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KENNAMETAL®

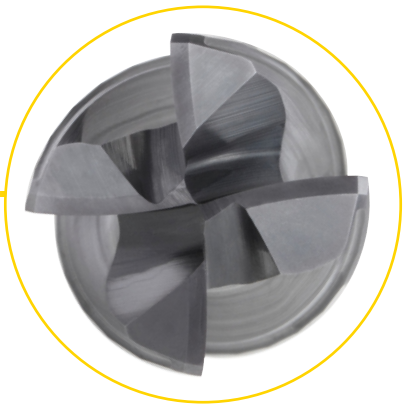
MASTER CATALOG 2023

INCH

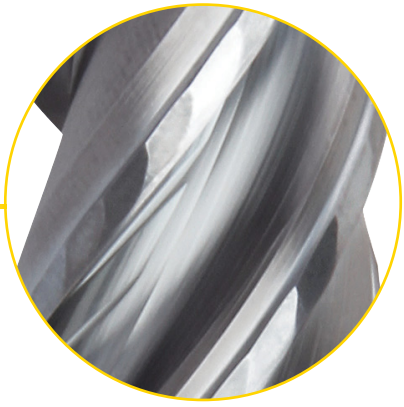
SOLID CARBIDE END MILLING | MODULAR END MILLING

HARVI™ I TE

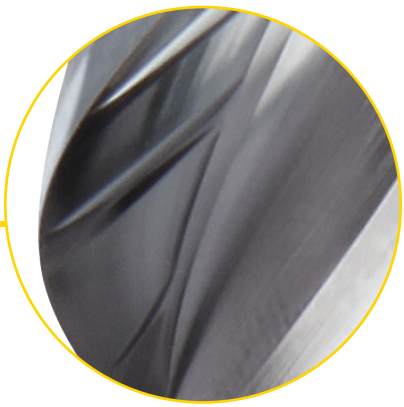
Innovative proprietary design features driving maximum productivity.



Twisted end face.



Faceted eccentric relief.



Chip gashes within flutes.

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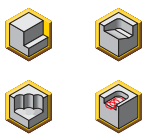
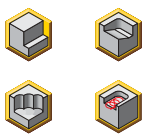
Solid Carbide End Milling

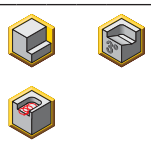
Tool Selector

	HIGH-PERFORMANCE ROUGHING AND FINISHING				
	HARVI™ I TE				
					
Series	**H1TE4CH..S-X..**	**H1TE4RA..S-X..**	**H1TE4RA..N-E..**	**H1TE4SE..S-X..**	**H1TE4BN..R-L..**
Page	10–11	12–15	16–17	18–19	20–21
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 [Rε]	–	.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

Solid Carbide End Milling

Tool Selector

	HIGH-PERFORMANCE ROUGHING AND FINISHING					
	HARVI™ II		HARVI III			
						
Series	**UCDE**	**UCDE with Neck**	**UDDE**	**UJDE**	**UJDE with Neck**	**UJBE**
Page	30–32	33	34–35	36–38	38–39	39
Tool type						
Rougher	●	●	●	●	●	○
Finisher	○	○	○	○	○	●
Chamfering						
Main operation						
Workpiece material						
Primary	P M K	P M S K	P S	M S	M S	M S
Secondary	S H	H		P H	P H	P H
Corner style						
Corner radius [Rε]	.015–.120"	.015–.030"	.015–.120"	.015–.250"	.015–.120"	–
Corner chamfer width [BCH]	–	–	–	–	–	–
Cutter diameter [D1]	3/16–1"	1/4–1"	1/2–1"	3/8–1-1/4"	3/8–1"	3/8–1"
Length of cut	1.75–3.3 x D	1.75–2.5 x D	1.75–2.5 x D	1.3–4 x D	1.5–2.5 x D	1.5–2.5 x D
Maximum cutting depth [Ap1 max]	5/8–1-3/4"	1/2–1-3/4"	1-1/4–1-3/4"	1–2-1/4"	7/8–1-3/4"	7/8–1-1/2"
Flute helix angle	38°	38°	38°	38°	38°	38°
Number of flutes [ZU]	5	5	5	6	6	6
Center cutting				✔	✔	✔
Additional operations						

● Primary
○ Secondary

Solid Carbide End Milling

Tool Selector

	HIGH-PERFORMANCE ROUGHING AND FINISHING					
	HARVI™ III				HARVI II Long	
						
Series	**UJBE with Neck**	**UJDE Aero**	**UJBE Aero**	**UJBE**	**UGDE 3 x D**	**UGDE 5 x D**
Page	39	40–42	43	44	45	46
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 [Rε]	–	.030–.500"	–	–	.015–.120"	.015–.120"
Corner chamfer width [BCH]	–	–	–	–	–	–
Cutter diameter [D1]	3/8–1"	1/2–1-1/2"	1/2–1-1/4"	1/8–7/16"	1/4–1"	1/4–1"
Length of cut	1.25 x D	1.3–5.3 x D	1.3–5.3 x D	1.7–9.5 x D	3 x D	5 x D
Maximum cutting depth [Ap1 max]	1/2–1-1/4"	1–6-1/2"	1–6-1/2"	3/4–2 x D	3/4–3"	1–1/4–5"
Flute helix angle	38°	38°	38°	38°	43°	43°
Number of flutes [ZU]	6	6	6	6	5	5
Center cutting	✔	✔	✔	✔		
Additional operations						

● Primary
○ Secondary

Solid Carbide End Milling

Tool Selector

	DYNAMIC MILLING					
	KOR5™ DS		KOR5DA		KOR6™ DT	
						
Series	**KOR5..R..**	**KOR5..L..**	**KOR5..I..**	**KOR5..C..**	**KOR6..R..**	**KOR6..L..**
Page	56	57	58–59	60–61	62	63
Tool type						
Rougher	●	●	●	●	●	●
Finisher	○	○	○	○		
Chamfering						
Main operation						
Workpiece material						
Primary	P M	P M	N	N	S	S
Secondary	K S H	K S H			P M K H	P M K H
Corner style						
Corner radius [Rε]	0.030—0.060"	0.030—0.060"	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"	3/8—1"	3/8—1"	3/8—1"
Length of cut	3 x D	5 x D	3 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 1/8—3"	1 1/8—3"	1 7/8—5"
Flute helix angle	40°	40°	35°	35°	38°	38°
Number of flutes [ZU]	5	5	5	5	6	6
Coolant						
Additional operations						

● Primary

○ Secondary

POWERED BY NOVO

HARVI™ I TE

High-Performance Roughing and Finishing with Maximum Versatility

Materials

P M K S H

Applications

- Slotting
- 3D Profiling
- Side Milling/ Shoulder Milling
- Ramping
- Slotting: Ball Nose
- Helical Interpolation
- Plunge Milling
- Trochoidal Milling

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 ensure maximum metal removal rates in a variety of operations, including dynamic milling and extreme ramping operations.

Applicable in steels, stainless steel, cast iron, high-temperature alloys, and hardened materials.

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

Chamfered.

Chamfered.
Sharp edge.
Short version.

Necked.
Chamfered.
Radiused.
Sharp edge.

Ball nose.
Short version
with neck.
Long version.

Faceted eccentric relief.

Chip gashes within the flutes.

Twisted end face.

Asymmetrical divided flutes and variable helix.

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, enabling vibration dampening and unmatched feed rates.

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

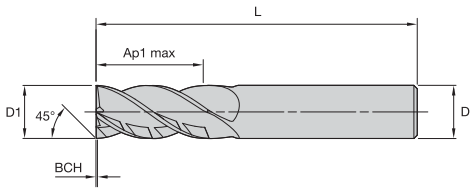
Proprietary flute design — Innovative chip gashes within the flutes reduce cutting forces and support efficient chip evacuation.

Proprietary core design — Increases tool stability.

Solid Carbide End Milling

HARVI™ I TE • Chamfered • 4 Flutes • Plain Shank • Inch

● first choice
○ alternate choice



P	●
M	●
K	●
N	
S	○
H	○

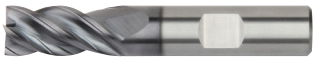
order number	catalog number	D1	D	Ap1 max	L	BCH	KCPM15
6676987	H1TE4CH0125R025HA	1/8	1/8	1/4	1 1/2	.015	●
6676988	H1TE4CH0125X050HA	1/8	1/8	1/2	2	.015	●
6676989	H1TE4CH0156L044HA	5/32	3/16	7/16	2	.015	●
6676990	H1TE4CH0188S031HA	3/16	3/16	5/16	1 1/2	.015	●
6676991	H1TE4CH0188L063HA	3/16	3/16	5/8	2 1/4	.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	●

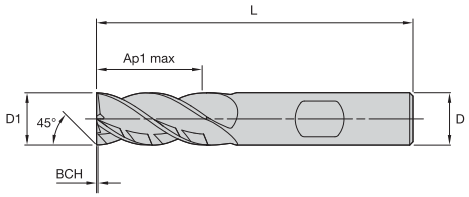
158–159	160	115–117	164

Solid Carbide End Milling

HARVI™ I TE • Chamfered • 4 Flutes • Weldon® Shank • Inch

● first choice
○ alternate choice





P	●
M	●
K	●
N	
S	○
H	○

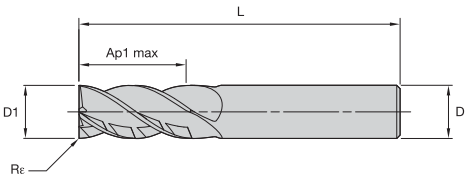
order number	catalog number	D1	D	Ap1 max	L	BCH	KCPM15
6677037	H1TE4CH0375S050HB	3/8	3/8	1/2	2	.020	●
6677038	H1TE4CH0375R088HB	3/8	3/8	7/8	2 1/2	.020	●
6677039	H1TE4CH0438R100HB	7/16	7/16	1	2 3/4	.020	●
6677040	H1TE4CH0500S063HB	1/2	1/2	5/8	2 1/2	.020	●
6677051	H1TE4CH0500R100HB	1/2	1/2	1	3	.020	●
6677052	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	●

158–159	160	115–117	164

Solid Carbide End Milling

HARVI™ I TE • Radiused • 4 Flutes • Plain Shank • Inch

● first choice
○ alternate choice



P	○
M	●
K	○
N	
S	●
H	○

order number	catalog number	D1	D	Ap1 max	L	Rε	KCSM15
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	●

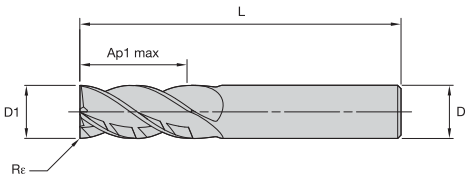
158–159	160	115–117	164

Solid Carbide End Milling

HARVI™ I TE • Radiused • 4 Flutes • Plain Shank • Inch

(continued)

● first choice
○ alternate choice



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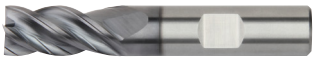
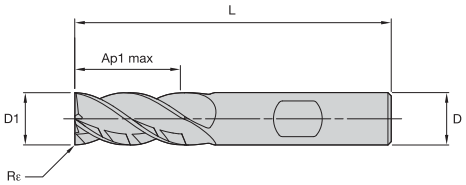
order number	catalog number	D1	D	Ap1 max	L	Rε	KCSM15
6676427	H1TE4RA0500R125HAR120	1/2	1/2	1 1/4	3 1/4	.120	●
6676428	H1TE4RA0500L150HAR030	1/2	1/2	1 1/2	4	.030	●
6676429	H1TE4RA0500L150HAR060	1/2	1/2	1 1/2	4	.060	●
6676430	H1TE4RA0500X200HAR030	1/2	1/2	2	4	.030	●
6676431	H1TE4RA0500X200HAR060	1/2	1/2	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	●

158–159	160	115–117	164

Solid Carbide End Milling

HARVI™ I TE • Radiused • 4 Flutes • Weldon® Shank • Inch





● first choice
○ alternate choice

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order number	catalog number	D1	D	Ap1 max	L	Rε	KCSM15
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	●

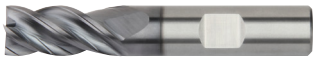
158–159	160	115–117	164

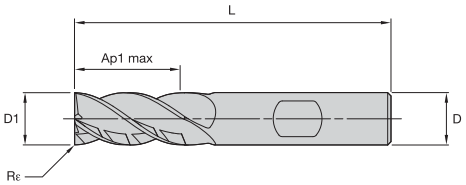
Solid Carbide End Milling

HARVI™ I TE • Radiused • 4 Flutes • Weldon® Shank • Inch

(continued)

● first choice
○ alternate choice





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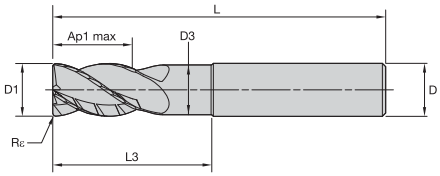
order number	catalog number	D1	D	Ap1 max	L	Rε	KCSM15
6676553	H1TE4RA1000S150HBR030	1	1	1 1/2	4 1/2	.030	●
6676554	H1TE4RA1000S150HBR060	1	1	1 1/2	4 1/2	.060	●
6676555	H1TE4RA1000S150HBR090	1	1	1 1/2	4 1/2	.090	●
6676556	H1TE4RA1000S150HBR120	1	1	1 1/2	4 1/2	.120	●
6676557	H1TE4RA1000S150HBR250	1	1	1 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	●

158–159	160	115–117	164

Solid Carbide End Milling

HARVI™ I TE • Radiused • 4 Flutes • Necked • Plain Shank • Inch

● first choice
○ alternate choice



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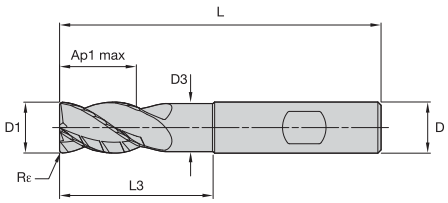
order number	catalog number	D1	D	D3	Ap1 max	L3	L	Rε	KCSM15
6767785	H1TE4RA0250N038HAR015	1/4	1/4	.2350	3/8	1 1/4	4	.015	●
6767786	H1TE4RA0250N038HAR030	1/4	1/4	.2350	3/8	1 1/4	4	.030	●
6767788	H1TE4RA0250N038HAR060	1/4	1/4	.2350	3/8	1 1/4	4	.060	●
6767789	H1TE4RA0250N038HAR090	1/4	1/4	.2350	3/8	1 1/4	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	●

158–159 | 160 | 115–117 | 164

Solid Carbide End Milling

HARVI™ I TE • Radiused • 4 Flutes • Necked • Weldon® Shank • Inch



● first choice
○ alternate choice

P		○
M		●
K		○
N		
S		●
H		○

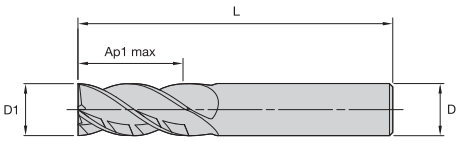
order number	catalog number	D1	D	D3	Ap1 max	L3	L	Rε	KCSM15
6767849	H1TE4RA0375N050HBR015	3/8	3/8	.3525	1/2	2	4	.015	●
6767850	H1TE4RA0375N050HBR030	3/8	3/8	.3525	1/2	2	4	.030	●
6767851	H1TE4RA0375N050HBR060	3/8	3/8	.3525	1/2	2	4	.060	●
6767852	H1TE4RA0375N050HBR090	3/8	3/8	.3525	1/2	2	4	.090	●
6767853	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	●

158–159	160	115–117	164

Solid Carbide End Milling

HARVI™ I TE • Square End • 4 Flutes • Plain Shank • Inch

● first choice
○ alternate choice



P	●
M	●
K	●
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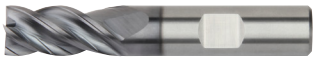
order number	catalog number	D1	D	Ap1 max	L	KCPM15
6767731	H1TE4SE0063R013HA	1/16	1/8	1/8	1 1/2	●
6767733	H1TE4SE0078R016HA	5/64	1/8	5/32	1 1/2	●
6767734	H1TE4SE0094R019HA	3/32	1/8	3/16	1 1/2	●
6767735	H1TE4SE0109R025HA	7/64	1/8	1/4	1 1/2	●
6676840	H1TE4SE0125R025HA	1/8	1/8	1/4	1 1/2	●
6676911	H1TE4SE0125X050HA	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	●

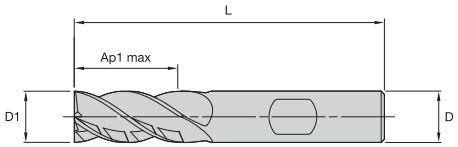
158–159	160	115–117	164

Solid Carbide End Milling

HARVI™ I TE • Square End • 4 Flutes • Weldon® Shank • Inch

● first choice
○ alternate choice





P		●
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S		○
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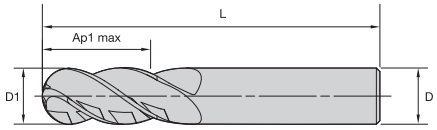
order number	catalog number	D1	D	Ap1 max	L	KCPM15
6676965	H1TE4SE0375S050HB	3/8	3/8	1/2	2	●
6676966	H1TE4SE0375R088HB	3/8	3/8	7/8	2 1/2	●
6676967	H1TE4SE0375R100HB	3/8	3/8	1	3	●
6676968	H1TE4SE0375X150HB	3/8	3/8	1 1/2	4	●
6676969	H1TE4SE0438R100HB	7/16	7/16	1	2 3/4	●
6676970	H1TE4SE0500S063HB	1/2	1/2	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	●

158–159	160	115–117	164

Solid Carbide End Milling

HARVI™ I TE • Ball Nose • 4 Flutes • Regular • Plain Shank • Inch

● first choice
○ alternate choice



P	●
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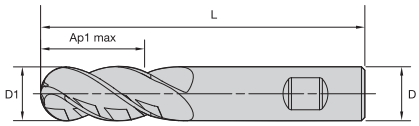
order number	catalog number	D1	D	Ap1 max	L	KCPM15
6767762	H1TE4BN0063R013HA	1/16	1/8	1/8	1 1/2	●
6767763	H1TE4BN0094R019HA	3/32	1/8	3/16	1 1/2	●
6767764	H1TE4BN0125R025HA	1/8	1/8	1/4	1 1/2	●
6767765	H1TE4BN0188R038HA	3/16	3/16	3/8	2 1/4	●
6767766	H1TE4BN0250R075HA	1/4	1/4	3/4	2 1/2	●
6767768	H1TE4BN0313R075HA	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	●

HARVI I TE • Ball Nose • 4 Flutes • Regular • Weldon® Shank • Inch

● first choice
○ alternate choice



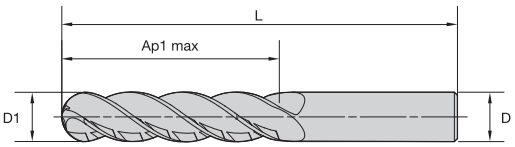
P	●
M	●
K	●
N	
S	○
H	○

order number	catalog number	D1	D	Ap1 max	L	KCPM15
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	●

158–159	160	115–117	164

Solid Carbide End Milling

HARVI™ I TE • Ball Nose • 4 Flutes • Long • Plain Shank • Inch

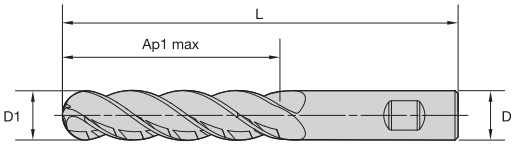


● first choice
○ alternate choice

P	●
M	●
K	●
N	
S	○
H	○

order number	catalog number	D1	D	Ap1 max	L	KCPM15
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	●

HARVI I TE • Ball Nose • 4 Flutes • Long • Weldon® Shank • Inch



● first choice
○ alternate choice

P	●
M	●
K	●
N	
S	○
H	○

order number	catalog number	D1	D	Ap1 max	L	KCPM15
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	●

158–159	160	115–117	164

Solid Carbide End Milling

HARVI™ I TE • Side Milling/Slotting • Application Data • Inch

Material Group		A		B	KCPM15–KCSM15			Recommended feed per tooth (Fz = IPT) for side milling (A). For slotting (B), reduce Fz by 20%.											
					Cutting Speed — vc m/min			D1 — Diameter											
		ap	ae	ap	min	Start	max	mm	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	580	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	580	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	540	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	450	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	400	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	260	330	IPT	.0006	.0008	.0011	.0013	.0015	.0017	.0021	.0024	.0030	.0035	.0039
	6	1.5 x D1	0.5 x D1	1.25 x D1	160	200	250	IPT	.0005	.0007	.0009	.0011	.0013	.0015	.0017	.0020	.0025	.0028	.0031
M	1	1.5 x D1	0.5 x D1	1.25 x D1	300	340	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	230	260	IPT	.0006	.0008	.0011	.0013	.0015	.0017	.0021	.0024	.0030	.0035	.0039
	3	1.5 x D1	0.5 x D1	1.0 x D1	200	210	230	IPT	.0005	.0007	.0009	.0011	.0013	.0015	.0017	.0020	.0025	.0028	.0031
K	1	1.5 x D1	0.5 x D1	1.0 x D1	390	440	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	410	460	IPT	.0007	.0010	.0013	.0016	.0019	.0022	.0026	.0030	.0038	.0044	.0049
	3	1.5 x D1	0.5 x D1	1.0 x D1	360	390	430	IPT	.0006	.0008	.0011	.0013	.0015	.0017	.0021	.0024	.0030	.0035	.0039
S	1	1.5 x D1	0.5 x D1	0.75 x D1	160	230	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	210	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	100	130	IPT	.0004	.0006	.0007	.0008	.0010	.0011	.0014	.0016	.0020	.0023	.0027
	4	1.5 x D1	0.5 x D1	1.25 x D1	160	180	200	IPT	.0005	.0007	.0009	.0011	.0014	.0016	.0019	.0022	.0028	.0032	.0036
H	1	1.5 x D1	0.5 x D1	1.0 x D1	260	360	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	310	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 12mm.
For tools with reach >4,5 x D, reduce Fz up to 30% and use lower range of cutting speed as starting condition.

Adjustment Factor for Feed and Speed Calculation • Inch

	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 recommeded base Fz.
For light finishing cuts requiring improved surface quality it is recommended to reduce the base Fz approximately 50% and then apply these factors.

To calculate application specific cutting data, please use KV coefficient table to the right for adaptation of cutting speed and KFz for feed respectively.

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

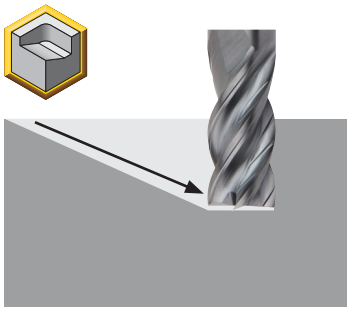
Calculation example:
Application: D1 = 1";
S4 material group;
Ae 0.1" (Ae = 10% D)
Cutting data recommendation: 180 SFM;
Fz = 0.0036 IPT
Adjustment coefficients: Ae = 0.1" equals 10%;
Kv = 1.4; KFz = 1.67

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

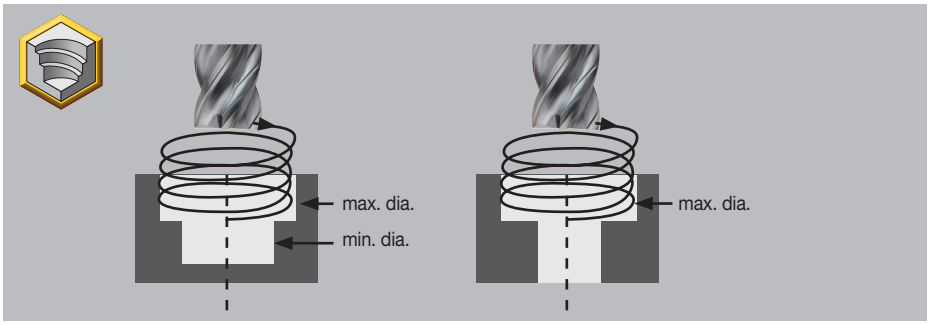
Solid Carbide End Milling

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 Ø = End mill -Ø x 1.1 + 2x corner configuration (Re/CHF) size. Hole -Ø/End mill -Ø min 1:1.15
Max. hole Ø = 2x End mill -Ø 2x corner configuration (Re/CHF) size. Hole -Ø/End mill -Ø max 1:1.9

HARVI I TE • Ramping 0°-15° • Application Data • Inch

Material Group		Max Depth	KCPM15–KCSM15 Cutting Speed — Vc SFM			Recommended feed per tooth (fz = IPT) for Helical Interpolation and Ramping — z_{eff} = 2														
						Diameter – D1 [Ømin–Ømax] for helical interpolation														
			min	Start	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	660	IPT	.0009	.0012	.0016	.0017	.0019	.0023	.0026	.0031	.0033	.0036	.0044	.0049	.0054	.0057
	1	1.25 x D1	490	580	660	IPT	.0009	.0012	.0016	.0017	.0019	.0023	.0026	.0031	.0033	.0036	.0044	.0049	.0054	.0057
	2	1.25 x D1	460	540	620	IPT	.0009	.0012	.0016	.0017	.0019	.0023	.0026	.0031	.0033	.0036	.0044	.0049	.0054	.0057
	3	1.25 x D1	390	450	520	IPT	.0007	.0010	.0013	.0014	.0016	.0019	.0022	.0026	.0028	.0030	.0038	.0044	.0049	.0052
	4	1.25 x D1	300	400	490	IPT	.0007	.0009	.0012	.0013	.0014	.0017	.0019	.0023	.0025	.0027	.0033	.0038	.0042	.0045
	5	1.25 x D1	200	260	330	IPT	.0006	.0008	.0011	.0012	.0013	.0015	.0017	.0021	.0022	.0024	.0030	.0035	.0039	.0041
	6	1.25 x D1	160	200	250	IPT	.0005	.0007	.0009	.0010	.0011	.0013	.0015	.0017	.0018	.0020	.0025	.0028	.0031	.0032
M	1	1.25 x D1	300	340	380	IPT	.0007	.0010	.0013	.0014	.0016	.0019	.0022	.0026	.0028	.0030	.0038	.0044	.0049	.0052
	2	1.25 x D1	200	230	260	IPT	.0006	.0008	.0011	.0012	.0013	.0015	.0017	.0021	.0022	.0024	.0030	.0035	.0039	.0041
	3	1.0 x D1	200	210	230	IPT	.0005	.0007	.0009	.0010	.0011	.0013	.0015	.0017	.0018	.0020	.0025	.0028	.0031	.0032
K	1	1.0 x D1	390	440	490	IPT	.0009	.0012	.0016	.0017	.0019	.0023	.0026	.0031	.0033	.0036	.0044	.0049	.0054	.0057
	2	1.0 x D1	360	410	460	IPT	.0007	.0010	.0013	.0014	.0016	.0019	.0022	.0026	.0028	.0030	.0038	.0044	.0049	.0052
	3	1.0 x D1	360	390	430	IPT	.0006	.0008	.0011	.0012	.0013	.0015	.0017	.0021	.0022	.0024	.0030	.0035	.0039	.0041
S	1	0.75 x D1	160	230	300	IPT	.0007	.0010	.0013	.0014	.0016	.0019	.0022	.0026	.0028	.0030	.0038	.0044	.0049	.0052
	2	0.75 x D1	160	210	260	IPT	.0006	.0008	.0011	.0012	.0013	.0015	.0017	.0021	.0022	.0024	.0030	.0035	.0039	.0041
	3	0.5 x D1	80	100	130	IPT	.0004	.0006	.0007	.0007	.0008	.0010	.0011	.0014	.0015	.0016	.0020	.0023	.0027	.0029
	4	1.25 x D1	160	180	200	IPT	.0005	.0007	.0009	.0010	.0011	.0014	.0016	.0019	.0020	.0022	.0028	.0032	.0036	.0039
H	1	1.0 x D1	260	360	460	IPT	.0007	.0009	.0012	.0013	.0014	.0017	.0019	.0023	.0025	.0027	.0033	.0038	.0042	.0045
	2	1.0 x D1	230	310	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.

