



MASTER CATALOG **2018**

VOLUME TWO | **ROTATING TOOLS**



HOLEMAKING | TAPPING | SOLID END MILLING | INDEXABLE MILLING

➤ High-Performance Solid Carbide Finishing End Mills

Primary Application

High-performance finishing end mills can be used for a wide range of workpiece materials such as steel, stainless steel, cast titanium, high-temp alloys, and in certain cases, hard materials.

- High-performance tools for excellent surface quality and accuracy.
- Reduce harmonics for chatter-free machining.
- Different front and flute styles for a wide range of applications like open contour, contour milling, and pocketing, and milling long and thin walls.

Features and Benefits

Advanced Technology

- Various styles available to choose from for the right application and workpiece material.
- Designated platforms for aerospace, transportation, and general engineering requirements.
- Selective styles for machining up to 6 x D.

Tailored Grades

- Wide range of grades from uncoated to proprietary Beyond™ grades to cover a wide range of requirements.

**Highest metal removal
rates and surface finish.**



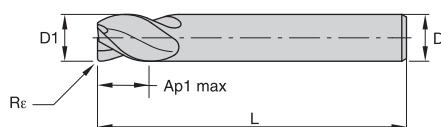
Customization

- Intermediate diameters available.
- Expanded length of tool and increased length of cut are possible.
- Different radii available.

Standard Offering

- Diameter range 1/8–1".

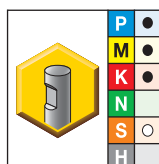
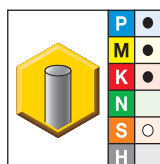
- Center cutting.



End Mill Tolerances

D1	tolerance	D	tolerance h6 +/-
All	+0.000/- .002"	≤1/8"	+0/-0.00024"
		>1/8-1/4"	+0/-0.00031"
		>1/4-3/8"	+0/-0.00035"
		>3/8-23/32"	+0/-0.00043"
		>23/32-1 3/16"	+0/-0.00051"

■ HPFSS 3 Flute • Soft Steels and Stainless Steels

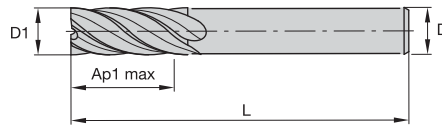
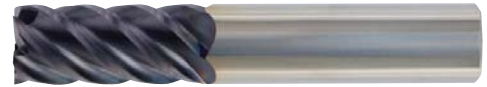


- first choice
- alternate choice

KC635M	KC635M	D1	D	Ap1 max	L	Rε
HPFSS125S3025	—	1/8	1/8	1/4	1 1/2	.010
HPFSS188S3031	—	3/16	3/16	5/16	2	.010
HPFSS250S3038	—	1/4	1/4	3/8	2	.020
HPFSS250S3050	—	1/4	1/4	1/2	2	.020
HPFSS312S3081	—	5/16	5/16	13/16	2 1/2	.020
HPFSS375S3050	—	3/8	3/8	1/2	2	.020
HPFSS375S3088	—	3/8	3/8	7/8	2 1/2	.020
—	HPFSS500S3063	1/2	1/2	5/8	2 1/2	.030
—	HPFSS500S3125	1/2	1/2	1 1/4	3	.030

NOTE: For application data, see page P111.

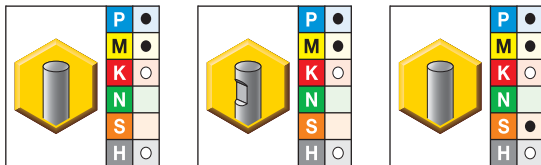
- Kennametal standard dimensions.
- Center cutting.



