2017 Master Catalog

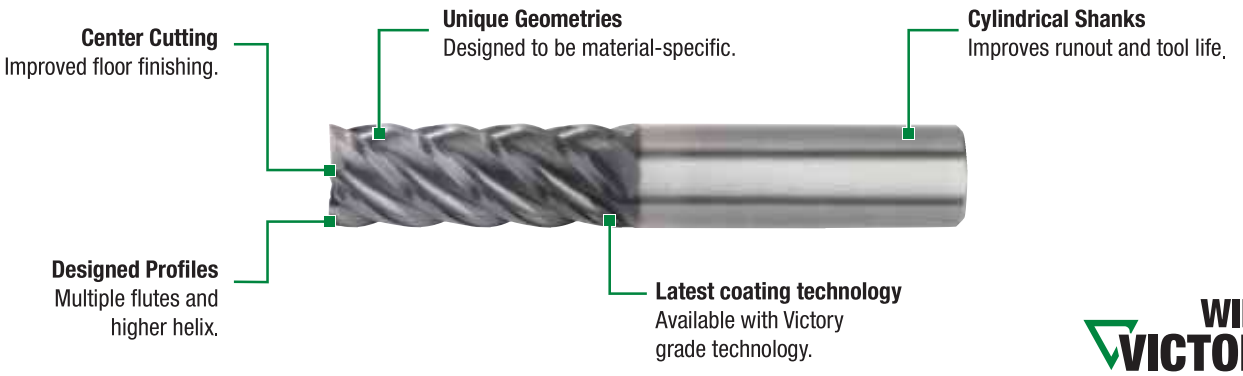
WIDIA™

High-Performance Finishing Solid Carbide End Mills

HP Finishers

Only the finest carbide substrates with market-leading geometries and state-of-the-art surface technology are used to ensure the highest quality finishing end mills are produced. These tools are fully compliant with NAS specifications. Whether you require higher metal removal rates, improved surface finishes, fewer passes, or longer tool life, WIDIA-Hanita™ high-performance finishing end mills deliver the reliability and consistency you can depend on during your critical finishing operations.

- Specific geometries targeted for steels, stainless steels, high-temperature alloys, and titanium.
- Stub, regular, long, and extra long lengths for all applications.
- Special designs with higher number of flutes and increased helix angles for super finishing applications.
- Latest coating technology, including Victory™ grades.



WIDIA VICTORY

High-Performance Solid Carbide Finishing

- Specifically designed geometries for finishing in a wide range of materials.
- Higher number of flutes and higher helix angles for super finishing applications.
- High Metal Removal Rates (MRR) requiring fewer passes and longer tool life while providing superior surface finishes.

4C03 Series

- Center cutting.
- 3-flute.
- 35° helix.
- Material-specific coatings.

4S07 Series

- Center cutting.
- 6-flute.
- High helix.
- Use for super finishing in multiple workpiece materials.

4C05 4C15 Series

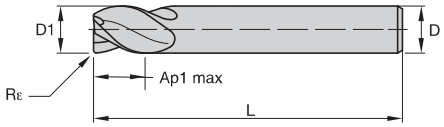
- Center cutting.
- 5-flute.
- High helix.
- Works in a variety of workpiece materials.
- Light finishing cuts.

4S0F Series

- Center cutting.
- High number of flutes.
- Light finishing cuts in multiple materials.
- Use for super finishing.

WIDIA HANITA

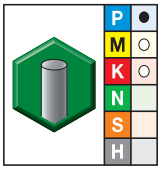
- Center cutting.
- Standard items listed. Additional styles and coatings made-to-order.

