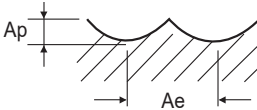


RECOMMENDED CUTTING CONDITIONS



GMK53 SERIES

2 FLUTE BALL NOSE



SFM = Surface Feet per Minute RPM = Revolutions Per Minute IPT = Inches Per Tooth
 IPM = Inches Per Minute Ap : Inch (Axial Depth of Cut) Ae : Inch (Radial Depth of Cut)

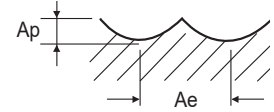
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)								
						1/16	1/8	5/32	3/16	1/4	5/16	3/8	7/16	1/2
P	1-4	Non-alloy steel	0.2D	0.1D	SFM	235	390	420	460	510	575	635	670	700
					IPT	.0004	.0011	.0014	.0017	.0025	.0035	.0045	.0055	.0062
					RPM	14360	11920	10270	9370	7790	7030	6470	5850	5350
					IPM	12	25	29	32	40	49	58	64	67
	5	Non-alloy steel	0.2D	0.1D	SFM	180	300	340	365	415	460	510	535	560
					IPT	.0004	.0011	.0014	.0017	.0025	.0035	.0045	.0055	.0062
					RPM	11000	9170	8310	7440	6340	5620	5200	4670	4280
					IPM	9	19	23	26	32	39	47	51	53
	6-7	Low alloy steel	0.2D	0.1D	SFM	235	390	420	460	510	575	635	670	700
					IPT	.0004	.0011	.0014	.0017	.0025	.0035	.0045	.0055	.0062
					RPM	14360	11920	10270	9370	7790	7030	6470	5850	5350
					IPM	12	25	29	32	40	49	58	64	67
	8-9	Low alloy steel	0.2D	0.1D	SFM	180	300	340	365	415	460	510	535	560
					IPT	.0004	.0011	.0014	.0017	.0025	.0035	.0045	.0055	.0062
					RPM	11000	9170	8310	7440	6340	5620	5200	4670	4280
					IPM	9	19	23	26	32	39	47	51	53
	10	High alloyed steel, and tool steel	0.2D	0.1D	SFM	235	390	420	460	510	575	635	670	700
					IPT	.0004	.0011	.0014	.0017	.0025	.0035	.0045	.0055	.0062
					RPM	14360	11920	10270	9370	7790	7030	6470	5850	5350
					IPM	12	25	29	32	40	49	58	64	67
	11.1	High alloyed steel, and tool steel	0.2D	0.1D	SFM	180	300	340	365	415	460	510	535	560
					IPT	.0004	.0011	.0014	.0017	.0025	.0035	.0045	.0055	.0062
					RPM	11000	9170	8310	7440	6340	5620	5200	4670	4280
					IPM	9	19	23	26	32	39	47	51	53
	11.2	High alloyed steel, and tool steel	0.1D	0.1D	SFM	80	140	170	185	190	200	205	210	210
					IPT	.0005	.0011	.0014	.0017	.0025	.0035	.0045	.0055	.0063
					RPM	4890	4280	4160	3770	2900	2440	2090	1830	1600
					IPM	4	9	12	13	15	17	19	20	20

RECOMMENDED CUTTING CONDITIONS



GMK31 SERIES

2 FLUTE BALL NOSE



SFM = Surface Feet per Minute RPM = Revolutions Per Minute IPT = Inches Per Tooth
IPM = Inches Per Minute Ap : Inch (Axial Depth of Cut) Ae : Inch (Radial Depth of Cut)

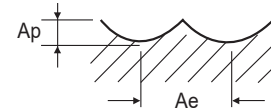
ISO	VDI 3323	Material Description	Ae	Ap	Para- meter	Diameter (Ø)								
						2	3	4	5	6	8	10	12	16
P	1-4	Non-alloy steel	0.2D	0.1D	SFM	285	390	420	460	510	575	635	700	765
					IPT	.0010	.0010	.0014	.0018	.0024	.0035	.0047	.0059	.0071
					RPM	13850	12630	10190	8910	8220	6960	6180	5650	4640
					IPM	28	26	28	31	39	49	58	67	66
	5		0.2D	0.1D	SFM	215	300	340	365	415	465	510	560	605
					IPT	.0010	.0010	.0014	.0018	.0024	.0035	.0047	.0059	.0071
					RPM	10350	9660	8200	7130	6680	5610	4930	4510	3660
					IPM	21	20	22	25	31	40	46	53	52
	6-7	Low alloy steel	0.2D	0.1D	SFM	285	390	420	460	510	575	635	700	765
					IPT	.0010	.0010	.0014	.0018	.0024	.0035	.0047	.0059	.0071
					RPM	13850	12630	10190	8910	8220	6960	6180	5650	4640
					IPM	28	26	28	31	39	49	58	67	66
	8-9		0.2D	0.1D	SFM	215	300	340	365	415	465	510	560	605
					IPT	.0010	.0010	.0014	.0018	.0024	.0035	.0047	.0059	.0071
					RPM	10350	9660	8200	7130	6680	5610	4930	4510	3660
					IPM	21	20	22	25	31	40	46	53	52
	10	High alloyed steel, and tool steel	0.2D	0.1D	SFM	285	390	420	460	510	575	635	700	765
					IPT	.0010	.0010	.0014	.0018	.0024	.0035	.0047	.0059	.0071
					RPM	13850	12630	10190	8910	8220	6960	6180	5650	4640
					IPM	28	26	28	31	39	49	58	67	66
	11.1		0.2D	0.1D	SFM	215	300	340	365	415	465	510	560	605
					IPT	.0010	.0010	.0014	.0018	.0024	.0035	.0047	.0059	.0071
					RPM	10350	9660	8200	7130	6680	5610	4930	4510	3660
					IPM	21	20	22	25	31	40	46	53	52
	11.2	0.1D	0.1D	SFM	90	140	165	185	190	195	205	210	215	
				IPT	.0010	.0010	.0014	.0018	.0024	.0035	.0047	.0059	.0071	
				RPM	4460	4460	4060	3570	3080	2390	1970	1700	1310	
				IPM	9	9	11	13	15	17	19	20	19	