End Mill Tolerances			
D1	tolerance	D	tolerance h6
All	+0.000/- .002"	≤1/8"	+0/-0.00024"
		>1/8-1/4"	+0/-0.00031"
		>1/4-3/8"	+0/-0.00035"
		>3/8-23/32"	+0/-0.00043"
		>23/32-1 3/16"	+0/-0.00051"



■ HPFSS 5 Flute • Steel, Stainless Steels, and Titanium

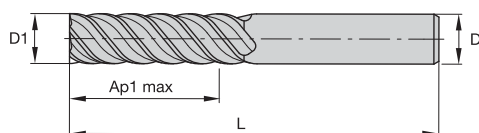


- first choice
- alternate choice

KCPM15	KCPM15	KC635M	D1	D	Ap1 max	L
—	—	HPFSS125S5025	1/8	1/8	1/4	1 1/2
—	—	HPFSS156S5056	5/32	3/16	9/16	2
—	—	HPFSS188S5031	3/16	3/16	5/16	2
HPFSS188S5056	—	—	3/16	3/16	9/16	2
HPFSS250S5038	—	—	1/4	1/4	3/8	2
HPFSS250S5075	—	—	1/4	1/4	3/4	2 1/2
HPFSS250S5125	—	—	1/4	1/4	1 1/4	4
HPFSS375S5050	—	—	3/8	3/8	1/2	2
HPFSS375S5088	—	—	3/8	3/8	7/8	2 1/2
HPFSS375S5150	—	—	3/8	3/8	1 1/2	4
—	HPFSS500S5063	—	1/2	1/2	5/8	2 1/2
—	HPFSS500S5125	—	1/2	1/2	1 1/4	3
—	HPFSS500S5200	—	1/2	1/2	2	4
—	HPFSS625S5075	—	5/8	5/8	3/4	3
—	HPFSS625S5163	—	5/8	5/8	1 5/8	4
—	HPFSS750S5088	—	3/4	3/4	7/8	3
—	HPFSS750S5163	—	3/4	3/4	1 5/8	4
—	HPFSS750S5325	—	3/4	3/4	3 1/4	5
—	HPFSS1000S5200	—	1	1	2	4
—	HPFSS1000S5325	—	1	1	3 1/4	6

NOTE: For application data, see page P111.

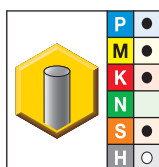
- Kennametal standard dimensions.
- Center cutting.



End Mill Tolerances

D1	tolerance	D	tolerance h6 +/-
All	+.000/- .002"	≤1/8"	+0/- .00024"
		>1/8-1/4"	+0/- .00031"
		>1/4-3/8"	+0/- .00035"
		>3/8-23/32"	+0/- .00043"
		>23/32-1 3/16"	+0/- .00051"

■ HPFT • Stainless Steels and High-Temp Alloys



- first choice
- alternate choice

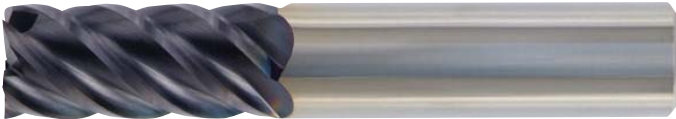
KC635M	D1	D	Ap1 max	L	Z U
HPFT250S6038	1/4	1/4	3/8	2	6
HPFT250S6075	1/4	1/4	3/4	2 1/2	6
HPFT312S6081	5/16	5/16	13/16	2 1/2	6
HPFT375S6088	3/8	3/8	7/8	2 1/2	6
HPFT375S6113	3/8	3/8	1 1/8	3	6
HPFT500S6063	1/2	1/2	5/8	2 1/2	6
HPFT500S6100	1/2	1/2	1	3	6
HPFT500S6200	1/2	1/2	2	4 1/2	6
HPFT625S6125	5/8	5/8	1 1/4	3 1/2	6
HPFT750S6150	3/4	3/4	1 1/2	4	6
HPFT750S6225	3/4	3/4	2 1/4	5	6
HPFT750S6300	3/4	3/4	3	5 1/4	6
HPFT750S6400	3/4	3/4	4	6 1/4	6
HPFT1000S6150	1	1	1 1/2	4	6
HPFT1000S6225	1	1	2 1/4	5	6
HPFT1000S6400	1	1	4	6 1/2	6

NOTE: For application data, see page P112.