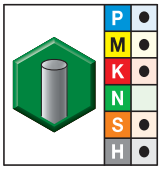


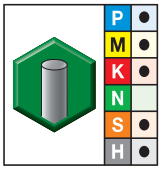
End Mill Tolerances

D1	tolerance	D	tolerance h6 + / -
All	+.000/-.002	< 1/8"	0/.00024
		1/8–7/32"	0/.00031
		1/4–3/8"	0/.00035
		13/32-11/16"	0/.00043
		23/32–1 3/16"	0/.00051

Series 4C03 4C43



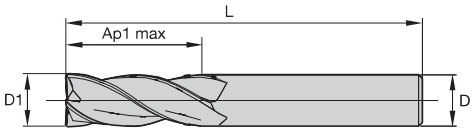




● first choice
○ alternate choice

grade UNCOATED		grade TiCN-CT TiCN		grade TiAlN-RT TiAlN						
order #	catalog #	order #	catalog #	order #	catalog #	D1	D	length of cut Ap1 max	length L	Rε
2863974	4C0303001A	2842506	TC4C0303001A		–	1/8	1/8	1/2	1 1/2	.010
2863884	4C4305000A	3208530	TC4C4305000A		–	3/16	3/16	5/16	1 1/2	.010
2863972	4C0305000A	2842502	TC4C0305000A		–	3/16	3/16	5/8	2	.010
2863880	4C4307002A	2842361	TC4C4307002A	2831637	TR4C4307002A	1/4	1/4	1/2	2	.018
2863969	4C0307002A	2842498	TC4C0307002A	2831802	TR4C0307002A	1/4	1/4	3/4	2 1/2	.018
2863879	4C4308003A	2842358	TC4C4308003A		–	5/16	5/16	7/16	2	.018
2863966	4C0308003A	2842493	TC4C0308003A	2831796	TR4C0308003A	5/16	5/16	13/16	2 1/2	.018
	–	2842353	TC4C4310004A	2831623	TR4C4310004A	3/8	3/8	1/2	2	.018
2863964	4C0310004A	2842487	TC4C0310004A	2831789	TR4C0310004A	3/8	3/8	7/8	2 1/2	.018
	–	3320829	4C431101AA		–	7/16	7/16	9/16	2 1/2	.018
	–	2842348	TC4C431101AA		–	7/16	7/16	9/16	2 1/2	.018
2863959	4C031101AA	2842484	TC4C031101AA		–	7/16	7/16	7/8	2 1/2	.018
2863873	4C4313005A	2842344	TC4C4313005A	2831609	TR4C4313005A	1/2	1/2	5/8	2 1/2	.030
2863956	4C0313005A	2842479	TC4C0313005A	2831778	TR4C0313005A	1/2	1/2	1	3	.030
2863953	4C0313015A	2842474	TC4C0313015A	2831773	TR4C0313015A	1/2	1/2	1 1/4	3	.030
2863868	4C4316006A	2842338	TC4C4316006A	2831604	TR4C4316006A	5/8	5/8	3/4	3	.030
2863951	4C0316006A	2842469	TC4C0316006A	2831768	TR4C0316006A	5/8	5/8	1 1/4	3 1/2	.030
2863865	4C4319007A	2842332	TC4C4319007A	2831598	TR4C4319007A	3/4	3/4	1	3	.030
2863947	4C0319007A	2842464	TC4C0319007A	2831761	TR4C0319007A	3/4	3/4	1 1/2	4	.030
2863944	4C0325008A	2842458	TC4C0325008A	2831754	TR4C0325008A	1	1	1 1/2	4	.030

- Center cutting.
- Standard items listed. Additional styles and coatings made-to-order.

