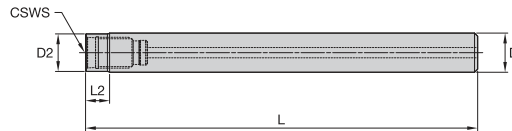


DUO-LOCK

Steel Extension • Conical • Straight Shank

Order Number	Catalog Number	Csws	D	D2	L	L20	Lbs
6136863	SS050DL100500	DL10	.50	.36	5.00	.80	.25
6136865	SS062DL100625	DL10	.63	.36	6.25	1.52	.47
6136867	SS075DL100750	DL10	.75	.36	7.50	2.23	.79
6136871	SS062DL120625	DL12	.63	.48	6.25	.82	.50
6136873	SS075DL120750	DL12	.75	.48	7.50	1.53	.85
6136877	SS075DL160750	DL16	.75	.61	7.50	.82	.86
6136879	SS100DL161000	DL16	1.00	.61	10.00	2.25	1.99
6136883	SS100DL201000	DL20	1.00	.73	10.00	1.53	2.04
6136887	SS125DL251000	DL25	1.25	.96	10.00	1.64	3.14
6136891	SS150DL321000	DL32	1.50	1.21	10.00	1.64	4.51
6136893	SS200DL321000	DL32	2.00	1.21	10.00	4.50	7.18

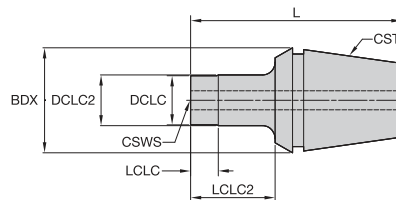
NOTE: Standard catalog cutting data does not apply. Consult tooling application expert before use.



DUO-LOCK

Heavy Metal Extension • Cylindrical • Straight Shank

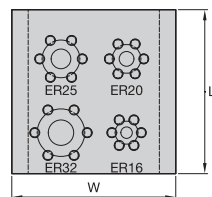
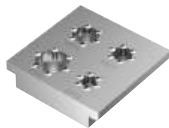
Order Number	Catalog Number	CsWS	D	D2	L	L2	Ft. Lbs.
6933530	HS050DL12N0950325	DL12	.50	.48	3.25	.95	18.44
6933536	HS050DL12N1950425	DL12	.50	.48	4.25	1.95	18.44
6933531	HS062DL16N1170350	DL16	.63	.61	3.50	1.17	29.50
6933537	HS062DL16N2420475	DL16	.63	.61	4.75	2.42	29.50
6933532	HS075DL20N1390375	DL20	.75	.73	3.75	1.39	44.25
6933538	HS075DL20N2890525	DL20	.75	.73	5.25	2.89	44.25
6933533	HS100DL25N1830450	DL25	1.00	.96	4.50	1.83	66.38
6933539	HS100DL25N3830650	DL25	1.00	.96	6.50	3.83	66.38
6933534	HS125DL32N2280500	DL32	1.25	1.21	5.00	2.28	95.88
6933540	HS125DL32N4780750	DL32	1.25	1.21	7.50	4.78	95.88



DUO-LOCK

ER Solid Collets

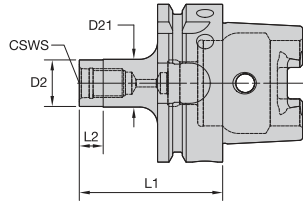
Order Number	Catalog Number	Cst	CsWS	Bdx	L	DclC	DclC2	LclC	LclC2	Lbs
6612283	16ERDL10	ER16	DL10	17	32,8	9,6	—	5,3	—	0.07
6612284	20ERDL10	ER20	DL10	21	37,0	9,6	—	5,5	—	0.12
6612285	20ERDL12	ER20	DL12	21	38,0	11,5	—	6,5	—	0.12
6612286	25ERDL10	ER25	DL10	26	39,5	9,6	—	5,5	—	0.22
6612287	25ERDL12	ER25	DL12	26	40,5	11,5	—	6,5	—	0.22
6612288	25ERDL16	ER25	DL16	26	39,5	15,5	—	5,5	—	0.22
6612289	32ERDL10	ER32	DL10	33	66,5	9,6	10	5,0	26,5	0.46
6612290	32ERDL12	ER32	DL12	33	67,5	11,5	12	6,0	27,5	0.47
6612331	32ERDL16	ER32	DL16	33	66,5	15,5	16	8,0	26,5	0.49
6612332	32ERDL20	ER32	DL20	33	66,5	19,3	20	10,0	26,5	0.52