Solid Carbide End Milling

HARVI™ I TE • Ramping 15°–30° • Application Data • Inch

Material Group		Max Depth	KCPM15–KCSM15 Cutting Speed — Vc SFM			Recommended feed per tooth (fz = IPT) for Helical Interpolation and Ramping — z_{eff} = 2													
						Diameter – D1 [Ømin–Ømax] for helical interpolation													
			min	Start	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	530	580	IPT	.0007	.0009	.0012	.0013	.0014	.0017	.0020	.0023	.0025	.0027	.0033	.0037	.0041	.0044
	1	1.25 x D1	490	530	580	IPT	.0007	.0009	.0012	.0013	.0014	.0017	.0020	.0023	.0025	.0027	.0033	.0037	.0041	.0044
	2	1.25 x D1	460	500	540	IPT	.0007	.0009	.0012	.0013	.0014	.0017	.0020	.0023	.0025	.0027	.0033	.0037	.0041	.0044
	3	1.25 x D1	390	420	450	IPT	.0005	.0008	.0010	.0011	.0012	.0014	.0017	.0020	.0021	.0023	.0029	.0033	.0037	.0040
	4	1.25 x D1	300	350	400	IPT	.0005	.0007	.0009	.0010	.0011	.0013	.0014	.0017	.0018	.0020	.0025	.0029	.0032	.0034
	5	1.25 x D1	200	235	260	IPT	.0005	.0006	.0008	.0009	.0010	.0011	.0013	.0016	.0017	.0018	.0023	.0026	.0029	.0031
	6	1.25 x D1	160	180	200	IPT	.0004	.0005	.0007	.0007	.0008	.0010	.0011	.0013	.0014	.0015	.0019	.0021	.0023	.0024
M	1	1.25 x D1	300	320	340	IPT	.0005	.0008	.0010	.0011	.0012	.0014	.0017	.0020	.0021	.0023	.0029	.0033	.0037	.0040
	2	1.25 x D1	200	215	230	IPT	.0005	.0006	.0008	.0009	.0010	.0011	.0013	.0016	.0017	.0018	.0023	.0026	.0029	.0030
	3	1.0 x D1	200	105	210	IPT	.0004	.0005	.0007	.0007	.0008	.0010	.0011	.0013	.0014	.0015	.0019	.0021	.0023	.0024
K	1	1.0 x D1	390	415	440	IPT	.0007	.0009	.0012	.0013	.0014	.0017	.0020	.0023	.0025	.0027	.0033	.0037	.0041	.0044
	2	1.0 x D1	360	380	410	IPT	.0005	.0008	.0010	.0011	.0012	.0014	.0017	.0020	.0021	.0023	.0029	.0033	.0037	.0040
	3	1.0 x D1	360	375	390	IPT	.0005	.0006	.0008	.0009	.0010	.0011	.0013	.0016	.0017	.0018	.0023	.0026	.0029	.0031
S	1	0.75 x D1	160	190	230	IPT	.0005	.0008	.0010	.0011	.0012	.0014	.0017	.0020	.0021	.0023	.0029	.0033	.0037	.0040
	2	0.75 x D1	160	180	210	IPT	.0005	.0006	.0008	.0009	.0010	.0011	.0013	.0016	.0017	.0018	.0023	.0026	.0029	.0031
	3	0.5 x D1	80	90	100	IPT	.0003	.0005	.0005	.0005	.0006	.0008	.0008	.0011	.0011	.0012	.0015	.0017	.002	.0021
	4	1.25 x D1	160	170	180	IPT	.0004	.0005	.0007	.0007	.0008	.0011	.0012	.0014	.0015	.0017	.0021	.0024	.0027	.0028
H	1	1.0 x D1	260	310	360	IPT	.0005	.0007	.0009	.0010	.0011	.0013	.0014	.0017	.0018	.0020	.0025	.0029	.0032	.0034
	2	1.0 x D1	230	270	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 • Inch

Material Group		Max Depth	KCPM15–KCSM15 Cutting Speed — Vc SFM			Recommended feed per tooth (fz = IPT) for Helical Interpolation and Ramping — z_{eff} = 2													
						Diameter – D1 [Ømin–Ømax] for helical interpolation													
			min	Start	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	450	495	IPT	.0005	.0007	.0010	.0015	.0011	.0014	.0016	.0019	.0020	.0022	.0026	.0029	.0032	.0034
	1	1.25 x D1	420	450	495	IPT	.0005	.0007	.0010	.0015	.0011	.0014	.0016	.0019	.0020	.0022	.0026	.0029	.0032	.0034
	2	1.25 x D1	420	450	495	IPT	.0005	.0007	.0010	.0015	.0011	.0014	.0016	.0019	.0020	.0022	.0026	.0029	.0032	.0034
	3	1.25 x D1	315	345	360	IPT	.0004	.0006	.0008	.0009	.0010	.0011	.0013	.0016	.0017	.0018	.0023	.0026	.0029	.0031
	4	1.25 x D1	270	300	330	IPT	.0004	.0005	.0007	.0007	.0008	.0010	.0011	.0014	.0015	.0016	.0020	.0023	.0025	.0026
	5	1.25 x D1	210	225	240	IPT	.0004	.0005	.0007	.0007	.0008	.0009	.0010	.0013	.0013	.0014	.0018	.0021	.0023	.0024
	6	1.25 x D1	165	180	195	IPT	.0003	.0004	.0005	.0006	.0007	.0008	.0009	.0010	.0011	.0012	.0015	.0017	.0019	.0020
M	1	1.25 x D1	225	255	270	IPT	.0004	.0006	.0008	.0009	.0010	.0011	.0013	.0016	.0017	.0018	.0023	.0026	.0029	.0031
	2	1.25 x D1	150	165	180	IPT	.0004	.0005	.0007	.0007	.0008	.0009	.0010	.0013	.0013	.0014	.0018	.0021	.0023	.0024
	3	1.0 x D1	135	150	165	IPT	.0003	.0004	.0005	.0006	.0007	.0008	.0009	.0010	.0011	.0012	.0015	.0017	.0019	.0020
K	1	1.0 x D1	330	360	390	IPT	.0005	.0007	.0010	.0010	.0011	.0014	.0016	.0019	.0020	.0022	.0026	.0029	.0032	.0034
	2	1.0 x D1	300	330	360	IPT	.0004	.0006	.0008	.0009	.0010	.0011	.0013	.0016	.0017	.0018	.0023	.0026	.0029	.0031
	3	1.0 x D1	270	300	330	IPT	.0004	.0005	.0007	.0007	.0008	.0009	.0010	.0013	.0013	.0014	.0018	.0021	.0023	.0024
S	1	0.75 x D1	240	255	270	IPT	.0004	.0006	.0008	.0009	.0010	.0011	.0013	.0016	.0017	.0018	.0023	.0026	.0029	.0030
	2	0.75 x D1	165	180	195	IPT	.0004	.0005	.0007	.0007	.0008	.0009	.0010	.0013	.0013	.0014	.0018	.0021	.0023	.0024
	3	0.5 x D1	60	75	84	IPT	.0002	.0004	.0004	.0004	.0005	.0006	.0007	.0008	.0090	.0010	.0012	.0014	.0016	.0017
	4	1.25 x D1	105	120	135	IPT	.0003	.0004	.0005	.0006	.0007	.0008	.0010	.0011	.0012	.0013	.0017	.0019	.0022	.0023
H	1	1.0 x D1	225	240	255	IPT	.0004	.0005	.0007	.0007	.0008	.0010	.0011	.0014	.0015	.0016	.0020	.0023	.0025	.0026
	2	1.0 x D1	195	210	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.

Solid Carbide End Milling

HARVI™ I TE • Plunging/Drilling • Application Data • Inch

Material Group					KCPM15–KCSM15 Cutting Speed — vc m/min			Recommended feed per revolution (fn =mm/rev) for plunging and drilling D1 — Diameter																
		Max Depth	Applicable	Coolant	min	Start	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	450	495	IPR	.0013	.0016	.0018	.002	.0022	.0024	.0026	.0031	.0034	.0037	.0047	.0063	.0071	.0078
	1	1.5 x D	●	Required	420	450	495	IPR	.0013	.0016	.0018	.002	.0022	.0024	.0026	.0031	.0034	.0037	.0047	.0063	.0071	.0078
	2	1.5 x D	●	Required	420	450	495	IPR	.0013	.0016	.0018	.002	.0022	.0024	.0026	.0031	.0034	.0037	.0047	.0063	.0071	.0078
	3	1 x D	●	Required	315	345	360	IPR	.0008	.0011	.0013	.0014	.0016	.0018	.0020	.0024	.0025	.0028	.0039	.0049	.0059	.0067
	4	1 x D	●	Required	270	300	330	IPR	.0008	.0011	.0013	.0014	.0016	.0018	.0020	.0024	.0025	.0028	.0039	.0049	.0059	.0067
	5	0.5 x D	●	Required	210	225	240	IPR	.0006	.0007	.0008	.0009	.0010	.0012	.0014	.0016	.0018	.0020	.0026	.0033	.0039	.0042
	6	0.5 x D	●	Required	165	180	195	IPR	.0006	.0007	.0008	.0009	.0010	.0012	.0014	.0016	.0018	.0020	.0026	.0033	.0039	.0042
M	1	0.75 x D	●	Required	225	255	270	IPR	.0008	.0011	.0013	.0014	.0016	.0018	.0020	.0024	.0025	.0028	.00239	.0049	.0059	.0067
	2	0.5 x D	●	Required	150	165	180	IPR	.0006	.0007	.0008	.0009	.0010	.0012	.0014	.0016	.0018	.0020	.0026	.0033	.0039	.0042
	3	0.5 x D	●	Required	135	150	165	IPR	.0006	.0007	.0008	.0009	.0010	.0012	.0014	.0016	.0018	.0020	.0026	.0033	.0039	.0042
K	1	1.5 x D	●	Preferred	330	360	390	IPR	.0013	.0016	.0018	.002	.0022	.0024	.0026	.0031	.0034	.0037	.0047	.0063	.0071	.0078
	2	1 x D	●	Required	300	330	360	IPR	.0008	.0011	.0013	.0014	.0016	.0018	.0020	.0024	.0025	.0028	.0039	.0049	.0059	.0067
	3	1 x D	●	Required	270	300	330	IPR	.0008	.0011	.0013	.0014	.0016	.0018	.0020	.0024	.0025	.0028	.0039	.0049	.0059	.0067
S	1	0.3 x D	○	Required	240	255	270	IPR	.0008	.0011	.0013	.0014	.0016	.0018	.0020	.0024	.0025	.0028	.0039	.0049	.0059	.0067
	2	0.1 x D	○	Required	165	180	195	IPR	.0006	.0007	.0008	.0009	.0010	.0012	.0014	.0016	.0018	.0020	.0026	.0033	.0039	.0042
	3	0.1 x D	○	Required	60	75	84	IPR	.0004	.0005	.0006	.00065	.0007	.0008	.0009	.0011	.0012	.0013	.0018	.0024	.0028	.003
	4	0.2 x D	○	Required	105	120	135	IPR	.0006	.0007	.0008	.0009	.0010	.0012	.0014	.0016	.0018	.0020	.0026	.0033	.0039	.0042
H	1	0.3 x D	○	Required	225	240	255	IPR	.0008	.0011	.0013	.0014	.0016	.0018	.0020	.0024	.0025	.0028	.0039	.0049	.0059	.0067
	2	0.2 x D	○	Required	195	210	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.

Solid Carbide End Milling

Application Recommendation for Surface Profiling with HARVI™ I TE

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 the fact that the rotational velocity is zero in the center. Therefore, Kennametal recommends tilting the end mill to engage more cutting edges and avoid the zero-speed condition.

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

At the tip of the tool, only the center cutting edges exist.

The rotational velocity is zero in the center.

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

HARVI I TE Ball Nose

0°

24°

52°–55°

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.

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.

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.

It is important then to decide if the cutting depth is small (profiling) and important to analyze the effect of tilt, or whether the cutting depth is large (roughing / slotting) and then the effect of tilt is minimized.

Catalog App

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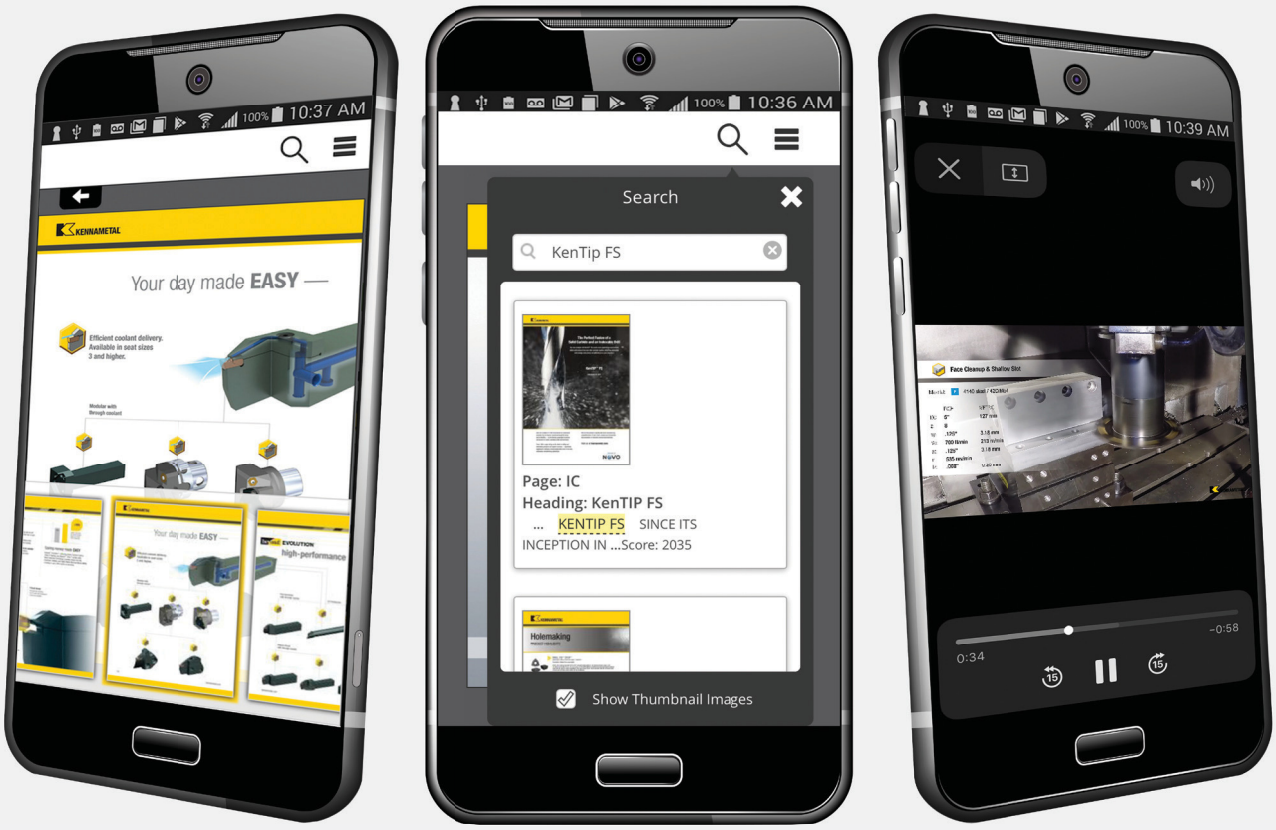

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HARVI™ Series

High-Performance Roughing and Finishing

Materials

P M K S

Applications

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

Roughing and finishing in multiple materials.

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

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

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

HARVI™ II

HARVI II: Non-center cutting.

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

HARVI III

HARVI III & HARVI III Ball Nose: Tailored design for low cutting forces providing highest productivity, smooth cutting action and best surface finishes.

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

HARVI III Aero: Specific radial and axial rake angles for aerospace high-velocity structural parts machining techniques.

Primarily developed for titanium component machining with highest metal removal rates.

HARVI III Taper Ball Nose: Six flutes in ball nose and taper section for highest metal removal rates. Taper angles of 4° and 6° for a broad range of applications.

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

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

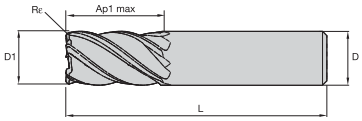
HARVI III Aero
Six flute end mill with aerospace specific length-of-cut, diameters, and radii tailored for high-velocity 3D profiling, semi-finishing and finishing.

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

Solid Carbide End Milling

HARVI™ II • Radiused • 5 Flutes • Plain Shank • Inch

● first choice
○ alternate choice



P	●	●
M	●	●
K	●	●
N		
S	●	
H	○	○

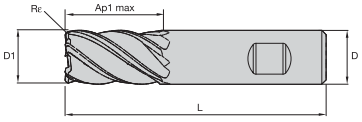
order number	catalog number	D1	D	Ap1 max	L	Rε	KC643M	KCPM15
3580837	UCDE188J5BRA	3/16	3/16	5/8	2 1/4	.015	●	–
4048709	UCDE188J5BRA	3/16	3/16	5/8	2 1/4	.015	–	●
3580838	UCDE188J5BRB	3/16	3/16	5/8	2 1/4	.030	●	–
4048710	UCDE188J5BRB	3/16	3/16	5/8	2 1/4	.030	–	●
3580840	UCDE250J5BRA	1/4	1/4	3/4	2 1/2	.015	●	–
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	●	–

158–159	160	115–117	164

Solid Carbide End Milling

HARVI™ II • Radiused • 5 Flutes • Weldon® Shank • Inch

● first choice
○ alternate choice



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M							●	●
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S							●	
H							○	○

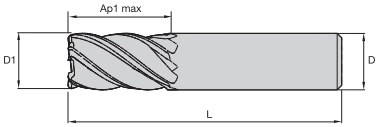
order number	catalog number	D1	D	Ap1 max	L	Rε	KC643M	KCPM15
3580770	UCDE500K5BRA	1/2	1/2	1 1/4	3	.015	●	–
4048725	UCDE500K5BRA	1/2	1/2	1 1/4	3	.015	–	●
3580771	UCDE500K5BRB	1/2	1/2	1 1/4	3	.030	●	–
4048726	UCDE500K5BRB	1/2	1/2	1 1/4	3	.030	–	●
3580772	UCDE500K5BRF	1/2	1/2	1 1/4	3	.120	●	–
4048727	UCDE500K5BRF	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	–	●

158–159	160	115–117	164

Solid Carbide End Milling

HARVI™ II • Square End • 5 Flutes • Plain Shank • Inch

● first choice
○ alternate choice



P		●	●
M		●	●
K		●	●
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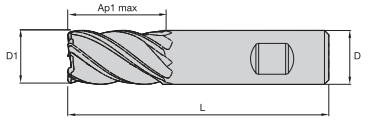
S		●	
H		○	○

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	–	●

HARVI II • Square End • 5 Flutes • Weldon® Shank • Inch

● first choice
○ alternate choice



P		●	●
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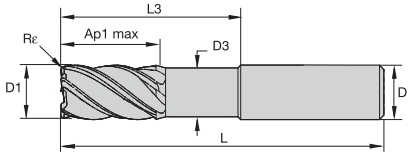
order number	catalog number	D1	D	Ap1 max	L	KC643M	KCPM15
3580769	UCDE500K5BS	1/2	1/2	1 1/4	3	●	–
4048728	UCDE500K5BS	1/2	1/2	1 1/4	3	–	●
3580783	UCDE625K5BS	5/8	5/8	1 1/4	3 1/2	●	–
4048732	UCDE625K5BS	5/8	5/8	1 1/4	3 1/2	–	●
3580785	UCDE750K5BS	3/4	3/4	1 1/2	4	●	–
4048740	UCDE750K5BS	3/4	3/4	1 1/2	4	–	●
3580788	UCDE1000K5BS	1	1	1 3/4	4 1/2	●	–
4048708	UCDE1000K5BS	1	1	1 3/4	4 1/2	–	●

158–159	160	115–117	164

Solid Carbide End Milling

HARVI™ II • Radiused • 5 Flutes • Necked • Plain Shank • Inch

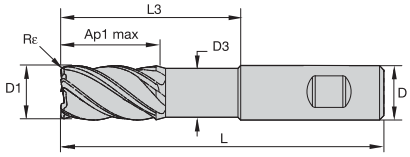
● first choice
○ alternate choice



									P	M	K	N	S	H		
order number	catalog number	D1	D	D3	Ap1 max	L3	L	Rε							KC643M	KCPM15
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							–	●

HARVI II • Radiused • 5 Flutes • Necked • Weldon® Shank • Inch

● first choice
○ alternate choice



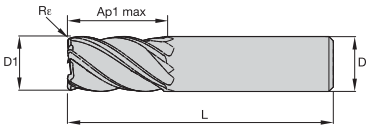
									P	M	K	N	S	H		
order number	catalog number	D1	D	D3	Ap1 max	L3	L	Rε							KC643M	KCPM15
3580764	UCDE500K5ARB	1/2	1/2	.4720	1 1/4	2 1/4	4	.030							●	–
4048744	UCDE500K5ARB	1/2	1/2	.4720	1 1/4	2 1/4	4	.030							–	●
3580765	UCDE625K5ARB	5/8	5/8	.5900	1 1/4	2 1/4	4	.030							●	–
4048745	UCDE625K5ARB	5/8	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							–	●

158–159	160	115–117	164

Solid Carbide End Milling

HARVI™ II • Radiused • 5 Flutes • Plain Shank • Inch

● first choice
○ alternate choice



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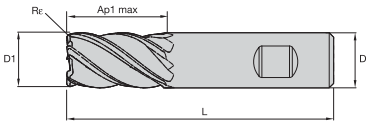
order number	catalog number	D1	D	Ap1 max	L	Rε	KC643M
3580792	UDDE500J5BRA	1/2	1/2	1 1/4	3	.015	●
3580803	UDDE500J5BRB	1/2	1/2	1 1/4	3	.030	●
3580804	UDDE500J5BRF	1/2	1/2	1 1/4	3	.120	●
3580806	UDDE625J5BRB	5/8	5/8	1 1/4	3 1/2	.030	●
3580808	UDDE750J5BRB	3/4	3/4	1 1/2	4	.030	●
3580809	UDDE750J5BRF	3/4	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 • Inch

● first choice
○ alternate choice



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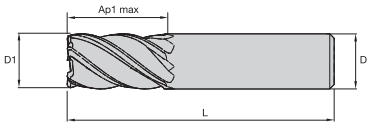
order number	catalog number	D1	D	Ap1 max	L	Rε	KC643M
3580814	UDDE500K5BRA	1/2	1/2	1 1/4	3	.015	●
3580815	UDDE500K5BRB	1/2	1/2	1 1/4	3	.030	●
3580818	UDDE625K5BRB	5/8	5/8	1 1/4	3 1/2	.030	●
3580820	UDDE750K5BRB	3/4	3/4	1 1/2	4	.030	●
3580833	UDDE1000K5BRB	1	1	1 3/4	4 1/2	.030	●
3580834	UDDE1000K5BRF	1	1	1 3/4	4 1/2	.120	●

158–159	160	115–117	164

Solid Carbide End Milling

HARVI™ II • Square End • 5 Flutes • Plain Shank • Inch

● first choice
○ alternate choice

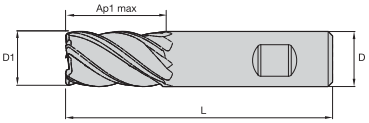


P		●
M		●
K		●
N		
S		●
H		○

order number	catalog number	D1	D	Ap1 max	L	KC643M
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	●

HARVI II • Square End • 5 Flutes • Weldon® Shank • Inch

● first choice
○ alternate choice



P		●
M		●
K		●
N		
S		●
H		○

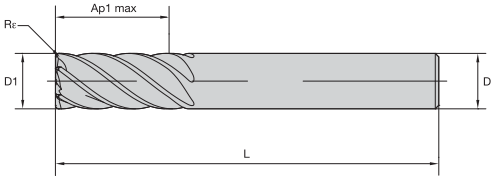
order number	catalog number	D1	D	Ap1 max	L	KC643M
3580813	UDDE500K5BS	1/2	1/2	1 1/4	3	●
3580819	UDDE750K5BS	3/4	3/4	1 1/2	4	●

158–159	160	115–117	164

Solid Carbide End Milling

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

● first choice
○ alternate choice



P		○
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S		●
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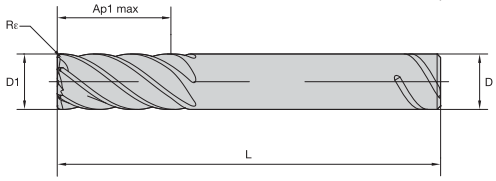
order number	catalog number	D1	D	Ap1 max	L	Rε	KCSM15
5351811	UJDE375J6CRA	3/8	3/8	1	3	.015	●
5351812	UJDE375J6CRB	3/8	3/8	1	3	.030	●
5351814	UJDE375J6CRC	3/8	3/8	1	3	.060	●
5085676	UJDE0500J6ARB	1/2	1/2	1	3	.030	●
5106643	UJDE0500J6ARC	1/2	1/2	1	3	.060	●
5351817	UJDE500J6BRA	1/2	1/2	1 1/4	3	.015	●
5351818	UJDE500J6BRB	1/2	1/2	1 1/4	3	.030	●
5351819	UJDE500J6BRC	1/2	1/2	1 1/4	3	.060	●
5351820	UJDE500J6BRE	1/2	1/2	1 1/4	3	.120	●
5120433	UJDE0500J6CRB	1/2	1/2	2	4	.030	●
5185658	UJDE0500J6CRE	1/2	1/2	2	4	.120	●
5101798	UJDE0625J6ARA	5/8	5/8	1	3 1/2	.015	●
5351829	UJDE625J6BRB	5/8	5/8	1 1/4	3 1/2	.030	●
5351830	UJDE625J6BRC	5/8	5/8	1 1/4	3 1/2	.060	●
5030114	UJDE0625J6CRB	5/8	5/8	1 5/8	3 1/2	.030	●
5415950	UJDE0625J6CRC	5/8	5/8	1 5/8	3 1/2	.060	●
5415951	UJDE0625J6CRD	5/8	5/8	1 5/8	3 1/2	.090	●
5374997	UJDE0625J6CRE	5/8	5/8	1 5/8	3 1/2	.120	●
5415954	UJDE0750J6ARB	3/4	3/4	1	3	.030	●
5351838	UJDE750J6BRB	3/4	3/4	1 1/2	4	.030	●
5351839	UJDE750J6BRC	3/4	3/4	1 1/2	4	.060	●
5351890	UJDE750J6BRD	3/4	3/4	1 1/2	4	.090	●
5351891	UJDE750J6BRE	3/4	3/4	1 1/2	4	.120	●
5367199	UJDE0750J6BRH	3/4	3/4	1 1/2	4	.190	●
5351899	UJDE750J6CRB	3/4	3/4	1 5/8	4	.030	●
5351900	UJDE750J6CRC	3/4	3/4	1 5/8	4	.060	●
5351901	UJDE750J6CRD	3/4	3/4	1 5/8	4	.090	●
5351902	UJDE750J6CRE	3/4	3/4	1 5/8	4	.120	●
5120466	UJDE1000J6ARB	1	1	1 1/2	4	.030	●
5415956	UJDE1000J6ARC	1	1	1 1/2	4	.060	●
5351930	UJDE1000J6BRC	1	1	1 3/4	4 1/2	.060	●
5351931	UJDE1000J6BRE	1	1	1 3/4	4 1/2	.120	●
5351932	UJDE1000J6BRF	1	1	1 3/4	4 1/2	.250	●
5415970	UJDE1000J6CRB	1	1	2	4 1/2	.030	●
5390731	UJDE1000J6CRC	1	1	2	4 1/2	.060	●
5394869	UJDE1000J6CRD	1	1	2	4 1/2	.090	●
5415971	UJDE1000J6CRE	1	1	2	4 1/2	.120	●
5390732	UJDE1000J6CRH	1	1	2	4 1/2	.190	●
5415936	UJDE1000J6CRF	1	1	2	4 1/2	.250	●
5120480	UJDE1000J6DRB	1	1	2	5	.030	●
5351940	UJDE1250J6BRB	1 1/4	1 1/4	2 1/4	5	.030	●

158–159 | 160 | 115–117 | 164

Solid Carbide End Milling

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

● first choice
○ alternate choice



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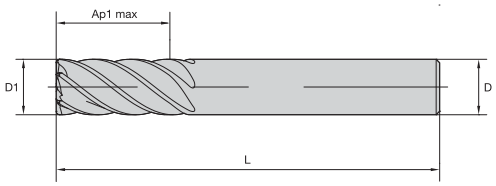
H	○

order number	catalog number	D1	D	Ap1 max	L	Rε	KCSM15
5351823	UJDE500N6BRA	1/2	1/2	1 1/4	3	.015	●
5351824	UJDE500N6BRB	1/2	1/2	1 1/4	3	.030	●
5351825	UJDE500N6BRC	1/2	1/2	1 1/4	3	.060	●
5351826	UJDE500N6BRE	1/2	1/2	1 1/4	3	.120	●
5351832	UJDE625N6BRB	5/8	5/8	1 1/4	3 1/2	.030	●
5351833	UJDE625N6BRC	5/8	5/8	1 1/4	3 1/2	.060	●
5351893	UJDE750N6BRB	3/4	3/4	1 1/2	4	.030	●
5351894	UJDE750N6BRC	3/4	3/4	1 1/2	4	.060	●
5351896	UJDE750N6BRE	3/4	3/4	1 1/2	4	.120	●
5351904	UJDE750N6CRB	3/4	3/4	1 5/8	4	.030	●
5351905	UJDE750N6CRC	3/4	3/4	1 5/8	4	.060	●
5351906	UJDE750N6CRD	3/4	3/4	1 5/8	4	.090	●
5351907	UJDE750N6CRE	3/4	3/4	1 5/8	4	.120	●
5351934	UJDE1000N6BRB	1	1	1 3/4	4 1/2	.030	●
5351935	UJDE1000N6BRC	1	1	1 3/4	4 1/2	.060	●
5351936	UJDE1000N6BRE	1	1	1 3/4	4 1/2	.120	●
5351937	UJDE1000N6BRF	1	1	1 3/4	4 1/2	.250	●
5351942	UJDE1250N6BRB	1 1/4	1 1/4	2 1/4	5	.030	●
5351943	UJDE1250N6BRE	1 1/4	1 1/4	2 1/4	5	.120	●

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

● first choice
○ alternate choice



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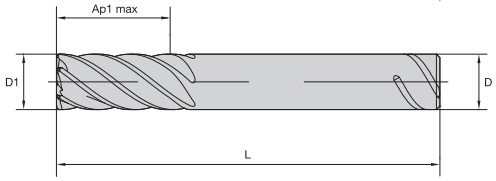
order number	catalog number	D1	D	Ap1 max	L	KCSM15
5351815	UJDE375J6CS	3/8	3/8	1	3	●
5351821	UJDE500J6BS	1/2	1/2	1 1/4	3	●
5351831	UJDE625J6BS	5/8	5/8	1 1/4	3 1/2	●
5351892	UJDE750J6BS	3/4	3/4	1 1/2	4	●
5351903	UJDE750J6CS	3/4	3/4	1 5/8	4	●
5415959	UJDE1000J6AS	1	1	1 1/2	4	●
5351933	UJDE1000J6BS	1	1	1 3/4	4 1/2	●
5415973	UJDE1000J6CS	1	1	2	4 1/2	●
5390730	UJDE1000J6DS	1	1	2 1/4	5	●

158–159	160	115–117	164

Solid Carbide End Milling

HARVI™ III • Square End • 6 Flutes • Safe-Lock™ Shank • Inch

● first choice
○ alternate choice



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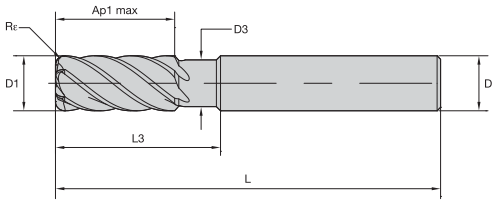
order number	catalog number	D1	D	Ap1 max	L	KCSM15
5351827	UJDE500N6BS	1/2	1/2	1 1/4	3	●
5351834	UJDE625N6BS	5/8	5/8	1 1/4	3 1/2	●
5351897	UJDE750N6BS	3/4	3/4	1 1/2	4	●
5351908	UJDE750N6CS	3/4	3/4	1 5/8	4	●
5351944	UJDE1250N6BS	1 1/4	1 1/4	2 1/4	5	●