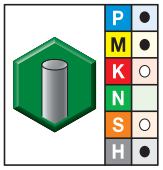


End Mill Tolerances

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

WIDIA VICTORY

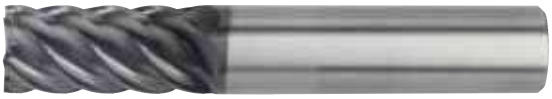
Series 4C05 4C15 • Victory Grades

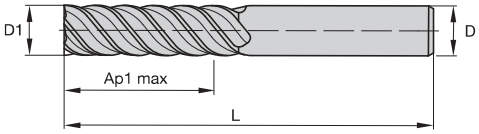


● first choice
○ alternate choice

grade WP15PE AlTiN order #	catalog #	D1	D	length of cut Ap1 max	length L
5577187	4C0503001ST	1/8	1/8	1/2	1 1/2
5577188	4C0505000ST	3/16	3/16	5/8	2
5577189	4C0507002ST	1/4	1/4	3/4	2 1/2
5577247	4C1507002ST	1/4	1/4	1 1/4	4
5577240	4C0508003ST	5/16	5/16	13/16	2 1/2
5577248	4C1508003ST	5/16	5/16	1 1/4	4
5577241	4C0510004ST	3/8	3/8	7/8	2 1/2
5577249	4C1510004ST	3/8	3/8	1 1/2	4
5577242	4C0513005ST	1/2	1/2	1	3
5577243	4C0513015ST	1/2	1/2	1 1/4	3
5577250	4C1513005ST	1/2	1/2	2	4 1/2
5577244	4C0516006ST	5/8	5/8	1 1/4	3 1/2
5577251	4C1516006ST	5/8	5/8	2 1/4	5
5577245	4C0519007ST	3/4	3/4	1 1/2	4
5577252	4C1519007ST	3/4	3/4	2 1/4	5
5577246	4C0525008ST	1	1	1 1/2	4
5577253	4C1525008ST	1	1	2 1/4	5

- Center cutting.
- Standard items listed. Additional styles and coatings made-to-order.



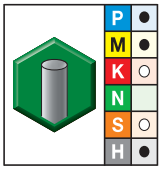


End Mill Tolerances

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

WIDIA VICTORY

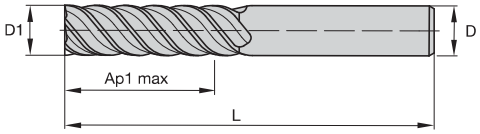
Series 4S07 • Victory Grades



● first choice
○ alternate choice

grade WP15PE AlTiN order #	catalog #	D1	D	length of cut Ap1 max	length L
5577255	4S0707002ST	1/4	1/4	3/4	2 1/2
5577256	4S0708003ST	5/16	5/16	13/16	2 1/2
5577254	4S0710004ST	3/8	3/8	7/8	2 1/2
5577257	4S071100AST	7/16	7/16	7/8	2 1/2
5577258	4S0713005ST	1/2	1/2	1	3
5577259	4S0716006ST	5/8	5/8	1 1/4	3 1/2
5577260	4S0719007ST	3/4	3/4	1 1/2	4
5577261	4S0725008ST	1	1	1 1/2	4

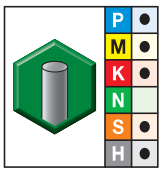
- Center cutting.
- Standard items listed. Additional styles and coatings made-to-order.



End Mill Tolerances

D1	tolerance	D	tolerance h6 + / -
All	+.000/-.002	< 1/8"	0/.00024
		1/8–7/32"	0/.00031
		1/4–3/8"	0/.00035
		13/32–11/16"	0/.00043
		23/32–1 3/16"	0/.00051

Series 4S0F 4S1F

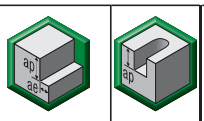


● first choice
○ alternate choice

grade TiAlN-RT TiAlN						
order #	catalog #	D1	D	length of cut Ap1 max	length L	ZU
3321644	TR4S0F07002	1/4	1/4	3/4	2 1/2	6
3321645	TR4S0F10004	3/8	3/8	7/8	2 1/2	6
3125357	TR4S0F13005	1/2	1/2	1	3	8
3321654	TR4S1F13005	1/2	1/2	2	4 1/2	8
3321646	TR4S0F16006	5/8	5/8	1 1/4	3 1/2	8
3321655	TR4S1F16006	5/8	5/8	2 1/4	5	8
3321647	TR4S0F19007	3/4	3/4	1 1/2	4	8
3321656	TR4S1F19007	3/4	3/4	2 1/4	5	8
3321648	TR4S0F25008	1	1	1 1/2	4	10
3321657	TR4S1F25008	1	1	2 1/4	5	10

