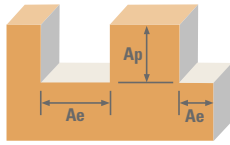


Speeds and Feeds

Instructions:

- rpm = use speed from INCH or METRIC Baseline chart
- ipm = INCH Baseline Feed (ipm) x Feed Multiplier [from selected chart below]
- mm/min = METRIC Baseline Feed (mm/min) x Feed Multiplier [from selected chart below]
- Reduce speed and feed 30 percent when using uncoated tools
- Find Width of Cut (Ae) and Depth of Cut (Ap) recommendations on chart below
- refer to the KYOCERA SGS Tool Wizard® or sgsmicrotools.com for detailed technical charts by series



INCH 2-Flute, Square, Corner Radius & Ball Without Reach	Flute Length	1.5 x DC		3 x DC			
	Feed Multiplier	1		0.9			
	Width/Depth	Ae x DC	Ap x DC	Ae x DC	Ap x DC		
	Diameter (DC)	≤0.0312	>0.0312	≤0.0312	>0.0312		
P H K M S N ALL	Profile	≤.30	≤.50	≤1	≤.10	≤.25	≤2
	Slot	1	≤.20	≤.50	1	≤.15	≤.35

INCH 3-Flute, Square, Corner Radius & Ball Without Reach	Flute Length	1.5 x DC		3 x DC		5 x DC		8 x DC		12 x DC						
	Feed Multiplier	1.35		1.22		0.65		0.33		0.2						
	Width/Depth	Ae x DC	Ap x DC	Ae x DC	Ap x DC	Ae x DC	Ap x DC	Ae x DC	Ap x DC	Ae x DC	Ap x DC					
	Diameter (DC)	≤0.0312	>0.0312	≤0.0312	>0.0312	≤0.0312	>0.0312	≤0.0312	>0.0312	≤0.0312	>0.0312					
P H K M S N ALL	Profile	≤.30	≤.50	≤1	≤.10	≤.25	≤2	≤.10	≤.25	≤3	≤.05	≤.10	≤4	≤.03	≤.06	≤6
	Slot	1	≤.20	≤.50	1	≤.15	≤.35	1	≤.10	≤.20						

INCH 4-Flute, Square, Corner Radius & Ball Without Reach	Flute Length	1.5 x DC		3 x DC		5 x DC		8 x DC		12 x DC						
	Feed Multiplier	1.57		1.41		0.59		0.59		0.36						
	Width/Depth	Ae x DC	Ap x DC	Ae x DC	Ap x DC	Ae x DC	Ap x DC	Ae x DC	Ap x DC	Ae x DC	Ap x DC					
	Diameter (DC)	≤0.0312	>0.0312	≤0.0312	>0.0312	≤0.0312	>0.0312	≤0.0312	>0.0312	≤0.0312	>0.0312					
P H K M S N ALL	Profile	≤.30	≤.50	≤1	≤.10	≤.25	≤2	≤.05	≤.10	≤3	≤.05	≤.10	≤4	≤.03	≤.06	≤6
	Slot	1	≤.20	≤.50	1	≤.15	≤.35									

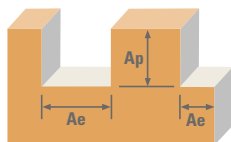
METRIC 2-Flute Square & Ball Without Reach	Flute Length	1.5 x DC		3 x DC			
	Feed Multiplier	1		0.9			
	Width/Depth	Ae x DC	Ap x DC	Ae x DC	Ap x DC		
	Diameter (DC)	≤0.0312	>0.0312	≤0.0312	>0.0312		
P H K M S N ALL	Profile	≤.30	≤.50	≤1	≤.10	≤.25	≤2
	Slot	1	≤.20	≤.50	1	≤.15	≤.35

METRIC 4-Flute Square & Ball Without Reach	Flute Length	1.5 x DC		3 x DC			
	Feed Multiplier	1.57		1.41			
	Width/Depth	Ae x DC	Ap x DC	Ae x DC	Ap x DC		
	Diameter (DC)	≤0.0312	>0.0312	≤0.0312	>0.0312		
P H K M S N ALL	Profile	≤.30	≤.50	≤1	≤.10	≤.25	≤2
	Slot	1	≤.20	≤.50	1	≤.15	≤.35

Speeds and Feeds

Instructions:

- rpm = use speed from INCH or METRIC Baseline chart
- ipm = INCH Baseline Feed (ipm) x Feed Multiplier [from selected chart below]
- mm/min = METRIC Baseline Feed (mm/min) x Feed Multiplier [from selected chart below]
- Reduce speed and feed 30 percent when using uncoated tools
- Find Width of Cut (Ae) and Depth of Cut (Ap) recommendations on chart below
- refer to the KYOCERA SGS Tool Wizard® or sgsmicrotools.com for detailed technical charts by series



INCH 2-Flute Square & Ball With Reach	Flute Length	8 x DC		12 x DC			
	Feed Multiplier	0.6		0.5			
	Width/Depth	Ae x DC	Ap x DC	Ae x DC	Ap x DC		
	Diameter (DC)	≤0.0312	>0.0312	≤0.0312	>0.0312		
P	Profile	≤.25	≤.50	≤.30	≤.22	≤.45	≤.25
H							
K	ALL	1	≤.07	≤.17	1	≤.06	≤.15
M							
S							
N	Slot						

INCH 3-Flute Square, Corner Radius & Ball With Reach	Flute Length	3 x DC		5 x DC		8 x DC		12 x DC		15 x DC		20 x DC		25 x DC									
	Feed Multiplier	1.4		1.15		0.9		0.7		0.6		0.45		0.35									
	Width/Depth	Ae x DC	Ap x DC	Ae x DC	Ap x DC	Ae x DC	Ap x DC	Ae x DC	Ap x DC	Ae x DC	Ap x DC	Ae x DC	Ap x DC	Ae x DC	Ap x DC								
	Diameter (DC)	≤0.0312	>0.0312	≤0.0312	>0.0312	≤0.0312	>0.0312	≤0.0312	>0.0312	≤0.0312	>0.0312	≤0.0312	>0.0312	≤0.0312	>0.0312								
P	Profile	≤.30	≤.60	≤.5	≤.30	≤.60	≤.35	≤.25	≤.50	≤.30	≤.22	≤.45	≤.25	≤.15	≤.30	≤.25	≤.12	≤.25	≤.20	≤.12	≤.25	≤.20	
H																							
K	ALL	1	≤.15	≤.30	1	≤.08	≤.20	1	≤.07	≤.17	1	≤.06	≤.15	1	≤.06	≤.15	1	≤.04	≤.10	1	≤.04	≤.10	
M																							
S																							
N	Slot																						

INCH 4-Flute Square & Ball With Reach	Flute Length	8 x DC		12 x DC			
	Feed Multiplier	0.95		0.75			
	Width/Depth	Ae x DC	Ap x DC	Ae x DC	Ap x DC		
	Diameter (DC)	≤0.0312	>0.0312	≤0.0312	>0.0312		
P	Profile	≤.25	≤.50	≤.30	≤.22	≤.45	≤.25
H							
K	ALL	1	≤.07	≤.17	1	≤.06	≤.15
M							
S							
N	Slot						

Note:

















- Bhn (Brinell) HRc (Rockwell C)
- reduce speed and feed 30 percent when using uncoated tools
- Fz x No. of Flutes x max available rpm when recommendation exceeds machine limit
- helical ramp at 1 degrees or less, using slotting speed and feed rates (plunging is not recommended)
- reduce speed and feed for materials harder than listed
- reduce feed and Ae when finish milling (.02 x DC maximum)
- refer to the KYOCERA SGS Tool Wizard® or sgsmicrotools.com for detailed technical charts by series

FRACTIONAL Baseline













INCH Baseline
Speed and Feed
Square, Corner Radius
& Ball End
With and Without Reach