RECOMMENDED CUTTING CONDITIONS



GMK88 SERIES

3 FLUTE BALL NOSE



SFM = Surface Feet per Minute
IPM = Inches Per Minute

RPM = Revolutions Per Minute
Ap : Inch (Axial Depth of Cut)

IPT = Inches Per Tooth
Ae : Inch (Radial Depth of Cut)

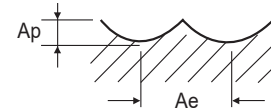
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)							
						1/8	5/32	3/16	1/4	5/16	3/8	7/16	1/2
P	1-4	Non-alloy steel	0.5D	0.8D	SFM	530	530	530	530	530	530	530	530
					IPT	.0010	.0011	.0012	.0016	.0024	.0026	.0027	.0028
					RPM	16200	12960	10800	8100	6480	5400	4630	4050
					IPM	49	43	39	39	47	42	38	34
	5	Non-alloy steel	0.5D	0.8D	SFM	370	370	370	370	370	370	370	370
					IPT	.0010	.0011	.0012	.0016	.0024	.0026	.0027	.0028
					RPM	11310	9050	7540	5650	4520	3770	3230	2830
					IPM	34	30	27	27	33	29	26	24
	6-7	Low alloy steel	0.5D	0.8D	SFM	530	530	530	530	530	530	530	530
					IPT	.0010	.0011	.0012	.0016	.0024	.0026	.0027	.0028
					RPM	16200	12960	10800	8100	6480	5400	4630	4050
					IPM	49	43	39	39	47	42	38	34
	8-9	Low alloy steel	0.5D	0.8D	SFM	370	370	370	370	370	370	370	370
					IPT	.0010	.0011	.0012	.0016	.0024	.0026	.0027	.0028
					RPM	11310	9050	7540	5650	4520	3770	3230	2830
					IPM	34	30	27	27	33	29	26	24
	10 - 11.1	High alloyed steel, and tool steel	0.5D	0.8D	SFM	225	225	225	225	225	225	225	225
					IPT	.0007	.0007	.0008	.0011	.0017	.0018	.0019	.0020
					RPM	6880	5500	4580	3440	2750	2290	1960	1720
					IPM	14	12	11	11	14	12	11	10
M	12 - 13	Stainless steel	0.5D	0.8D	SFM	255	255	255	255	255	255	255	255
					IPT	.0006	.0006	.0010	.0012	.0016	.0018	.0019	.0020
					RPM	7790	6230	5200	3900	3120	2600	2230	1950
					IPM	14	11	16	14	15	14	13	12
	14.1	Stainless steel	0.5D	0.8D	SFM	280	280	280	280	280	280	280	280
					IPT	.0008	.0008	.0010	.0016	.0018	.0020	.0021	.0022
					RPM	8560	6850	5700	4280	3420	2850	2440	2140
					IPM	21	16	17	21	18	17	15	14
	14.2	Stainless steel	0.5D	0.8D	SFM	255	255	255	255	255	255	255	255
					IPT	.0006	.0006	.0010	.0012	.0016	.0018	.0019	.0020
					RPM	7790	6230	5200	3900	3120	2600	2230	1950
					IPM	14	11	16	14	15	14	13	12
K	15 - 20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	0.8D	SFM	390	390	390	390	390	390	390	390
					IPT	.0012	.0013	.0015	.0020	.0029	.0032	.0033	.0034
					RPM	11920	9530	7950	5960	4770	3970	3410	2980
					IPM	43	37	36	36	41	38	34	30
S	31 - 35	Heat Resistant Super Alloys	0.2D	0.3D	SFM	70	70	70	70	70	70	70	70
					IPT	.0006	.0006	.0007	.0011	.0012	.0014	.0015	.0016
					RPM	2140	1710	1430	1070	860	710	610	530
					IPM	4	3	3	4	3	3	3	3
	36 - 37	Titanium Alloys	0.5D	0.3D	SFM	155	155	155	155	155	155	155	155
					IPT	.0007	.0007	.0009	.0015	.0016	.0018	.0019	.0020
					RPM	4740	3790	3160	2370	1890	1580	1350	1180
					IPM	10	8	9	11	9	9	8	7

RECOMMENDED CUTTING CONDITIONS



GMK90 SERIES

4 FLUTE BALL NOSE



SFM = Surface Feet per Minute
IPM = Inches Per Minute

RPM = Revolutions Per Minute
Ap : Inch (Axial Depth of Cut)