WIDIA HANITA

Series 4C03



Material Group		Side Milling (A) and Slotting (B)			uncoated			TiCN			TiAlN			Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.										
		A		B	Cutting Speed — vc SFM			Cutting Speed — vc SFM			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	ap	min		max	min		max	min		max	dec.	.1250	.1875	.2500	.3125	.3750	.4375	.5000	.6250	.7500	1.0000
P	0	1.5 x D	0.3 x D	0.5 x D	245	–	330	392	–	528	490	–	660	IPT	.0088	.0135	.0183	.0234	.0273	.0308	.0340	.0395	.0438	.0489
	1	1.5 x D	0.3 x D	0.5 x D	245	–	330	392	–	528	490	–	660	IPT	.0088	.0135	.0183	.0234	.0273	.0308	.0340	.0395	.0438	.0489
	2	1.5 x D	0.3 x D	0.5 x D	230	–	310	368	–	496	460	–	620	IPT	.0088	.0135	.0183	.0234	.0273	.0308	.0340	.0395	.0438	.0489
	3	1.5 x D	0.3 x D	0.5 x D	195	–	260	312	–	416	390	–	520	IPT	.0072	.0111	.0152	.0195	.0229	.0260	.0289	.0341	.0386	.0451
	4	1.5 x D	0.3 x D	0.3 x D	150	–	245	240	–	392	300	–	490	IPT	.0066	.0101	.0138	.0175	.0204	.0231	.0257	.0301	.0337	.0386
	5	1.5 x D	0.3 x D	0.5 x D	100	–	165	160	–	264	200	–	330	IPT	.0059	.0091	.0123	.0156	.0183	.0208	.0231	.0273	.0309	.0361
	6	1.5 x D	0.3 x D	0.3 x D	80	–	125	128	–	200	160	–	250	IPT	.0050	.0076	.0103	.0131	.0153	.0173	.0191	.0223	.0249	.0281
M	1	1.5 x D	0.3 x D	0.5 x D	150	–	190	240	–	304	300	–	380	IPT	.0072	.0111	.0152	.0195	.0229	.0260	.0289	.0341	.0386	.0451
	2	1.5 x D	0.3 x D	0.5 x D	100	–	130	160	–	208	200	–	260	IPT	.0059	.0091	.0123	.0156	.0183	.0208	.0231	.0273	.0309	.0361
	3	1.5 x D	0.3 x D	0.5 x D	100	–	115	160	–	184	200	–	230	IPT	.0050	.0076	.0103	.0131	.0153	.0173	.0191	.0223	.0249	.0281
K	1	1.5 x D	0.3 x D	0.5 x D	195	–	245	312	–	392	390	–	490	IPT	.0088	.0135	.0183	.0234	.0273	.0308	.0340	.0395	.0438	.0489
	2	1.5 x D	0.3 x D	0.5 x D	180	–	230	288	–	368	360	–	460	IPT	.0072	.0111	.0152	.0195	.0229	.0260	.0289	.0341	.0386	.0451
	3	1.5 x D	0.3 x D	0.5 x D	180	–	215	288	–	344	360	–	430	IPT	.0059	.0091	.0123	.0156	.0183	.0208	.0231	.0273	.0309	.0361
S	1	1.5 x D	0.3 x D	0.3 x D	80	–	150	128	–	240	160	–	300	IPT	.0072	.0111	.0152	.0195	.0229	.0260	.0289	.0341	.0386	.0451
	2	1.5 x D	0.3 x D	0.3 x D	40	–	65	64	–	104	80	–	130	IPT	.0039	.0060	.0081	.0103	.0121	.0138	.0153	.0182	.0206	.0243
	3	1.5 x D	0.3 x D	0.3 x D	100	–	130	160	–	208	200	–	260	IPT	.0059	.0091	.0123	.0156	.0183	.0208	.0231	.0273	.0309	.0361
	4	1.5 x D	0.3 x D	0.5 x D	80	–	100	128	–	160	160	–	200	IPT	.0048	.0077	.0108	.0143	.0168	.0191	.0213	.0251	.0284	.0331
H	1	1.5 x D	0.3 x D	0.3 x D	130	–	230	208	–	368	260	–	460	IPT	.0066	.0101	.0138	.0175	.0204	.0231	.0257	.0301	.0337	.0386

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.