HPFSS 3 Flute • With Radius • Soft Steels and Stainless Steels

Material Group																
		Side Milling (A) and Slotting (B)			KC635M		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.									
							D1 — Diameter									
		A		B	Cutting Speed — vc SFM		frac.	1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4
ap		ae	ap	min	max	dec.	.125	.188	.250	.313	.375	.438	.500	.625	.750	
P	0	1.5 x D	0.3 x D	0.5 x D	490	660	IPT	.0009	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044
	1	1.5 x D	0.3 x D	0.5 x D	490	660	IPT	.0009	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044
	2	1.5 x D	0.3 x D	0.5 x D	460	620	IPT	.0009	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044
	3	1.5 x D	0.3 x D	0.5 x D	390	520	IPT	.0007	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039
	4	1.5 x D	0.3 x D	0.3 x D	300	490	IPT	.0007	.0010	.0014	.0017	.0020	.0023	.0026	.0030	.0034
	5	1.5 x D	0.3 x D	0.5 x D	200	330	IPT	.0006	.0009	.0012	.0016	.0018	.0021	.0023	.0027	.0031
M	6	1.5 x D	0.3 x D	0.3 x D	160	250	IPT	.0005	.0008	.0010	.0013	.0015	.0017	.0019	.0022	.0025
	1	1.5 x D	0.3 x D	0.5 x D	300	380	IPT	.0007	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039
	2	1.5 x D	0.3 x D	0.5 x D	200	260	IPT	.0006	.0009	.0012	.0016	.0018	.0021	.0023	.0027	.0031
K	3	1.5 x D	0.3 x D	0.5 x D	200	230	IPT	.0005	.0008	.0010	.0013	.0015	.0017	.0019	.0022	.0025
	1	1.5 x D	0.3 x D	0.5 x D	390	490	IPT	.0009	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044
	2	1.5 x D	0.3 x D	0.5 x D	360	460	IPT	.0007	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039
S	3	1.5 x D	0.3 x D	0.5 x D	360	430	IPT	.0006	.0009	.0012	.0016	.0018	.0021	.0023	.0027	.0031
	1	1.5 x D	0.3 x D	0.3 x D	160	300	IPT	.0007	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039
	2	1.5 x D	0.3 x D	0.3 x D	80	130	IPT	.0004	.0006	.0008	.0010	.0012	.0014	.0015	.0018	.0021
	3	1.5 x D	0.3 x D	0.3 x D	80	130	IPT	.0004	.0006	.0008	.0010	.0012	.0014	.0015	.0018	.0021
	4	1.5 x D	0.3 x D	0.5 x D	160	200	IPT	.0005	.0008	.0011	.0014	.0017	.0019	.0021	.0025	.0028