IPT = Inches Per Tooth
Ae : Inch (Radial Depth of Cut)

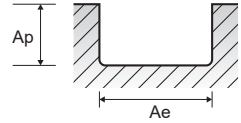
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)							
						1/8	5/32	3/16	1/4	5/16	3/8	7/16	1/2
P	1-4	Non-alloy steel	0.5D	0.8D	SFM	530	530	530	530	530	530	530	530
					IPT	.0010	.0011	.0012	.0016	.0024	.0026	.0027	.0028
					RPM	16200	12960	10800	8100	6480	5400	4630	4050
					IPM	65	57	52	52	62	56	50	45
	5	Non-alloy steel	0.5D	0.8D	SFM	370	370	370	370	370	370	370	370
					IPT	.0010	.0011	.0012	.0016	.0024	.0026	.0027	.0028
					RPM	11310	9050	7540	5650	4520	3770	3230	2830
					IPM	45	40	36	36	43	39	35	32
	6-7	Low alloy steel	0.5D	0.8D	SFM	530	530	530	530	530	530	530	530
					IPT	.0010	.0011	.0012	.0016	.0024	.0026	.0027	.0028
					RPM	16200	12960	10800	8100	6480	5400	4630	4050
					IPM	65	57	52	52	62	56	50	45
	8-9	Low alloy steel	0.5D	0.8D	SFM	370	370	370	370	370	370	370	370
					IPT	.0010	.0011	.0012	.0016	.0024	.0026	.0027	.0028
					RPM	11310	9050	7540	5650	4520	3770	3230	2830
					IPM	45	40	36	36	43	39	35	32
	10 - 11.1	High alloyed steel, and tool steel	0.5D	0.8D	SFM	225	225	225	225	225	225	225	225
					IPT	.0007	.0007	.0008	.0011	.0017	.0018	.0019	.0020
					RPM	6880	5500	4580	3440	2750	2290	1960	1720
					IPM	19	15	15	15	19	16	15	14
M	12 - 13		0.5D	0.8D	SFM	255	255	255	255	255	255	255	255
					IPT	.0006	.0006	.0010	.0012	.0016	.0018	.0019	.0020
					RPM	7790	6230	5200	3900	3120	2600	2230	1950
					IPM	19	15	21	19	20	19	17	16
	14.1	Stainless steel	0.5D	0.8D	SFM	280	280	280	280	280	280	280	280
					IPT	.0008	.0008	.0010	.0016	.0018	.0020	.0021	.0022
					RPM	8560	6850	5700	4280	3420	2850	2440	2140
					IPM	27	22	23	27	25	23	20	19
	14.2		0.5D	0.8D	SFM	255	255	255	255	255	255	255	255
					IPT	.0006	.0006	.0010	.0012	.0016	.0018	.0019	.0020
					RPM	7790	6230	5200	3900	3120	2600	2230	1950
					IPM	19	15	21	19	20	19	17	16
K	15 - 20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	0.8D	SFM	390	390	390	390	390	390	390	390
					IPT	.0012	.0013	.0015	.0020	.0029	.0032	.0033	.0034
					RPM	11920	9530	7950	5960	4770	3970	3410	2980
					IPM	57	50	48	48	55	51	45	41
S	31 - 35	Heat Resistant Super Alloys	0.2D	0.3D	SFM	70	70	70	70	70	70	70	70
					IPT	.0006	.0006	.0007	.0011	.0012	.0014	.0015	.0016
					RPM	2140	1710	1430	1070	860	710	610	530
					IPM	5	4	4	5	4	4	4	3
	36 - 37	Titanium Alloys	0.5D	0.3D	SFM	155	155	155	155	155	155	155	155
					IPT	.0007	.0007	.0009	.0015	.0016	.0018	.0019	.0020
					RPM	4740	3790	3160	2370	1890	1580	1350	1180
					IPM	13	11	11	14	12	11	10	9

RECOMMENDED CUTTING CONDITIONS



GMK86 SERIES

2 FLUTE - SLOTTING



SFM = Surface Feet per Minute
IPM = Inches Per Minute
RPM = Revolutions Per Minute
Ap : Inch (Axial Depth of Cut)
IPT = Inches Per Tooth
Ae : Inch (Radial Depth of Cut)