Hardness

DC • in

		Vc (sfm)	DC • in							
			0.0050	0.0156	0.0312	0.0625	0.0938	0.1200		
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	Profile 	365 RPM	278860	89378	44689	22309	14865	11619	
			(292-438)	Fz	0.000022	0.00007	0.00013	0.00027	0.00041	0.00052
				Feed (ipm)	12.05	12.05	12.05	12.05	12.05	12.05
		Slot 	290 RPM	221560	71013	35506	17725	11810	9232	
			(232-348)	Fz	0.000022	0.00007	0.00013	0.00027	0.00041	0.00052
				Feed (ipm)	9.57	9.57	9.57	9.57	9.57	9.57
P	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	Profile 	210 RPM	160440	51423	25712	12835	8552	6685	
			(168-252)	Fz	0.000019	0.00006	0.00012	0.00024	0.00036	0.00046
				Feed (ipm)	6.16	6.16	6.16	6.16	6.16	6.16
		Slot 	165 RPM	126060	40404	20202	10085	6720	5253	
			(132-198)	Fz	0.000019	0.00006	0.00012	0.00024	0.00036	0.00046
				Feed (ipm)	4.84	4.84	4.84	4.84	4.84	4.84
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	Profile 	340 RPM	259760	83256	41628	20781	13846	10823	
			(272-408)	Fz	0.000022	0.00007	0.00013	0.00027	0.00041	0.00052
				Feed (ipm)	11.22	11.22	11.22	11.22	11.22	11.22
		Slot 	270 RPM	206280	66115	33058	16502	10996	8595	
			(216-324)	Fz	0.000022	0.00007	0.00013	0.00027	0.00041	0.00052
				Feed (ipm)	8.91	8.91	8.91	8.91	8.91	8.91
M	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	Profile 	235 RPM	179540	57545	28772	14363	9570	7481	
			(188-282)	Fz	0.000019	0.00006	0.00012	0.00024	0.00036	0.00046
				Feed (ipm)	6.90	6.90	6.90	6.90	6.90	6.90
		Slot 	185 RPM	141340	45301	22651	11307	7534	5889	
			(148-222)	Fz	0.000019	0.00006	0.00012	0.00024	0.00036	0.00046
				Feed (ipm)	5.43	5.43	5.43	5.43	5.43	5.43
M	STAINLESS STEELS (PH) 13-8 PH, 15-5PH, 17-4 PH, CUSTOM 450	Profile 	215 RPM	164260	52647	26324	13141	8756	6844	
			(172-258)	Fz	0.000014	0.00004	0.00008	0.00017	0.00025	0.00033
				Feed (ipm)	4.46	4.46	4.46	4.46	4.46	4.46
		Slot 	170 RPM	129880	41628	20814	10390	6923	5412	
			(136-204)	Fz	0.000014	0.00004	0.00008	0.00017	0.00025	0.00033
				Feed (ipm)	3.53	3.53	3.53	3.53	3.53	3.53
K	CAST IRONS (LOW & MEDIUM ALLOY) Gray, Malleable, Ductile	Profile 	305 RPM	233020	74686	37343	18642	12421	9709	
			(244-366)	Fz	0.000022	0.00007	0.00014	0.00027	0.00041	0.00052
				Feed (ipm)	10.08	10.08	10.08	10.08	10.08	10.08
		Slot 	245 RPM	187180	59994	29997	14974	9978	7799	
			(196-294)	Fz	0.000022	0.00007	0.00014	0.00027	0.00041	0.00052
				Feed (ipm)	8.10	8.10	8.10	8.10	8.10	8.10
N	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	Profile 	1000 RPM	764000	244872	122436	61120	40725	31833	
			(800-1200)	Fz	0.000064	0.00020	0.00040	0.00080	0.00120	0.00153
				Feed (ipm)	97.50	97.50	97.50	97.50	97.50	97.50
		Slot 	800 RPM	611200	195897	97949	48896	32580	25467	
			(640-960)	Fz	0.000064	0.00020	0.00040	0.00080	0.00120	0.00153
				Feed (ipm)	78.00	78.00	78.00	78.00	78.00	78.00
N	COPPER ALLOYS Alum Bronze, C110, Muntz Brass	Profile 	515 RPM	393460	126109	63054	31477	20973	16394	
			(412-618)	Fz	0.000048	0.00015	0.00030	0.00060	0.00090	0.00115
				Feed (ipm)	37.68	37.68	37.68	37.68	37.68	37.68
		Slot 	410 RPM	313240	100397	50199	25059	16697	13052	
			(328-492)	Fz	0.000048	0.00015	0.00030	0.00060	0.00090	0.00115
				Feed (ipm)	30.00	30.00	30.00	30.00	30.00	30.00

