HARVI III • Radiused • 6 Flutes • Necked • Plain Shank • Inch

● first choice
○ alternate choice



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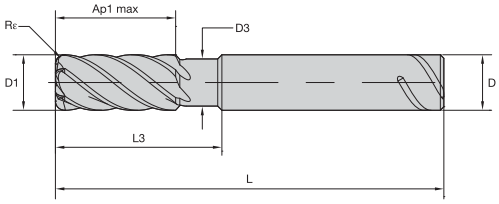
order number	catalog number	D1	D	D3	Ap1 max	L3	L	Rε	KCSM15
5317764	UJDE0375J6BQE	3/8	3/8	.3525	7/8	1 1/4	3	.120	●
5351816	UJDE375J6BQA	3/8	3/8	.3530	7/8	1 7/8	4	.015	●
5415819	UJDE0500J6DQB	1/2	1/2	.4700	3/4	2 1/4	6	.030	●
5415953	UJDE0625J6DQB	5/8	5/8	.5875	1 1/4	2 1/4	6	.030	●

158–159	160	115–117	164

Solid Carbide End Milling

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

● first choice
○ alternate choice



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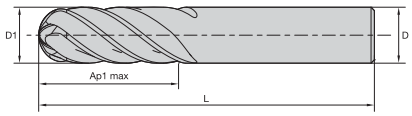
order number	catalog number	D1	D	D3	Ap1 max	L3	L	Rε	KCSM15
5351828	UJDE500N6BQB	1/2	1/2	.4700	1 1/4	2 1/4	4	.030	●
5351835	UJDE625N6BQB	5/8	5/8	.5880	1 1/4	2 1/4	4	.030	●
5351898	UJDE750N6BQB	3/4	3/4	.7050	1 1/2	3 1/4	5 1/2	.030	●
5351939	UJDE1000N6BQB	1	1	.9400	1 3/4	3 1/4	5 1/2	.030	●

HARVI III • Ball Nose • 6 Flutes • Plain Shank • Inch

● first choice
○ alternate choice



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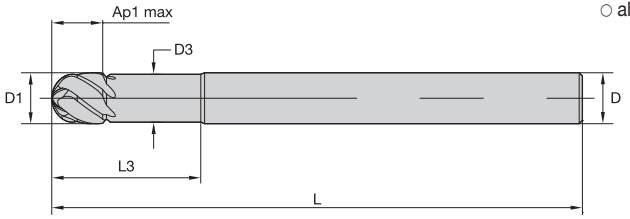
order number	catalog number	D1	D	Ap1 max	L	KCSM15
5607204	UJBE0375J6B	3/8	3/8	7/8	2 1/2	●
5607205	UJBE0500J6B	1/2	1/2	1	3	●
5607206	UJBE0500J6C	1/2	1/2	1 1/4	3	●
5607207	UJBE0625J6B	5/8	5/8	1 1/4	3 1/2	●
5607208	UJBE0750J6B	3/4	3/4	1 1/2	4	●
5607209	UJBE1000J6B	1	1	1 1/2	4	●

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

● first choice
○ alternate choice



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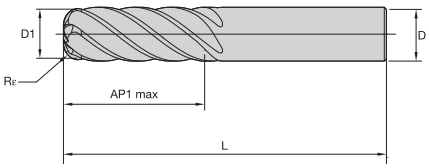
order number	catalog number	D1	D	D3	Ap1 max	L3	L	KCSM15
5607300	UJBE0375J6AL	3/8	3/8	.353	1/2	2.000	6	●
5607301	UJBE0500J6AL	1/2	1/2	.470	5/8	2.250	6	●
5607302	UJBE0625J6AL	5/8	5/8	.588	3/4	2.250	6	●
5607304	UJBE0750J6AL	3/4	3/4	.705	1	2.250	6	●
5607305	UJBE1000J6AL	1	1	.940	1 1/4	3.250	6	●

Solid Carbide End Milling

HARVI™ III Aero • Radiused • 6 Flutes • Plain Shank • Inch

● first choice
○ alternate choice



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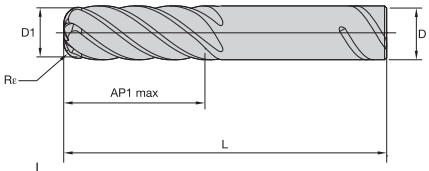
order number	catalog number	D1	D	Ap1 max	L	Rε	KCSM15
6113069	UJDE0500J6ABB	1/2	1/2	1	3	.030	●
6113081	UJDE0500J6ABC	1/2	1/2	1	3	.060	●
6113082	UJDE0500J6ABD	1/2	1/2	1	3	.090	●
6113083	UJDE0500J6ABE	1/2	1/2	1	3	.120	●
6113084	UJDE0500J6ABH	1/2	1/2	1	3	.190	●
6113086	UJDE0500J6ZBB	1/2	1/2	1 1/2	3 1/2	.030	●
6113088	UJDE0500J6ZBC	1/2	1/2	1 1/2	3 1/2	.060	●
6113090	UJDE0500J6ZBD	1/2	1/2	1 1/2	3 1/2	.090	●
6113102	UJDE0500J6ZBE	1/2	1/2	1 1/2	3 1/2	.120	●
6113104	UJDE0500J6ZBH	1/2	1/2	1 1/2	3 1/2	.190	●
6113106	UJDE0500J6CBB	1/2	1/2	2	4	.030	●
6113108	UJDE0500J6CBC	1/2	1/2	2	4	.060	●
6113109	UJDE0500J6CBD	1/2	1/2	2	4	.090	●
6113110	UJDE0500J6CBE	1/2	1/2	2	4	.120	●
6113134	UJDE0500J6CBH	1/2	1/2	2	4	.190	●
6113136	UJDE0500J6DBB	1/2	1/2	2 1/2	4 1/2	.030	●
6113137	UJDE0500J6DBC	1/2	1/2	2 1/2	4 1/2	.060	●
6113138	UJDE0500J6DBD	1/2	1/2	2 1/2	4 1/2	.090	●
6113139	UJDE0500J6DBE	1/2	1/2	2 1/2	4 1/2	.120	●
6113140	UJDE0500J6DBH	1/2	1/2	2 1/2	4 1/2	.190	●
6113155	UJDE0750J6ABB	3/4	3/4	1	3 1/2	.030	●
6113156	UJDE0750J6ABC	3/4	3/4	1	3 1/2	.060	●
6113158	UJDE0750J6ABE	3/4	3/4	1	3 1/2	.120	●
6113201	UJDE0750J6ABF	3/4	3/4	1	3 1/2	.250	●
6113159	UJDE0750J6ABH	3/4	3/4	1	3 1/2	.190	●
6113205	UJDE0750J6ZBB	3/4	3/4	2	4 1/2	.030	●
6113206	UJDE0750J6ZBC	3/4	3/4	2	4 1/2	.060	●
6113207	UJDE0750J6ZBD	3/4	3/4	2	4 1/2	.090	●
6113208	UJDE0750J6ZBE	3/4	3/4	2	4 1/2	.120	●
6113210	UJDE0750J6ZBF	3/4	3/4	2	4 1/2	.250	●
6113209	UJDE0750J6ZBH	3/4	3/4	2	4 1/2	.190	●
6113262	UJDE0750J6DBB	3/4	3/4	3	5 1/2	.030	●
6113263	UJDE0750J6DBC	3/4	3/4	3	5 1/2	.060	●
6113265	UJDE0750J6DBE	3/4	3/4	3	5 1/2	.120	●
6113267	UJDE0750J6DBF	3/4	3/4	3	5 1/2	.250	●
6113266	UJDE0750J6DBH	3/4	3/4	3	5 1/2	.190	●
6113322	UJDE0750J6EBB	3/4	3/4	4	6 1/2	.030	●
6113323	UJDE0750J6EBC	3/4	3/4	4	6 1/2	.060	●
6113324	UJDE0750J6EBD	3/4	3/4	4	6 1/2	.090	●
6113325	UJDE0750J6EBE	3/4	3/4	4	6 1/2	.120	●
6113327	UJDE0750J6EBF	3/4	3/4	4	6 1/2	.250	●
6113326	UJDE0750J6EBH	3/4	3/4	4	6 1/2	.190	●

158–159	160	115–117	164

Solid Carbide End Milling

HARVI™ III Aero • Radiused • 6 Flutes • Safe-Lock™ Shank • Inch

● first choice
○ alternate choice



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order number	catalog number	D1	D	Ap1 max	L	RE	KCSM15
6113329	UJDE1000N6XBB	1	1	1	4	.030	●
6113330	UJDE1000N6XBC	1	1	1	4	.060	●
6113351	UJDE1000N6XBD	1	1	1	4	.090	●
6113352	UJDE1000N6XBE	1	1	1	4	.120	●
6113354	UJDE1000N6XBF	1	1	1	4	.250	●
6113355	UJDE1000N6XBK	1	1	1	4	.375	●
6113358	UJDE1000N6ABC	1	1	1 1/2	4 1/2	.060	●
6113359	UJDE1000N6ABD	1	1	1 1/2	4 1/2	.090	●
6113360	UJDE1000N6ABE	1	1	1 1/2	4 1/2	.120	●
6113405	UJDE1000N6CBB	1	1	2	5	.030	●
6113406	UJDE1000N6CBC	1	1	2	5	.060	●
6113407	UJDE1000N6CBD	1	1	2	5	.090	●
6113408	UJDE1000N6CBE	1	1	2	5	.120	●
6113410	UJDE1000N6CBF	1	1	2	5	.250	●
6113409	UJDE1000N6CBH	1	1	2	5	.190	●
6113511	UJDE1000N6CBK	1	1	2	5	.375	●
6113513	UJDE1000N6ZBB	1	1	2 1/2	5 1/2	.030	●
6113514	UJDE1000N6ZBC	1	1	2 1/2	5 1/2	.060	●
6113515	UJDE1000N6ZBD	1	1	2 1/2	5 1/2	.090	●
6113516	UJDE1000N6ZBE	1	1	2 1/2	5 1/2	.120	●
6113518	UJDE1000N6ZBF	1	1	2 1/2	5 1/2	.250	●
6113517	UJDE1000N6ZBH	1	1	2 1/2	5 1/2	.190	●
6113519	UJDE1000N6ZBK	1	1	2 1/2	5 1/2	.375	●
6113621	UJDE1000N6FBB	1	1	3	6	.030	●
6113622	UJDE1000N6FBC	1	1	3	6	.060	●
6113623	UJDE1000N6FBD	1	1	3	6	.090	●
6113624	UJDE1000N6FBE	1	1	3	6	.120	●
6113626	UJDE1000N6FBF	1	1	3	6	.250	●
6113627	UJDE1000N6FBK	1	1	3	6	.375	●
6113828	UJDE1000N6GBB	1	1	3 1/2	6 1/2	.030	●
6113829	UJDE1000N6GBC	1	1	3 1/2	6 1/2	.060	●
6113831	UJDE1000N6GBE	1	1	3 1/2	6 1/2	.120	●
6113834	UJDE1000N6GBF	1	1	3 1/2	6 1/2	.250	●
6113832	UJDE1000N6GBH	1	1	3 1/2	6 1/2	.190	●
6113835	UJDE1000N6GBK	1	1	3 1/2	6 1/2	.375	●
6113837	UJDE1000N6DBB	1	1	4	7	.030	●
6113838	UJDE1000N6DBC	1	1	4	7	.060	●
6113839	UJDE1000N6DBD	1	1	4	7	.090	●
6113840	UJDE1000N6DBE	1	1	4	7	.120	●
6113862	UJDE1000N6DBF	1	1	4	7	.250	●
6113861	UJDE1000N6DBH	1	1	4	7	.190	●
6113867	UJDE1000N6HBB	1	1	4 1/2	7 1/2	.030	●
6113869	UJDE1000N6HBC	1	1	4 1/2	7 1/2	.060	●
6113883	UJDE1000N6HBF	1	1	4 1/2	7 1/2	.250	●
6113888	UJDE1000N6EBB	1	1	5	8	.030	●
6113889	UJDE1000N6EBC	1	1	5	8	.060	●
6113921	UJDE1000N6EBE	1	1	5	8	.120	●
6113923	UJDE1000N6EBF	1	1	5	8	.250	●
6113924	UJDE1000N6EBK	1	1	5	8	.375	●
6113929	UJDE1250N6ABE	1 1/4	1 1/4	2	5	.120	●
6113965	UJDE1250N6XBB	1 1/4	1 1/4	2 1/2	5 1/2	.030	●
6113975	UJDE1250N6ZBC	1 1/4	1 1/4	3	6	.060	●
6114003	UJDE1250N6ZBK	1 1/4	1 1/4	3	6	.500	●
6114006	UJDE1250N6CBB	1 1/4	1 1/4	3 1/2	6 1/2	.030	●
6114007	UJDE1250N6CBC	1 1/4	1 1/4	3 1/2	6 1/2	.060	●
6114009	UJDE1250N6CBE	1 1/4	1 1/4	3 1/2	6 1/2	.120	●

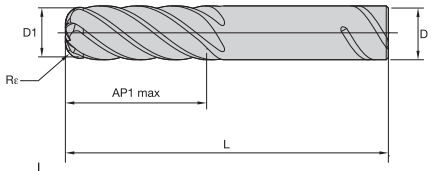
158–159	160	115–117	164

Solid Carbide End Milling

HARVI™ III Aero • Radiused • 6 Flutes • Safe-Lock™ Shank • Inch

(continued)

● first choice
○ alternate choice



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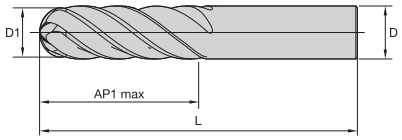
order number	catalog number	D1	D	Ap1 max	L	Rε	KCSM15
6114021	UJDE1250N6CBF	1 1/4	1 1/4	3 1/2	6 1/2	.250	●
6114025	UJDE1250N6FBB	1 1/4	1 1/4	4	7	.030	●
6114027	UJDE1250N6FBD	1 1/4	1 1/4	4	7	.090	●
6114028	UJDE1250N6FBE	1 1/4	1 1/4	4	7	.120	●
6114030	UJDE1250N6FBF	1 1/4	1 1/4	4	7	.250	●
6114029	UJDE1250N6FBH	1 1/4	1 1/4	4	7	.190	●
6114041	UJDE1250N6FBJ	1 1/4	1 1/4	4	7	.375	●
6114042	UJDE1250N6FBK	1 1/4	1 1/4	4	7	.500	●
6114033	UJDE1250N6GBB	1 1/4	1 1/4	4 1/2	7 1/2	.030	●
6114092	UJDE1250N6GBE	1 1/4	1 1/4	4 1/2	7 1/2	.120	●
6114094	UJDE1250N6GBF	1 1/4	1 1/4	4 1/2	7 1/2	.250	●
6114095	UJDE1250N6GBJ	1 1/4	1 1/4	4 1/2	7 1/2	.375	●
6114098	UJDE1250N6DBB	1 1/4	1 1/4	5	8	.030	●
6114099	UJDE1250N6DBC	1 1/4	1 1/4	5	8	.060	●
6114123	UJDE1250N6DBF	1 1/4	1 1/4	5	8	.250	●
6114125	UJDE1250N6DBK	1 1/4	1 1/4	5	8	.500	●
6114127	UJDE1250N6HBB	1 1/4	1 1/4	5 1/2	8 1/2	.030	●
6114055	UJDE1250N6JBB	1 1/4	1 1/4	6	9	.030	●
6114056	UJDE1250N6JBC	1 1/4	1 1/4	6	9	.060	●
6114057	UJDE1250N6JBD	1 1/4	1 1/4	6	9	.090	●
6114058	UJDE1250N6JBE	1 1/4	1 1/4	6	9	.120	●
6114060	UJDE1250N6JBF	1 1/4	1 1/4	6	9	.250	●
6114059	UJDE1250N6JBH	1 1/4	1 1/4	6	9	.190	●
6114181	UJDE1250N6JBJ	1 1/4	1 1/4	6	9	.375	●
6114184	UJDE1250N6EBB	1 1/4	1 1/4	6 1/2	9 1/2	.030	●
6114185	UJDE1250N6EBC	1 1/4	1 1/4	6 1/2	9 1/2	.060	●
6114186	UJDE1250N6EBD	1 1/4	1 1/4	6 1/2	9 1/2	.090	●
6114187	UJDE1250N6EBE	1 1/4	1 1/4	6 1/2	9 1/2	.120	●
6114189	UJDE1250N6EBF	1 1/4	1 1/4	6 1/2	9 1/2	.250	●
6114190	UJDE1250N6EBJ	1 1/4	1 1/4	6 1/2	9 1/2	.375	●
6114231	UJDE1250N6EBK	1 1/4	1 1/4	6 1/2	9 1/2	.500	●

158–159 | 160 | 115–117 | 164

Solid Carbide End Milling

HARVI™ III Aero • Ball Nose • 6 Flutes • Plain Shank • Inch

● first choice
○ alternate choice



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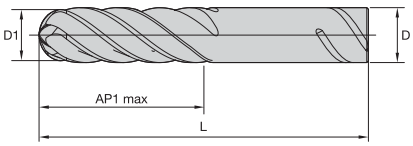
order number	catalog number	D1	D	Ap1 max	L	KCSM15
6113085	UJBE0500J6BB	1/2	1/2	1	3	●
6113105	UJBE0500J6ZB	1/2	1/2	1 1/2	3 1/2	●
6113135	UJBE0500J6CB	1/2	1/2	2	4	●
6113152	UJBE0500J6DB	1/2	1/2	2 1/2	4 1/2	●
6113202	UJBE0750J6AB	3/4	3/4	1	3 1/2	●
6113261	UJBE0750J6ZB	3/4	3/4	2	4 1/2	●
6113321	UJBE0750J6DB	3/4	3/4	3	5 1/2	●
6113328	UJBE0750J6EB	3/4	3/4	4	6 1/2	●

HARVI III Aero • Ball Nose • 6 Flutes • Safe-Lock™ Shank • Inch

● first choice
○ alternate choice



P	○
M	●
K	
N	
S	●
H	○

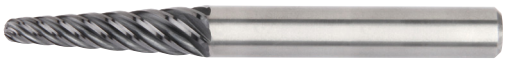
order number	catalog number	D1	D	Ap1 max	L	KCSM15
6113404	UJBE1000N6AB	1	1	1 1/2	4 1/2	●
6113512	UJBE1000N6CB	1	1	2	5	●
6113520	UJBE1000N6ZB	1	1	2 1/2	5 1/2	●
6113628	UJBE1000N6FB	1	1	3	6	●
6113836	UJBE1000N6GB	1	1	3 1/2	6 1/2	●
6113865	UJBE1000N6DB	1	1	4	7	●
6113887	UJBE1000N6HB	1	1	4 1/2	7 1/2	●
6113925	UJBE1000N6EB	1	1	5	8	●
6114004	UJBE1250N6ZB	1 1/4	1 1/4	3	6	●
6114054	UJBE1250N6HB	1 1/4	1 1/4	5 1/2	8 1/2	●
6114232	UJBE1250N6EB	1 1/4	1 1/4	6 1/2	9 1/2	●

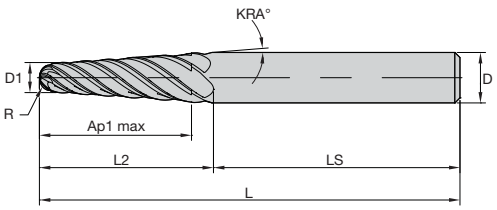
			NOVO
158–159	160	115–117	164

Solid Carbide End Milling

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

● first choice
○ alternate choice





P	○
M	●
K	
N	
S	●
H	○

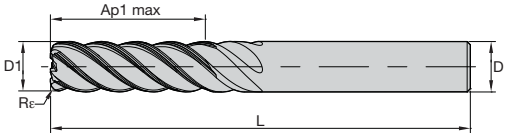
order number	catalog number	D1	D	Ap1 max	L	L2	LS	R	KRA	KCSM15
5970222	UJBE0125J6CP	1/8	5/16	1 3/16	3	1.401	1.599	.063	4	●
5970223	UJBE0125J6BP	1/8	3/8	1	3 1/2	1.249	2.252	.063	6	●
5970224	UJBE0188J6BP	3/16	3/8	1 3/16	3 1/2	1.431	2.069	.094	4	●
5970225	UJBE0188J6CP	3/16	1/2	1 1/4	4	1.576	2.425	.094	6	●
5970226	UJBE0250J6CP	1/4	1/2	1 9/16	4	1.908	2.092	.125	4	●
5970227	UJBE0250J6BP	1/4	5/8	1 1/2	5	1.902	3.098	.125	6	●
5970229	UJBE0312J6BP	5/16	5/8	1 1/4	5	1.635	3.365	.156	6	●
5970228	UJBE0312J6CP	5/16	5/8	2	5	2.385	2.615	.156	4	●
5970231	UJBE0375J6BP	3/8	5/8	1	5	1.367	3.633	.188	6	●
5970230	UJBE0375J6CP	3/8	5/8	1 9/16	5	1.969	3.032	.188	4	●
5970233	UJBE0438J6BP	7/16	5/8	3/4	5	1.099	3.901	.219	6	●
5970232	UJBE0438J6CP	7/16	5/8	1 3/16	5	1.552	3.448	.219	4	●

158–159	160	115–117	164

Solid Carbide End Milling

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

● first choice
○ alternate choice

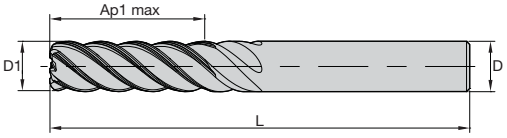


P	●
M	●
K	●
N	
S	●
H	○

order number	catalog number	D1	D	Ap1 max	L	Rε	KC643M
5059455	UGDE0250J5ARA	1/4	1/4	3/4	2 1/2	.015	●
5059457	UGDE0250J5ARB	1/4	1/4	3/4	2 1/2	.030	●
5059583	UGDE0312J5ARA	5/16	5/16	15/16	3	.015	●
5059623	UGDE0375J5ARA	3/8	3/8	1 1/8	4	.015	●
5059624	UGDE0375J5ARB	3/8	3/8	1 1/8	4	.030	●
5059625	UGDE0375J5ARC	3/8	3/8	1 1/8	4	.060	●
5059671	UGDE0500J5ARA	1/2	1/2	1 1/2	4	.015	●
5059672	UGDE0500J5ARB	1/2	1/2	1 1/2	4	.030	●
5059673	UGDE0500J5ARC	1/2	1/2	1 1/2	4	.060	●
5059697	UGDE0625J5ARA	5/8	5/8	1 7/8	5	.015	●
5059703	UGDE0625J5ARB	5/8	5/8	1 7/8	5	.030	●
5059704	UGDE0625J5ARC	5/8	5/8	1 7/8	5	.060	●
5059705	UGDE0625J5ARD	5/8	5/8	1 7/8	5	.120	●
5059743	UGDE0750J5ARA	3/4	3/4	2 1/4	5	.015	●
5059744	UGDE0750J5ARB	3/4	3/4	2 1/4	5	.030	●
5059745	UGDE0750J5ARC	3/4	3/4	2 1/4	5	.060	●
5059746	UGDE0750J5ARD	3/4	3/4	2 1/4	5	.120	●
5059798	UGDE1000J5ARA	1	1	3	6	.015	●
5059799	UGDE1000J5ARB	1	1	3	6	.030	●
5060120	UGDE1000J5ARC	1	1	3	6	.060	●
5060121	UGDE1000J5ARD	1	1	3	6	.120	●

HARVI II Long • Square End • 5 Flutes • 3 x D • Plain Shank • Inch

● first choice
○ alternate choice



P	●
M	●
K	●
N	
S	●
H	○

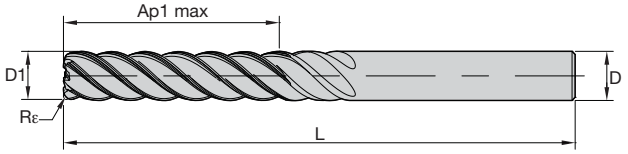
order number	catalog number	D1	D	Ap1 max	L	KC643M
5059453	UGDE0250J5AE	1/4	1/4	3/4	2 1/2	●
5059582	UGDE0312J5AE	5/16	5/16	15/16	3	●
5059622	UGDE0375J5AE	3/8	3/8	1 1/8	4	●
5059670	UGDE0500J5AE	1/2	1/2	1 1/2	4	●
5059678	UGDE0625J5AE	5/8	5/8	1 7/8	5	●
5059742	UGDE0750J5AE	3/4	3/4	2 1/4	5	●
5059795	UGDE1000J5AE	1	1	3	6	●

158–159	160	115–117	164

Solid Carbide End Milling

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

● first choice
○ alternate choice

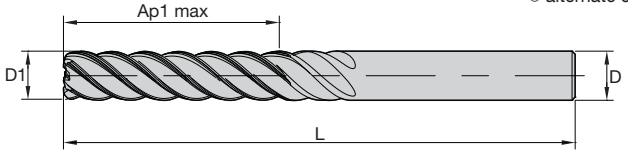


P	●
M	●
K	●
N	
S	●
H	○

order number	catalog number	D1	D	Ap1 max	L	Rε	KC643M
5059459	UGDE0250J5BRA	1/4	1/4	1 1/4	3	.015	●
5059580	UGDE0250J5BRB	1/4	1/4	1 1/4	3	.030	●
5059589	UGDE0312J5BRA	5/16	5/16	1 1/4	3 1/2	.015	●
5059620	UGDE0312J5BRB	5/16	5/16	1 1/4	3 1/2	.030	●
5059627	UGDE0375J5BRA	3/8	3/8	1 7/8	4	.015	●
5059628	UGDE0375J5BRB	3/8	3/8	1 7/8	4	.030	●
5059629	UGDE0375J5BRC	3/8	3/8	1 7/8	4	.060	●
5059675	UGDE0500J5BRA	1/2	1/2	2 1/2	5	.015	●
5059676	UGDE0500J5BRB	1/2	1/2	2 1/2	5	.030	●
5059677	UGDE0500J5BRC	1/2	1/2	2 1/2	5	.060	●
5059707	UGDE0625J5BRA	5/8	5/8	3 1/8	6	.015	●
5059709	UGDE0625J5BRB	5/8	5/8	3 1/8	6	.030	●
5059740	UGDE0625J5BRC	5/8	5/8	3 1/8	6	.060	●
5059741	UGDE0625J5BRD	5/8	5/8	3 1/8	6	.120	●
5059748	UGDE0750J5BRA	3/4	3/4	3 3/4	7	.015	●
5059749	UGDE0750J5BRB	3/4	3/4	3 3/4	7	.030	●
5059770	UGDE0750J5BRC	3/4	3/4	3 3/4	7	.060	●
5059771	UGDE0750J5BRD	3/4	3/4	3 3/4	7	.120	●
5060123	UGDE1000J5BRA	1	1	5	7 1/2	.015	●
5060124	UGDE1000J5BRB	1	1	5	7 1/2	.030	●
5060126	UGDE1000J5BRC	1	1	5	7 1/2	.060	●
5060127	UGDE1000J5BRD	1	1	5	7 1/2	.120	●

HARVI II Long • Square End • 5 Flutes • 5 x D • Plain Shank • Inch

● first choice
○ alternate choice



P	●
M	●
K	●
N	
S	●
H	○

order number	catalog number	D1	D	Ap1 max	L	KC643M
5059458	UGDE0250J5BE	1/4	1/4	1 1/4	3	●
5059585	UGDE0312J5BE	5/16	5/16	1 1/4	3 1/2	●
5059626	UGDE0375J5BE	3/8	3/8	1 7/8	4	●
5059674	UGDE0500J5BE	1/2	1/2	2 1/2	5	●
5059706	UGDE0625J5BE	5/8	5/8	3 1/8	6	●
5059747	UGDE0750J5BE	3/4	3/4	3 3/4	7	●
5060122	UGDE1000J5BE	1	1	5	7 1/2	●

			NOVO
158–159	160	115–117	164

Solid Carbide End Milling

HARVI™ II • UCDE • Application Data • Inch

Material Group		A		B	KC643M		KCPM15		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.						
					Cutting Speed — vc SFM					D1 — Diameter					
		ap	ae	ap	min	max	min	max	frac. dec.	1/4 .250	3/8 .375	1/2 .500	5/8 .625	3/4 .750	1 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
	6	1.5 x D	0.5 x D	0.75 x D	160	250	160	250	IPT	.0010	.0015	.0019	.0022	.0025	.0028
M	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
	3	1.5 x D	0.5 x D	1 x D	200	230	200	230	IPT	.0010	.0015	.0019	.0022	.0025	.0028
K	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
	3	1.5 x D	0.5 x D	1 x D	360	430	360	430	IPT	.0012	.0018	.0023	.0027	.0031	.0036
S	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
	4	1.5 x D	0.5 x D	1 x D	160	200	–	–	IPT	.0011	.0017	.0021	.0025	.0028	.0033
H	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 • Inch

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

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.
Side milling applications — for longest reach (L3) tools, reduce ae by 30%.
Slot milling applications — for longest reach (L3) tools, redulce ap by 30%.

Solid Carbide End Milling

HARVI™ II • UDDE • Application Data • Inch

Material Group		A		B	KC643M Cutting Speed — vc SFM		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.				
								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 • Inch

	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 recommeded base Fz.
For light finishing cuts requiring improved surface quality it is recommended to reduce the base Fz approximately 50% and then apply these factors.

To calculate application specific cutting data, please use 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", 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

Solid Carbide End Milling

HARVI™ III • UJDE • Application Data • Inch

With Neck

Without Neck

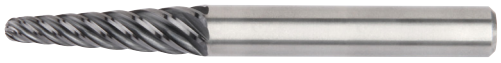
Material Group		A		KCSM15		Recommended feed per tooth (IPT = inch/th) for side milling (A).						
				Cutting Speed — vc SFM			D1 — Diameter					
		ap	ae	min	max	frac. dec.	3/8 .3750	1/2 .5000	5/8 .6250	3/4 .7500	1 1.0000	1 1/4 1.2500
P	4	Ap max	0.4 x D	300	490	IPT	.0020	.0026	.0030	.0034	.0039	.0040
	5	Ap max	0.4 x D	200	330	IPT	.0018	.0023	.0027	.0031	.0036	.0039
M	1	Ap max	0.4 x D	300	380	IPT	.0023	.0029	.0034	.0039	.0045	.0048
	2	Ap max	0.4 x D	200	260	IPT	.0018	.0023	.0027	.0031	.0036	.0039
	3	Ap max	0.4 x D	200	230	IPT	.0015	.0019	.0022	.0025	.0028	.0029
S	1	Ap max	0.4 x D	160	300	IPT	.0023	.0029	.0034	.0039	.0045	.0048
	2	Ap max	0.4 x D	80	130	IPT	.0012	.0015	.0018	.0021	.0024	.0026
	3	Ap max	0.4 x D	80	130	IPT	.0012	.0015	.0018	.0021	.0024	.0026
	4	Ap max	0.4 x D	160	200	IPT	.0017	.0021	.0025	.0028	.0033	.0036
H	1	Ap max	0.4 x D	260	460	IPT	.0020	.0026	.0030	.0034	.0039	.0040

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.