Series 4C43

Material Group		Side Milling (A) and Slotting (B) A ap	A ae	B ap	uncoated Cutting Speed — vc SFM min	–	max	TiCN Cutting Speed — vc SFM min	–	max	TiAlN Cutting Speed — vc SFM min	–	max	Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%. frac.	D1 — Diameter 1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	1
														dec.	.1250	.1880	.2500	.3130	.3750	.5000	.6250	.7500	1.000
P	0	1.25 x D	0.3 x D	0.5 x D	245	–	330	392	–	528	490	–	660	IPT	.0009	.0013	.0018	.0023	.0027	.0034	.0039	.0044	.0049
	1	1.25 x D	0.3 x D	0.5 x D	245	–	330	392	–	528	490	–	660	IPT	.0009	.0013	.0018	.0023	.0027	.0034	.0039	.0044	.0049
	2	1.25 x D	0.3 x D	0.5 x D	230	–	310	368	–	496	460	–	620	IPT	.0009	.0013	.0018	.0023	.0027	.0034	.0039	.0044	.0049
	3	1.25 x D	0.3 x D	0.5 x D	195	–	260	312	–	416	390	–	520	IPT	.0007	.0011	.0015	.0020	.0023	.0029	.0034	.0039	.0045
	4	1.25 x D	0.3 x D	0.3 x D	150	–	245	240	–	392	300	–	490	IPT	.0007	.0010	.0014	.0017	.0020	.0026	.0030	.0034	.0039
	5	1.25 x D	0.3 x D	0.5 x D	100	–	165	160	–	264	200	–	330	IPT	.0006	.0009	.0012	.0016	.0018	.0023	.0027	.0031	.0036
	6	1.25 x D	0.3 x D	0.3 x D	80	–	125	128	–	200	160	–	250	IPT	.0005	.0008	.0010	.0013	.0015	.0019	.0022	.0025	.0028
M	1	1.25 x D	0.3 x D	0.5 x D	150	–	190	240	–	304	300	–	380	IPT	.0007	.0011	.0015	.0020	.0023	.0029	.0034	.0039	.0045
	2	1.25 x D	0.3 x D	0.5 x D	100	–	130	160	–	208	200	–	260	IPT	.0006	.0009	.0012	.0016	.0018	.0023	.0027	.0031	.0036
	3	1.25 x D	0.3 x D	0.5 x D	100	–	115	160	–	184	200	–	230	IPT	.0005	.0008	.0010	.0013	.0015	.0019	.0022	.0025	.0028
K	1	1.25 x D	0.3 x D	0.5 x D	195	–	245	312	–	392	390	–	490	IPT	.0009	.0013	.0018	.0023	.0027	.0034	.0039	.0044	.0049
	2	1.25 x D	0.3 x D	0.5 x D	180	–	230	288	–	368	360	–	460	IPT	.0007	.0011	.0015	.0020	.0023	.0029	.0034	.0039	.0045
	3	1.25 x D	0.3 x D	0.5 x D	180	–	215	288	–	344	360	–	430	IPT	.0006	.0009	.0012	.0016	.0018	.0023	.0027	.0031	.0036
S	1	1.25 x D	0.3 x D	0.3 x D	80	–	150	128	–	240	160	–	300	IPT	.0007	.0011	.0015	.0020	.0023	.0029	.0034	.0039	.0045
	2	1.25 x D	0.3 x D	0.3 x D	40	–	65	64	–	104	80	–	130	IPT	.0004	.0006	.0008	.0010	.0012	.0015	.0018	.0021	.0024
	3	1.25 x D	0.3 x D	0.3 x D	100	–	130	160	–	208	200	–	260	IPT	.0006	.0009	.0012	.0016	.0018	.0023	.0027	.0031	.0036
	4	1.25 x D	0.3 x D	0.5 x D	80	–	100	128	–	160	160	–	200	IPT	.0005	.0008	.0011	.0014	.0017	.0021	.0025	.0028	.0033
H	1	1.25 x D	0.3 x D	0.3 x D	130	–	230	208	–	368	260	–	460	IPT	.0007	.0010	.0014	.0017	.0020	.0026	.0030	.0034	.0039