DUO-LOCK

ER Solid Collet Mounting Plate

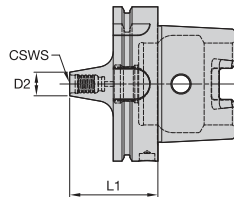
Order Number	Catalog Number	L	W	Lbs
6612333	DLCCDER	100	100	1.25



DUO-LOCK

Adapter • HSK63 Form A

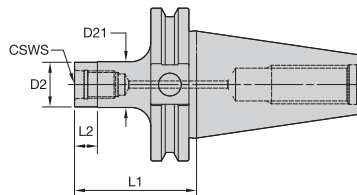
Order Number	Catalog Number	Csws	D2	D21	L1	L2	Ft. Lbs.
6136895	HSK63ADL10200	DL10	.36	.38	2.00	.19	18.40
6136896	HSK63ADL12225	DL12	.48	.50	2.25	.25	21.10
6136897	HSK63ADL16225	DL16	.61	.63	2.25	.31	44.20
6136898	HSK63ADL20225	DL20	.73	.75	2.25	.37	59.00
6136899	HSK63ADL25250	DL25	.96	1.00	2.50	.49	73.80



DUO-LOCK

Adapter • HSK100 Form A

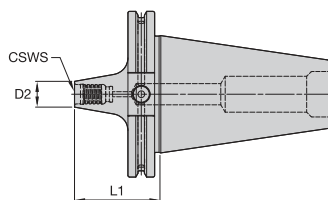
Order Number	Catalog Number	Csws	D2	L1	Lbs
6478868	HSK100ADL16225	DL16	.61	2.25	4.56
6478869	HSK100ADL20225	DL20	.73	2.25	4.62
6478870	HSK100ADL25250	DL25	.96	2.50	4.79
6478871	HSK100ADL32300	DL32	1.21	3.00	5.32



DUO-LOCK

Adapter • CV40

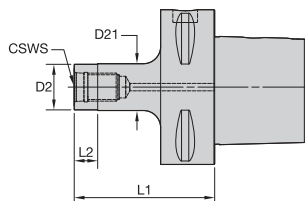
Order Number	Catalog Number	Csws	D2	D21	L1	L2	Lbs
6136937	CV40BDL10162	DL10	.36	.38	1.62	.19	1.77
6136938	CV40BDL12162	DL12	.48	.50	1.62	.25	1.78
6136939	CV40BDL16200	DL16	.61	.63	2.00	.31	1.82
6136940	CV40BDL20200	DL20	.73	.75	2.00	.37	1.84
6136941	CV40BDL25225	DL25	.96	1.00	2.25	.49	1.94



DUO-LOCK

Adapter • DV50

Order Number	Catalog Number	Csws	D2	L1	Lbs
6478863	CV50BDL16200	DL16	.61	2.00	5.95
6478864	CV50BDL20200	DL20	.73	2.00	6.02
6478865	CV50BDL25225	DL25	.96	2.25	6.19
6478867	CV50BDL32250	DL32	1.21	2.50	6.59



DUO-LOCK

Adapter • PSC63

Order Number	Catalog Number	Csws	D2	D21	L1	L2	Lbs
6136931	PSC63DL10200	DL10	.36	.37	2.00	.19	1.69
6136932	PSC63DL12200	DL12	.48	.50	2.00	.25	1.70
6136933	PSC63DL16225	DL16	.61	.63	2.25	.31	1.73
6136934	PSC63DL20225	DL20	.73	.75	2.25	.37	1.75
6136935	PSC63DL25238	DL25	.96	1.00	2.38	.49	1.84