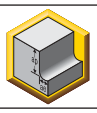
Solid Carbide End Milling

HARVI™ III Ball Nose • UJBE • Application Data • Inch

Ball Nose



Taper Ball Nose

Material Group		 A		KCSM15 Cutting Speed — vc SFM			Recommended feed per tooth (IPT = inch/th) for side milling (A).									
								D1 — Diameter								
		ap	ae	min		max	frac. dec.	1/8 .1250	3/16 .1875	1/4 .2500	5/16 .3125	3/8 .3750	1/2 .5000	5/8 .6250	3/4 .7500	1 1.0000
P	0	Ap max	0.4 x D	490	–	660	IPT	.0009	.0014	.0018	.0023	.0027	.0034	.0039	.0044	.0049
P	1	Ap max	0.4 x D	490	–	660	IPT	.0009	.0014	.0018	.0023	.0027	.0034	.0039	.0044	.0049
P	2	Ap max	0.4 x D	460	–	620	IPT	.0009	.0014	.0018	.0023	.0027	.0034	.0039	.0044	.0049
P	3	Ap max	0.4 x D	390	–	520	IPT	.0008	.0011	.0015	.0019	.0023	.0029	.0034	.0039	.0045
P	4	Ap max	0.4 x D	300	–	490	IPT	.0007	.0010	.0014	.0017	.0020	.0026	.0030	.0034	.0039
P	5	Ap max	0.4 x D	200	–	330	IPT	.0006	.0009	.0012	.0015	.0018	.0023	.0027	.0031	.0036
P	6	Ap max	0.4 x D	160	–	250	IPT	.0005	.0008	.0010	.0013	.0015	.0019	.0022	.0025	.0028
M	1	Ap max	0.4 x D	300	–	380	IPT	.0008	.0011	.0015	.0019	.0023	.0029	.0034	.0039	.0045
M	2	Ap max	0.4 x D	200	–	260	IPT	.0006	.0009	.0012	.0015	.0018	.0023	.0027	.0031	.0036
M	3	Ap max	0.4 x D	200	–	230	IPT	.0005	.0008	.0010	.0013	.0015	.0019	.0022	.0025	.0028
S	1	Ap max	0.4 x D	160	–	300	IPT	.0008	.0011	.0015	.0019	.0023	.0029	.0034	.0039	.0045
S	2	Ap max	0.4 x D	80	–	130	IPT	.0004	.0006	.0008	.0010	.0012	.0015	.0018	.0021	.0024
S	3	Ap max	0.4 x D	80	–	130	IPT	.0004	.0006	.0008	.0010	.0012	.0015	.0018	.0021	.0024
S	4	Ap max	0.4 x D	160	–	200	IPT	.0006	.0008	.0011	.0014	.0017	.0021	.0025	.0028	.0033
H	1	Ap max	0.4 x D	260	–	460	IPT	.0007	.0010	.0014	.0017	.0020	.0026	.0030	.0034	.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.

HARVI III UJDE & UJBE • Adjustment Factor for Feed and Speed Calculation • Inch

	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 recommeded base Fz.
For light finishing cuts requiring improved surface quality it is recommended to reduce the base Fz approximately 50% and then apply these factors.

To calculate application specific cutting data, please use 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"; S4 material group
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

Solid Carbide End Milling

HARVI™ III • Application Data • Inch

UJBE • Ball Nose

UJDE

Material Group		A		KCSM15 Cutting Speed — vc SFM			Recommended feed per tooth (IPT = inch/th) for side milling (A). D1 — Diameter						
							frac.	1/2	5/8	3/4	1	1 1/4	1 1/2
		ap	ae	min		max	dec.	.5000	.6250	.7500	1.0000	1.2500	1.5000
P	4	Ap max	0.4 x D	300	–	490	IPT	.0026	.0030	.0033	.0039	.0043	.0046
	5	Ap max	0.4 x D	200	–	330	IPT	.0023	.0027	.0030	.0036	.0041	.0045
M	1	Ap max	0.4 x D	300	–	380	IPT	.0029	.0034	.0038	.0046	.0051	.0056
	2	Ap max	0.4 x D	200	–	260	IPT	.0023	.0027	.0030	.0036	.0041	.0045
	3	Ap max	0.4 x D	200	–	230	IPT	.0019	.0022	.0024	.0028	.0031	.0033
S	1	Ap max	0.4 x D	160	–	300	IPT	.0029	.0034	.0038	.0046	.0051	.0056
	2	Ap max	0.4 x D	160	–	300	IPT	.0029	.0034	.0038	.0046	.0051	.0056
	3	Ap max	0.4 x D	80	–	130	IPT	.0016	.0018	.0020	.0025	.0028	.0031
	4	Ap max	0.4 x D	150	–	200	IPT	.0022	.0025	.0028	.0033	.0037	.0041
H	1	Ap max	0.4 x D	260	–	460	IPT	.0026	.0030	.0033	.0039	.0043	.0046

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.

Adjustment Factor Table for Feed and Speed Calculation

	Ae/D	0.50%	1.00%	1.60%	2.00%	4.00%	5.00%	8.00%	10.00%	20.00%	30.00%
Speed factor	Kv	2.9	2.85	2.8	2	1.5	1.45	1.4	1.35	1.25	1.2
Feed factor	KFz	2.8	2.6	2.5	2.4	2.3	2.2	2	1.7	1.25	1.02

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

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

Calculation example:
Application: D1 = 1"; S4 material group
Ae 0.1" (Ae = 10% D)
Cutting data recommendation: 175 SFM;
Fz = 0.0033 IPT
Adjustment coefficients: Ae = 0.1" equals 10%;
Kv = 1.35; KFz = 1.7

Final cutting data recommendation:
Vc new = 175SFM * 1.35 = 236 SFM
Fz new = .0033 IPT * 1.7 = .0056 IPT

Solid Carbide End Milling

HARVI™ II Long • UGDE • Application Data • Inch

3 x D Lengths of Cut

5 x D Lengths of Cut

Material Group		A		KC643M Cutting Speed — vc SFM		Recommended feed per tooth (IPT = inch/th) for side milling (A).							
							D1 — Diameter						
						frac.	1/4	5/16	3/8	1/2	5/8	3/4	1
		ap	ae	min	max	dec.	.2500	.3125	.3750	.5000	.6250	.7500	1.0000
P	0	Ap max	0.05 x D	980	1310	IPT	.0022	.0028	.0033	.0041	.0047	.0053	.0059
	1	Ap max	0.05 x D	980	1310	IPT	.0022	.0028	.0033	.0041	.0047	.0053	.0059
	2	Ap max	0.05 x D	920	1250	IPT	.0022	.0028	.0033	.0041	.0047	.0053	.0059
	3	Ap max	0.05 x D	790	1050	IPT	.0018	.0023	.0027	.0035	.0041	.0046	.0054
	4	Ap max	0.05 x D	590	980	IPT	.0017	.0021	.0025	.0031	.0036	.0040	.0046
	5	Ap max	0.05 x D	390	660	IPT	.0015	.0019	.0022	.0028	.0033	.0037	.0043
	6	Ap max	0.05 x D	330	490	IPT	.0012	.0016	.0018	.0023	.0027	.0030	.0034
M	1	Ap max	0.05 x D	590	750	IPT	.0018	.0023	.0027	.0035	.0041	.0046	.0054
	2	Ap max	0.05 x D	390	520	IPT	.0015	.0019	.0022	.0028	.0033	.0037	.0043
	3	Ap max	0.05 x D	390	460	IPT	.0012	.0016	.0018	.0023	.0027	.0030	.0034
K	1	Ap max	0.05 x D	790	980	IPT	.0022	.0028	.0033	.0041	.0047	.0053	.0059
	2	Ap max	0.05 x D	720	920	IPT	.0018	.0023	.0027	.0035	.0041	.0046	.0054
	3	Ap max	0.05 x D	720	850	IPT	.0015	.0019	.0022	.0028	.0033	.0037	.0043
S	1	Ap max	0.05 x D	330	590	IPT	.0018	.0023	.0027	.0035	.0041	.0046	.0054
	2	Ap max	0.05 x D	160	260	IPT	.0010	.0012	.0015	.0018	.0022	.0025	.0029
	3	Ap max	0.05 x D	160	260	IPT	.0010	.0012	.0015	.0018	.0022	.0025	.0029
	4	Ap max	0.05 x D	330	390	IPT	.0013	.0017	.0020	.0026	.0030	.0034	.0040
H	1	Ap max	0.05 x D	520	920	IPT	.0017	.0021	.0025	.0031	.0036	.0040	.0046
	2	Ap max	0.05 x D	460	790	IPT	.0012	.0016	.0018	.0023	.0027	.0030	.0034

* For the above cutting data, do not exceed an overall ae of .031".

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
Above parameters are based on ideal conditions. For smaller taper machinining centers, please adjust parameters accordingly on >1/2" diameter.

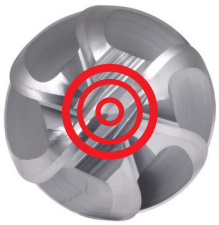
Solid Carbide End Milling

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

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

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

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



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

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

HARVI III Ball Nose & HARVI III Taper Ball Nose

15°

22°

40°–45°

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

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

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

POWERED BY NOVO

KOR™ Series

High-Performance Dynamic Milling

Materials

P M N S

Applications

- Ramping
- Trochoidal Milling
- Side Milling/Shoulder Milling: Roughing
- Side Milling/Shoulder Milling: Finishing

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.

KOR5^{DA} — Dynamic Rougher for Aluminum

With chip splitters for near-perfect chip management.

Safe-Lock™ shanks available for pullout protection.

With and without internal coolant.

KOR5™ DA

Proprietary flute forms reduce vibrations and improve tool life.

KOR5DS

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

KOR6™ DT

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

KOR5DS — Dynamic Rougher for Steel and Stainless Steel

With chip deformers for near-perfect chip management at high surface quality.

3 x D and 5 x D with plain and Weldon® shanks.

KOR6DT — Dynamic Rougher for Titanium

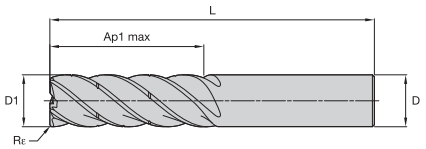
With chip splitters for optimized chip management.

3 x D and 5 x D with Safe-Lock™ and Weldon shanks for pullout protection.

Solid Carbide End Milling

KOR5™ DS • Radiused • 5 Flutes • 3 x D • Plain Shank • Inch

● first choice
○ alternate choice

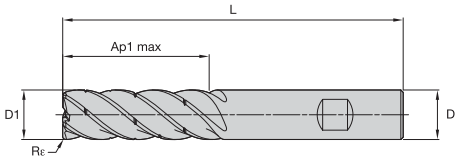


P	○
M	●
K	○
N	
S	●
H	○

order number	catalog number	D1	D	Ap1 max	L	Rε	KC643M
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	●

KOR5 DS • Radiused • 5 Flutes • 3 x D • Weldon® Shank • Inch

● first choice
○ alternate choice



P	○
M	●
K	○
N	
S	●
H	○

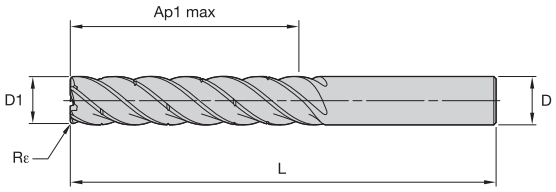
order number	catalog number	D1	D	Ap1 max	L	Rε	KC643M
6769786	KOR5RA0250R075HBR030	1/4	1/4	3/4	2 1/2	.030	●
6769787	KOR5RA0375R113HBR030	3/8	3/8	1 1/8	3	.030	●
6769789	KOR5RA0500R150HBR030	1/2	1/2	1 1/2	3 1/2	.030	●
6769790	KOR5RA0625R188HBR030	5/8	5/8	1 7/8	4	.030	●
6769791	KOR5RA0750R225HBR060	3/4	3/4	2 1/4	5	.060	●
6769792	KOR5RA1000R300HBR060	1	1	3	6	.060	●

158–159	160	115–117	164

Solid Carbide End Milling

KOR5™ DS • Radiused • 5 Flutes • 5 x D • Plain Shank • Inch

● first choice
○ alternate choice

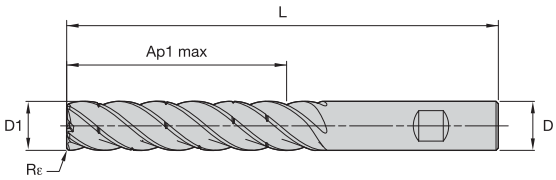


P	○
M	●
K	○
N	
S	●
H	○

order number	catalog number	D1	D	Ap1 max	L	Rε	KC643M
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	●

KOR5 DS • Radiused • 5 Flutes • 5 x D • Weldon® Shank • Inch

● first choice
○ alternate choice



P	○
M	●
K	○
N	
S	●
H	○

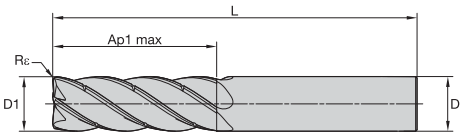
order number	catalog number	D1	D	Ap1 max	L	Rε	KC643M
6764476	KOR5RA0250L125HBR030	1/4	1/4	1 1/4	3	.030	●
6764477	KOR5RA0375L188HBR030	3/8	3/8	1 7/8	4	.030	●
6764478	KOR5RA0500L250HBR030	1/2	1/2	2 1/2	5	.030	●
6764479	KOR5RA0625L313HBR030	5/8	5/8	3 1/8	6	.030	●
6764480	KOR5RA0750L375HBR060	3/4	3/4	3 3/4	7	.060	●
6764491	KOR5RA1000L500HBR060	1	1	5	7 1/2	.060	●

158–159	160	115–117	164

Solid Carbide End Milling

KOR5™ DA • Radiused • 5 Flutes • 3 x D • Internal Coolant • Plain Shank • Inch

● first choice
○ alternate choice

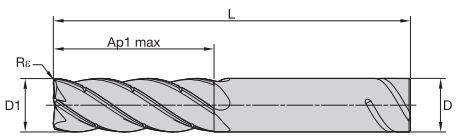


P	M	K	N	S	H
			●		

order number	catalog number	D1	D	Ap1 max	L	Rε	K600
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	●

KOR5 DA • Radiused • 5 Flutes • 3 x D • Internal Coolant • Safe-Lock™ Shank • Inch

● first choice
○ alternate choice



P	M	K	N	S	H
			●		

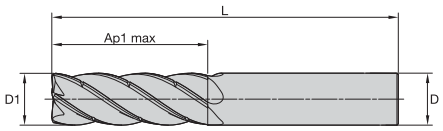
order number	catalog number	D1	D	Ap1 max	L	Rε	K600
6754924	KOR5RA0500R150SLR015I	1/2	1/2	1 1/2	3 1/2	.015	●
6754925	KOR5RA0500R150SLR030I	1/2	1/2	1 1/2	3 1/2	.030	●
6754926	KOR5RA0500R150SLR060I	1/2	1/2	1 1/2	3 1/2	.060	●
6754928	KOR5RA0625R188SLR030I	5/8	5/8	1 7/8	4	.030	●
6754929	KOR5RA0625R188SLR060I	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	●

158–159	160	115–117	164

Solid Carbide End Milling

KOR5™ DA • Square End • 5 Flutes • 3 x D • Internal Coolant • Plain Shank • Inch

● first choice
○ alternate choice

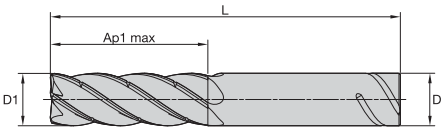


P	M	K	N	S	H
			●		

order number	catalog number	D1	D	Ap1 max	L	K600
6754899	KOR5SE0375R113HAI	3/8	3/8	1 1/8	3	●

KOR5 DA • Square End • 5 Flutes • 3 x D • Internal Coolant • Safe-Lock™ Shank • Inch

● first choice
○ alternate choice



P	M	K	N	S	H
			●		

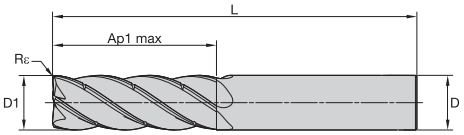
order number	catalog number	D1	D	Ap1 max	L	K600
6754923	KOR5SE0500R150SLI	1/2	1/2	1 1/2	3 1/2	●
6754927	KOR5SE0625R188SLI	5/8	5/8	1 7/8	4	●
6754931	KOR5SE0750R225SLI	3/4	3/4	2 1/4	5	●
6754936	KOR5SE1000R300SLI	1	1	3	5 1/2	●

158–159	160	115–117	164

Solid Carbide End Milling

KOR5™ DA • Radiused • 5 Flutes • 3 x D • Plain Shank • Inch

● first choice
○ alternate choice

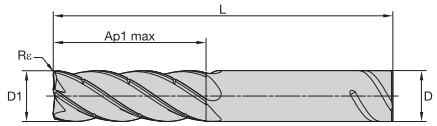


P	M	K	N	S	H
			●		

order number	catalog number	D1	D	Ap1 max	L	Rε	K600
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	●

KOR5 DA • Radiused • 5 Flutes • 3 x D • Safe-Lock™ Shank • Inch

● first choice
○ alternate choice



P	M	K	N	S	H
			●		

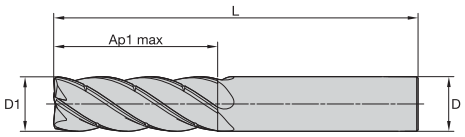
order number	catalog number	D1	D	Ap1 max	L	Rε	K600
6754956	KOR5RA0500R150SLR015C	1/2	1/2	1 1/2	3 1/2	.015	●
6754957	KOR5RA0500R150SLR030C	1/2	1/2	1 1/2	3 1/2	.030	●
6754958	KOR5RA0500R150SLR060C	1/2	1/2	1 1/2	3 1/2	.060	●
6754960	KOR5RA0625R188SLR030C	5/8	5/8	1 7/8	4	.030	●
6754961	KOR5RA0625R188SLR060C	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	●

158–159	160	115–117	164

Solid Carbide End Milling

KOR5™ DA • Square End • 5 Flutes • 3 x D • Plain Shank • Inch

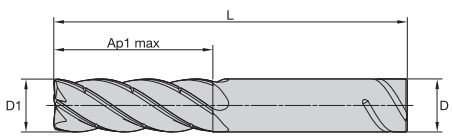
● first choice
○ alternate choice



order number	catalog number	D1	D	Ap1 max	L	K600
6754951	KOR5SE0375R113HAC	3/8	3/8	1 1/8	3	●

KOR5 DA • Square End • 5 Flutes • 3 x D • Safe-Lock™ Shank • Inch

● first choice
○ alternate choice

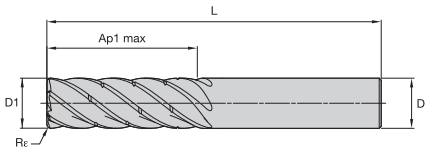


order number	catalog number	D1	D	Ap1 max	L	K600
6754955	KOR5SE0500R150SLC	1/2	1/2	1 1/2	3 1/2	●
6754959	KOR5SE0625R188SLC	5/8	5/8	1 7/8	4	●
6754963	KOR5SE0750R225SLC	3/4	3/4	2 1/4	5	●
6754968	KOR5SE1000R300SLC	1	1	3	5 1/2	●

158–159	160	115–117	164

Solid Carbide End Milling

KOR6™ DT • Radiused • 6 Flutes • 3 x D • Plain Shank • Inch

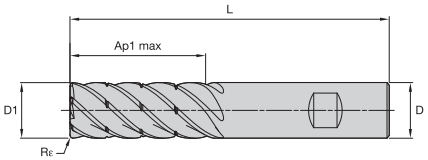


● first choice
○ alternate choice

P	○
M	●
K	○
N	
S	●
H	○

order number	catalog number	D1	D	Ap1 max	L	Rε	KCSM15
6767671	KOR6RA0375R113HAR030C	3/8	3/8	1 1/8	3	.030	●

KOR6 DT • Radiused • 6 Flutes • 3 x D • Weldon® Shank • Inch

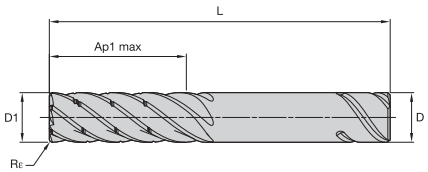


● first choice
○ alternate choice

P	○
M	●
K	○
N	
S	●
H	○

order number	catalog number	D1	D	Ap1 max	L	Rε	KCSM15
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	●

KOR6 DT • Radiused • 6 Flutes • 3 x D • Safe-Lock™ Shank • Inch



● first choice
○ alternate choice

P	○
M	●
K	○
N	
S	●
H	○

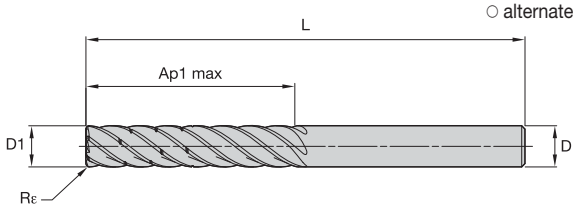
order number	catalog number	D1	D	Ap1 max	L	Rε	KCSM15
6767672	KOR6RA0500R150SLR030C	1/2	1/2	1 1/2	3 1/2	.030	●
6767673	KOR6RA0625R188SLR030C	5/8	5/8	1 7/8	4	.030	●
6767674	KOR6RA0750R225SLR060C	3/4	3/4	2 1/4	5	.060	●
6767675	KOR6RA1000R300SLR060C	1	1	3	6	.060	●

158–159	160	115–117	164

Solid Carbide End Milling

KOR6™ DT • Radiused • 6 Flutes • 5 x D • Plain Shank • Inch

● first choice
○ alternate choice

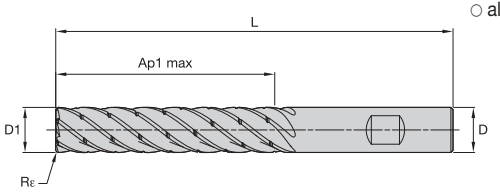


P	○
M	●
K	○
N	
S	●
H	○

order number	catalog number	D1	D	Ap1 max	L	Rε	KCSM15
6767706	KOR6RA0375L188HAR030C	3/8	3/8	1 7/8	4	.030	●

KOR6 DT • Radiused • 6 Flutes • 5 x D • Weldon® Shank • Inch

● first choice
○ alternate choice

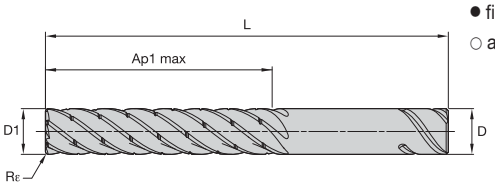


P	○
M	●
K	○
N	
S	●
H	○

order number	catalog number	D1	D	Ap1 max	L	Rε	KCSM15
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	●

KOR6 DT • Radiused • 6 Flutes • 5 x D • Safe-Lock™ Shank • Inch

● first choice
○ alternate choice



P	○
M	●
K	○
N	
S	●
H	○

order number	catalog number	D1	D	Ap1 max	L	Rε	KCSM15
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	●

Solid Carbide End Milling

KOR5™ DS / KOR6™ DT • 3 x D • Application Data • Inch

KOR5 DS • 3 x D

KOR6 DT • 3 x D

Material Group		A		KC643M			Recommended feed per tooth (IPT = inch/th) for side milling (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
	6	3 x D	0.1 x D	170	–	540	IPT	.0012	.0018	.0023	.0027	.0030	.0034
M	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
	3	3 x D	0.1 x D	200	–	510	IPT	.0012	.0018	.0023	.0027	.0030	.0034
K	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
	3	3 x D	0.1 x D	370	–	940	IPT	.0015	.0022	.0028	.0033	.0037	.0043
S	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
	4	3 x D	0.1 x D	170	–	430	IPT	.0013	.0020	.0026	.0030	.0034	.0040
H	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.

KOR5 DS / KOR6 DT • 5 x D • Application Data • Inch

KOR5 DS • 5 x D

KOR6 DT • 5 x D

Material Group		A		KC643M			Recommended feed per tooth (IPT = inch/th) for side milling (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
	6	5 x D	0.05 x D	170	–	660	IPT	.0017	.0024	.0031	.0036	.0040	.0045
M	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
	3	5 x D	0.05 x D	200	–	620	IPT	.0017	.0024	.0031	.0036	.0040	.0045
K	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
	3	5 x D	0.05 x D	370	–	1150	IPT	.0020	.0029	.0037	.0044	.0049	.0058
S	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
	4	5 x D	0.05 x D	170	–	530	IPT	.0017	.0027	.0034	.0040	.0045	.0053
H	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.

Solid Carbide End Milling

KOR5™ DS / KOR6™ DT • 5 x D • Adjustment Factor Table for Feed Calculation • Inch

	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.

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

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:
Vc new = 350 SFM * 1.38 = 483 SFM
Fz new = .0053 IPT * 1.09 = .0058 IPT

KOR5 DA • 5 Flutes • Application Data • Inch

Material Group		A		B	K600			Recommended feed per tooth (IPT = inch/th)					
					Cutting Speed — vc SFM				D1 — Diameter				
		ap	ae	ap	min		max	frac. dec.	3/8 .3750	1/2 .5000	5/8 .6250	3/4 .7500	1 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.

KOR5 DA • 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

Solid Carbide End Milling

Tool Selector

	ROUGHERS		
	KenCut™ RR		
			
Series	**HPRSS**	**MDRHEC**	**HPRST**
Page	70	70–71	71–72
Tool type			
Rougher	●	●	●
Finisher			
Chamfering			
Main operations			
Workpiece material			
Primary	P M K	P M K	M S H
Secondary	H	H	P K
Corner style			
Corner radius [Rε]	.020–.030"	–	.030–.050"
Corner chamfer width [BCH]	–	.012–.020"	–
Cutting diameter [D1]	1/4–3/4"	1/4–1"	1/4–1"
Length of cut	2.2–3 x D	1.2–3 x D	1.2–3 x D
Maximum cutting depth [Ap1 max]	3/4–1-5/8"	3/8–1-1/2"	3/8–1-1/2"
Flute helix angle	35°	20°	45°
Number of flutes [ZU]	3	3–5	3–6
Center cutting	✔	✔	✔
Additional Operations			

● Primary
○ Secondary

Solid Carbide End Milling

Tool Selector

	FINISHERS		
	KenCut™ FF		
			
Series	**HPFSS**	**HPFT**	**FSDE Short**
Page	kennametal.com	kennametal.com	kennametal.com
Tool type			
Rougher			
Finisher	●	●	●
Chamfering			
Main operations			
Workpiece material			
Primary	P M S	P M K S	M S
Secondary	K H	H	P H
Corner style			
Corner radius [Rε]	–	–	.015–.120"
Corner chamfer width [BCH]	–	–	–
Cutting diameter [D1]	1/8–1"	1/4–1"	3/8–1"
Length of cut	1.2–5 x D	1.3–4 x D	2 x D
Maximum cutting depth [Ap1 max]	1/4–3-1/4"	3/4–4"	3/4–2"
Flute helix angle	45°	45°	36°
Number of flutes [ZU]	5	6	9–19
Center cutting	✔	✔	
Additional Operations			

● Primary
○ Secondary

POWERED BY NOVO

KenCut™ RR

High-Performance Roughing

Materials

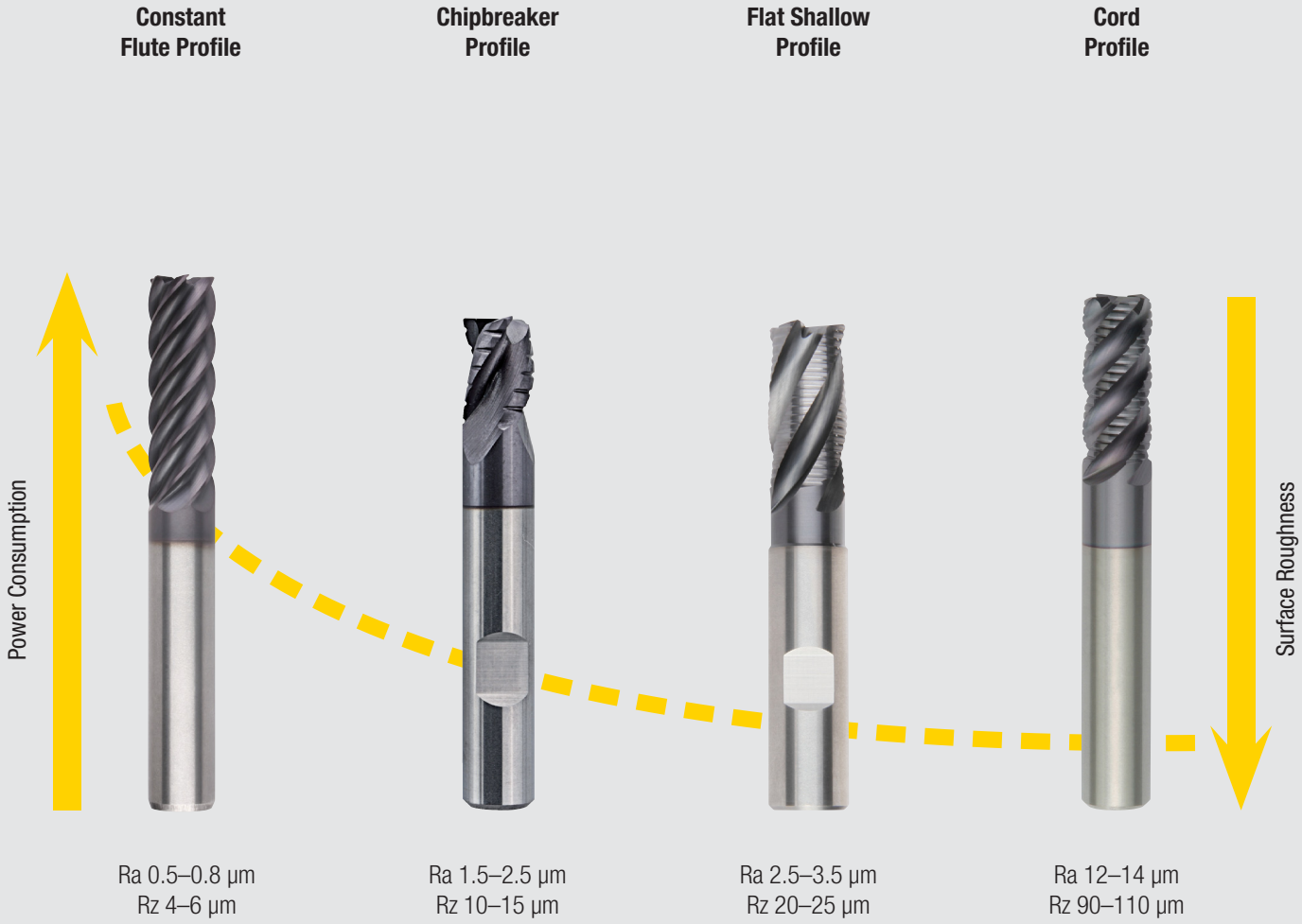
P M K S

Applications

- Ramping
- Slotting: Square End
- Shoulder Milling
- 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 metal removal rates in a wide range of workpiece materials such as steels, stainless steels, cast irons, high-temperature 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.