HPFSS 5 Flute • Steel, Stainless Steels, and Titanium

Material Group																		
Side Milling (A)		KC635M		KCPM15		Recommended feed per tooth (IPT = inch/th) for side milling (A).												
A		Cutting Speed — vc SFM					D1 — Diameter											
						frac.	1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	1		
ap	ae	min	max	min	max	dec.	.125	.188	.250	.313	.375	.438	.500	.625	.750	1.000		
P	0	1.5 x D	0.2 x D	490	660	490	660	IPT	.0009	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044	.0049
	1	1.5 x D	0.2 x D	490	660	490	660	IPT	.0009	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044	.0049
	2	1.5 x D	0.2 x D	460	620	460	620	IPT	.0009	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044	.0049
	3	1.5 x D	0.2 x D	390	520	390	520	IPT	.0007	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039	.0045
	4	1.5 x D	0.2 x D	300	490	300	490	IPT	.0007	.0010	.0014	.0017	.0020	.0023	.0026	.0030	.0034	.0039
	5	1.5 x D	0.2 x D	200	330	200	330	IPT	.0006	.0009	.0012	.0016	.0018	.0021	.0023	.0027	.0031	.0036
6	1.5 x D	0.2 x D	160	250	160	250	IPT	.0005	.0008	.0010	.0013	.0015	.0017	.0019	.0022	.0025	.0028	
M	1	1.5 x D	0.2 x D	300	380	300	380	IPT	.0007	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039	.0045
	2	1.5 x D	0.2 x D	200	260	200	260	IPT	.0006	.0009	.0012	.0016	.0018	.0021	.0023	.0027	.0031	.0036
	3	1.5 x D	0.2 x D	200	230	200	230	IPT	.0005	.0008	.0010	.0013	.0015	.0017	.0019	.0022	.0025	.0028
K	1	1.5 x D	0.2 x D	390	490	390	490	IPT	.0009	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044	.0049
	2	1.5 x D	0.2 x D	360	460	360	460	IPT	.0007	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039	.0045
	3	1.5 x D	0.2 x D	360	430	360	430	IPT	.0006	.0009	.0012	.0016	.0018	.0021	.0023	.0027	.0031	.0036
S	1	1.5 x D	0.2 x D	160	300	—	—	IPT	.0007	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039	.0045
	2	1.5 x D	0.2 x D	80	130	—	—	IPT	.0004	.0006	.0008	.0010	.0012	.0014	.0015	.0018	.0021	.0024
	3	1.5 x D	0.2 x D	80	130	—	—	IPT	.0004	.0006	.0008	.0010	.0012	.0014	.0015	.0018	.0021	.0024
	4	1.5 x D	0.2 x D	160	200	—	—	IPT	.0005	.0008	.0011	.0014	.0017	.0019	.0021	.0025	.0028	.0033
H	1	1.5 x D	0.2 x D	260	460	260	460	IPT	.0007	.0010	.0014	.0017	.0020	.0023	.0026	.0030	.0034	.0039

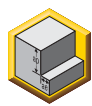
NOTE: These guidelines may require variations to achieve optimum results.

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.

■ HPFT • Stainless Steels and High-Temp Alloys

Material Group															
		Side Milling (A)		KC635M		Recommended feed per tooth (IPT = inch/th) for side milling (A).									
		A		Cutting Speed — vc SFM			D1 — Diameter								
		ap	ae	min	max	frac. dec.	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	
P	0	1.5 x D	0.05 x D	490	660	IPT	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044	
	1	1.5 x D	0.05 x D	490	660	IPT	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044	
	2	1.5 x D	0.05 x D	460	620	IPT	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044	
	3	1.5 x D	0.05 x D	390	520	IPT	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039	
	4	1.5 x D	0.05 x D	300	490	IPT	.0010	.0014	.0017	.0020	.0023	.0026	.0030	.0034	
	5	1.5 x D	0.05 x D	200	330	IPT	.0009	.0012	.0016	.0018	.0021	.0023	.0027	.0031	
M	6	1.5 x D	0.04 x D	160	250	IPT	.0008	.0010	.0013	.0015	.0017	.0019	.0022	.0025	
	1	1.5 x D	0.05 x D	300	380	IPT	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039	
	2	1.5 x D	0.05 x D	200	260	IPT	.0009	.0012	.0016	.0018	.0021	.0023	.0027	.0031	
K	3	1.5 x D	0.05 x D	200	230	IPT	.0008	.0010	.0013	.0015	.0017	.0019	.0022	.0025	
	1	1.5 x D	0.05 x D	390	490	IPT	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044	
	2	1.5 x D	0.05 x D	360	460	IPT	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039	
S	3	1.5 x D	0.05 x D	360	430	IPT	.0009	.0012	.0016	.0018	.0021	.0023	.0027	.0031	
	1	1.5 x D	0.04 x D	160	300	IPT	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039	
	2	1.5 x D	0.04 x D	80	130	IPT	.0006	.0008	.0010	.0012	.0014	.0015	.0018	.0021	
	3	1.5 x D	0.04 x D	80	130	IPT	.0006	.0008	.0010	.0012	.0014	.0015	.0018	.0021	
H	4	1.5 x D	0.05 x D	160	200	IPT	.0008	.0011	.0014	.0017	.0019	.0021	.0025	.0028	
	1	1.5 x D	0.04 x D	260	460	IPT	.0010	.0014	.0017	.0020	.0023	.0026	.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
These guidelines may require variations to achieve optimum results.