DUO-LOCK

Double-Handed Torque Wrench



Order Number	Catalogue Number	Description	Torque (Steel Shank)		Torque (Heavy Metal Shank)	
			Nm	Ft Lb	Nm	Ft Lb
6135413	TWDLTM	BASIC DUO LOCK WRENCH				
6135414	TWTMININSERTDL10	TORQUE WRENCH INSERT DL10	20	14.8	15	11.1
6135415	TWTMININSERTDL12	TORQUE WRENCH INSERT DL12	30	22.1	25	18.4
6135416	TWTMININSERTDL16	TORQUE WRENCH INSERT DL16	60	44.3	40	29.5
6135417	TWTMININSERTDL20	TORQUE WRENCH INSERT DL20	80	59.0	60	44.3
6135418	TWTMININSERTDL25	TORQUE WRENCH INSERT DL25	100	73.8	90	66.4
6135419	TWTMININSERTDL32	TORQUE WRENCH INSERT DL32	130	130	130	95.9
6135422	TWTMEXT	TORQUE WRENCH EXTENSION HANDLE				
6135423	TWTMBC	TORQUE WRENCH BOLT SET				

DUO-LOCK

Torque Wrench Double-Handed Kit

1 ERICKSON™ Torque Master Wrench

2 Insert

3 Extension Handle



Order Number	Catalogue Number	Kit Description		Duo-Lock Size	Torque (Steel Shank)		Torque (Heavy Metal Shank)	
					Nm	Ft Lb	Nm	Ft Lb
6342967	TWDL10TM	D-L WRENCH WITH DL10 INSERT AND HANDLES	1+2+3	DL 10	20	14.8	15	11.1
6342968	TWDL12TM	D-L WRENCH WITH DL12 INSERT AND HANDLES		DL 12	30	22.1	25	18.4
6342969	TWDL16TM	D-L WRENCH WITH DL16 INSERT AND HANDLES		DL 16	60	44.3	40	29.5
6342970	TWDL20TM	D-L WRENCH WITH DL20 INSERT AND HANDLES		DL 20	80	59.0	60	44.3
6343061	TWDL25TM	D-L WRENCH WITH DL25 INSERT AND HANDLES		DL 25	100	73.8	90	66.4
6343062	TWDL32TM	D-L WRENCH WITH DL32 INSERT AND HANDLES		DL 32	130	95.9	130	95.9

DUO-LOCK

Single-Handed Torque Wrench



Order Number	Catalogue Number	Description	Duo-Lock Size	Torque (Steel Shank)		Torque (Heavy Metal Shank)	
				Nm	Ft Lb	Nm	Ft Lb
6411155	TWDL9X12	D-L SINGLE HAND TORQUE WRENCH	—	—	—	—	—
6410950	TWSH9X12INSERTDL10	D-L TORQUE WRENCH SH INSERT	DL10	20	14.8	15	11.1
6411151	TWSH9X12INSERTDL12	D-L TORQUE WRENCH SH INSERT	DL12	30	22.1	25	18.4
6411152	TWSH9X12INSERTDL16	D-L TORQUE WRENCH SH INSERT	DL16	60	44.3	40	29.5
6411153	TWSH9X12INSERTDL20	D-L TORQUE WRENCH SH INSERT	DL20	80	59.0	60	44.3
6411154	TWDL9X12CA14X18	D-L ADAPTER 9X12 TO 14X18	—	—	—	—	—

HARVI I TE DUO-LOCK • Catalog Numbering System

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

H1TE4SE1200S016HAM								
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	Standard
H1TE = HARVI I TE	4 = 4-Flute	SE = Sharp Edge CH = Chamfer RA = Radius	Metric = D1 in mm Inch = D1 in decimal inch	R = Regular Without Neck	Metric = Ap1 Max in mm Inch = Ap1 Max in decimal inch	DL = DUO-LOCK		M = Metric Blank = Inch