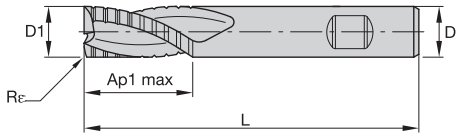
Roughing and semi-finishing for fewer tool changes and less downtime.

Internal coolant for improved chip evacuation and extended tool life.

Solid Carbide End Milling

KenCut™ RR • HPRSS • Radiused • 3 Flutes • Weldon® Shank • Inch

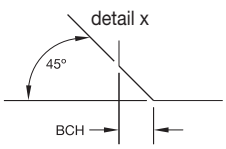
● first choice
○ alternate choice

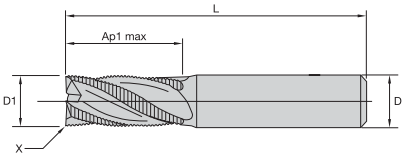


P	●
M	●
K	●
N	
S	
H	○

order number	catalog number	D1	D	Ap1 max	L	Rε	KCPM15
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	●

KenCut RR • MDRHEC • Chamfered • 3–4 Flutes • Plain Shank • Inch





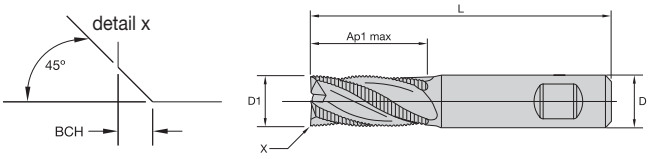
P	●
M	●
K	●
N	
S	
H	○

order number	catalog number	D1	D	Ap1 max	L	BCH	Z U	KCPM15
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	●

158–159	160	115–117	164

Solid Carbide End Milling

KenCut™ RR • MDRHEC • Chamfered • 4-5 Flutes • Weldon® Shank • Inch

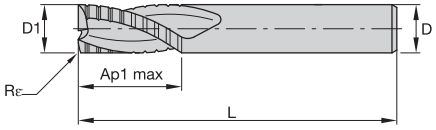


P	●
M	●
K	●
N	
S	
H	○

order number	catalog number	D1	D	Ap1 max	L	BCH	Z U	KCPM15
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	●

KenCut RR • HPRST • Radiused • 3-4 Flutes • Plain Shank • Inch

● first choice
○ alternate choice



P	●
M	●
K	●
N	
S	●
H	○

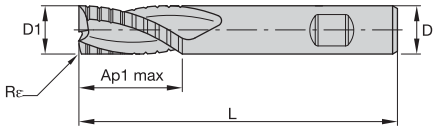
order number	catalog number	D1	D	Ap1 max	L	Rε	Z U	KC643M
3331481	HPRST250S4038	1/4	1/4	3/8	2	.030	3	●
3331482	HPRST250S4075	1/4	1/4	3/4	2 1/2	.030	4	●
3331483	HPRST375S4050	3/8	3/8	1/2	2	.030	4	●
3331484	HPRST375S4088	3/8	3/8	7/8	2 1/2	.030	4	●

158–159	160	115–117	164

Solid Carbide End Milling

KenCut™ RR • HPRST • Radiused • 4-6 Flutes • Weldon® Shank • Inch

● first choice
○ alternate choice



P	●
M	●
K	●
N	
S	●
H	○

order number	catalog number	D1	D	Ap1 max	L	Rε	Z U	KC643M
3331485	HPRST500S4063	1/2	1/2	5/8	2 1/2	.040	4	●
3331486	HPRST500S4125	1/2	1/2	1 1/4	3 1/2	.040	4	●
3331487	HPRST625S4075	5/8	5/8	3/4	3	.040	4	●
3331488	HPRST625S4125	5/8	5/8	1 1/4	3 1/2	.040	4	●
3331489	HPRST625S6125	5/8	5/8	1 1/4	3 1/2	.040	6	●
3331490	HPRST750S4088	3/4	3/4	7/8	3 1/2	.050	4	●
3331491	HPRST750S4150	3/4	3/4	1 1/2	4	.050	4	●
3331492	HPRST750S6150	3/4	3/4	1 1/2	4	.050	6	●
3331493	HPRST1000S4150	1	1	1 1/2	4	.050	4	●
3331494	HPRST1000S6150	1	1	1 1/2	4	.050	6	●

158–159	160	115–117	164

Solid Carbide End Milling

KenCut™ RR • HPRSS • Application Data • Inch

Material Group		A		B	KCPM15 Cutting Speed — vc SFM		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.						
								D1 — Diameter					
		ap	ae	ap	min	max	frac. dec.	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .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 • Inch

Material Group		A		B	KCPM15 Cutting Speed — vc SFM		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.							
								D1 — Diameter						
		ap	ae	ap	min	max	frac. dec.	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750	1 1.000
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

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Solid Carbide End Milling

KenCut™ RR • HPRST • Application Data • Inch

Material Group		A		B	Cutting Speed — vc SFM		KC643M	Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.						
								D1 — Diameter						
		ap	ae	ap	min	max	frac. dec.	1/4 .250	5/16 .313	3/8 .378	1/2 .500	5/8 .625	3/4 .750	1 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.
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Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
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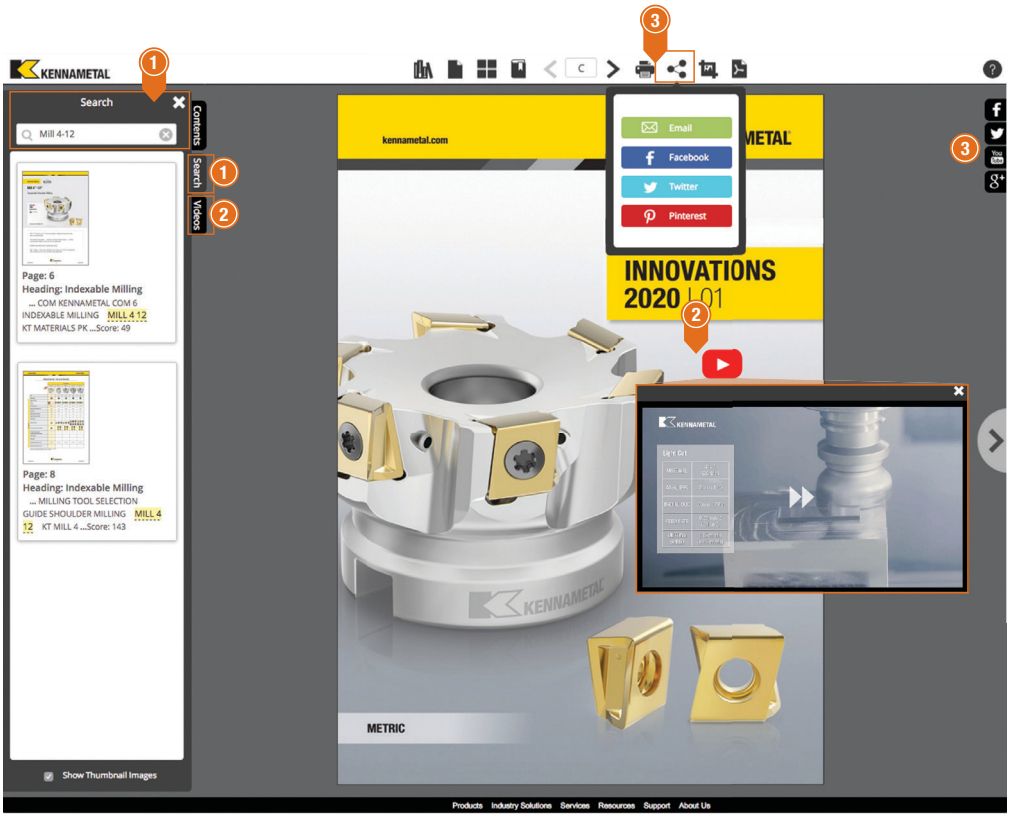

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Solid Carbide End Milling

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**
Page	80	81	82	83–84	84–85	86–88	88–89
Tool type							
Rougher	●	●	●	●	●	●	●
Finisher	○	○	○	○	○	○	
Chamfering							
Main operation							
Workpiece material							
Primary	N	N	N	N	N	N	N
Secondary							
Corner style							
Corner radius [Rε]	.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

Solid Carbide End Milling

Tool Selector

	ALUMINUM MACHINING				
	KenCut™ AQ				
					
Series	**ALCB**	**ALCC**	**ALCR**	**ALSR**	**ALSB**
Page	89	90	90	91	91
Tool type					
Rougher	●	●	●	●	●
Finisher	●	●	●	●	●
Main operations					
Workpiece material					
Primary	N	N	N	N	N
Secondary					
Corner style					
Corner radius [Rε]	.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

POWERED BY NOVO

MaxiMet™ and KenCut™ A-Series

High-Performance Aluminum Roughing and Finishing

Materials

N

Applications

- Face Milling
- Shoulder Milling
- Trochoidal Milling
- Slotting: Square End
- Plunge Milling
- Pocketing
- Helical Milling
- Plunge Milling: Ball Nose
- Ramping
- Side/Shoulder Milling: Slotting: Square End

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

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 lubrification (MQL) ready.

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

KenCut™ AL & ALR

Two- and three-fluted roughers and finishers for a variety of aluminum applications.

MaxiMet™

The MaxiMet solid end mill series provides exceptional metal removal rates 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.

MaxiMet

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

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

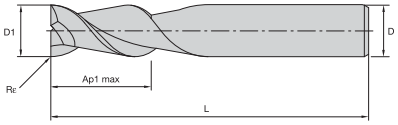
Suitable for MQL (minimum quantity lubrication).

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

Solid Carbide End Milling

MaxiMet™ • Radiused • 2 Flutes • Wiper Facet • Plain Shank • Inch

● first choice
○ alternate choice

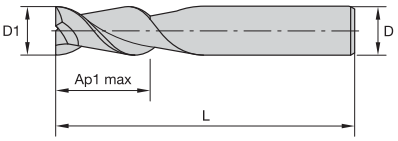


P	M	K	N	S	H
			●		

order number	catalog number	D1	D	Ap1 max	L	Rε	K600
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	●

MaxiMet • Square End • 2 Flutes • Wiper Facet • Plain Shank • Inch

● first choice
○ alternate choice



P	M	K	N	S	H
			●		

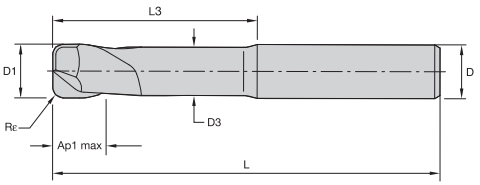
order number	catalog number	D1	D	Ap1 max	L	K600
4041060	ABDF0188J2AS	3/16	3/16	3/8	2	●
3660396	ABDF0250J2AS	1/4	1/4	1/2	2 1/2	●
4041073	ABDF0312J2AS	5/16	5/16	5/8	2 1/2	●
3660399	ABDF0375J2AS	3/8	3/8	3/4	2 1/2	●
3660426	ABDF0500J2AS	1/2	1/2	1 1/4	3	●
3660432	ABDF0625J2AS	5/8	5/8	1 1/4	3 1/2	●
4041076	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	●

158–159	160	115–117	164

Solid Carbide End Milling

MaxiMet™ • Radiused • 2 Flutes • Wiper Facet • Necked • Plain Shank • Inch

● first choice
○ alternate choice



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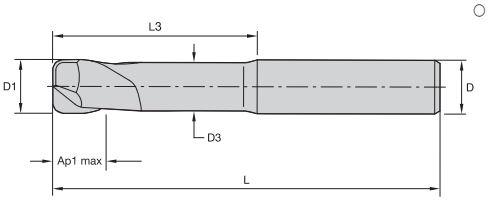
order number	catalog number	D1	D	D3	Ap1 max	L3	L	Rε	K600
3755865	ABDF0250J2BQB	1/4	1/4	.2346	3/8	1 1/8	4	.030	●
3755867	ABDF0250J2CQB	1/4	1/4	.2346	3/8	2 1/8	4	.030	●
3755868	ABDF0312J2AQB	5/16	5/16	.2937	7/16	1 1/8	4	.030	●
3755872	ABDF0375J2BQB	3/8	3/8	.3524	1/2	2 1/8	4	.030	●
3755874	ABDF0500J2AQB	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	●

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

● first choice
○ alternate choice



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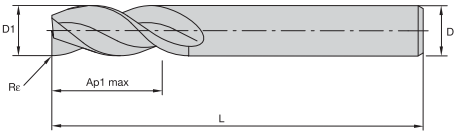
order number	catalog number	D1	D	D3	Ap1 max	L3	L	K600
3755864	ABDF0250J2BQ	1/4	1/4	.2346	3/8	1 1/8	4	●
3755866	ABDF0250J2CQ	1/4	1/4	.2346	3/8	2 1/8	4	●
3755869	ABDF0375J2AQ	3/8	3/8	.3524	1/2	1 1/8	4	●
3755871	ABDF0375J2BQ	3/8	3/8	.3524	1/2	2 1/8	4	●
3755873	ABDF0500J2AQ	1/2	1/2	.4685	5/8	1 3/8	4	●
3755876	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	●

158–159	160	115–117	164

Solid Carbide End Milling

MaxiMet™ • Radiused • 3 Flutes • Wiper Facet • Plain Shank • Inch

● first choice
○ alternate choice



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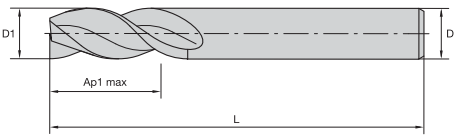
order number	catalog number	D1	D	Ap1 max	L	Rε	K600
4041089	ABDE0188J3ARA	3/16	3/16	7/32	2	.015	●
3660402	ABDE0250J3ARB	1/4	1/4	1/2	2 1/2	.030	●
3660423	ABDE0312J3ARB	5/16	5/16	5/8	2 1/2	.030	●
3660425	ABDE0375J3ARB	3/8	3/8	3/4	2 1/2	.030	●
3660430	ABDE0500J3ARB	1/2	1/2	1 1/4	3	.030	●
3660431	ABDE0500J3ARC	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	●

MaxiMet • Square End • 3 Flutes • Wiper Facet • Plain Shank • Inch

● first choice
○ alternate choice



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order number	catalog number	D1	D	Ap1 max	L	K600
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	●

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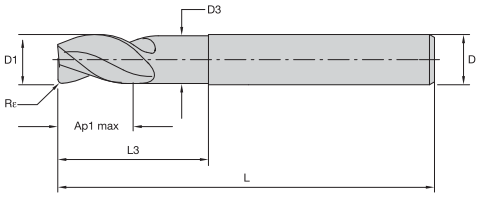
158–159	160	115–117	164

Solid Carbide End Milling

MaxiMet™ • Radiused • 3 Flutes • Wiper Facet • Necked • Plain Shank • Inch

● first choice
○ alternate choice



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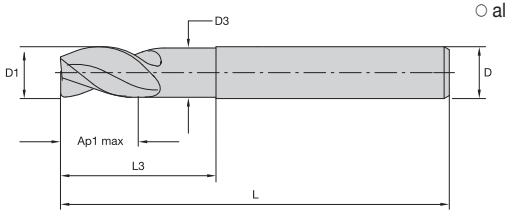
order number	catalog number	D1	D	D3	Ap1 max	L3	L	Rε	K600
3755893	ABDE0250J3AQB	1/4	1/4	.2342	3/8	3/4	4	.030	●
3755895	ABDE0250J3BQB	1/4	1/4	.2342	3/8	1 1/8	4	.030	●
3755897	ABDE0250J3CQB	1/4	1/4	.2342	3/8	2 1/8	4	.030	●
3755898	ABDE0312J3AQB	5/16	5/16	.2930	7/16	1 1/8	4	.030	●
3755900	ABDE0375J3AQB	3/8	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	●

158–159	160	115–117	164

Solid Carbide End Milling

MaxiMet™ • Square End • 3 Flutes • Wiper Facet • Necked • Plain Shank • Inch

● first choice
○ alternate choice



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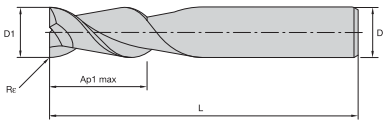
order number	catalog number	D1	D	D3	Ap1 max	L3	L	K600
3755802	ABDE0250J3AQ	1/4	1/4	.2342	3/8	3/4	4	●
3755894	ABDE0250J3BQ	1/4	1/4	.2342	3/8	1 1/8	4	●
3755896	ABDE0250J3CQ	1/4	1/4	.2342	3/8	2 1/8	4	●
3755899	ABDE0375J3AQ	3/8	3/8	.3512	1/2	1 1/8	4	●
3755901	ABDE0375J3BQ	3/8	3/8	.3512	1/2	2 1/8	4	●
3755903	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	●

KenCut™ AL • AADF • Radiused • 2 Flutes • Plain Shank • Inch

● first choice
○ alternate choice



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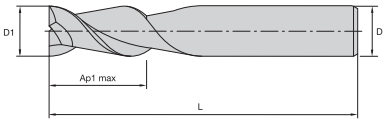
order number	catalog number	D1	D	Ap1 max	L	Rε	K600
3658881	AADF0250J2BRA	1/4	1/4	3/4	2 1/2	.015	●
3658882	AADF0250J2BRB	1/4	1/4	3/4	2 1/2	.030	●
3876364	AADF0250J2FRB	1/4	1/4	1	3	.030	●
3876375	AADF0375J2DRA	3/8	3/8	1	3	.015	●
3876376	AADF0375J2DRB	3/8	3/8	1	3	.030	●
3658902	AADF0375J2CRB	3/8	3/8	1 1/2	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	●

158–159	160	115–117	164

Solid Carbide End Milling

KenCut™ AL • AADF • Square End • 2 Flutes • Plain Shank • Inch

● first choice
○ alternate choice



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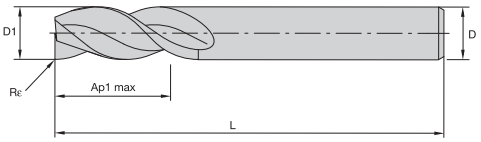
order number	catalog number	D1	D	Ap1 max	L	K600
3658875	AADF0125J2A	1/8	1/8	1/4	2	●
2402999	AADF0125J2B	1/8	1/8	1/2	2	●
3658877	AADF0188J2A	3/16	3/16	5/16	2	●
3876352	AADF0188J2D	3/16	3/16	9/16	2 1/2	●
2403000	AADF0188J2B	3/16	3/16	5/8	2	●
3658879	AADF0250J2A	1/4	1/4	3/8	2	●
3876359	AADF0250J2E	1/4	1/4	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	●

158–159 | 160 | 115–117 | 164

Solid Carbide End Milling

KenCut™ AL • AADE • Radiused • 3 Flutes • Plain Shank • Inch

● first choice
○ alternate choice



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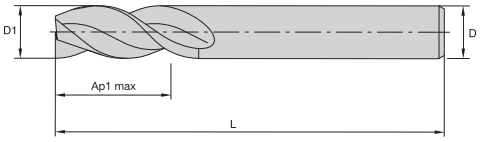
order number	catalog number	D1	D	Ap1 max	L	Rε	K600
3658816	AADE0250J3ARB	1/4	1/4	3/8	2	.030	●
3658817	AADE0250J3BRA	1/4	1/4	3/4	2 1/2	.015	●
3658818	AADE0250J3BRB	1/4	1/4	3/4	2 1/2	.030	●
3870460	AADE0250J3FRA	1/4	1/4	1	3	.015	●
3658820	AADE0250J3CRA	1/4	1/4	1 1/4	3 1/4	.015	●
3658821	AADE0250J3CRB	1/4	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	●

158–159	160	115–117	164

Solid Carbide End Milling

KenCut™ AL • AADE • Square End • 3 Flutes • Plain Shank • Inch

● first choice
○ alternate choice



P	
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order number	catalog number	D1	D	Ap1 max	L	K600
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	●

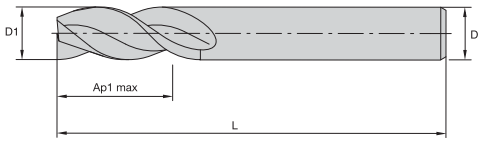
158–159	160	115–117	164

Solid Carbide End Milling

KenCut™ AL • AADE • Square End • 3 Flutes • Plain Shank • Inch

(continued)

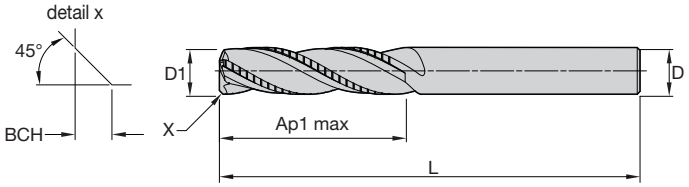
● first choice
○ alternate choice



order number	catalog number	D1	D	Ap1 max	L	K600
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	●

KenCut ALR • SFRHEC • Chamfered • 3 Flutes • Plain Shank • Inch

● first choice
○ alternate choice



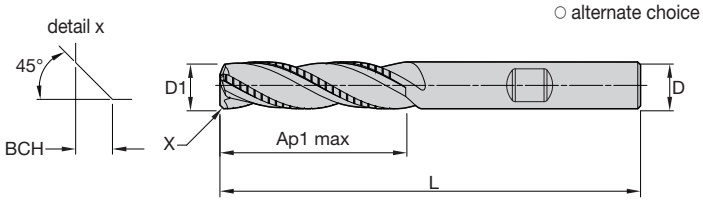
order number	catalog number	D1	D	Ap1 max	L	BCH	K600
2658352	SFRHEC250S3075	1/4	1/4	3/4	2 1/2	.024	●

158–159 | 160 | 115–117 | 164

Solid Carbide End Milling

KenCut™ ALR • SFRHEC • Chamfered • 3 Flutes • Weldon® Shank • Inch

● first choice
○ alternate choice



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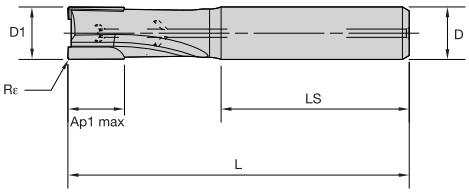
order number	catalog number	D1	D	Ap1 max	L	BCH	K600
2658444	SFRHEC375S3088	3/8	3/8	7/8	2 1/2	.024	●
2658445	SFRHEC500S3100	1/2	1/2	1	3	.039	●
2658446	SFRHEC500S3200	1/2	1/2	2	4 1/2	.039	●
2658448	SFRHEC625S3225	5/8	5/8	2 1/4	5	.039	●
2658449	SFRHEC750S3150	3/4	3/4	1 1/2	4	.039	●
2658450	SFRHEC750S3225	3/4	3/4	2 1/4	5	.039	●
2658452	SFRHEC100S3225	1	1	2 1/4	5	.039	●

KenCut AQ • ALCB • Radiused • 2 Flutes • 1 x D • Internal Coolant • Plain Shank • Inch

● first choice
○ alternate choice



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N	●
S	
H	

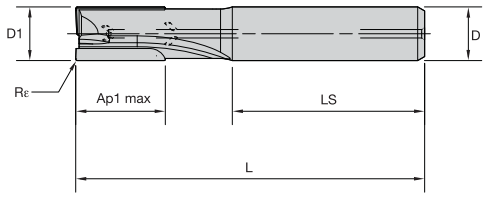
order number	catalog number	D1	D	Ap1 max	L	LS	Rε	KD1410
6752728	ALCB2RA0250N025HAR010I	1/4	1/4	1/4	2.250	1.437	.010	●
6752729	ALCB2RA0313N031HAR010I	5/16	5/16	5/16	2.500	1.516	.010	●
6752730	ALCB2RA0375N038HAR010I	3/8	3/8	3/8	3.000	1.575	.010	●
6752751	ALCB2RA0500N050HAR015I	1/2	1/2	1/2	3.250	1.791	.015	●
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	●

158–159	160	115–117	164

Solid Carbide End Milling

KenCut™ AQ • ALCC • Radiused • 2 Flutes • 1.5 x D • Internal Coolant • Plain Shank • Inch

● first choice
○ alternate choice

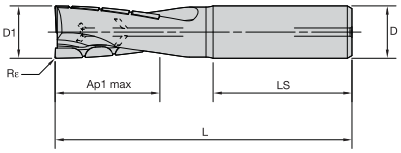


P	M	K	N	S	H
			●		

order number	catalog number	D1	D	Ap1 max	L	LS	Rε	KD1410
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	●

KenCut AQ • ALCR • Radiused • 2 Flutes • 2 x D • Internal Coolant • Plain Shank • Inch

● first choice
○ alternate choice



P	M	K	N	S	H
			●		

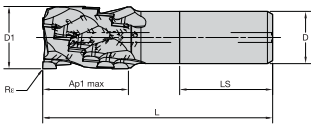
order number	catalog number	D1	D	Ap1 max	L	LS	Rε	KD1410
6752761	ALCR2RA0500N100HAR015I	1/2	1/2	1	3.250	1.791	.015	●
6752762	ALCR2RA0625N125HAR015I	5/8	5/8	1 1/4	3.750	1.909	.015	●
6752763	ALCR2RA0750N150HAR015I	3/4	3/4	1 1/2	4.250	1.988	.015	●

158–159	160	115–117	164

Solid Carbide End Milling

KenCut™ AQ • ALSR • Radiused • 2-3 Flutes • 1.25 x D • Internal Coolant • Plain Shank • Inch

● first choice
○ alternate choice

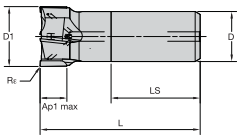


P	M	K	N	S	H
			●		

order number	catalog number	D1	D	Ap1 max	L	LS	Rε	Z U	KD1410
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	●

KenCut AQ • ALSB • Radiused • 4-5 Flutes • Internal Coolant • Plain Shank • Inch

● first choice
○ alternate choice



P	M	K	N	S	H
			●		

order number	catalog number	D1	D	Ap1 max	L	LS	Rε	Z U	KD1410
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	●

158–159	160	115–117	164

Solid Carbide End Milling

MaxiMet™ • ABDF • ABDE • Application Data • Inch

MaxiMet ABDE

MaxiMet ABDF

Material Group		A ap	A ae	B ap	K600 Cutting Speed — vc SFM min	K600 Cutting Speed — vc SFM max	frac.	D1 — Diameter 3/16	1/4	5/16	3/8	1/2	5/8	3/4	1
							dec.	.1875	.2500	.3125	.3750	.5000	.6250	.7500	1.0000
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

Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.

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 • ABDE • Extended Neck • Application Data • Inch

MaxiMet ABDF — with Neck

MaxiMet ABDE — with Neck

Material Group		A ap	A ae	B ap	K600 Cutting Speed — vc SFM min	K600 Cutting Speed — vc SFM max	frac.	D1 — Diameter 1/4	5/16	3/8	1/2	5/8	3/4	1
							dec.	.2500	.3125	.3750	.5000	.6250	.7500	1.0000
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

Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.

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%.

Adjustment Factor for Feed and Speed Calculation • Inch

	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 recommeded base Fz.
For light finishing cuts requiring improved surface quality it is recommended to reduce the base Fz approximately 50% and then apply these factors.

To calculate application specific cutting data, please use 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

Solid Carbide End Milling

KenCut™ AL • AADF • AADE • Application Data • Inch

KenCut AL — AADF

KenCut AL — AADE

Material Group		A ap	A ae	B ap	K600 Cutting Speed — vc SFM min	K600 Cutting Speed — vc SFM max	frac. dec.	Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%. D1 — Diameter 1/8 0.125	3/16 0.188	1/4 0.250	5/16 0.313	3/8 0.375	1/2 0.500	5/8 0.625	3/4 0.750	1 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 • Inch

Material Group		A ap	A ae	B ap	K600/KC625M Cutting Speed — vc SFM min	K600/KC625M Cutting Speed — vc SFM max	frac. dec.	Feed per Tooth — fz information is for side milling (A). For slotting (B), reduce fz by 20%. D1 — Diameter 1/4 0.250	3/8 0.375	1/2 0.500	5/8 0.625	3/4 0.750	1 1.000
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.

Adjustment Factor for Feed and Speed Calculation • Inch

	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 recommeded base Fz.
For light finishing cuts requiring improved surface quality it is recommended to reduce the base Fz approximately 50% and then apply these factors.