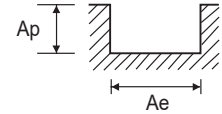
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)							
						1/8	5/32	3/16	1/4	5/16	3/8	7/16	1/2
P	1-4	Non-alloy steel	1.0D	0.2D	SFM	370	400	425	440	445	465	460	460
					IPT	.0004	.0006	.0009	.0012	.0018	.0020	.0020	.0020
					RPM	11310	9780	8660	6720	5440	4740	4020	3510
					IPM	9	12	16	16	20	19	16	14
	5	Non-alloy steel	1.0D	0.05D	SFM	240	255	270	280	280	300	310	310
					IPT	.0003	.0005	.0007	.0010	.0013	.0015	.0016	.0016
					RPM	7330	6230	5500	4280	3420	3060	2710	2370
					IPM	4	6	8	9	9	9	9	8
	6-7	Low alloy steel	1.0D	0.2D	SFM	370	400	425	440	445	465	460	460
					IPT	.0004	.0006	.0009	.0012	.0018	.0020	.0020	.0020
					RPM	11310	9780	8660	6720	5440	4740	4020	3510
					IPM	9	12	16	16	20	19	16	14
	8-9	Low alloy steel	1.0D	0.05D	SFM	240	255	270	280	280	300	310	310
					IPT	.0003	.0005	.0007	.0010	.0013	.0015	.0016	.0016
					RPM	7330	6230	5500	4280	3420	3060	2710	2370
					IPM	4	6	8	9	9	9	9	8
	10	High alloyed steel, and tool steel	1.0D	0.2D	SFM	370	400	425	440	445	465	460	460
					IPT	.0004	.0006	.0009	.0012	.0018	.0020	.0020	.0020
					RPM	11310	9780	8660	6720	5440	4740	4020	3510
					IPM	9	12	16	16	20	19	16	14
	11.1 - 11.2	High alloyed steel, and tool steel	1.0D	0.05D	SFM	240	255	270	280	280	300	310	310
					IPT	.0003	.0005	.0007	.0010	.0013	.0015	.0016	.0016
					RPM	7330	6230	5500	4280	3420	3060	2710	2370
					IPM	4	6	8	9	9	9	9	8
K	15 - 20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.05D	SFM	370	400	425	440	445	465	460	460
					IPT	.0004	.0006	.0009	.0012	.0018	.0020	.0020	.0020
					RPM	11310	9780	8660	6720	5440	4740	4020	3510
					IPM	9	12	16	16	20	19	16	14
N	26 - 28	Copper and Copper Alloys (Bronze / Brass)	1.0D	0.5D	SFM	415	435	415	415	435	415	415	415
					IPT	.0006	.0007	.0010	.0013	.0017	.0022	.0024	.0026
					RPM	12680	10630	8450	6340	5320	4230	3620	3170
					IPM	15	15	17	16	18	19	17	16
	29.1	Non Metallic Materials	1.0D	0.5D	SFM	415	435	415	415	435	415	415	415
					IPT	.0006	.0007	.0010	.0013	.0017	.0022	.0024	.0026
					RPM	12680	10630	8450	6340	5320	4230	3620	3170
					IPM	15	15	17	16	18	19	17	16

RECOMMENDED CUTTING CONDITIONS



GMK32 SERIES

2 FLUTE - SLOTTING



SFM = Surface Feet per Minute
IPM = Inches Per Minute

RPM = Revolutions Per Minute
Ap : Inch (Axial Depth of Cut)

IPT = Inches Per Tooth
Ae : Inch (Radial Depth of Cut)

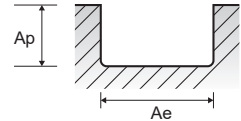
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						1	2	3.5	4	5	6	7	8	9	10
P	1-4	Non-alloy steel	1.0D	D=1 : 0.15D 1<D≤3 : 0.2D D>3 : 0.5D	SFM	215	235	265	300	315	335	340	340	325	325
					IPT	.0002	.0003	.0006	.0008	.0010	.0012	.0015	.0018	.0019	.0020
					RPM	21010	11300	7350	7320	6110	5410	4710	4100	3500	3150
					IPM	7	7	8	11	12	13	14	15	13	13
	5	Non-alloy steel	1.0D	D=1 : 0.15D 1<D≤3 : 0.2D D>3 : 0.5D	SFM	130	155	190	185	185	200	200	200	200	200
					IPT	.0002	.0005	.0007	.0008	.0010	.0013	.0014	.0015	.0015	.0016
					RPM	12730	7480	5270	4460	3630	3240	2770	2430	2160	1940
					IPM	4	7	7	7	7	8	8	7	7	6
	6-7	Low alloy steel	1.0D	D=1 : 0.15D 1<D≤3 : 0.2D D>3 : 0.5D	SFM	215	235	265	300	315	335	340	340	325	325
					IPT	.0002	.0003	.0006	.0008	.0010	.0012	.0015	.0018	.0019	.0020
					RPM	21010	11300	7350	7320	6110	5410	4710	4100	3500	3150
					IPM	7	7	8	11	12	13	14	15	13	13
	8-9	Low alloy steel	1.0D	D=1 : 0.15D 1<D≤3 : 0.2D D>3 : 0.5D	SFM	130	155	190	185	185	200	200	200	200	200
					IPT	.0002	.0005	.0007	.0008	.0010	.0013	.0014	.0015	.0015	.0016
					RPM	12730	7480	5270	4460	3630	3240	2770	2430	2160	1940
					IPM	4	7	7	7	7	8	8	7	7	6
	10	High alloyed steel, and tool steel	1.0D	D=1 : 0.15D 1<D≤3 : 0.2D D>3 : 0.5D	SFM	215	235	265	300	315	335	340	340	325	325
					IPT	.0002	.0003	.0006	.0008	.0010	.0012	.0015	.0018	.0019	.0020
					RPM	21010	11300	7350	7320	6110	5410	4710	4100	3500	3150
					IPM	7	7	8	11	12	13	14	15	13	13
	11.1 - 11.2	High alloyed steel, and tool steel	1.0D	D=1 : 0.15D 1<D≤3 : 0.2D D>3 : 0.5D	SFM	130	155	190	185	185	200	200	200	200	200
					IPT	.0002	.0005	.0007	.0008	.0010	.0013	.0014	.0015	.0015	.0016
					RPM	12730	7480	5270	4460	3630	3240	2770	2430	2160	1940
					IPM	4	7	7	7	7	8	8	7	7	6
M	14.1	Stainless steel	1.0D	D=1 : 0.15D 1<D≤3 : 0.2D D>3 : 0.5D	SFM	110	130	140	155	160	170	170	165	165	165
					IPT	.0001	.0003	.0006	.0008	.0010	.0013	.0015	.0016	.0017	.0019
					RPM	10500	6210	3880	3820	3120	2760	2360	2030	1780	1620
					IPM	3	4	5	6	6	7	7	7	6	6
K	15 - 20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	D=1 : 0.15D 1<D≤3 : 0.2D D>3 : 0.5D	SFM	215	235	265	300	315	335	340	340	325	325
					IPT	.0002	.0003	.0006	.0008	.0010	.0012	.0015	.0018	.0019	.0020
					RPM	21010	11300	7350	7320	6110	5410	4710	4100	3500	3150
					IPM	7	7	8	11	12	13	14	15	13	13
N	26 - 28	Copper and Copper Alloys (Bronze / Brass)	1.0D	0.5D	SFM	315	415	435	435	415	415	415	435	415	415
					IPT	.0002	.0004	.0007	.0007	.0010	.0013	.0015	.0017	.0019	.0022
					RPM	30560	20050	12060	10500	8020	6680	5750	5250	4470	4010
					IPM	9	16	16	16	16	17	17	18	17	17
	29.1	Non Metallic Materials	1.0D	0.5D	SFM	315	415	435	435	415	415	415	435	415	415
					IPT	.0002	.0004	.0007	.0007	.0010	.0013	.0015	.0017	.0019	.0022
					RPM	30560	20050	12060	10500	8020	6680	5750	5250	4470	4010
					IPM	9	16	16	16	16	17	17	18	17	17