DUO-LOCK • Catalog Numbering System

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

ABBE1000X3CN								
AB	B	E	1000	X	3	C	N	
Series	End Mill Shape	Helix Angle	Diameter	Shank Style	Number of Flutes	Length of Cut	Shape/Features	Coner Configuration
AB = MaxiMet – Non-ferrous metals	B = Ball Nose	A = 0–10		X = Metric – DUO-LOCK	2	A = 0,75 x D	H = Chamfer	Metric
	D = Square End	B = 11–20			3			D = Metric – 0,4mm
FG = Finisher general applications – Steels		D = 31–35		Y = Inch – DUO-LOCK	4	B = 1,0 x D	N = Necked	E = Metric – 0,5mm
					5			F = Metric – 0,75mm
FM = Finisher multi-flute – Steels		E = 36–40			6	C = 1,5 x D	Q = Necked & Radius	H = Metric – 1,25mm
					9			J = Metric – 1,5mm
FS = RSM II multi-flute – High-temperature alloys		F = 41–45			B = 11		R = Radius	N = Metric – 4,0mm
					F = 15			S = Sharp
KM = KenFeed – Medium steels		V = 37/39° variable			J = 19		U = Necked + Sharp	X = Custom
							V = Necked + Chamfer	
RF = Rougher – Chipbreaker design								Inch
								A = Inch – .015"
RK = Rougher – Fine-pitch profile design								B = Inch – .030"
								C = Inch – .060"
RQ = Rougher – Coarse-pitch profile design								D = Inch – .090"
								E = Inch – .120"
UC = HARVI II – Stainless steels								F = Inch – .250"
								S = Sharp
UD = HARVI II – High-temperature alloys								X = Custom
UJ = HARVI III center cut & eccentric cut – High-temperature alloys								
UK = HARVI I asymmetric fluting – Stainless steels								
UL = HARVI I asymmetric fluting – High-temperature alloys								
XA = Chamfering tool								
XR = Corner rounding tool								

DUO-LOCK • Extensions • Catalog Numbering System

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

SS10SLDL10055M					
SS	10	SL	DL10	055	M
Connection Style Machine Side (CSMS)	Shank Diameter	Shank Style	Connection Style Workpiece Side (CSWS) System Size	Tool Length A	Value
SS = Straight Shank	Metric = D in mm Inch = D in decimal inch	SL = Safe-Lock Blank = Plain	DL10 = DUO-LOCK size 10	Metric = L in mm Inch = L in decimal inch	Metric

DUO-LOCK • Solid ER Collet • Catalog Numbering System

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

32ERDL16		
32	ER	DL16
Collet Size	Collet Type	DUO-LOCK Coupling Size
16 = ER16 20 = ER 20 25 = ER 25 32 = ER 32	ER	16 = ER16 20 = ER 20 25 = ER 25 32 = ER 32

DUO-LOCK • Adapters • Catalog Numbering System

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

HSK63ADL10048M						
HSK	63	A	DL	100	48	M
Connection Style Machine Side (CSMS)	Connection Size	System Flange Form	Hydraulic Chuck Type	Clamping Diameter	Tool Length	Value
KM™	30	A = Form A	HCTHT = HydroForce™	50 = 50mm	150 = 150mm	M = Metric
KM4X™	32	C = Form C		075 = 3/4"	413 = 4.13"	Blank = Inch
HSK	40	B = Coolant	HCSL = Slim Line			
DV	50					
CV	63		HCSLT = Slim Line T			
BT	80		HC = High Performance			
PSC	100		DL = DUO-LOCK			
	125					

A diagram illustrating the correct placement of the mask strap. A diver's head is shown in profile, wearing a mask. A circular inset provides a magnified view of the mask's top edge, showing a thick, dark, U-shaped strap that is correctly positioned to rest on the bridge of the nose and the top of the head, rather than resting on the forehead.