To calculate application specific cutting data, please use 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 SFM * 1.4 = 2870 SFM
Fz new = .0081 IPT * 1.67 = .0135 IPT

Solid Carbide End Milling

KenCut™ AQ • PCD End Mill • ALCB • Application Data • Inch

Material Group		A		B	KD1410 Cutting Speed — vc SFM			Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.						
									D1 — Diameter					
		ap	ae	ap	min		max	frac. dec.	1/4 0.2500	5/16 0.3125	3/8 0.3750	1/2 0.5000	5/8 0.6250	3/4 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 • Inch

Material Group		A		B	KD1410 Cutting Speed — vc SFM			Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.					
									D1 — Diameter				
		ap	ae	ap	min		max	frac. dec.	1/4 0.2500	5/16 0.3125	3/8 0.3750	1/2 0.5000	5/8 0.6250
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 • Inch

Material Group		A		B	KD1410 Cutting Speed — vc SFM			Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.			
									D1 — Diameter		
		ap	ae	ap	min		max	frac. dec.	1/2 0.5000	5/8 0.6250	3/4 0.7500
N	1	2 x D	0.2 x D	0.5 x D	660	–	9840	IPT	0.0058	0.0063	0.0060
	2	2 x D	0.2 x D	0.5 x D	660	–	9840	IPT	0.0058	0.0063	0.0060
	3	2 x D	0.2 x D	0.5 x D	590	–	4590	IPT	0.0050	0.0055	0.0053
	4	2 x D	0.2 x D	0.5 x D	660	–	2620	IPT	0.0042	0.0047	0.0045
	5	2 x D	0.2 x D	0.5 x D	660	–	3280	IPT	0.0038	0.0039	0.0038
	6	2 x D	0.2 x D	0.5 x D	490	–	2620	IPT	0.0025	0.0031	0.0030
	7	2 x D	0.2 x D	0.5 x D	820	–	1640	IPT	0.0050	0.0055	0.0053

Solid Carbide End Milling

KenCut™ AQ • PCD End Mill • ALSB • Application Data • Inch

Material Group		A		B	KD1410 Cutting Speed — vc SFM			Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.			
									D1 — Diameter		
		ap	ae	ap	min		max	frac. dec.	1 1.0000	1 1/4 1.2500	1 1/2 1.5000
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 • Inch

Material Group		A		B	KD1410 Cutting Speed — vc SFM			Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.			
									D1 — Diameter		
		ap	ae	ap	min		max	frac. dec.	1 1.0000	1 1/4 1.2500	1 1/2 1.5000
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

Solid Carbide End Milling

Tool Selector

	CFRP MACHINING			HIGH-TEMP MACHINING	
	KenCut™ CF			KenCut HT	
					
Series	CCNC	CDDC	CBDB	EADE	EADE
Page	kennametal.com	kennametal.com	kennametal.com	99	99
Tool type					
Rougher				●	●
Finisher	●	●	●		
Chamfering					
Main operations					
Workpiece material					
Primary	C	C	C	S	S
Secondary					
Corner style					
Corner radius [Rε]	–	–	–	.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

Solid Carbide End Milling

Tool Selector

	HARD MACHINING	
	KenCut™ HM	
		
Series	**HPRDM**	**HPBNDM**
Page	kennametal.com	kennametal.com
Tool type		
Rougher	●	
Finisher		●
Chamfering		
Main operations		
Workpiece material		
Primary	P H	P H
Secondary	M K S	
Corner style		
Corner radius [Rε]	.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

POWERED BY NOVO

KenCut™ HT

High-Performance High-Temperature Alloys Machining

Materials

S

Applications

- Face Milling
- 3D Profiling
- Ramping
- Shoulder Milling

Solid ceramic end mill for high-speed roughing of nickel-based high-temperature alloys.

The solid ceramic end mills offer extremely high tool life even at cutting speeds up to 1000m/min.

SiAlON solid ceramic grade for exceptionally high metal removal rates in nickel-based high-temperature alloy machining.

Up to five times higher tool life compared to solid carbide end mills, resulting in fewer tool changes and less downtime.

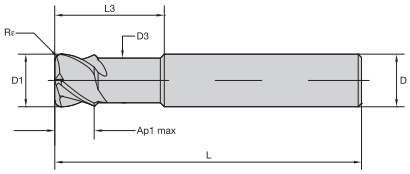
Highest cutting speed capability for drastically reduced machining time.

Four-flute version for pocketing and slotting, six-flute version for face milling and profiling.

Solid Carbide End Milling

KenCut™ HT • EADE • Radiused • 4 Flutes • Necked • Plain Shank • Inch

● first choice
○ alternate choice

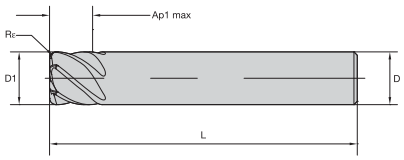


P	M	K	N	S	H
				●	

order number	catalog number	D1	D	D3	Ap1 max	L3	L	Rε	KYS40
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	●

KenCut HT • EADE • Radiused • 6 Flutes • Plain Shank • Inch

● first choice
○ alternate choice



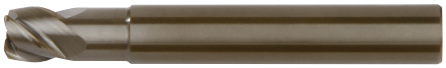
P	M	K	N	S	H
				●	

order number	catalog number	D1	D	Ap1 max	L	Rε	KYS40
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	●

158–159	160	115–117	164

Solid Carbide End Milling

KenCut HT™ • EADE • 4 Flutes • Application Data • Inch



Material Group		A		B	KYS40 Cutting Speed — vc SFM		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.					
								D1 — Diameter				
		ap	ae	ap	min	max	frac.	3/16	1/4	5/16	3/8	1/2
							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 • Inch

Material Group		A		KYS40 Cutting Speed — vc SFM		Recommended feed per tooth (IPT = inch/th) for side milling (A).					
							D1 — Diameter				
		ap	ae	min	max	frac.	3/16	1/4	5/16	3/8	1/2
						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.

Solid Carbide End Milling

KenCut™ HT Application Recommendation

Materials to cut	Cutting speed	Coolant
• Nickel-based high-temperature 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-temperature 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. • Minimal quantity lubrication (MQL) and dry applicable. • No coolant with emulsion or oil due to thermal shock.

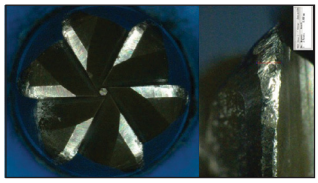
Adaptation	Milling strategy	Reconditioning service
• Hydraulic chuck with or without sleeve preferred. • Collet or milling power chucks applicable. • Balancing at 25,000 RPM (2,5G) preferred.	• Conventional milling preferred at lower speeds. • Climb milling preferred at higher speeds.	Not applicable.

Solid Carbide End Milling

Wear Indication

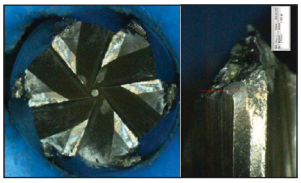
New

Used



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

End of Tool Life



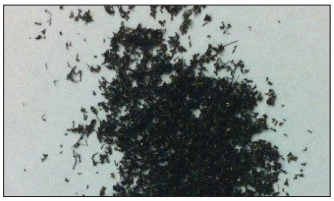
Wear rate 1,4mm. End of tool life reached.

Chip Formation

Carbide

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

Ceramic



Chips are nearly 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.

Solid Carbide End Milling

Tool Selector

	HIGH-FEED MACHINING	
	KenFeed™	
		
Series	**KHDA**	**KMDA**
Page	105	106
Tool type		
Rougher		
Finisher	●	●
Chamfering		
Main operations		
Workpiece material		
Primary	H	H
Secondary		P
Corner style		
Corner radius [Rε]	.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

POWERED BY NOVO

KenFeed™

High-Feed Machining

Materials

P M K S H

Applications

- Slotting: Square End
- 3D Profiling
- Shoulder Milling:
- Ramping
- Plunge Milling: Ball Nose

KenFeed

The KenFeed solid carbide end mill series is designed for maximum metal removal rates in heat-treated steels up to 67 HRC by taking very shallow-depth cuts at extremely high feed rates.

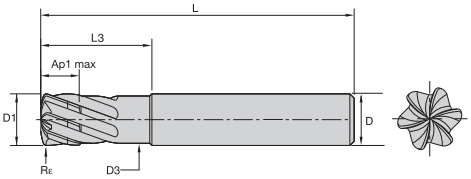
During face milling, the proprietary front-end geometry is entirely in contact with the workpiece, providing up to 55% engagement compared to regular ball nose-type tooling with only 5–10%.

The 3 x D neck and the extended-reach design is ideal for multiple applications like ramping, circular interpolation, 3D profiling, face milling, and pocketing.

Six-flute design for increased metal removal rates and higher productivity.

Solid Carbide End Milling

KenFeed™ • Torus • KHDA • 6 Flutes • Plain Shank • Inch

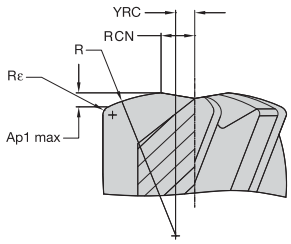


● first choice
○ alternate choice

P		○
M		
K		
N		
S		
H		●

order number	catalog number	D1	D	D3	Ap1 max	L3	L	Rε	KC639M
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

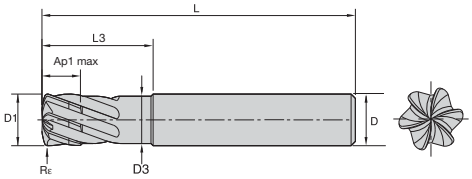


	Geometrical Parameters						Ramping Guide for Circular and Linear Ramping						
							Circular Interpolation		Linear Ramping				
							Optimal Range of Circle Diameter for a Single Pass		Calculated Length per Ramp Angle				
catalog number	D1	Ap1 max	R	Rε	YRC	RCN	Smallest	Largest	1°	2°	3°	4°	5°
KHDA0250J6ANA	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%

158–159	160	115–117	164

Solid Carbide End Milling

KenFeed™ • Torus • KMDA • 6 Flutes • Plain Shank • Inch

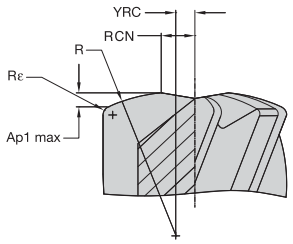


● first choice
○ alternate choice

P		○
M		
K		
N		
S		
H		●

order number	catalog number	D1	D	D3	Ap1 max	L3	L	Rε	KC639M
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	Rε	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%

158–159	160	115–117	164

Solid Carbide End Milling

KenFeed™ • KHDA • Application Data • Inch

Material Group		3D Milling/Profiling		KC639M Cutting Speed — vc SFM		frac.	D1 — Diameter 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	0.750
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.

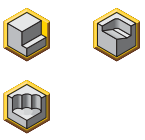
KenFeed • KMDA • Application Data • Inch

Material Group		3D Milling/Profiling		KC639M Cutting Speed — vc SFM		frac.	D1 — Diameter 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	0.750
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.

Solid Carbide End Milling

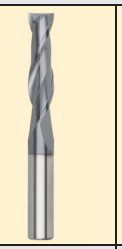
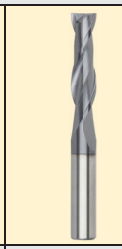
Tool Selector

	ROUGHING AND FINISHING			
	GOmill™			
				
Series	GOmill UEBD 2FL	GOmill UEDE 3FL	GOmill UEBD 3FL	GOmill UEDE 4FL
Page	111	111	112	112–113
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 [Rε]	–	–	–	–
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

Solid Carbide End Milling

Tool Selector

	GENERAL PURPOSE ROUGHING AND FINISHING						
	GOmill™ 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..**
Page	kennametal.com	kennametal.com	kennametal.com	kennametal.com	kennametal.com	kennametal.com	kennametal.com
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 [Rε]	–	–	–	–	–	–	–
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

POWERED BY NOVO

GOmill™

Economic Roughing and Finishing

Materials

P M K S

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 also a perfect fit for mill-turn machines and driven units in lathes. Works with any adapter; clamping sleeve in hydraulic chucks are recommended.

Unequally spaced three- and four-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.

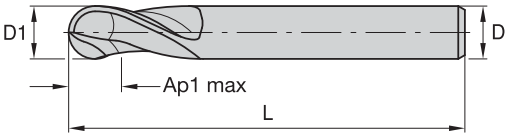
Short length and high-performance geometry enable chatter-free, 1 x D full slot machining in multiple materials.

Center cutting for plunging and ramping.

Solid Carbide End Milling

GOmill™ • Ball Nose • 2 Flutes • Plain Shank • Inch

● first choice
○ alternate choice

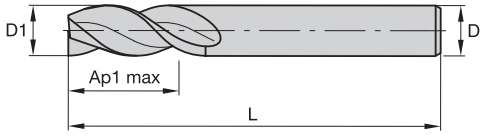


P	●
M	●
K	●
N	
S	●
H	○

order number	catalog number	D1	D	Ap1 max	L	KC643M
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	●

GOmill • Square End • 3 Flutes • Sharp Edge • Plain Shank • Inch

● first choice
○ alternate choice



P	●
M	●
K	●
N	
S	●
H	○

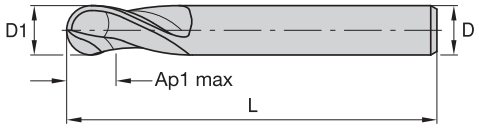
order number	catalog number	D1	D	Ap1 max	L	KC643M
4169351	UEDE0078J3AS	5/64	1/4	5/32	1 1/2	●
4169352	UEDE0094J3AS	3/32	1/4	5/32	1 1/2	●
4169513	UEDE0125J3AS	1/8	1/4	13/64	1 1/2	●
4169514	UEDE0156J3AS	5/32	1/4	17/64	1 1/2	●
4169515	UEDE0188J3AS	3/16	1/4	19/64	1 1/2	●
4169516	UEDE0250J3AS	1/4	1/4	21/64	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	●

158–159	160	115–117	164

Solid Carbide End Milling

GOmill™ • Ball Nose • 3 Flutes • Plain Shank • Inch

● first choice
○ alternate choice

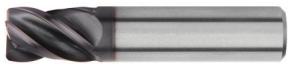


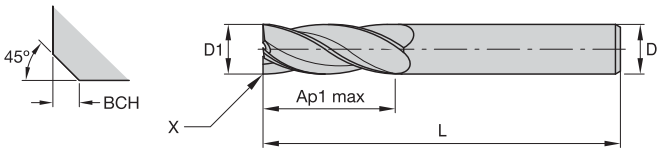
P	●
M	●
K	●
N	
S	●
H	○

order number	catalog number	D1	D	Ap1 max	L	KC643M
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	●

GOmill • Chamfered • 4 Flutes • Plain Shank • Inch

● first choice
○ alternate choice





P	●
M	●
K	●
N	
S	●
H	○

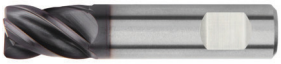
order number	catalog number	D1	D	Ap1 max	L	BCH	KC643M
4169805	UEDE0156J4AH	5/32	1/4	17/64	1 1/2	.016	●
4169806	UEDE0188J4AH	3/16	1/4	19/64	1 1/2	.016	●
4169807	UEDE0250J4AH	1/4	1/4	21/64	1 1/2	.016	●
4169808	UEDE0312J4AH	5/16	5/16	27/64	1 3/4	.016	●
4169809	UEDE0375J4AH	3/8	3/8	31/64	2	.016	●
4169810	UEDE0437J4AH	7/16	7/16	9/16	2 5/32	.016	●
4169811	UEDE0500J4AH	1/2	1/2	5/8	2 5/32	.016	●

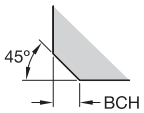
158–159	160	115–117	164

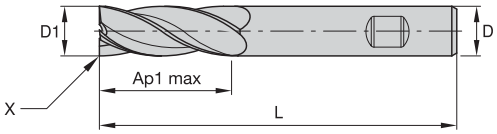
Solid Carbide End Milling

GOmill™ • Chamfered • 4 Flutes • Weldon® Shank • Inch

● first choice
○ alternate choice







P	●
M	●
K	●
N	
S	●
H	○

order number	catalog number	D1	D	Ap1 max	L	BCH	KC643M
4169826	UEDE0375K4AH	3/8	3/8	31/64	2	.016	●
4169828	UEDE0500K4AH	1/2	1/2	5/8	2 5/32	.016	●

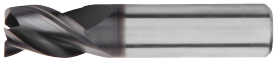
158–159	160	115–117	164

Solid Carbide End Milling

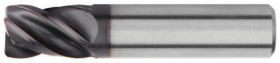
GOmill™ • Application Data • Inch

GOmill – 2 Flutes — UEBD

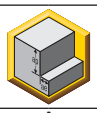
GOmill – 3 Flutes — UEBD



GOmill – 3 Flutes — UEDE



GOmill – 4 Flutes — UEDE

Material Group		 A		 B	KC643M Cutting Speed — vc SFM		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.							
								D1 — Diameter						
		ap	ae	ap	min	max	frac. dec.	5/64 0.08	1/8 0.13	5/32 .1563	3/16 0.19	1/4 0.250	5/16 0.31	3/8 0.38	1/2 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
	6	1.5 x D	0.5 x D	0.75 x D	160	250	IPT	.0003	.0005	.0006	.0008	.0010	.0013	.0015	.0019
M	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
	3	1.5 x D	0.5 x D	1 x D	200	230	IPT	.0003	.0005	.0006	.0008	.0010	.0013	.0015	.0019
K	1	1.5 x D	0.5 x D	1 x D	390	490	IPT	.0005	.0009	.0011	.0013	.0018	.0023	.0027	.0034
	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
S	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
	4	1.5 x D	0.5 x D	1 x D	160	200	IPT	.0003	.0005	.0006	.0008	.0011	.0014	.0017	.0021
H	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.

Adjustment Factor for Feed and Speed Calculation • Inch

	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 recommeded base Fz.
For light finishing cuts requiring improved surface quality it is recommended to reduce the base Fz approximately 50% and then apply these factors.

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

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

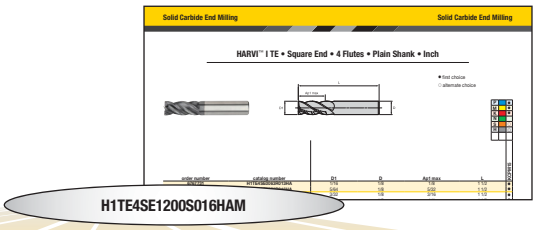
Calculation example:
Application: D1 = 1/2";
P5 material group;
Ae 0.05" (Ae = 10% D)
Cutting data recommendation: 265 SFM;
Fz = 0.0023 IPT
Adjustment coefficients: Ae = 0.1" equals 10%;
Kv = 1.4; KFz = 1.67

Final cutting data recommendation:
Vc new = 265 SFM * 1.4 = 371 SFM
Fz new = .0023 IPT * 1.67 = .0038 IPT

Solid Carbide End Milling

HARVI™ I TE • KOR™ • PCD • Catalog Numbering System

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



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

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

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

Solid Carbide End Milling

Catalog Numbering System

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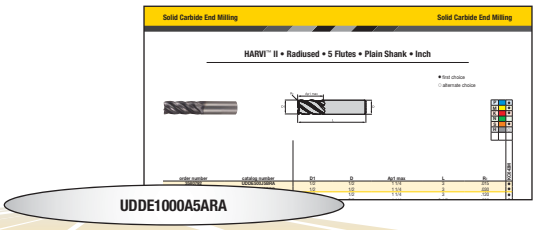

UD	D	E	1000	A	5	A	R	A
Series	Front End Style	Helix Angle	Cutting Diameter D1	Shank Style	Number of Flutes	Length of Cut Ap1 Max	Specific Features	Radius
AA = Aluminum **AB** = MaxiMet™ **CB** = CFPR Burr **CC** = CFRP Compression **CD** = CFPR Downcutter **CR** = CFRP Ball **GA** = General Application **KH** = KenFeed™ (Hard Steels) **KM** = KenFeed (Medium Steels) **RU** = Rougher (Flat Shallow Profile) **UC** = HARVI II™ (Material Group M) **UD** = HARVI II (Material Group S) **UG** = HARVI II Long (3 x D & 5 x D) **UJ** = HARVI III Center Cut & Eccentric Relief **UE** = GOmill™ **FS** = RSM II Multiflute (Material Group S) **EA** = Ceramic End Mill (Nickel-Based Alloys)	**B** = Ballnose RH **D** = Square End RH	**A** = 0-10 **B** = 11-20 **C** = 21-30 **D** = 31-35 **E** = 36-40 **F** = 41-45 **G** = 46-60 **V** = Variable Helix	**Metric** = D1 in mm **Inch** = D1 in decimal inch	**Metric** **A** = Plain **B** = Weldon® **C** = Whistle Notch **D** = Weldon & Whistle Notch **E** = Plain & Safe-Lock™ **X** = DUO-LOCK™ **Inch** **J** = Plain **K** = Weldon **N** = Safe-Lock **Y** = DUO-LOCK	1 2 3 4 5 6 7 8 9 A = 10 B = 11 C = 12 D = 13 E = 14 F = 15 G = 16 H = 17 I = 18 J = 19 M = multi	**A** = Regular **B** = Long **C** = Extra Long **D** = XX Long	**B** = HARVI III Aero **C** = Coolant **H** = Chamfer **K** = Extended Reach + Neck + Radius **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	**Metric** **A** = 0,20 **B** = 0,25 **C** = 0,30 **D** = 0,40 **E** = 0,50 **F** = 0,75 **G** = 1,00 **H** = 1,25 **J** = 1,50 **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

Solid Carbide End Milling

Catalog Numbering System

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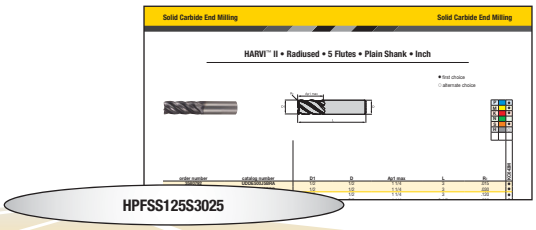
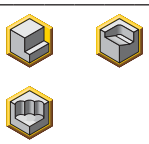
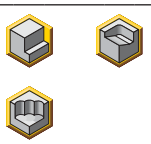


HPFSS	125	S3	025
Tool Type Series	Cutting Diameter D1	Number of Flutes	Length of Cut
HPBNDM = Ball Nose for Steels, Hardened Materials **HPFDM** = Finisher Steels, Hardened Materials **HPFSS** = Finisher Steel, Stainless, HTA **HPFT** = Finisher Steels **HPRSS** = Chip Breaker Style Rougher **HPRST**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

Modular End Milling

Tool Selector

	HIGH-PERFORMANCE ROUGHING & FINISHING				
	HARVI™ I			HARVI II	
					
Series	**UKDV**	**ULDV**	**UKBV**	**UCDV**	**UDDV**
Page	124	124	125	125	126
Tool type					
Rougher	●	●	●	○	○
Finisher	○	○	○	●	●
Chamfering					
Main operation					
Workpiece material					
Primary	P M	S	P M	P M	S
Secondary	K S	P M H	K S H	K S H	P H
Corner style					
Corner radius [Rε]	–	.015–.250"	–	–	.015–.250"
Corner chamfer width [BCH]	.020"	–	–	.020"	–
Cutter diameter [D1]	3/8–1-1/4"	3/8–1-1/4"	3/8–1"	3/8–1-1/4"	3/8–1-1/4"
Length of cut	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]	9/16–1-7/8"	9/16–1-7/8"	9/16–1-1/2"	9/16–1-7/8"	9/16–1-7/8"
Flute helix angle	37°/39°	37°/39°	37°/39°	37°/39°	37°/39°
Number of flutes [ZU]	4	4	4	5	5
Center cutting	✔	✔	✔	–	–
Additional operations					

● Primary
○ Secondary

Modular End Milling

Tool Selector

	HP ROUGHING & FINISHING		ROUGHER		FINISHER	
	HARVI™ III		KenCut™ RR		KenCut FF	RSM II™
						
Series	UJDV	UJBV	RQDB	RKDF	FMDF	FSDE
Page	127	127	132	132	134	134
Tool type						
Rougher			●	●		
Finisher	●	●			●	●
Chamfering						
Main operation						
Workpiece material						
Primary	S	P M	P M	S	P M	S
Secondary	P M H	K S H	K S H	P M K H	K S H	P M H
Corner style						
Corner radius [Rε]	.015–.250"	–	–	.015–.030"	.015–.030"	.015–.250"
Corner chamfer width [BCH]	–	–	.020"	–	–	–
Cutter diameter [D1]	3/8–1-1/4"	3/8–1"	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	1.5 x D	1.5 x D
Maximum cutting depth [Ap1 max]	9/16–1-7/8"	9/16–1-1/2"	9/16–1-1/2"	9/16–1-1/2"	9/16–1-1/2"	9/16–1-1/2"
Flute helix angle	37°/39°	37°/39°	20°	45°	45°	36°
Number of flutes [ZU]	6	6	4 & 5	4 & 6	6	9, 11, 15, & 19
Center cutting	✔	✔	–	✔	✔	–
Additional operations			 	 		

● Primary
○ Secondary

Modular End Milling

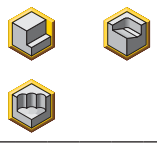
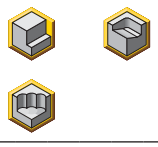
Tool Selector

	ALUMINUM MACHINING			HIGH-FEED	
	MaxiMet™			KenFeed™	
					
Series	**ABDF**	**ABDE**	**ABBE**	**KMDA**	**KSDB**
Page	136	136	137	139	140
Tool type					
Rougher	●	●	●	●	●
Finisher	○	●	●	●	●
Chamfering					
Main operation					
Workpiece material					
Primary	N	N	N	H	S
Secondary				P	P M
Corner style					
Corner radius [Rε]	–	.015–.250"	–	.020–.040"	.020– .040"
Corner chamfer width [BCH]	–	–	–	–	–
Cutter diameter [D1]	3/8–3/4"	3/8–1"	3/8–1"	3/8–3/4"	3/8–3/4"
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"	.023–.040"	.023–.040"
Flute helix angle	45°	38°	38°	20°	20°
Number of flutes [ZU]	2	3	3	6	6
Center cutting	✔	✔	✔	–	–
Additional operations					

● Primary
○ Secondary

Modular End Milling

Tool Selector

	DRIVEN TOOLING		CHAMFERER	
	KenCut™ RR	KenCut FF	KenCut CM	
				
Series	**RFDD**	**FGDF**	**XADA**	**XRDA**
Page	142	142	144	144
Tool type				
Rougher	●	●		
Finisher		○		
Chamfering			●	●
Main operation				
Workpiece material				
Primary	P M	P M	P M	P M
Secondary	K H	K S H	K N S H	K N S H
Corner style			–	–
Corner radius [Rε]	.015"	.015– .030"	–	–
Corner chamfer width [BCH]	–	–	–	–
Cutter diameter [D1]	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]	9/32–3/4"	9/32–3/4"	.075–.178"	.030–.120"
Flute helix angle	35°	42°/45°/48°	0°	0°
Number of flutes [ZU]	3	3	4, 5, & 6	4, 5, & 6
Center cutting	✔	✔	–	–
Additional operations				

● Primary
○ Secondary

POWERED BY NOVO

DUO-LOCK™

Modular End Milling

Portfolio Materials

P M K N S H

Portfolio Applications

- Plunge Milling
- Ramping
- Slotting
- Side Milling/ Shoulder Milling
- 3D Milling/Profiling
- Chamfer Milling
- Side Milling/Shoulder Milling: Radius

DUO-LOCK®
by HAIMER® and Kennametal

DUO-LOCK is a new 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.

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.

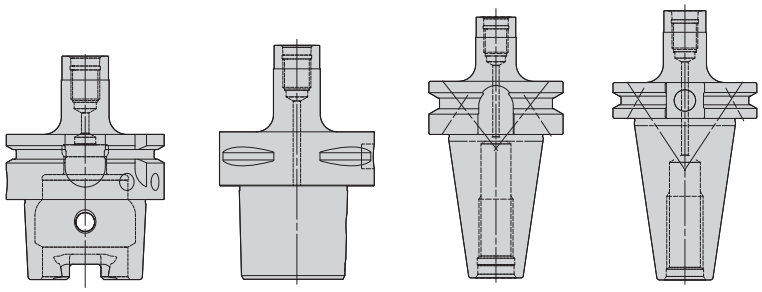
3rd contact surface delivers high stiffness and highest accuracy below 5µm runout.

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.

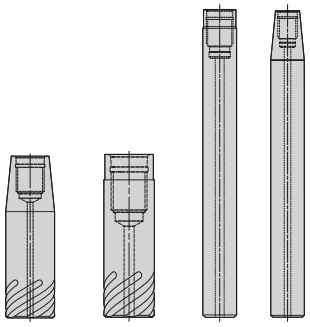
With a DUO-LOCK™ wrench, the tool change becomes easy and can be done in a few seconds.