RECOMMENDED CUTTING CONDITIONS



GMK89 SERIES

3 FLUTE - SLOTTING



SFM = Surface Feet per Minute
IPM = Inches Per Minute
RPM = Revolutions Per Minute
Ap : Inch (Axial Depth of Cut)
IPT = Inches Per Tooth
Ae : Inch (Radial Depth of Cut)

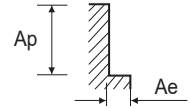
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)							
						1/8	5/32	3/16	1/4	5/16	3/8	7/16	1/2
P	1-4	Non-alloy steel	1.0D	0.8D	SFM	500	500	500	500	500	550	550	550
					IPT	.0002	.0003	.0004	.0006	.0011	.0015	.0017	.0018
					RPM	15280	12220	10190	7640	6110	5600	4800	4200
					IPM	9	11	12	14	20	25	24	23
	5	Non-alloy steel	1.0D	0.8D	SFM	350	350	350	350	350	385	385	385
					IPT	.0002	.0003	.0004	.0006	.0011	.0015	.0017	.0019
					RPM	10700	8560	7130	5350	4280	3920	3360	2940
					IPM	6	8	9	10	14	18	17	17
	6-7	Low alloy steel	1.0D	0.8D	SFM	500	500	500	500	500	550	550	550
					IPT	.0002	.0003	.0004	.0006	.0011	.0015	.0017	.0018
					RPM	15280	12220	10190	7640	6110	5600	4800	4200
					IPM	9	11	12	14	20	25	24	23
	8-9	Low alloy steel	1.0D	0.8D	SFM	350	350	350	350	350	385	385	385
					IPT	.0002	.0003	.0004	.0006	.0011	.0015	.0017	.0019
					RPM	10700	8560	7130	5350	4280	3920	3360	2940
					IPM	6	8	9	10	14	18	17	17
	10 - 11.1	High alloyed steel, and tool steel	1.0D	0.8D	SFM	210	210	210	210	210	230	230	230
					IPT	.0001	.0002	.0003	.0004	.0007	.0011	.0012	.0013
					RPM	6420	5130	4280	3210	2570	2340	2010	1760
					IPM	2	3	4	4	5	8	7	7
M	12 - 13	Stainless steel	1.0D	0.8D	SFM	485	485	485	485	485	485	485	485
					IPT	.0002	.0002	.0004	.0004	.0005	.0009	.0013	.0016
					RPM	14820	11860	9880	7410	5930	4940	4230	3710
					IPM	9	7	12	9	9	13	16	18
	14.1	Stainless steel	1.0D	0.8D	SFM	350	350	350	350	350	350	350	350
					IPT	.0002	.0003	.0005	.0007	.0011	.0018	.0020	.0022
					RPM	10700	8560	7130	5350	4280	3570	3060	2670
					IPM	6	8	11	11	14	19	18	18
	14.2	Stainless steel	1.0D	0.8D	SFM	310	310	310	310	310	310	310	310
					IPT	.0002	.0003	.0005	.0007	.0011	.0018	.0020	.0022
					RPM	9470	7580	6320	4740	3790	3160	2710	2370
					IPM	6	7	9	10	13	17	16	16
K	15 - 20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.8D	SFM	365	365	365	365	365	405	405	405
					IPT	.0002	.0004	.0006	.0008	.0013	.0018	.0020	.0022
					RPM	11150	8920	7440	5580	4460	4130	3540	3090
					IPM	7	11	13	13	17	22	21	20
S	31 - 35	Heat Resistant Super Alloys	1.0D	0.5D	SFM	85	85	85	85	85	85	85	85
					IPT	.0002	.0003	.0003	.0005	.0007	.0012	.0014	.0016
					RPM	2600	2080	1730	1300	1040	870	740	650
					IPM	2	2	2	2	2	3	3	3
	36 - 37	Titanium Alloys	1.0D	0.5D	SFM	190	190	190	190	190	190	190	190
					IPT	.0002	.0003	.0004	.0006	.0010	.0016	.0019	.0021
					RPM	5810	4650	3870	2900	2320	1940	1660	1450
					IPM	3	4	5	5	7	9	9	9