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



			Wear Resistance ← → Toughness										
Grade	Coating	Grade Description		05	10	15	20	25	30	35	40	45	
Grade	KCSM15	Composition: Monolayer PVD AlTiN-coated submicron grain carbide with smooth coating surface. Application: Proprietary coating with best-in-class tool life as well as performance consistency optimized for application in stainless steel and high-temp alloys.	M										
			S										
			P										
	KCPM15A	Composition: PVD AlCrN/TiSiN coated submicron grain carbide. Application: Excellent choice for steel, stainless steel, cast iron and hard materials. High metal removal rates and reliable tool life can be achieved due to proprietary coating technology with improved thickness control. Non-black coating color allows for easy wear identification.	M										
			K										
			S										
			H										
Grade	KCSM15A	Composition: PVD AlCrN/TiSiN coated submicron grain carbide. Application: First choice for high-temp 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										
	KCN05	Composition: CVD diamond-coated, fine-grain carbide. Application: First choice for machining carbon-fiber reinforced polymers (CFRP). The crystalline diamond-coated grade offers the highest degree of abrasive wear resistance.	C										
	KD1410	Composition: A polycrystalline diamond (PCD) tip brazed onto a carbide substrate. Application: Engineered for good abrasion resistance combined with excellent edge strength for demanding applications. An ideal choice for aluminum with high silicon content as well as CFRP.	N										
			C										
	KYS40	Composition: SiAlON solid ceramic. Application: SiAlON ceramic end mills take dry machining of nickel-based high-temp alloys to a new level. The increased heat resistance of SiAlON ceramics enables cutting at highest velocities leading to best metal removal rates and productivity.	S										
	KCU20	Composition: Multilayered PVD TiN-TiAlN coated submicron grain carbide with a gold TiN Toplayer for better wear identification. Application: This multi-purpose grade offers highest versatility and best reliability across recommended material groups at intermediate cutting conditions.	P										
Grade			M										
			K										
			S										
			P										
			M										
			K										
			S										

KEY TO PRODUCT TABLE COLUMN HEADINGS

Short-Name Code	Full Text Description
Ap1 max	Maximum Cutting Depth
BCH	Corner Chamfer Width
BDX	Maximum Body Diameter
CSMS	Connection Style Machine Side
CST	Collet Series
CSWS	Connection Style Workpiece Side
D	Adapter/Shank Diameter
D1	Milling: Cutter Diameter
D2	Body Diameter 1 Workpiece Side
D21	Body Diameter 2 Workpiece Side
D3	Neck Diameter
DCLC	Boss Diameter
DCLC2	Boss Diameter 2
E	Profile Angle
ft. lbs.	Torque Foot Pounds
kg	Weight Kilograms
KRA	Lead Angle
L	Overall Length
L1	Milling: Gage Length
L1	Toolholder: Gage Length
L2	Milling: Head Length
L20	Beta Taper End Length
L3	Milling: Maximum Depth
lbs	Weight Pounds
LCLC	Boss Length
LCLC2	Boss Length 2
LS	Shank Length
Nm	Torque Newton Meters
R	Profile or Ball Nose Radii
Re	Corner Radius
W	Overall Width
WF	Milling: Width of Flat
Z U	Number of Flutes