Adapters



HSK PSC BT CV

Extensions

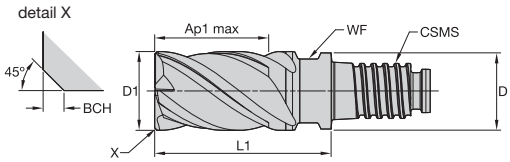


SAFE-LOCK® by HAIMER® Cut-to-length

Modular End Milling

DUO-LOCK™ • HARVI™ I • Chamfered • 4 Flutes • Inch

● first choice
○ alternate choice

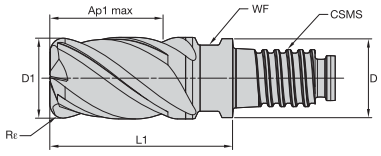


P	●
M	●
K	●
N	
S	○
H	○

order number	catalog number	D1	D	Ap1 max	L1	CSMS system size	WF	BCH	KCPM15
6072333	UKDV0375Y4CU	3/8	.359	9/16	.843	DL10	.315	–	●
6072340	UKDV0375Y4CV	3/8	.359	9/16	.843	DL10	.315	.020	●
6072334	UKDV0500Y4CU	1/2	.480	3/4	1.126	DL12	.374	–	●
6072342	UKDV0500Y4CV	1/2	.480	3/4	1.126	DL12	.374	.020	●
6072335	UKDV0625Y4CU	5/8	.605	15/16	1.406	DL16	.512	–	●
6072343	UKDV0625Y4CV	5/8	.605	15/16	1.406	DL16	.512	.020	●
6072337	UKDV0750Y4CU	3/4	.730	1 1/8	1.689	DL20	.630	–	●
6072344	UKDV0750Y4CV	3/4	.730	1 1/8	1.689	DL20	.630	.020	●
6072338	UKDV1000Y4CU	1	.961	1 1/2	2.252	DL25	.827	–	●
6072345	UKDV1000Y4CV	1	.961	1 1/2	2.264	DL25	.827	.020	●
6072339	UKDV1250Y4CU	1 1/4	1.211	1 7/8	2.803	DL32	1.102	–	●
6072346	UKDV1250Y4CV	1 1/4	1.211	1 7/8	2.803	DL32	1.102	.020	●

DUO-LOCK • HARVI I • Radiused • 4 Flutes • Inch

● first choice
○ alternate choice



P	●
M	●
K	○
N	
S	●
H	○

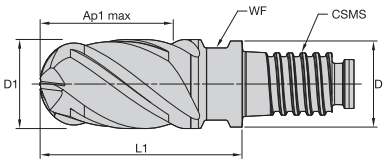
order number	catalog number	D1	D	Ap1 max	L1	CSMS system size	WF	Rε	KCSM15
6072347	ULDV0375Y4CQA	3/8	.359	9/16	.843	DL10	.315	.015	●
6072348	ULDV0375Y4CQB	3/8	.359	9/16	.843	DL10	.315	.030	●
6072349	ULDV0375Y4CQC	3/8	.359	9/16	.843	DL10	.315	.060	●
6072350	ULDV0375Y4CQD	3/8	.359	9/16	.843	DL10	.315	.090	●
6072351	ULDV0500Y4CQA	1/2	.480	3/4	1.126	DL12	.374	.015	●
6072352	ULDV0500Y4CQB	1/2	.480	3/4	1.126	DL12	.374	.030	●
6072353	ULDV0500Y4CQC	1/2	.480	3/4	1.126	DL12	.374	.060	●
6072354	ULDV0500Y4CQD	1/2	.480	3/4	1.126	DL12	.374	.090	●
6072355	ULDV0500Y4CQE	1/2	.480	3/4	1.126	DL12	.374	.120	●
6072356	ULDV0625Y4CQA	5/8	.605	15/16	1.406	DL16	.512	.015	●
6072357	ULDV0625Y4CQB	5/8	.605	15/16	1.406	DL16	.512	.030	●
6072358	ULDV0625Y4CQC	5/8	.605	15/16	1.406	DL16	.512	.060	●
6072359	ULDV0625Y4CQD	5/8	.605	15/16	1.406	DL16	.512	.090	●
6072360	ULDV0625Y4CQE	5/8	.605	15/16	1.406	DL16	.512	.120	●
6072361	ULDV0750Y4CQB	3/4	.730	1 1/8	1.689	DL20	.630	.030	●
6072362	ULDV0750Y4CQC	3/4	.730	1 1/8	1.689	DL20	.630	.060	●
6072363	ULDV0750Y4CQD	3/4	.730	1 1/8	1.689	DL20	.630	.090	●
6072364	ULDV0750Y4CQE	3/4	.730	1 1/8	1.689	DL20	.630	.120	●
6072365	ULDV1000Y4CQB	1	.961	1 1/2	2.252	DL25	.827	.030	●
6072366	ULDV1000Y4CQC	1	.961	1 1/2	2.252	DL25	.827	.060	●
6072367	ULDV1000Y4CQD	1	.961	1 1/2	2.252	DL25	.827	.090	●
6072368	ULDV1000Y4CQE	1	.961	1 1/2	2.252	DL25	.827	.120	●
6072369	ULDV1000Y4CQF	1	.961	1 1/2	2.252	DL25	.827	.250	●
6072370	ULDV1250Y4CQD	1 1/4	1.211	1 7/8	2.803	DL32	1.102	.090	●
6072381	ULDV1250Y4CQF	1 1/4	1.211	1 7/8	2.803	DL32	1.102	.250	●

158–159	160	155–157	164

Modular End Milling

DUO-LOCK™ • HARVI™ I • Ball Nose • 4 Flutes • Inch

● first choice
○ alternate choice

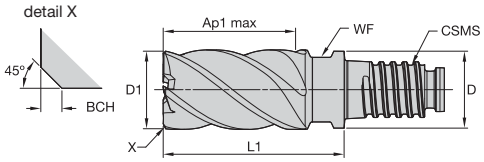


P	●
M	●
K	●
N	
S	○
H	○

order number	catalog number	D1	D	Ap1 max	L1	CSMS system size	WF	KCPM15
6070991	UKBV0375Y4CN	3/8	.359	9/16	.843	DL10	.315	●
6070992	UKBV0500Y4CN	1/2	.480	3/4	1.126	DL12	.374	●
6070993	UKBV0625Y4CN	5/8	.605	15/16	1.406	DL16	.512	●
6070994	UKBV0750Y4CN	3/4	.730	1 1/8	1.689	DL20	.630	●
6070995	UKBV1000Y4CN	1	.961	1 1/2	2.252	DL25	.827	●

DUO-LOCK • HARVI II • Chamfered • 5 Flutes • Inch

● first choice
○ alternate choice



P	●
M	●
K	●
N	
S	○
H	○

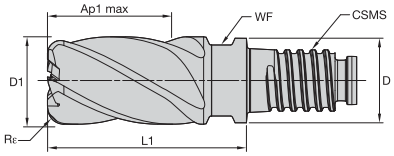
order number	catalog number	D1	D	Ap1 max	L1	CSMS system size	WF	BCH	KCPM15
6072178	UCDV0375Y5CU	3/8	.359	9/16	.843	DL10	.315	–	●
6072205	UCDV0375Y5CV	3/8	.359	9/16	.843	DL10	.315	.020	●
6072180	UCDV0500Y5CU	1/2	.480	3/4	1.126	DL12	.374	–	●
6072206	UCDV0500Y5CV	1/2	.480	3/4	1.126	DL12	.374	.020	●
6072201	UCDV0625Y5CU	5/8	.605	15/16	1.406	DL16	.512	–	●
6072207	UCDV0625Y5CV	5/8	.605	15/16	1.406	DL16	.512	.020	●
6072202	UCDV0750Y5CU	3/4	.730	1 1/8	1.689	DL20	.630	–	●
6072208	UCDV0750Y5CV	3/4	.730	1 1/8	1.689	DL20	.630	.020	●
6072203	UCDV1000Y5CU	1	.961	1 1/2	2.252	DL25	.827	–	●
6072209	UCDV1000Y5CV	1	.961	1 1/2	2.252	DL25	.827	.020	●
6072204	UCDV1250Y5CU	1 1/4	1.211	1 7/8	2.803	DL32	1.102	–	●
6072210	UCDV1250Y5CV	1 1/4	1.211	1 7/8	2.803	DL32	1.102	.020	●

158–159	160	155–157	164

Modular End Milling

DUO-LOCK™ • HARVI™ II • Radiused • 5 Flutes • Inch

● first choice
○ alternate choice



P	
M	
K	
N	
S	●
H	○

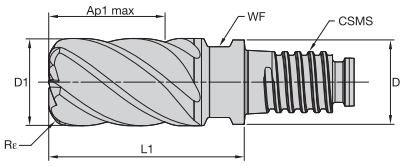
order number	catalog number	D1	D	Ap1 max	L1	CSMS system size	WF	Rε	KC643M
6072231	UDDV0375Y5CQA	3/8	.359	9/16	.843	DL10	.315	.015	●
6072232	UDDV0375Y5CQB	3/8	.359	9/16	.843	DL10	.315	.030	●
6072235	UDDV0500Y5CQA	1/2	.480	3/4	1.126	DL12	.374	.015	●
6072236	UDDV0500Y5CQB	1/2	.480	3/4	1.126	DL12	.374	.030	●
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	●

158–159 | 160 | 155–157 | 164

Modular End Milling

DUO-LOCK™ • HARVI™ III • Radiused • 6 Flutes • Inch

● first choice
○ alternate choice

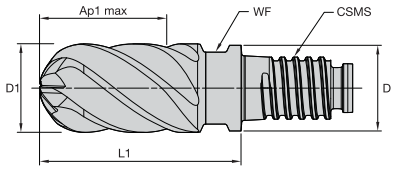


P	○
M	●
K	
N	
S	●
H	○

order number	catalog number	D1	D	Ap1 max	L1	CSMS system size	WF	Rε	KCSM15
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	●

DUO-LOCK • HARVI III • Ball Nose • 6 Flutes • Inch

● first choice
○ alternate choice



P	○
M	●
K	
N	
S	●
H	○

order number	catalog number	D1	D	Ap1 max	L1	CSMS system size	WF	KCSM15
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	●

158–159	160	155–157	164

Modular End Milling

DUO-LOCK™ • HARVI™ I • Application Data • Inch

UKDV

ULDV

Material Group			A		B	short			medium			long			Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.						
						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
	UKDV	ULDV	ap	ae	ap	min		max	min		max	min		max	dec.	.3750	.5000	.6250	.7500	1.2500	1.2500
P	0	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	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	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	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	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
	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
M	1	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	2	1.5 x D	0.4 x D	1 x D	200	–	260	160	–	208	140	–	182	IPT	.0016	.0020	.0023	.0026	.0033	.0033
	3	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
K	–	1	1.5 x D	0.5 x D	1 x D	390	–	490	351	–	441	351	–	441	IPT	.0023	.0029	.0034	.0037	.0042	.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
	–	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
S	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
	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
H	–	1	1.5 x D	0.4 x D	0.75 x D	260	–	460	208	–	368	156	–	276	IPT	.0017	.0022	.0026	.0029	.0034	.0034
	–	2	1.5 x D	0.2 x D	0.5 x D	230	–	390	184	–	312	138	–	234	IPT	.0013	.0016	.0019	.0021	.0024	.0024

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

DUO-LOCK • HARVI I Ball Nose • Application Data • Inch

Material Group		A		B	short			medium			long			Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.						
					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
		ap	ae	ap	min		max	min		max	min		max	dec.	.3750	.5000	.6250	.7500	1.2500	1.2500
P	0	1.25 x D	0.5 x D	1 x D	490	–	660	441	–	594	441	–	594	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	1	1.25 x D	0.5 x D	1 x D	490	–	660	441	–	594	441	–	594	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	2	1.25 x D	0.5 x D	1 x D	460	–	620	414	–	558	414	–	558	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	3	1.25 x D	0.5 x D	1 x D	390	–	520	351	–	468	351	–	468	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	4	1.25 x D	0.4 x D	0.75 x D	300	–	490	270	–	441	270	–	441	IPT	.0017	.0022	.0026	.0029	.0034	.0034
	5	1.25 x D	0.4 x D	1 x D	200	–	330	170	–	280.5	160	–	264	IPT	.0016	.0020	.0023	.0026	.0033	.0033
	6	1.25 x D	0.4 x D	0.75 x D	160	–	250	136	–	212.5	128	–	200	IPT	.0013	.0016	.0019	.0021	.0024	.0024
M	1	1.25 x D	0.4 x D	1 x D	300	–	380	240	–	304	210	–	266	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	2	1.25 x D	0.4 x D	1 x D	200	–	260	160	–	208	140	–	182	IPT	.0016	.0020	.0023	.0026	.0033	.0033
	3	1.25 x D	0.4 x D	1 x D	200	–	230	160	–	184	140	–	161	IPT	.0013	.0016	.0019	.0021	.0024	.0024
K	1	1.25 x D	0.5 x D	1 x D	390	–	490	351	–	441	351	–	441	IPT	.0023	.0029	.0034	.0037	.0042	.0042
	2	1.25 x D	0.5 x D	1 x D	360	–	460	324	–	414	324	–	414	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	3	1.25 x D	0.5 x D	1 x D	360	–	430	324	–	387	324	–	387	IPT	.0016	.0020	.0023	.0026	.0033	.0033
S	1	1 x D	0.3 x D	0.3 x D	160	–	300	128	–	240	96	–	180	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	2	1 x D	0.3 x D	0.3 x D	80	–	130	64	–	104	48	–	78	IPT	.0010	.0013	.0015	.0018	.0022	.0022
	3	1.25 x D	0.3 x D	0.3 x D	80	–	130	64	–	104	48	–	78	IPT	.0010	.0013	.0015	.0018	.0022	.0022
	4	1.25 x D	0.4 x D	1 x D	160	–	200	128	–	160	96	–	120	IPT	.0014	.0018	.0021	.0024	.0030	.0030
H	1	1.25 x D	0.4 x D	0.75 x D	260	–	460	208	–	368	156	–	276	IPT	.0017	.0022	.0026	.0029	.0034	.0034
	2	1.25 x D	0.2 x D	0.5 x D	230	–	390	184	–	312	138	–	234	IPT	.0013	.0016	.0019	.0021	.0024	.0024

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

Modular End Milling

DUO-LOCK™ • HARVI™ II • Application Data • Inch


UCDV


UDDV

Material Group			A		B	short			medium			long			Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.						
						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
	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
M	1	–	1.5 x D	0.4 x D	1 x D	300	–	380	240	–	304	210	–	266	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	2	–	1.5 x D	0.4 x D	1 x D	200	–	260	160	–	208	140	–	182	IPT	.0016	.0020	.0023	.0026	.0033	.0033
	3	–	1.5 x D	0.4 x D	1 x D	200	–	230	160	–	184	140	–	161	IPT	.0013	.0016	.0019	.0021	.0024	.0024
K	1	–	1.5 x D	0.5 x D	1 x D	390	–	490	351	–	441	351	–	441	IPT	.0023	.0029	.0034	.0037	.0042	.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
	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
S	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
	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
H	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.

Modular End Milling

DUO-LOCK™ • HARVI™ III • Application Data • Inch

Roughing

Material Group				short			medium			long			Roughing — Recommended feed per tooth (IPT = inch/th) for side milling (A).						
		A		adapter reach									D1 — Diameter						
				KCSM15 Cutting Speed — vc SFM			KCSM15 Cutting Speed — vc SFM			KCSM15 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
	3	Ap max	0.4 x D	200	–	230	160	–	184	140	–	161	IPT	.0013	.0016	.0019	.0021	.0024	.0024
S	1	Ap max	0.4 x D	160	–	300	128	–	240	96	–	180	IPT	.0019	.0025	.0029	.0033	.0041	.0041
	2	Ap max	0.4 x D	80	–	130	64	–	104	48	–	78	IPT	.0010	.0013	.0015	.0018	.0022	.0022
	3	Ap max	0.4 x D	80	–	130	64	–	104	48	–	78	IPT	.0010	.0013	.0015	.0018	.0022	.0022
	4	Ap max	0.4 x D	160	–	200	128	–	160	96	–	120	IPT	.0014	.0018	.0021	.0024	.0030	.0030
H	1	Ap max	0.4 x D	260	–	460	208	–	368	156	–	276	IPT	.0017	.0022	.0026	.0029	.0034	.0034
	2	Ap max	0.4 x D	230	–	390	184	–	312	138	–	234	IPT	.0013	.0016	.0019	.0021	.0024	.0024

Finishing

Material Group				short			medium			long			Finishing — Recommended feed per tooth (IPT = inch/th) for side milling (A).						
		A		adapter reach									D1 — Diameter						
				KCSM15 Cutting Speed — vc SFM			KCSM15 Cutting Speed — vc SFM			KCSM15 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
	4	Ap max	0.6 x D	310	–	370	248	–	296	186	–	222	IPT	.0017	.0022	.0026	.0029	.0036	.0036
H	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.

Modular End Milling

DUO-LOCK™ • HARVI™ III Ball Nose • Application Data • Inch

Roughing

Material Group		A		short			medium			long			Roughing — Recommended feed per tooth (IPT = inch/th) for side milling (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
	6	Ap max	0.4 x D	160	–	250	136	–	212.5	128	–	200	IPT	.0013	.0016	.0019	.0021	.0024
M	1	Ap max	0.4 x D	300	–	380	240	–	304	210	–	266	IPT	.0019	.0025	.0029	.0033	.0041
	2	Ap max	0.4 x D	200	–	260	160	–	208	140	–	182	IPT	.0016	.0020	.0023	.0026	.0033
	3	Ap max	0.4 x D	200	–	230	160	–	184	140	–	161	IPT	.0013	.0016	.0019	.0021	.0024
K	1	Ap max	0.4 x D	390	–	490	351	–	441	351	–	441	IPT	.0023	.0029	.0034	.0037	.0042
	2	Ap max	0.4 x D	360	–	460	324	–	414	324	–	414	IPT	.0019	.0025	.0029	.0033	.0041
	3	Ap max	0.4 x D	360	–	430	324	–	387	324	–	387	IPT	.0016	.0020	.0023	.0026	.0033
S	1	Ap max	0.4 x D	160	–	300	128	–	240	96	–	180	IPT	.0019	.0025	.0029	.0033	.0041
	2	Ap max	0.4 x D	80	–	130	64	–	104	48	–	78	IPT	.0010	.0013	.0015	.0018	.0022
	3	Ap max	0.4 x D	80	–	130	64	–	104	48	–	78	IPT	.0010	.0013	.0015	.0018	.0022
	4	Ap max	0.4 x D	160	–	200	128	–	160	96	–	120	IPT	.0014	.0018	.0021	.0024	.0030
H	1	Ap max	0.4 x D	260	–	460	208	–	368	156	–	276	IPT	.0017	.0022	.0026	.0029	.0034
	2	Ap max	0.4 x D	230	–	390	184	–	312	138	–	234	IPT	.0013	.0016	.0019	.0021	.0024

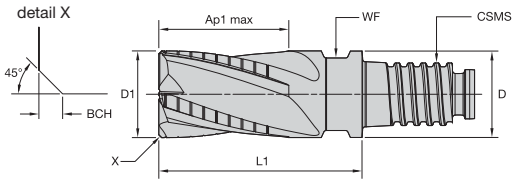
Finishing

Material Group		A		short			medium			long			Finishing — Recommended feed per tooth (IPT = inch/th) for side milling (A).					
				adapter reach									D1 — Diameter					
				KCSM15			KCSM15			KCSM15								
				Cutting Speed — vc SFM			Cutting Speed — vc SFM			Cutting Speed — vc SFM			frac.	3/8	1/2	5/8	3/4	1
		ap	ae	min		max	min		max	min		max	dec.	.3750	.5000	.6250	.7500	1.2500
P	0	Ap max	0.06 x D	940	–	1250	846	–	1125	846	–	1125	IPT	.0028	.0035	.0040	.0045	.0050
	1	Ap max	0.06 x D	940	–	1250	846	–	1125	846	–	1125	IPT	.0028	.0035	.0040	.0045	.0050
	2	Ap max	0.06 x D	870	–	1180	783	–	1062	783	–	1062	IPT	.0028	.0035	.0040	.0045	.0050
	3	Ap max	0.06 x D	750	–	1000	675	–	900	675	–	900	IPT	.0023	.0029	.0035	.0039	.0049
	4	Ap max	0.06 x D	560	–	940	504	–	846	504	–	846	IPT	.0021	.0026	.0031	.0034	.0041
	5	Ap max	0.06 x D	370	–	620	314.5	–	527	296	–	496	IPT	.0019	.0024	.0028	.0031	.0040
	6	Ap max	0.06 x D	310	–	470	263.5	–	399.5	248	–	376	IPT	.0016	.0020	.0023	.0025	.0029
M	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
	3	Ap max	0.06 x D	370	–	440	296	–	352	259	–	308	IPT	.0016	.0020	.0023	.0025	.0029
K	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
	3	Ap max	0.06 x D	690	–	810	621	–	729	621	–	729	IPT	.0019	.0024	.0028	.0031	.0040
S	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
	4	Ap max	0.06 x D	310	–	370	248	–	296	186	–	222	IPT	.0017	.0022	.0026	.0029	.0036
H	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.

Modular End Milling

DUO-LOCK™ • KenCut™ RR • Chamfered • 4-5 Flutes • Inch

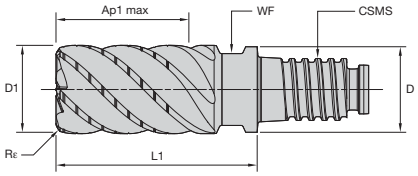


● first choice
○ alternate choice

P	●
M	●
K	●
N	
S	○
H	○

order number	catalog number	D1	D	Ap1 max	L1	CSMS system size	WF	BCH	KCPM15
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	●

DUO-LOCK • KenCut RR • Radiused • 4 & 6 Flutes • Inch



● first choice
○ alternate choice

P	○
M	●
K	○
N	
S	●
H	○

order number	catalog number	D1	D	Ap1 max	L1	CSMS system size	WF	Rε	Z U	KCSM15
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	●

158–159	160	155–157	164

Modular End Milling

DUO-LOCK™ • KenCut™ RR • RQDB • Application Data • Inch

Material Group		A		B	short			medium			long			Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.					
					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
	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
M	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
	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
K	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
	3	1.5 x D	0.4 x D	1 x D	290	–	340	261	–	306	261	–	306	IPT	.0013	.0017	.0020	.0022	.0028
S	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.

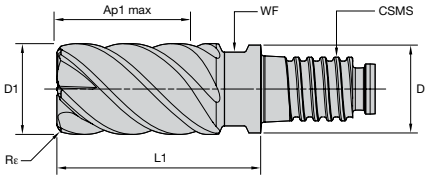
DUO-LOCK • KenCut RR • RKDF • Application Data • Inch

Material Group		A		B	short			medium			long			Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.					
					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 cuting speed is used for high stock removal applications or for higher hardness (machinability) within group.
Higher value of cuting 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.

Modular End Milling

DUO-LOCK™ • KenCut™ FF • Radiused • 6 Flutes • Inch

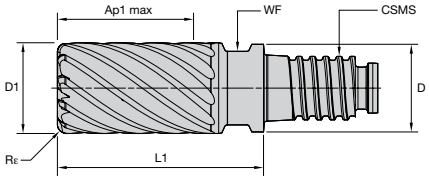


● first choice
○ alternate choice

P	●
M	●
K	●
N	
S	○
H	○

order number	catalog number	D1	D	Ap1 max	L1	CSMS system size	WF	Rε	KCPM15
6127558	FMDF0375Y6CQA	3/8	.359	9/16	.843	DL10	.315	.015	●
6127559	FMDF0500Y6CQB	1/2	.480	3/4	1.126	DL12	.374	.030	●
6127560	FMDF0625Y6CQB	5/8	.605	15/16	1.406	DL16	.512	.030	●
6127581	FMDF0750Y6CQB	3/4	.730	1 1/8	1.689	DL20	.630	.030	●
6127582	FMDF1000Y6CQB	1	.961	1 1/2	2.252	DL25	.827	.030	●

DUO-LOCK • RSM II™ • Radiused • Multi-Flute • Inch



● first choice
○ alternate choice

P	○
M	●
K	
N	
S	●
H	○

order number	catalog number	D1	D	Ap1 max	L1	CSMS system size	WF	Rε	Z U	KC643M
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	●

			NOVO
158–159	160	155–157	164

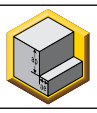
Modular End Milling

DUO-LOCK™ • KenCut™ FF • FMDF • Application Data • Inch

Material Group		 A		short			medium			long			Recommended feed per tooth (IPT = inch/th) for side milling (A).					
				adapter reach									D1 — Diameter					
				KCPM15			KCPM15			KCPM15								
				Cutting Speed — vc SFM			Cutting Speed — vc SFM			Cutting Speed — vc SFM			frac.	3/8	1/2	5/8	3/4	1
		ap	ae	min		max	min		max	min		max	dec.	.375	.500	.625	.750	1.000
P	0	1.5 x D	0.1 x D	490	–	660	441	–	594	441	–	594	IPT	.0027	.0034	.0039	.0044	.0049
	1	1.5 x D	0.1 x D	490	–	660	441	–	594	441	–	594	IPT	.0027	.0034	.0039	.0044	.0049
	2	1.5 x D	0.1 x D	460	–	620	414	–	558	414	–	558	IPT	.0027	.0034	.0039	.0044	.0049
	3	1.5 x D	0.1 x D	390	–	520	351	–	468	351	–	468	IPT	.0023	.0029	.0034	.0039	.0045
	4	1.5 x D	0.1 x D	300	–	490	270	–	441	270	–	441	IPT	.0020	.0026	.0030	.0034	.0039
	5	1.5 x D	0.1 x D	200	–	330	170	–	280.5	160	–	264	IPT	.0018	.0023	.0027	.0031	.0036
	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 • Inch

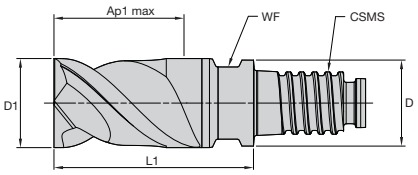
Material Group		 A		short			medium			long			Recommended feed per tooth (IPT = inch/th) for side milling (A).					
				adapter reach									D1 — Diameter					
				KC643M			KC643M			KC643M								
				Cutting Speed — vc SFM			Cutting Speed — vc SFM			Cutting Speed — vc SFM			frac.	3/8	1/2	5/8	3/4	1
		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
	3	Ap max	0.008–0.012"	295	–	759	236	–	607	207	–	531	IPT	.0033	.0040	.0043	.0045	.0048
S	1	Ap max	0.008–0.012"	245	–	979	196	–	783	147	–	587	IPT	.0050	.0060	.0066	.0070	.0077
	2	Ap max	0.008–0.012"	125	–	429	100	–	343	75	–	257	IPT	.0026	.0032	.0035	.0037	.0041
	3	Ap max	0.008–0.012"	125	–	429	100	–	343	75	–	257	IPT	.0026	.0032	.0035	.0037	.0041
	4	Ap max	0.008–0.012"	245	–	649	196	–	519	147	–	389	IPT	.0037	.0044	.0048	.0051	.0056
H	1	Ap max	0.008–0.012"	395	–	1518	316	–	1214	237	–	911	IPT	.0045	.0053	.0058	.0061	.0066
	2	Ap max	0.008–0.012"	345	–	1298	276	–	1038	207	–	779	IPT	.0033	.0040	.0043	.0045	.0048

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

Modular End Milling

DUO-LOCK™ • MaxiMet™ • Square End • 2 Flutes • Inch

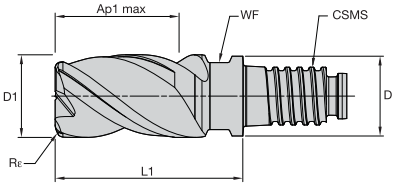
● first choice
○ alternate choice



order number	catalog number	D1	D	Ap1 max	L1	CSMS system size	WF	K600
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	●

DUO-LOCK • MaxiMet • Radiused • 3 Flutes • Inch

● first choice
○ alternate choice

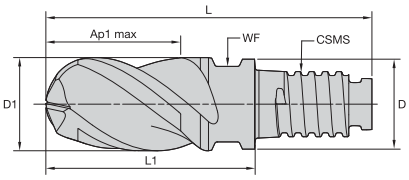


order number	catalog number	D1	D	Ap1 max	L1	CSMS system size	WF	Rε	K600
6153950	ABDE0375Y3CQC	3/8	.359	9/16	.843	DL10	.315	.060	●
6153951	ABDE0375Y3CQD	3/8	.359	9/16	.843	DL10	.315	.090	●
6153952	ABDE0500Y3CQA	1/2	.480	3/4	1.126	DL12	.374	.060	●
6153953	ABDE0500Y3CQB	1/2	.480	3/4	1.126	DL12	.374	.030	●
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	●

158–159 | 160 | 155–157 | 164

Modular End Milling

DUO-LOCK™ • MaxiMet™ • Ball Nose • 3 Flutes • Inch



● first choice
○ alternate choice

P		
M		
K		
N		●
S		
H		

order number	catalog number	D1	D	Ap1 max	L	L1	CSMS system size	WF	K600
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	●

158–159	160	155–157	164

Modular End Milling

DUO-LOCK™ • MaxiMet™ • ABDF & ABDE • Application Data • Inch

MaxiMet ABDF

MaxiMet ABDE

Material Group		A		B	short			medium			long			Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.				
					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.

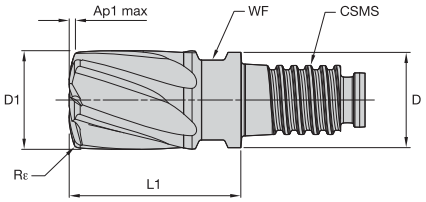
DUO-LOCK • MaxiMet • ABBE • Application Data • Inch

Material Group		A		B	short			medium			long			Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.				
					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.

Modular End Milling

DUO-LOCK™ • KenFeed™ • KMDA • Radiused • 6 Flutes • Inch

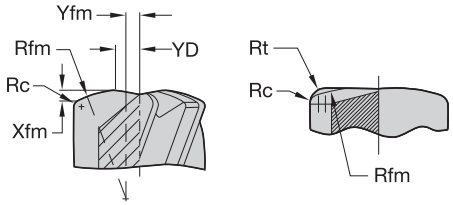


● first choice
○ alternate choice

P		○
M		
K		
N		
S		
H		●

order number	catalog number	D1	D	Ap1 max	L1	CSMS system size	WF	Rε	KC639M
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



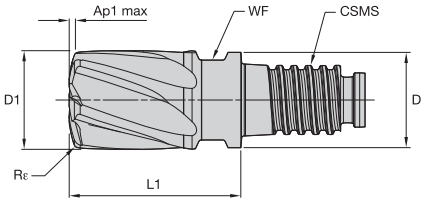
Geometrical Parameters							Ramping Guide for Circular and Linear Ramping						
							Circular Interpolation		Linear Ramping				
							Optimal Range of Circle Diameter for a Single Pass		Calculated Length per Ramp Angle				
catalog number	D1	Ap1 max	R	Rε	YRC	RCN	Smallest	Largest	1°	2°	3°	4°	5°
KMDA0375Y6BQX	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.

158–159	160	155–157	164

Modular End Milling

DUO-LOCK™ • KenFeed™ • KSDB • Radiused • 6 Flutes • Inch

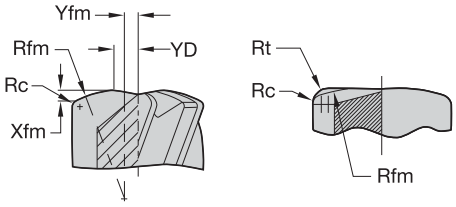


● first choice
○ alternate choice

P		○
M		○
K		
N		
S		●
H		

order number	catalog number	D1	D	Ap1 max	L1	CSMS system size	WF	Rε	KC643M
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.

158–159	160	155–157	164

Modular End Milling

DUO-LOCK™ • KenFeed™ • KMDA • Application Data • Inch

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%.