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INCH Baseline Speed and Feed Square, Corner Radius & Ball End With and Without Reach			Hardness	Vc (sfm)	DC • in					
					0.0050	0.0156	0.0312	0.0625	0.0938	0.1200
N	PLASTICS Polycarbonate, PVC, Polypropylene	Profile 	1000	RPM	764000	244872	122436	61120	40725	31833
			(800-1200)	Fz	0.000064	0.00020	0.00040	0.00080	0.00120	0.00153
				Feed (ipm)	97.50	97.50	97.50	97.50	97.50	97.50
		Slot 	800	RPM	611200	195897	97949	48896	32580	25467
			(640-960)	Fz	0.000064	0.00020	0.00040	0.00080	0.00120	0.00153
				Feed (ipm)	78.00	78.00	78.00	78.00	78.00	78.00
S	SUPER ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoloy, Monel 400	Profile 	60	RPM	45840	14692	7346	3667	2443	1910
			(48-72)	Fz	0.000012	0.00004	0.00008	0.00015	0.00023	0.00029
				Feed (ipm)	1.11	1.11	1.11	1.11	1.11	1.11
		Slot 	45	RPM	34380	11019	5510	2750	1833	1433
			(36-54)	Fz	0.000012	0.00004	0.00008	0.00015	0.00023	0.00029
				Feed (ipm)	0.83	0.83	0.83	0.83	0.83	0.83
S	SUPER ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 718, X-750, Incoloy, Waspaloy, Hastelloy, Rene	Profile 	45	RPM	34380	11019	5510	2750	1833	1433
			(36-54)	Fz	0.000008	0.00003	0.00005	0.00010	0.00015	0.00019
				Feed (ipm)	0.55	0.55	0.55	0.55	0.55	0.55
		Slot 	35	RPM	26740	8571	4285	2139	1425	1114
			(28-42)	Fz	0.000008	0.00003	0.00005	0.00010	0.00015	0.00019
				Feed (ipm)	0.43	0.43	0.43	0.43	0.43	0.43
S	TITANIUM ALLOYS Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si	Profile 	160	RPM	122240	39179	19590	9779	6516	5093
			(128-192)	Fz	0.000014	0.00004	0.00008	0.00017	0.00025	0.00033
				Feed (ipm)	3.32	3.32	3.32	3.32	3.32	3.32
		Slot 	130	RPM	99320	31833	15917	7946	5294	4138
			(104-156)	Fz	0.000014	0.00004	0.00008	0.00017	0.00025	0.00033
				Feed (ipm)	2.70	2.70	2.70	2.70	2.70	2.70
S	TITANIUM ALLOYS (DIFFICULT) Ti10Al2Fe3Al, Ti5Al5V5Mo3Cr, Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo, Ti6Al6V6Sn, Ti15V3 Cr3Sn3Al	Profile 	60	RPM	45840	14692	7346	3667	2443	1910
			(48-72)	Fz	0.000010	0.00003	0.00006	0.00012	0.00018	0.00023
				Feed (ipm)	0.88	0.88	0.88	0.88	0.88	0.88
		Slot 	45	RPM	34380	11019	5510	2750	1833	1433
			(36-54)	Fz	0.000010	0.00003	0.00006	0.00012	0.00018	0.00023
				Feed (ipm)	0.66	0.66	0.66	0.66	0.66	0.66
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	Profile 	175	RPM	133700	42853	21426	10696	7127	5571
			(140-210)	Fz	0.000016	0.00005	0.00010	0.00020	0.00030	0.00038
				Feed (ipm)	4.28	4.28	4.28	4.28	4.28	4.28
		Slot 	140	RPM	106960	34282	17141	8557	5701	4457
			(112-168)	Fz	0.000016	0.00005	0.00010	0.00020	0.00030	0.00038
				Feed (ipm)	3.42	3.42	3.42	3.42	3.42	3.42







Note:

- Bhn (Brinell) HRC (Rockwell C)
- when recommended speed exceeds your capability, use maximum available and recalculate ipm
- rpm = Vc x 3.82 / DC
- ipm = Fz x No. of flutes x rpm
- reduce speed and feed for materials harder than listed
- reduce feed and Ae when finish milling (.02 x DC maximum)
- refer to the KYOCERA SGS Tool Wizard® or sgsmicrotools.com for detailed technical charts by series