General Information

P	Steel
M	Stainless Steel
K	Cast Iron

N	Non-Ferrous
S	High-Temp Alloys

H	Hardened Materials
C	CFRP Materials

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	–	A36, 1008, 1010, 1018 through 1029; 1108, 1117
P1	Low-Carbon Steels, Short Chipping, Free Machining	C <0.25%	<530	<125	–	10L18, 1200 Series, 1213, 12L14
P2	Medium- and High-Carbon Steels	C >0.25%	>530	<220	<25	1035, 1045, 10L45, 1050, 10L50, 1080, 1137, 1144, 11L44, 1525, 1545, 1572
P3	Alloy Steels and Tool Steels	C >0.25%	600–850	<330	<35	1300, 2000, 3000, 4000, 5000, 8000, P20, SAE: A, D, H, O, S, M, T
P4	Alloy Steels and Tool Steels	C >0.25%	850–1400	340–450	35–48	1300, 2000, 3000, 4000, 5000, 8000, P20, SAE: A, D, H, O, S, M, T
P5	Ferritic, Martensitic, and PH Stainless Steels	–	600–900	<330	<35	15–5 PH, 13–8 PH, 17–4 PH, 400 and 500 Series
P6	High-Strength Ferritic, Martensitic, and PH Stainless Steels	–	900–1350	350–450	35–48	15–5 PH, 13–8 PH, 17–4 PH, 400 and 500 Series
M1	Austenitic Stainless Steel	–	<600	130–200	–	200 Series, 301, 302, 304, 304L, 309
M2	High-Strength Austenitic Stainless and Cast Stainless Steels	–	600–800	150–230	<25	310, 316, 316L, 321, 347, 384 ASTM Cast XM-1, XM-5, XM-7, XM-21
M3	Duplex Stainless Steel	–	<800	135–275	<30	323, 329, F55, 2205, S329000
K1	Gray Cast Iron	–	125–500	120–290	<32	Class 20, 25, 30, 35, 40, 45, 50, 55, 60, G1800, G3000, G3500, G4000
K2	Low- and Medium-Strength Ductile Irons (Nodular Irons) and Compacted Graphite Irons (CGI)	–	<600	130–260	<28	60-40-18, 65-45-12, 80-55-06; SAE J434: D4018, D4512, D5506; ASTM A47: Grade 32510, 35018; SAE J158: Grade M3210, M4504, M5003, M5503, M7002; ASTM A842: Grade 250, 300, 350, 400, 450
K3	High-Strength Ductile Irons and Austempered Ductile Iron (ADI)	–	>600	180–350	<43	ASTM A536:100-70-03, 120-90-02, SAE J434: D7003, SAE J158: Grade M8501AST A897: 125-80-10, 150-100-7, 175-125-4, 200-150-1, 230-185
N1	Wrought Aluminum	–	–	–	–	2025, 5050, 7050, 1000, 2017
N2	Low-Silicon Aluminum Alloys and Magnesium Alloys	Si <12.2%	–	–	–	2024, 6061, 7075
N3	High-Silicon Aluminum Alloys and Magnesium Alloys	Si >12.2%	–	–	–	–
N4	Copper-, Brass-, Zinc-Based on Machinability Index Range of 70–100	–	–	–	–	C81500
N5	Nylon, Plastics, Rubbers, Phenolics, Resins, Fiberglass	–	–	–	–	–
N6	Carbon, Graphite Composites, CFRP	–	–	–	–	Graphite, CFK, CFRP
N7	Metal Matrix Composites (MMC)	–	–	–	–	C63000
S1	Iron-Based, Heat-Resistant Alloys	–	500–1200	160–260	25–48	A-286, INCOLOY® 800 Series, A608, A567, Discaloy, INVAR®, N-155, 16-25-6, 19-9 DL; Cast: ASTM A-297, A-351, A-567, A-608
S2	Cobalt-Based, Heat-Resistant Alloys	–	1000–1450	250–450	25–48	Haynes® 25 (L605), Haynes 188, J-1570, Stellite™, AiResist 213; Cast: AiResist 13, Haynes 21, MAR-M302, MAR-M509, NASA Co-W-Re, WI-52
S3	Nickel-Based, Heat-Resistant Alloys	–	600–1700	160–450	<48	Astroloy™, Hastelloy® B/C/ C-276 /X, INCONEL® 600 and 700 Series, IN102, INCOLOY 900 Series, Rene 41, Waspalloy®, MONEL®, K-500, MAR-M20, NIMONIC®, UDIMET®
S4	Titanium and Titanium Alloys	–	900–1600	300–400	33–48	Pure: Ti 98.8, Ti 98.9, Ti 99.9; Alloyed: Ti 5Al-2.5Sn, Ti6Al-4V, Ti6Al-2Sn-4Zr-2Mo, Ti-3Al-8V-6Cr-4Mo-4Zr, Ti-10V-2Fe-3Al, Ti-13V-11Cr-3Al
H1	Hardened Materials	–	–	–	44–48	Tool Steel H10, H11, H13, D2, D3, 4340, P20
H2	Hardened Materials	–	–	–	48–55	Tool Steel H10, H11, H13, D2, D3, 4340, P20
H3	Hardened Materials	–	–	–	56–60	Tool Steel H10, H11, H13, D2, D3, 4340, P20
H4	Hardened Materials	–	–	–	>60	Tool Steel H10, H11, H13, D2, D3, 4340, P20
C1	CFRP, CFRP/CFRP	–	–	–	–	–
C2	CFRP/Non-Ferrous	–	–	–	–	–
C3	CFRP/High-Temp	–	–	–	–	–
C4	CFRP/Stainless Steel	–	–	–	–	–
C5	CFRP/Non-Ferrous/High-Temp	–	–	–	–	–

P	Steel
M	Stainless Steel
K	Cast Iron

N	Non-Ferrous
S	High-Temp Alloys

H	Hardened Materials
C	CFRP Materials

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	Gray 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%	–	–	–	GAISiCu4, GDAISi10Mg
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	–	–	–	–	–

[illegible]

This image shows a full page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. At the top center, there is a small header area containing the word "Notes" in a simple black font.

SOLID END MILLING



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