Series 4C05 4C15 • Victory Grades

WIDIA VICTORY

Material Group		Side Milling (A) A ap	A ae	WP15PE Cutting Speed — vc SFM min	–	max	Recommended feed per tooth (IPT = inch/th) for side milling (A). frac.	D1 — Diameter 1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	1
							dec.	.1250	.1875	.2500	.3125	.3750	.5000	.6250	.7500	1.0000
P	0	Ap1 max	0.1 x D	490	–	660	IPT	.0009	.0013	.0018	.0023	.0027	.0034	.0039	.0044	.0049
	1	Ap1 max	0.1 x D	490	–	660	IPT	.0009	.0013	.0018	.0023	.0027	.0034	.0039	.0044	.0049
	2	Ap1 max	0.1 x D	460	–	620	IPT	.0009	.0013	.0018	.0023	.0027	.0034	.0039	.0044	.0049
	3	Ap1 max	0.1 x D	390	–	520	IPT	.0007	.0011	.0015	.0020	.0023	.0029	.0034	.0039	.0045
	4	Ap1 max	0.1 x D	300	–	490	IPT	.0007	.0010	.0014	.0017	.0020	.0026	.0030	.0034	.0039
	5	Ap1 max	0.1 x D	200	–	330	IPT	.0006	.0009	.0012	.0016	.0018	.0023	.0027	.0031	.0036
	6	Ap1 max	0.1 x D	160	–	250	IPT	.0005	.0008	.0010	.0013	.0015	.0019	.0022	.0025	.0028
M	1	Ap1 max	0.1 x D	300	–	380	IPT	.0007	.0011	.0015	.0020	.0023	.0029	.0034	.0039	.0045
	2	Ap1 max	0.1 x D	200	–	260	IPT	.0006	.0009	.0012	.0016	.0018	.0023	.0027	.0031	.0036
	3	Ap1 max	0.1 x D	200	–	230	IPT	.0005	.0008	.0010	.0013	.0015	.0019	.0022	.0025	.0028
K	1	Ap1 max	0.1 x D	390	–	490	IPT	.0009	.0013	.0018	.0023	.0027	.0034	.0039	.0044	.0049
	2	Ap1 max	0.1 x D	360	–	460	IPT	.0007	.0011	.0015	.0020	.0023	.0029	.0034	.0039	.0045
	3	Ap1 max	0.1 x D	360	–	430	IPT	.0006	.0009	.0012	.0016	.0018	.0023	.0027	.0031	.0036
H	1	Ap1 max	0.1 x D	260	–	460	IPT	.0007	.0010	.0014	.0017	.0020	.0026	.0030	.0034	.0039
	2	Ap1 max	0.1 x D	230	–	390	IPT	.0005	.0008	.0010	.0013	.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. For smaller taper machining centers, please adjust parameters accordingly on >1/2" diameter.