RECOMMENDED CUTTING CONDITIONS



GMK89 SERIES

3 FLUTE - SIDE CUTTING



SFM = Surface Feet per Minute
IPM = Inches Per Minute
RPM = Revolutions Per Minute
Ap : Inch (Axial Depth of Cut)
IPT = Inches Per Tooth
Ae : Inch (Radial Depth of Cut)

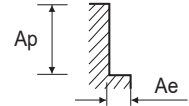
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)							
						1/8	5/32	3/16	1/4	5/16	3/8	7/16	1/2
P	1-4	Non-alloy steel	0.5D	1.0D	SFM	500	500	500	500	500	550	550	550
					IPT	.0002	.0003	.0004	.0006	.0011	.0015	.0017	.0018
					RPM	15280	12220	10190	7640	6110	5600	4800	4200
					IPM	9	11	12	14	20	25	24	23
	5	Non-alloy steel	0.5D	1.0D	SFM	350	350	350	350	350	385	385	385
					IPT	.0002	.0003	.0004	.0006	.0011	.0015	.0017	.0019
					RPM	10700	8560	7130	5350	4280	3920	3360	2940
					IPM	6	8	9	10	14	18	17	17
	6-7	Low alloy steel	0.5D	1.0D	SFM	500	500	500	500	500	550	550	550
					IPT	.0002	.0003	.0004	.0006	.0011	.0015	.0017	.0018
					RPM	15280	12220	10190	7640	6110	5600	4800	4200
					IPM	9	11	12	14	20	25	24	23
	8-9	Low alloy steel	0.5D	1.0D	SFM	350	350	350	350	350	385	385	385
					IPT	.0002	.0003	.0004	.0006	.0011	.0015	.0017	.0019
					RPM	10700	8560	7130	5350	4280	3920	3360	2940
					IPM	6	8	9	10	14	18	17	17
	10 - 11.1	High alloyed steel, and tool steel	0.5D	1.0D	SFM	210	210	210	210	210	230	230	230
					IPT	.0001	.0002	.0003	.0004	.0007	.0011	.0012	.0013
					RPM	6420	5130	4280	3210	2570	2340	2010	1760
					IPM	2	3	4	4	5	8	7	7
M	12 - 13	Stainless steel	0.5D	1.0D	SFM	485	485	485	485	485	485	485	485
					IPT	.0002	.0002	.0004	.0004	.0005	.0009	.0013	.0016
					RPM	14820	11860	9880	7410	5930	4940	4230	3710
					IPM	9	7	12	9	9	13	16	18
	14.1	Stainless steel	0.5D	1.0D	SFM	350	350	350	350	350	350	350	350
					IPT	.0002	.0003	.0005	.0007	.0011	.0018	.0020	.0022
					RPM	10700	8560	7130	5350	4280	3570	3060	2670
					IPM	6	8	11	11	14	19	18	18
	14.2	Stainless steel	0.5D	1.0D	SFM	310	310	310	310	310	310	310	310
					IPT	.0002	.0003	.0005	.0007	.0011	.0018	.0020	.0022
					RPM	9470	7580	6320	4740	3790	3160	2710	2370
					IPM	6	7	9	10	13	17	16	16
K	15 - 20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.0D	SFM	365	365	365	365	365	405	405	405
					IPT	.0002	.0004	.0006	.0008	.0013	.0018	.0020	.0022
					RPM	11150	8920	7440	5580	4460	4130	3540	3090
					IPM	7	11	13	13	17	22	21	20
S	31 - 35	Heat Resistant Super Alloys	0.25D	1.0D	SFM	85	85	85	85	85	85	85	85
					IPT	.0002	.0003	.0003	.0005	.0007	.0012	.0014	.0016
					RPM	2600	2080	1730	1300	1040	870	740	650
					IPM	2	2	2	2	2	3	3	3
	36 - 37	Titanium Alloys	0.35D	1.0D	SFM	190	190	190	190	190	190	190	190
					IPT	.0002	.0003	.0004	.0006	.0010	.0016	.0019	.0021
					RPM	5810	4650	3870	2900	2320	1940	1660	1450
					IPM	3	4	5	5	7	9	9	9

RECOMMENDED CUTTING CONDITIONS



GMK54 SERIES

4 FLUTE - SIDE CUTTING



SFM = Surface Feet per Minute
IPM = Inches Per Minute

RPM = Revolutions Per Minute
Ap : Inch (Axial Depth of Cut)

IPT = Inches Per Tooth
Ae : Inch (Radial Depth of Cut)