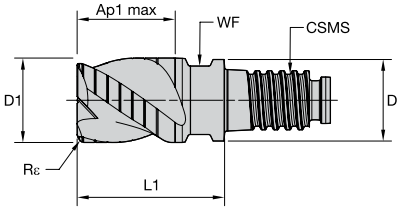
DUO-LOCK • KenFeed • KSDB • Application Data • Inch

Material Group				short			medium			long			Recommended feed per tooth (IPT = inch/th) for side milling (A).				
		A		adapter reach KC643M			adapter reach KC643M			adapter reach KC643M			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.	.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
	3	0.05 x D	0.55 x D	200	–	230	160	–	184	140	–	161	IPT	.0092	.0115	.0134	.0149
S	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%.

Modular End Milling

DUO-LOCK™ • KenCut RR • Radiused • 3 Flutes • Inch

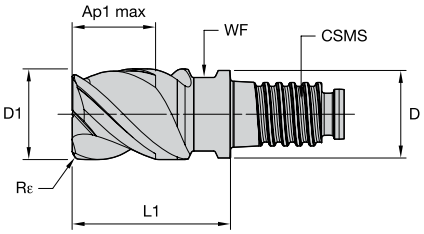


● first choice
○ alternate choice

P	●
M	●
K	●
N	
S	
H	○

order number	catalog number	D1	D	Ap1 max	L1	CSMS system size	WF	Rε	KCPM15
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	●

DUO-LOCK • KenCut™ FF • Radiused • 3 Flutes • Inch



● first choice
○ alternate choice

P	●
M	●
K	●
N	
S	●
H	○

order number	catalog number	D1	D	Ap1 max	L1	CSMS	WF	Rε	KCPM15
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	●

158–159	160	155–157	164

Modular End Milling

DUO-LOCK™ • KenCut™ RR • Application Data • Inch

Material Group		A		B	straight short			conical medium			conical long			Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.				
					KCPM15 Cutting Speed — vc SFM			KCPM15 Cutting Speed — vc SFM			KCPM15 Cutting Speed — vc SFM			D1 — Diameter				
		ap	ae	ap	min		max	min		max	min		max	frac.	3/8	1/2	5/8	3/4
														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
	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
M	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
	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
K	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
	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
H	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%.

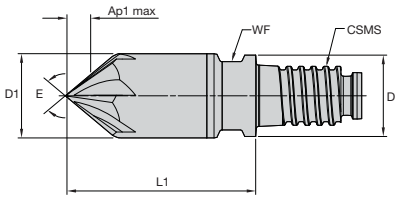
DUO-LOCK • KenCut FF • Application Data • Inch

Material Group		A		B	straight short			conical medium			conical long			Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.				
					KCPM15 Cutting Speed — vc SFM			KCPM15 Cutting Speed — vc SFM			KCPM15 Cutting Speed — vc SFM			D1 — Diameter				
		ap	ae	ap	min		max	min		max	min		max	frac.	3/8	1/2	5/8	3/4
														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
	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
M	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
	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
K	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
	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
S	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
	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
H	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%.

Modular End Milling

DUO-LOCK™ • KenCut™ CM • Multi-Flute • Inch

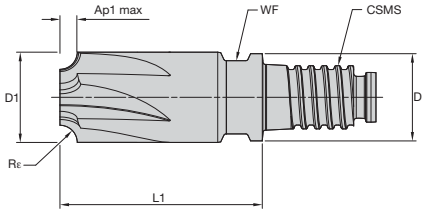


● first choice
○ alternate choice

P	●
M	●
K	●
N	●
S	○
H	○

order number	catalog number	D1	D	Ap1 max	L1	CSMS system size	WF	E	Z U	KCPM15
6127351	XADA0375Y4CU45	3/8	.359	.075	.847	DL10	.315	90	4	●
6408092	XADA0375Y4CU60	3/8	.359	.075	.847	DL10	.315	60	4	●
6127352	XADA0500Y5CU45	1/2	.480	.100	1.130	DL12	.374	90	5	●
6408093	XADA0500Y5CU60	1/2	.480	.100	1.130	DL12	.374	60	5	●
6127353	XADA0625Y6CU45	5/8	.605	.125	1.402	DL16	.512	90	6	●
6408094	XADA0625Y6CU60	5/8	.605	.125	1.402	DL16	.512	60	6	●

DUO-LOCK • KenCut CM • Multi-Flute • Inch



● first choice
○ alternate choice

P	●
M	●
K	●
N	●
S	○
H	○

order number	catalog number	D1	D	Ap1 max	L1	CSMS system size	WF	Rε	Z U	KCPM15
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	●

158–159	160	155–157	164

Modular End Milling

DUO-LOCK™ • Corner Machining • Application Data • Inch

KenCut™ CM – XADA

KenCut CM – XRDA

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

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%!

Modular End Milling

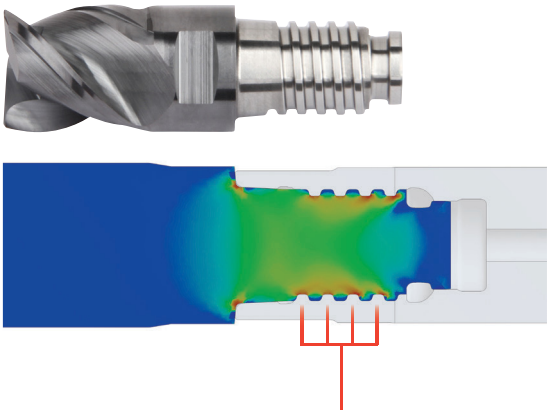
DUO-LOCK™ • Intelligent Thread

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

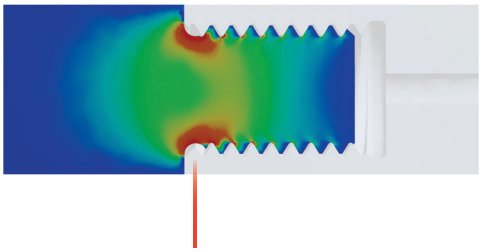
DUO-LOCK Intelligent Thread



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



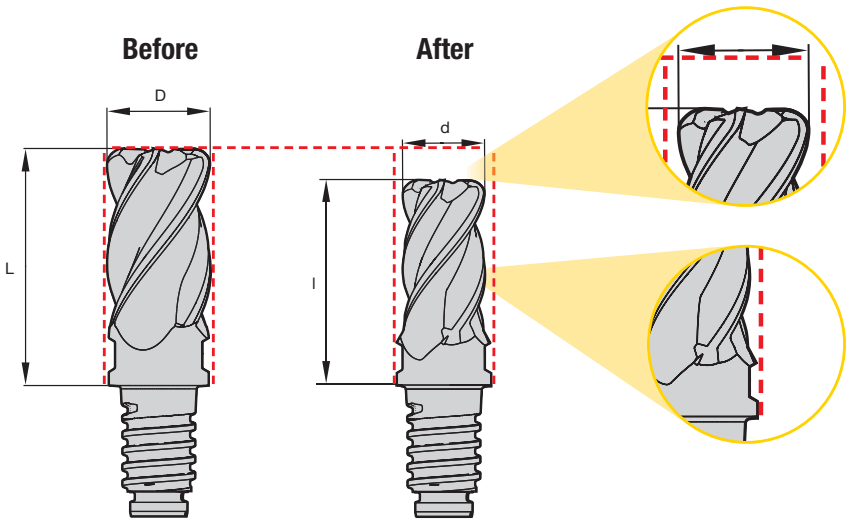
Typical for any regular thread at maximum load.

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

DUO-LOCK • Reconditioning

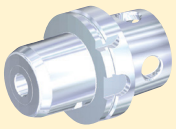
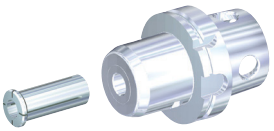
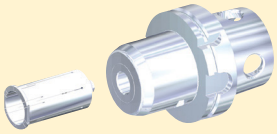
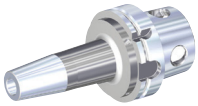
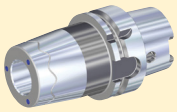
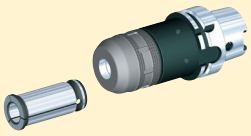
Wear and/or chipping determines to what extent and how often DUO-LOCK tips can be reconditioned. To ensure integrity of the wrench flats, the neck portion cannot be modified.

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.



Modular End Milling

DUO-LOCK™ • Tool Clamping


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 	■	■	■	○	○	–	■	■	■	○	–	–	–

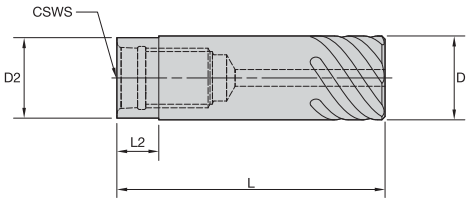
* Features Safe-Lock pullout protection

● Recommended
■ Suitable with limitations
○ Not recommended
– Not available

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.

Modular End Milling

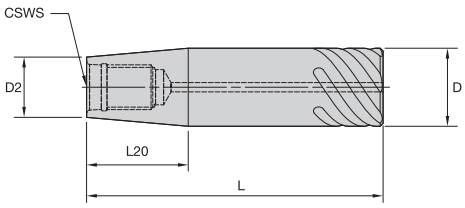
DUO-LOCK™ • Steel Extension • Cylindrical • Safe-Lock™ • Inch



order number	catalog number	CSWS system size	D	D2	L	L2	ft. lbs.
6136800	SS038SLDL100225	DL10	.38	.36	2.25	.19	18.40
6136868	SS050SLDL120250	DL12	.50	.48	2.50	.25	22.10
6136874	SS062SLDL160275	DL16	.63	.61	2.75	.33	44.20
6136880	SS075SLDL200300	DL20	.75	.73	3.00	.39	59.00
6136884	SS100SLDL250350	DL25	1.00	.96	3.50	.52	73.80
6136888	SS125SLDL320400	DL32	1.25	1.21	4.00	.64	95.90

NOTE: Cylindrical shanks not recommended for full slotting.

DUO-LOCK • Steel Extension • Conical • Safe-Lock • Inch

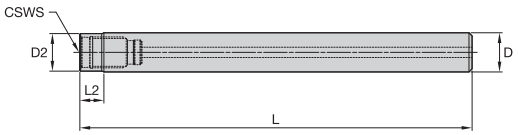


order number	catalog number	CSWS system size	D	D2	L	L20	lbs
6136862	SS050SLDL100250	DL10	.50	.36	2.50	.80	.11
6136864	SS062SLDL100350	DL10	.63	.36	3.50	1.52	.24
6136866	SS075SLDL100450	DL10	.75	.36	4.50	2.23	.42
6136870	SS062SLDL120325	DL12	.63	.48	3.25	.82	.24
6136872	SS075SLDL120425	DL12	.75	.48	4.25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

158–159	160	155–157	164

Modular End Milling

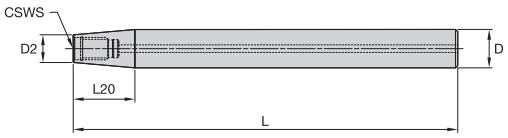
DUO-LOCK™ • Steel Extension • Cylindrical • Straight Shank • Inch



order number	catalog number	CSWS system size	D	D2	L	L2	ft. lbs.
6136861	SS038DL100375	DL10	.38	.36	3.75	.19	18.40
6136869	SS050DL120500	DL12	.50	.48	5.00	.25	22.10
6136875	SS062DL160625	DL16	.63	.61	6.25	.31	44.20
6136881	SS075DL200750	DL20	.75	.73	7.50	.38	59.00
6136885	SS100DL251000	DL25	1.00	.96	10.00	.50	73.80
6136889	SS125DL321000	DL32	1.25	1.21	10.00	.63	95.90

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

DUO-LOCK • Steel Extension • Conical • Straight Shank • Inch



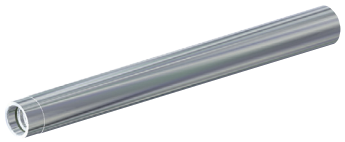
order number	catalog number	CSWS system size	D	D2	L	L20	lbs
6136863	SS050DL100500	DL10	.50	.36	5.00	.80	.25
6136865	SS062DL100625	DL10	.63	.36	6.25	1.52	.47
6136867	SS075DL100750	DL10	.75	.36	7.50	2.23	.79
6136871	SS062DL120625	DL12	.63	.48	6.25	.82	.50
6136873	SS075DL120750	DL12	.75	.48	7.50	1.53	.85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

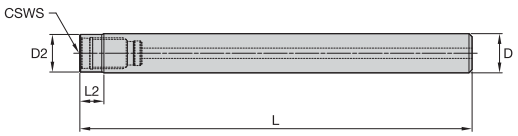
NOTE: Standard catalog cutting data does not apply. Consult tooling application expert before use.

158–159	160	155–157	164

Modular End Milling

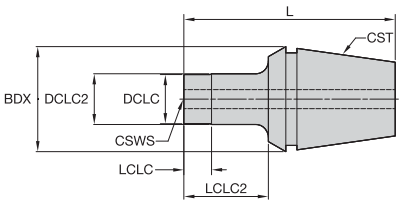
DUO-LOCK™ • Heavy Metal Extension • Cylindrical • Straight Shank • Inch





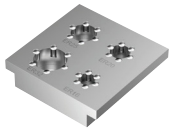
order number	catalog number	CSWS system size	D	D2	L	L2	ft. lbs.
6933530	HS050DL12N0950325	DL12	.50	.48	3.25	.95	18.44
6933536	HS050DL12N1950425	DL12	.50	.48	4.25	1.95	18.44
6933531	HS062DL16N1170350	DL16	.63	.61	3.50	1.17	29.50
6933537	HS062DL16N2420475	DL16	.63	.61	4.75	2.42	29.50
6933532	HS075DL20N1390375	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

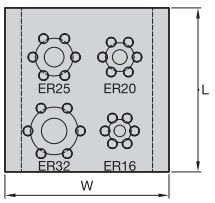
DUO-LOCK • ER Solid Collets



order number	catalog number	CST	CSWS	BDX	L	DCLC	DCLC2	LCLC	LCLC2	kg	Nm
6612283	16ERDL10	ER16	DL10	17	32,8	9,6	–	5,3	–	0,03	20
6612284	20ERDL10	ER20	DL10	21	37,0	9,6	–	5,5	–	0,06	20
6612285	20ERDL12	ER20	DL12	21	38,0	11,5	–	6,5	–	0,06	30
6612286	25ERDL10	ER25	DL10	26	39,5	9,6	–	5,5	–	0,10	20
6612287	25ERDL12	ER25	DL12	26	40,5	11,5	–	6,5	–	0,10	30
6612288	25ERDL16	ER25	DL16	26	39,5	15,5	–	5,5	–	0,10	60
6612289	32ERDL10	ER32	DL10	33	66,5	9,6	10	5,0	26,5	0,21	20
6612290	32ERDL12	ER32	DL12	33	67,5	11,5	12	6,0	27,5	0,21	30
6612331	32ERDL16	ER32	DL16	33	66,5	15,5	16	8,0	26,5	0,22	60
6612332	32ERDL20	ER32	DL20	33	66,5	19,3	20	10,0	26,5	0,23	80

DUO-LOCK • ER Solid Collet Mounting Plate



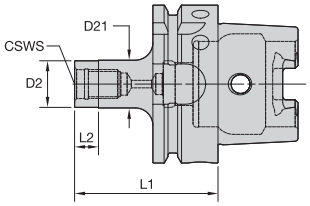


order number	catalog number	L	W	kg
6612333	DLCCDER	100	100	0,57

158–159	160	155–157	164

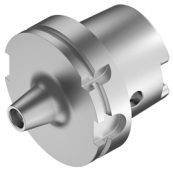
Modular End Milling

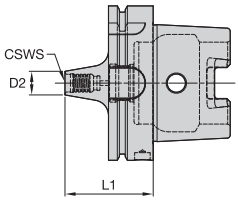
DUO-LOCK™ • Adapter • HSK63 Form A • Inch



order number	catalog number	CSWS system size	D2	D21	L1	L2	ft. lbs.
6136895	HSK63ADL10200	DL10	.36	.38	2.00	.19	18.40
6136896	HSK63ADL12225	DL12	.48	.50	2.25	.25	21.10
6136897	HSK63ADL16225	DL16	.61	.63	2.25	.31	44.20
6136898	HSK63ADL20225	DL20	.73	.75	2.25	.37	59.00
6136899	HSK63ADL25250	DL25	.96	1.00	2.50	.49	73.80

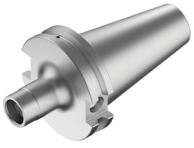
DUO-LOCK • Adapter • HSK100 Form A • Inch

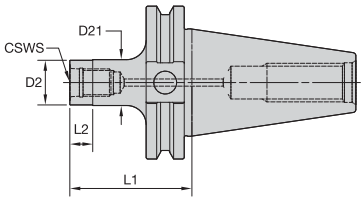




order number	catalog number	CSWS	D2	L1	lbs
6478868	HSK100ADL16225	DL16	.61	2.25	4.56
6478869	HSK100ADL20225	DL20	.73	2.25	4.62
6478870	HSK100ADL25250	DL25	.96	2.50	4.79
6478871	HSK100ADL32300	DL32	1.21	3.00	5.32

DUO-LOCK • Adapter • CV40 • Inch



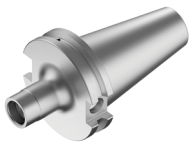


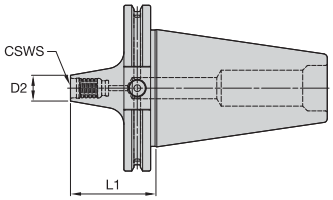
order number	catalog number	CSWS system size	D2	D21	L1	L2	lbs
6136937	CV40BDL10162	DL10	.36	.38	1.62	.19	1.77
6136938	CV40BDL12162	DL12	.48	.50	1.62	.25	1.78
6136939	CV40BDL16200	DL16	.61	.63	2.00	.31	1.82
6136940	CV40BDL20200	DL20	.73	.75	2.00	.37	1.84
6136941	CV40BDL25225	DL25	.96	1.00	2.25	.49	1.94

158–159	160	155–157	164

Modular End Milling

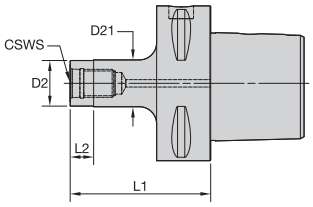
DUO-LOCK™ • Adapter • CV50 • Inch





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 • Inch



order number	catalog number	CSWS system size	D2	D21	L1	L2	lbs
6136931	**PSC63DL10200**	DL10	.36	.37	2.00	.19	1.69
6136932	**PSC63DL12200**	DL12	.48	.50	2.00	.25	1.70
6136933	**PSC63DL16225**	DL16	.61	.63	2.25	.31	1.73
6136934	**PSC63DL20225**	DL20	.73	.75	2.25	.37	1.75
6136935	**PSC63DL25238**	DL25	.96	1.00	2.38	.49	1.84

158–159	160	155–157	164

Modular End Milling

DUO-LOCK™ • Double-Handed Torque Wrench

order number	catalog number	Description
6135413	TWDLTM	BASIC DUO LOCK WRENCH
6135414	TWTMINSERTDL10	TORQUE WRENCH INSERT DL10
6135415	TWTMINSERTDL12	TORQUE WRENCH INSERT DL12
6135416	TWTMINSERTDL16	TORQUE WRENCH INSERT DL16
6135417	TWTMINSERTDL20	TORQUE WRENCH INSERT DL20
6135418	TWTMINSERTDL25	TORQUE WRENCH INSERT DL25
6135419	TWTMINSERTDL32	TORQUE WRENCH INSERT DL32
6135422	TWTMEXT	TORQUE WRENCH EXTENSION HANDLE
6135423	TWTMBC	TORQUE WRENCH BOLT SET

NOTE: Combine basic DUO-LOCK wrench with selected torque wrench inserts needed.

DUO-LOCK • Torque Wrench • Double-Handed • Kit

1 ERICKSON™ Torque Master Wrench

2 Insert

3 Extension Handle

Order this

Get that

order number	catalog number	Kit Description		DUO-LOCK Size	torque (Nm)
6342967	TWDL10TM	D-L WRENCH WITH DL10 INSERT AND HANDLES	1+2+3	DL 10	20
6342968	TWDL12TM	D-L WRENCH WITH DL12 INSERT AND HANDLES		DL 12	30
6342969	TWDL16TM	D-L WRENCH WITH DL16 INSERT AND HANDLES		DL 16	60
6342970	TWDL20TM	D-L WRENCH WITH DL20 INSERT AND HANDLES		DL 20	80
6343061	TWDL25TM	D-L WRENCH WITH DL25 INSERT AND HANDLES		DL 25	100
6343062	TWDL32TM	D-L WRENCH WITH DL32 INSERT AND HANDLES		DL 32	130

Modular End Milling

DUO-LOCK™ • Single-Handed Torque Wrench • Wrench

1 Single-Handed Torque Wrench

3 Adapter

2 Insert

1

order number	catalogue number	description	DUO-LOCK Size	torque (Nm)
6411155	TWDLSH9X12	D-L SINGLE HAND TORQUE WRENCH	–	–

DUO-LOCK • Single-Handed Torque Wrench • Insert

2

order number	catalogue number	description	DUO-LOCK Size	torque (Nm)
6410950	TWSH9X12INSERTDL10	D-L TORQUE WRENCH SH INSERT	DL10	20
6411151	TWSH9X12INSERTDL12	D-L TORQUE WRENCH SH INSERT	DL12	30
6411152	TWSH9X12INSERTDL16	D-L TORQUE WRENCH SH INSERT	DL16	60
6411153	TWSH9X12INSERTDL20	D-L TORQUE WRENCH SH INSERT	DL20	80

DUO-LOCK • Single-Handed Torque Wrench • Adapter

3

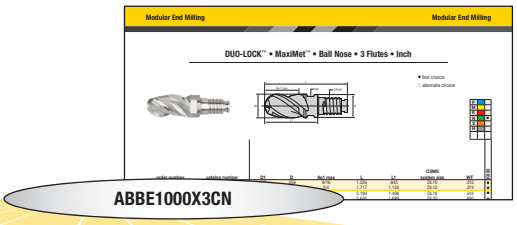
order number	catalogue number	description	DUO-LOCK Size	torque (Nm)
6411154	TWDL9X12CA14X18	D-L ADAPTER 9X12 TO 14X18	–	–

158–159	160	155–157	164

Modular End Milling

DUO-LOCK™ • Catalog Numbering System

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

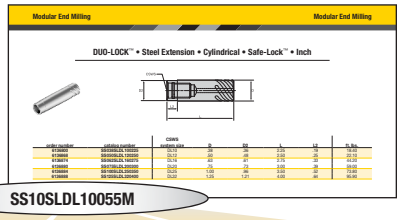


AB	B	E	1000	X	3	C	N	
Series	End Mill Shape	Helix Angle	Diameter	Shank Style	Number of Flutes	Length-of-Cut	Shape/ Feature	Corner Configuration
AB = MaxiMet™ – Non-ferrous metals **FG** = Finisher general applications – Steels **FM** = Finisher multi-flute – Steels **FS** = RSM II™ multi-flute – High-temperature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

Modular End Milling

DUO-LOCK™ Extensions • Catalog Numbering System

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

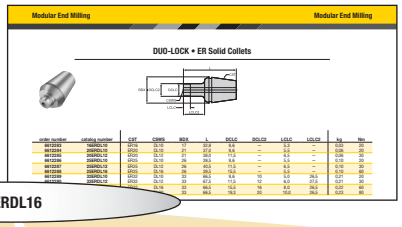


SS10SLDL10055M

SS	10	SL	DL10	055	M
Connection Style Machine Side (CSMS)	Shank Diameter D	Shank Style	Connection Style Workpiece Side (CSWS) System Size	Tool Length	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 and corresponding images to easily identify which attributes apply.



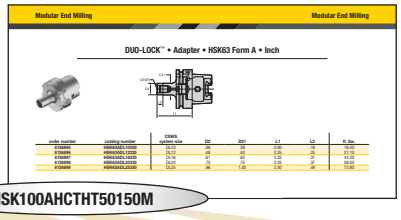
32ERDL16

32	ER	DL16
Collet Size	Collet Type	DUO-LOCK Coupling Size
16 = ER16 **20** = ER 20 **25** = ER 25 **32** = ER 32	ER	DL10 DL12 DL16 DL20

Hydraulic Chucks

DUO-LOCK™ Adapters • Catalog Numbering System

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

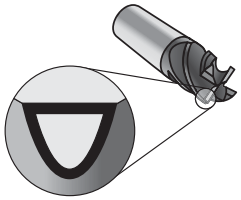


HSK100AHCTHT50150M

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

Solid Carbide End Milling & Modular End Milling

Grades and Grade Descriptions



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

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

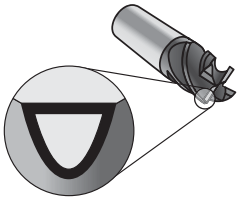
wear resistance ← → toughness

Grade

Coating	Grade Description	05	10	15	20	25	30	35	40	45
K600	Composition: Uncoated, highly wear-resistant submicron grain carbide. Application: Very high toughness ensures a controlled wear rate. The micrograin structure enables extremely sharp edges. First choice for milling of non-ferrous materials.									
KC633M	Composition: Multilayered PVD TiN/TiAlN-coated submicron grain carbide. Application: This multi-purpose grade offers highest versatility and best reliability across recommended material groups at intermediate cutting conditions.									
KC643M	Composition: Monolayer PVD AlTiN-coated submicron grain carbide. Application: This grade offers high hardness and excellent wear resistance for general application in steel, stainless steel, cast iron, and high-temperature alloys.									
KCPM15	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 applications in steel, stainless steel, cast iron, and hard materials.									
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-temperature alloys.									

Solid Carbide End Milling & Modular End Milling

Grades and Grade Descriptions



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

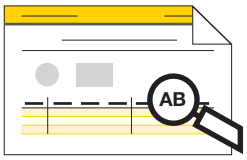
P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High-Temp Alloys
H	Hardened Materials
C	CFRP Materials

Grade

Coating	Grade Description	wear resistance ← → toughness	05	10	15	20	25	30	35	40	45
KC639M	Composition: Monolayer PVD AlTiN-coated, ultra-fine grain carbide. Application: First choice for hardened steels > 55 HRC.	H									
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-temperature 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									

General Information

Key to Product Table Column Headings



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

Short-Name Code	Full Text Description
Ap1 max	Maximum Cutting Depth
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
Rε	Corner Radius
W	Overall Width
WF	Milling: Width of Flat
Z U	Number of Flutes

Material Cross Reference • ANSI

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; ASTMA842: 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	–	–	–	–	–

Material Cross Reference • DIN

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%	–	–	–	GAlSiCu4, GDAlSi10Mg
N3	High-Silicon Aluminum Alloys and Magnesium Alloys	Si >12.2%	–	–	–	G-ALSi12, G-AlSi17Cu4, G-AlSi21CuNiMg
N4	Copper-, Brass-, Zinc-Based on Machinability Index Range of 70–100	–	–	–	–	CuZn40, Ms60, G-CuSn5ZnPb, CuZn37, CuSi3Mn
N5	Nylon, Plastics, Rubbers, Phenolics, Resins, Fiberglass	–	–	–	–	LEXAN®, Hostalen™, Polystyrol®, MAKROLON®
N6	Carbon, Graphite Composites, CFRP	–	–	–	–	CFK, GFK
N7	Metal Matrix Composites (MMC)	–	–	–	–	–
S1	Iron-Based, Heat-Resistant Alloys	–	500–1200	160–260	25–48	X1NiCrMoCu32 28 7, X12NiCrSi36 16, X5NiCrAlTi31 20, X40CoCrNi20 20
S2	Cobalt-Based, Heat-Resistant Alloys	–	1000–1450	250–450	25–48	Haynes® 188, Stellite™ 6,21,31
S3	Nickel-Based, Heat-Resistant Alloys	–	600–1700	160–450	<48	INCONEL® 690, INCONEL 625, Hastelloy®, NIMONIC® 75
S4	Titanium and Titanium Alloys	–	900–1600	300–400	33–48	Ti1, TiAl5Sn2, TiAl6V4, TiAl4Mo4Sn2
H1	Hardened Materials	–	–	–	44–48	GX260NiCr42, GX330NiCr42, GX300CrNiSi952, GX300CrMo153, Hardox® 400
H2	Hardened Materials	–	–	–	48–55	–
H3	Hardened Materials	–	–	–	56–60	–
H4	Hardened Materials	–	–	–	>60	–
C1	CFRP, CFRP/CFRP	–	–	–	–	–
C2	CFRP/Non-Ferrous	–	–	–	–	–
C3	CFRP/High-Temp	–	–	–	–	–
C4	CFRP/Stainless Steel	–	–	–	–	–
C5	CFRP/Non-Ferrous/High-Temp	–	–	–	–	–

Notes

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METALCUTTING SAFETY

IMPORTANT SAFETY INSTRUCTIONS

Read before using the tools in this catalogue!

Projectile and Fragmentation Hazards:

Modern metalcutting operations involve high spindle and cutter speeds and high temperatures and cutting forces. Hot metal chips may fly off the workpiece during metalcutting. Although cutting tools are designed and manufactured to withstand high cutting forces and temperatures, they can sometimes fragment, particularly if they are subjected to over-stress, severe impact, or other abuse.

To avoid injury:

- Always wear appropriate personal protective equipment, including safety goggles, when operating metalcutting machines or working nearby.
- Always make sure all machine guards are in place.

Breathing and Skin Contact Hazards:

Grinding carbide or other advanced cutting tool materials produces dust or mist containing metallic particles. Breathing this dust or mist — especially over an extended period — can cause temporary or permanent lung disease or make existing medical conditions worse. Contact with this dust or mist can irritate eyes, skin, and mucous membranes and may make existing skin conditions worse.

To avoid injury:

- Always wear breathing protection and safety goggles when grinding.
- Provide ventilation control and collect and properly dispose of dust, mist, or sludge from grinding.
- Avoid skin contact with dust or mist.

For more information, read the applicable Material Safety Data Sheet provided by Kennametal and consult General Industry Safety and Health Regulations, Part 1910, Title 29 of the Code of Federal Regulations.

These safety instructions are general guidelines. Many variables affect machining operations. It is impossible to cover every specific situation. The technical information included in this catalog and recommendations on machining practices may not apply to your particular operation. For more information, consult the Kennametal Metalcutting Safety booklet, available free from Kennametal at 724 539 5747 or fax 724 539 5439. For specific product safety and environmental questions, contact our Corporate Environmental Health and Safety Office at 724 539 5066 or fax 724 539 5372.

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kennametal.com

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