Baseline

METRIC Baseline Speed and Feed Square & Ball End With and Without Reach			Hardness	Vc (m/min)	DC • (mm)						
Material	Profile / Slot	Vc Unit			0.1	0.5	1	1.5	2	2.5	3
			P CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	Profile 	111	RPM	353837	70767	35384	23589	17692
(89-134)	Fz	0.00043			0.00216	0.00432	0.00648	0.00865	0.01081	0.01297	
	Feed (mm/min)	306			306	306	306	306	306	306	306
Slot 	88	RPM		281131	56226	28113	18742	14057	11245	9371	
	(71-106)	Fz		0.00043	0.00216	0.00432	0.00648	0.00865	0.01081	0.01297	
		Feed (mm/min)		243	243	243	243	243	243	243	243
P ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	Profile 	64	RPM	203577	40715	20358	13572	10179	8143	6786	
		(51-77)	Fz	0.00038	0.00192	0.00384	0.00576	0.00769	0.00961	0.01153	
			Feed (mm/min)	156	156	156	156	156	156	156	156
	Slot 	50	RPM	159954	31991	15995	10664	7998	6398	5332	
		(40-60)	Fz	0.00038	0.00192	0.00384	0.00576	0.00769	0.00961	0.01153	
			Feed (mm/min)	123	123	123	123	123	123	123	123
M STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	Profile 	104	RPM	329602	65920	32960	21973	16480	13184	10987	
		(83-124)	Fz	0.00043	0.00216	0.00432	0.00648	0.00865	0.01081	0.01295	
			Feed (mm/min)	285	285	285	285	285	285	285	285
	Slot 	82	RPM	261742	52348	26174	17449	13087	10470	8725	
		(66-99)	Fz	0.00043	0.00216	0.00432	0.00648	0.00865	0.01081	0.01295	
			Feed (mm/min)	226	226	226	226	226	226	226	226
M STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	Profile 	72	RPM	227813	45563	22781	15188	11391	9113	7594	
		(57-86)	Fz	0.00038	0.00192	0.00385	0.00577	0.00769	0.00961	0.01154	
			Feed (mm/min)	175	175	175	175	175	175	175	175
	Slot 	56	RPM	179342	35868	17934	11956	8967	7174	5978	
		(45-68)	Fz	0.00038	0.00192	0.00385	0.00577	0.00769	0.00961	0.01154	
			Feed (mm/min)	138	138	138	138	138	138	138	138
M STAINLESS STEELS (PH) 13-8 PH, 15-5PH, 17-4 PH, CUSTOM 450	Profile 	66	RPM	208425	41685	20842	13895	10421	8337	6947	
		(52-79)	Fz	0.00027	0.00136	0.00272	0.00408	0.00544	0.00680	0.00819	
			Feed (mm/min)	113	113	113	113	113	113	113	113
	Slot 	52	RPM	164801	32960	16480	10987	8240	6592	5493	
		(41-62)	Fz	0.00027	0.00136	0.00272	0.00408	0.00544	0.00680	0.00819	
			Feed (mm/min)	90	90	90	90	90	90	90	90
K CAST IRONS (LOW & MEDIUM ALLOY) Gray, Malleable, Ductile	Profile 	93	RPM	295672	59134	29567	19711	14784	11827	9856	
		(74-112)	Fz	0.00043	0.00217	0.00433	0.00650	0.00866	0.01083	0.01301	
			Feed (mm/min)	256	256	256	256	256	256	256	256
	Slot 	75	RPM	237507	47501	23751	15834	11875	9500	7917	
		(60-90)	Fz	0.00043	0.00217	0.00433	0.00650	0.00866	0.01083	0.01301	
			Feed (mm/min)	206	206	206	206	206	206	206	206
N ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	Profile 	305	RPM	969416	193883	96942	64628	48471	38777	32314	
		(244-366)	Fz	0.00128	0.00639	0.01277	0.01916	0.02555	0.03193	0.03832	
			Feed (mm/min)	2477	2477	2477	2477	2477	2477	2477	2477
	Slot 	244	RPM	775533	155107	77553	51702	38777	31021	25851	
		(195-293)	Fz	0.00128	0.00639	0.01277	0.01916	0.02555	0.03193	0.03832	
			Feed (mm/min)	1981	1981	1981	1981	1981	1981	1981	1981
N COPPER ALLOYS Alum Bronze, C110, Muntz Brass	Profile 	157	RPM	499249	99850	49925	33283	24962	19970	16642	
		(126-188)	Fz	0.00096	0.00479	0.00959	0.01438	0.01917	0.02396	0.02876	
			Feed (mm/min)	957	957	957	957	957	957	957	957
	Slot 	125	RPM	397461	79492	39746	26497	19873	15898	13249	
		(100-150)	Fz	0.00096	0.00479	0.00959	0.01438	0.01917	0.02396	0.02876	
			Feed (mm/min)	762	762	762	762	762	762	762	762