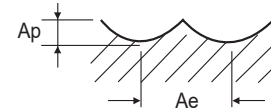
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						1/8	5/32	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4
P	1-4	Non-alloy steel	0.3D	1.5D	SFM	400	400	400	400	400	440	440	440	440	440
					IPT	.0002	.0003	.0004	.0006	.0011	.0015	.0017	.0019	.0021	.0026
					RPM	12220	9780	8150	6110	4890	4480	3840	3360	2690	2240
					IPM	10	12	13	15	22	27	26	26	23	23
	5	Non-alloy steel	0.3D	1.5D	SFM	280	280	280	280	280	310	310	310	310	310
					IPT	.0002	.0003	.0004	.0006	.0011	.0015	.0017	.0019	.0021	.0026
					RPM	8560	6850	5700	4280	3420	3160	2710	2370	1900	1580
					IPM	7	8	9	10	15	19	18	18	16	16
	6-7	Low alloy steel	0.3D	1.5D	SFM	400	400	400	400	400	440	440	440	440	440
					IPT	.0002	.0003	.0004	.0006	.0011	.0015	.0017	.0019	.0021	.0026
					RPM	12220	9780	8150	6110	4890	4480	3840	3360	2690	2240
					IPM	10	12	13	15	22	27	26	26	23	23
	8-9	Low alloy steel	0.3D	1.5D	SFM	280	280	280	280	280	310	310	310	310	310
					IPT	.0002	.0003	.0004	.0006	.0011	.0015	.0017	.0019	.0021	.0026
					RPM	8560	6850	5700	4280	3420	3160	2710	2370	1900	1580
					IPM	7	8	9	10	15	19	18	18	16	16
	10	High alloyed steel, and tool steel	0.3D	1.5D	SFM	400	400	400	400	400	440	440	440	440	440
					IPT	.0002	.0003	.0004	.0006	.0011	.0015	.0017	.0019	.0021	.0026
					RPM	12220	9780	8150	6110	4890	4480	3840	3360	2690	2240
					IPM	10	12	13	15	22	27	26	26	23	23
	11.1	High alloyed steel, and tool steel	0.3D	1.5D	SFM	280	280	280	280	280	310	310	310	310	310
					IPT	.0002	.0003	.0004	.0006	.0011	.0015	.0017	.0019	.0021	.0026
					RPM	8560	6850	5700	4280	3420	3160	2710	2370	1900	1580
					IPM	7	8	9	10	15	19	18	18	16	16
	11.2	High alloyed steel, and tool steel	0.3D	1.5D	SFM	165	165	165	165	165	185	185	185	185	185
					IPT	.0001	.0002	.0003	.0004	.0007	.0011	.0012	.0013	.0015	.0018
					RPM	5040	4030	3360	2520	2020	1890	1620	1410	1130	940
					IPM	2	3	4	4	6	8	8	7	7	7
M	12 - 13	Stainless steel	0.3D	1.5D	SFM	425	425	425	425	425	425	425	425	425	425
					IPT	.0002	.0002	.0004	.0005	.0009	.0013	.0015	.0016	.0018	.0022
					RPM	12990	10390	8660	6490	5200	4330	3710	3250	2600	2160
					IPM	10	8	14	13	19	23	22	21	19	19
	14.1	Stainless steel	0.3D	1.5D	SFM	300	300	300	300	300	300	300	300	300	300
					IPT	.0002	.0003	.0005	.0007	.0011	.0019	.0021	.0022	.0025	.0030
					RPM	9170	7330	6110	4580	3670	3060	2620	2290	1830	1530
					IPM	7	9	12	13	16	23	22	20	18	18
	14.2	Stainless steel	0.3D	1.5D	SFM	270	270	270	270	270	270	270	270	270	270
					IPT	.0002	.0003	.0005	.0007	.0011	.0019	.0021	.0022	.0024	.0030
					RPM	8250	6600	5500	4130	3300	2750	2360	2060	1650	1380
					IPM	7	8	11	12	15	21	20	18	16	17
K	15 - 20	Grey cast iron Nodular cast iron Malleable cast iron	0.3D	1.5D	SFM	295	295	295	295	295	320	320	320	320	320
					IPT	.0002	.0004	.0006	.0008	.0013	.0019	.0021	.0023	.0026	.0032
					RPM	9020	7210	6010	4510	3610	3260	2790	2440	1960	1630
					IPM	7	12	14	14	19	25	23	22	20	21
N	26 - 28	Copper and Copper Alloys (Bronze / Brass)	0.1D	1.5D	SFM	415	435	415	415	435	415	415	415	415	415
					IPT	.0010	.0011	.0014	.0019	.0025	.0032	.0035	.0038	.0049	.0064
					RPM	12680	10630	8450	6340	5320	4230	3620	3170	2540	2110
					IPM	51	47	47	48	53	54	51	48	50	54
	29.1	Non Metallic Materials	0.1D	1.5D	SFM	415	435	415	415	435	415	415	415	415	415
					IPT	.0010	.0011	.0014	.0019	.0025	.0032	.0035	.0038	.0049	.0064
					RPM	12680	10630	8450	6340	5320	4230	3620	3170	2540	2110
					IPM	51	47	47	48	53	54	51	48	50	54
S	31 - 35	Heat Resistant Super Alloys	0.2D	1.0D	SFM	80	80	80	80	80	80	80	80	80	80
					IPT	.0002	.0003	.0005	.0007	.0012	.0018	.0020	.0022	.0025	.0030
					RPM	2440	1960	1630	1220	980	810	700	610	490	410
					IPM	2	2	3	3	5	6	6	5	5	5
	36 - 37	Titanium Alloys	0.3D	1.0D	SFM	215	215	215	215	215	215	215	215	215	215
					IPT	.0002	.0003	.0004	.0006	.0010	.0017	.0019	.0020	.0022	.0027
					RPM	6570	5260	4380	3290	2630	2190	1880	1640	1310	1100
					IPM	5	6	7	8	11	15	14	13	12	12