Series 4S07 • Victory Grades

Material Group		Side Milling (A)		WP15PE			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	dec.	.1250	.1875	.2500	.3125	.3750	.4375	.5000	.6250	.7500	1.0000
P	0	1 x D	0.2 x D	490	–	660	IPT	.0009	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044	.0049
	1	1 x D	0.2 x D	490	–	660	IPT	.0009	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044	.0049
	2	1 x D	0.2 x D	460	–	620	IPT	.0009	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044	.0049
	3	1 x D	0.1 x D	390	–	520	IPT	.0007	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039	.0045
	4	1 x D	0.1 x D	300	–	490	IPT	.0007	.0010	.0014	.0017	.0020	.0023	.0026	.0030	.0034	.0039
	5	1 x D	0.1 x D	200	–	330	IPT	.0006	.0009	.0012	.0016	.0018	.0021	.0023	.0027	.0031	.0036
	6	1 x D	0.1 x D	160	–	250	IPT	.0005	.0008	.0010	.0013	.0015	.0017	.0019	.0022	.0025	.0028
M	1	1 x D	0.1 x D	300	–	380	IPT	.0007	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039	.0045
	2	1 x D	0.1 x D	200	–	260	IPT	.0006	.0009	.0012	.0016	.0018	.0021	.0023	.0027	.0031	.0036
	3	1 x D	0.1 x D	200	–	230	IPT	.0005	.0008	.0010	.0013	.0015	.0017	.0019	.0022	.0025	.0028
K	1	1 x D	0.1 x D	390	–	490	IPT	.0009	.0013	.0018	.0023	.0027	.0031	.0034	.0039	.0044	.0049
	2	1 x D	0.1 x D	360	–	460	IPT	.0007	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039	.0045
	3	1 x D	0.1 x D	360	–	430	IPT	.0006	.0009	.0012	.0016	.0018	.0021	.0023	.0027	.0031	.0036
S	1	1 x D	0.1 x D	160	–	300	IPT	.0007	.0011	.0015	.0020	.0023	.0026	.0029	.0034	.0039	.0045
	2	1 x D	0.1 x D	80	–	130	IPT	.0004	.0006	.0008	.0010	.0012	.0014	.0015	.0018	.0021	.0024
	3	1 x D	0.15 x D	200	–	260	IPT	.0006	.0009	.0012	.0016	.0018	.0021	.0023	.0027	.0031	.0036
	4	1 x D	0.15 x D	160	–	200	IPT	.0005	.0008	.0011	.0014	.0017	.0019	.0021	.0025	.0028	.0033
H	1	1 x D	0.1 x D	260	–	460	IPT	.0007	.0010	.0014	.0017	.0020	.0023	.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.

Series 4S0F 4S1F

Material Group		Side Milling (A)		TiAlN			Recommended feed per tooth (IPT = inch/th) for side milling (A).						
		A		Cutting Speed — vc SFM				D1 — Diameter					
							frac.	1/4	3/8	1/2	5/8	3/4	1
		ap	ae	min		max	dec.	.2500	.3750	.5000	.6250	.7500	1.000
P	1	1.5 x D	0.07 x D	500	–	650	IPT	.0018	.0027	.0035	.0039	.0043	.0050
	2	1.5 x D	0.07 x D	450	–	625	IPT	.0018	.0027	.0035	.0039	.0043	.0050
	3	1.5 x D	0.07 x D	400	–	525	IPT	.0015	.0023	.0029	.0034	.0038	.0046
	4	1.5 x D	0.03 x D	300	–	475	IPT	.0014	.0020	.0026	.0030	.0033	.0039
	5	1.5 x D	0.05 x D	200	–	325	IPT	.0012	.0018	.0023	.0027	.0030	.0036
	6	1.5 x D	0.03 x D	150	–	225	IPT	.0010	.0015	.0019	.0022	.0024	.0028
M	1	1.5 x D	0.07 x D	260	–	330	IPT	.0015	.0023	.0029	.0034	.0038	.0046
	2	1.5 x D	0.07 x D	200	–	260	IPT	.0012	.0018	.0023	.0027	.0030	.0036
	3	1.5 x D	0.05 x D	200	–	260	IPT	.0010	.0015	.0019	.0022	.0024	.0028
K	1	1.5 x D	0.07 x D	390	–	520	IPT	.0018	.0027	.0035	.0039	.0043	.0050
	2	1.5 x D	0.07 x D	360	–	460	IPT	.0015	.0023	.0029	.0034	.0038	.0046
	3	1.5 x D	0.05 x D	330	–	430	IPT	.0012	.0018	.0023	.0027	.0030	.0036
S	1	1.5 x D	0.03 x D	150	–	275	IPT	.0015	.0023	.0029	.0034	.0038	.0046
	2	1.5 x D	0.02 x D	70	–	130	IPT	.0008	.0012	.0016	.0018	.0020	.0025
	3	1.5 x D	0.05 x D	160	–	260	IPT	.0012	.0018	.0023	.0027	.0030	.0036
	4	1.5 x D	0.05 x D	150	–	210	IPT	.0011	.0017	.0022	.0025	.0028	.0033
H	1	1.5 x D	0.03 x D	260	–	450	IPT	.0014	.0020	.0026	.0030	.0033	.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.