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METRIC Baseline Speed and Feed Square & Ball End With and Without Reach		Hardness	Vc (m/min)	DC • (mm)								
				0.1	0.5	1	1.5	2	2.5	3		
N	PLASTICS Polycarbonate, PVC, Polypropylene		Profile 	305	RPM	969416	193883	96942	64628	48471	38777	32314
				(244-366)	Fz	0.00128	0.00639	0.01277	0.01916	0.02555	0.03193	0.03832
					Feed (mm/min)	2477	2477	2477	2477	2477	2477	2477
				244	RPM	775533	155107	77553	51702	38777	31021	25851
				(195-293)	Fz	0.00128	0.00639	0.01277	0.01916	0.02555	0.03193	0.03832
					Feed (mm/min)	1981	1981	1981	1981	1981	1981	1981
S	SUPER ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoloy, Monel 400	≤ 300 Bhn or ≤ 32 HRc	Profile 	18	RPM	58165	11633	5816	3878	2908	2327	1939
				(15-22)	Fz	0.00024	0.00121	0.00242	0.00362	0.00483	0.00604	0.00722
					Feed (mm/min)	28	28	28	28	28	28	28
				14	RPM	43624	8725	4362	2908	2181	1745	1454
				(11-16)	Fz	0.00024	0.00121	0.00242	0.00362	0.00483	0.00604	0.00722
					Feed (mm/min)	21	21	21	21	21	21	21
S	SUPER ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 718, X-750, Incoloy, Waspaloy, Hastelloy, Rene	≤ 400 Bhn or ≤ 43 HRc	Profile 	14	RPM	43624	8725	4362	2908	2181	1745	1454
				(11-16)	Fz	0.00016	0.00080	0.00161	0.00241	0.00322	0.00402	0.00486
					Feed (mm/min)	14	14	14	14	14	14	14
				11	RPM	33930	6786	3393	2262	1696	1357	1131
				(9-13)	Fz	0.00016	0.00080	0.00161	0.00241	0.00322	0.00402	0.00486
					Feed (mm/min)	11	11	11	11	11	11	11
S	TITANIUM ALLOYS Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si	≤ 350 Bhn or ≤ 38 HRc	Profile 	49	RPM	155107	31021	15511	10340	7755	6204	5170
				(39-59)	Fz	0.00027	0.00136	0.00272	0.00408	0.00544	0.00680	0.00821
					Feed (mm/min)	84	84	84	84	84	84	84
				40	RPM	126024	25205	12602	8402	6301	5041	4201
				(32-48)	Fz	0.00027	0.00136	0.00272	0.00408	0.00544	0.00680	0.00821
					Feed (mm/min)	69	69	69	69	69	69	69
S	TITANIUM ALLOYS (DIFFICULT) Ti10Al2Fe3Al, Ti5Al5V5Mo3Cr, Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo, Ti6Al6V6Sn, Ti15V3 Cr3Sn3Al	≤ 440 Bhn or ≤ 47 HRc	Profile 	18	RPM	58165	11633	5816	3878	2908	2327	1939
				(15-22)	Fz	0.00019	0.00096	0.00192	0.00288	0.00384	0.00480	0.00585
					Feed (mm/min)	22	22	22	22	22	22	22
				14	RPM	43624	8725	4362	2908	2181	1745	1454
				(11-16)	Fz	0.00019	0.00096	0.00192	0.00288	0.00384	0.00480	0.00585
					Feed (mm/min)	17	17	17	17	17	17	17
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 Bhn or ≤ 40 HRc	Profile 	53	RPM	169648	33930	16965	11310	8482	6786	5655
				(43-64)	Fz	0.00032	0.00160	0.00320	0.00480	0.00640	0.00800	0.00962
					Feed (mm/min)	109	109	109	109	109	109	109
				43	RPM	135718	27144	13572	9048	6786	5429	4524
				(34-51)	Fz	0.00032	0.00160	0.00320	0.00480	0.00640	0.00800	0.00962
					Feed (mm/min)	87	87	87	87	87	87	87

Note:

- Bhn (Brinell) HRc (Rockwell C)
- when recommended speed exceeds your capability, use maximum available and recalculate mm/min
- rpm = (Vc x 1000) / (DC x 3.14)
- mm/min = Fz x No. of flutes x rpm
- reduce speed and feed for materials harder than listed
- reduce feed and Ae when finish milling (.02 x DC maximum)
- refer to the KYOCERA SGS Tool Wizard® or sgsmicrotools.com for detailed technical charts by series