RECOMMENDED CUTTING CONDITIONS



GMK31 SERIES

2 FLUTE BALL NOSE



SFM = Surface Feet per Minute
IPM = Inches Per Minute
RPM = Revolutions Per Minute
Ap : Inch (Axial Depth of Cut)
Ae : Inch (Radial Depth of Cut)
IPT = Inches Per Tooth

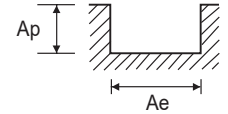
ISO	VDI 3323	Material Description	Ae	Ap	Para- meter	Diameter (Ø)								
						2	3	4	5	6	8	10	12	16
P	1-4	Non-alloy steel	0.2D	0.1D	SFM	285	390	420	460	510	575	635	700	765
					IPT	.0010	.0010	.0014	.0018	.0024	.0035	.0047	.0059	.0071
					RPM	13850	12630	10190	8910	8220	6960	6180	5650	4640
					IPM	28	26	28	31	39	49	58	67	66
	5		0.2D	0.1D	SFM	215	300	340	365	415	465	510	560	605
					IPT	.0010	.0010	.0014	.0018	.0024	.0035	.0047	.0059	.0071
					RPM	10350	9660	8200	7130	6680	5610	4930	4510	3660
					IPM	21	20	22	25	31	40	46	53	52
	6-7	Low alloy steel	0.2D	0.1D	SFM	285	390	420	460	510	575	635	700	765
					IPT	.0010	.0010	.0014	.0018	.0024	.0035	.0047	.0059	.0071
					RPM	13850	12630	10190	8910	8220	6960	6180	5650	4640
					IPM	28	26	28	31	39	49	58	67	66
	8-9		0.2D	0.1D	SFM	215	300	340	365	415	465	510	560	605
					IPT	.0010	.0010	.0014	.0018	.0024	.0035	.0047	.0059	.0071
					RPM	10350	9660	8200	7130	6680	5610	4930	4510	3660
					IPM	21	20	22	25	31	40	46	53	52
	10	High alloyed steel, and tool steel	0.2D	0.1D	SFM	285	390	420	460	510	575	635	700	765
					IPT	.0010	.0010	.0014	.0018	.0024	.0035	.0047	.0059	.0071
					RPM	13850	12630	10190	8910	8220	6960	6180	5650	4640
					IPM	28	26	28	31	39	49	58	67	66
	11.1		0.2D	0.1D	SFM	215	300	340	365	415	465	510	560	605
					IPT	.0010	.0010	.0014	.0018	.0024	.0035	.0047	.0059	.0071
					RPM	10350	9660	8200	7130	6680	5610	4930	4510	3660
					IPM	21	20	22	25	31	40	46	53	52
	11.2	0.1D	0.1D	SFM	90	140	165	185	190	195	205	210	215	
				IPT	.0010	.0010	.0014	.0018	.0024	.0035	.0047	.0059	.0071	
				RPM	4460	4460	4060	3570	3080	2390	1970	1700	1310	
				IPM	9	9	11	13	15	17	19	20	19	

RECOMMENDED CUTTING CONDITIONS



GMK32 SERIES

2 FLUTE SQUARE - SLOTTING



SFM = Surface Feet per Minute
IPM = Inches Per Minute
RPM = Revolutions Per Minute
Ap : Inch (Axial Depth of Cut)
IPT = Inches Per Tooth
Ae : Inch (Radial Depth of Cut)

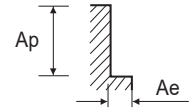
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						1	2	3.5	4	5	6	7	8	9	10
P	1-4	Non-alloy steel	1.0D	D=1 : 0.15D 1<D≤3 : 0.2D D>3 : 0.5D	SFM	215	235	265	300	315	335	340	340	325	325
					IPT	.0002	.0003	.0006	.0008	.0010	.0012	.0015	.0018	.0019	.0020
					RPM	21010	11300	7350	7320	6110	5410	4710	4100	3500	3150
					IPM	7	7	8	11	12	13	14	15	13	13
	5	Non-alloy steel	1.0D	D=1 : 0.15D 1<D≤3 : 0.2D D>3 : 0.5D	SFM	130	155	190	185	185	200	200	200	200	200
					IPT	.0002	.0005	.0007	.0008	.0010	.0013	.0014	.0015	.0015	.0016
					RPM	12730	7480	5270	4460	3630	3240	2770	2430	2160	1940
					IPM	4	7	7	7	7	8	8	7	7	6
	6-7	Low alloy steel	1.0D	D=1 : 0.15D 1<D≤3 : 0.2D D>3 : 0.5D	SFM	215	235	265	300	315	335	340	340	325	325
					IPT	.0002	.0003	.0006	.0008	.0010	.0012	.0015	.0018	.0019	.0020
					RPM	21010	11300	7350	7320	6110	5410	4710	4100	3500	3150
					IPM	7	7	8	11	12	13	14	15	13	13
	8-9	Low alloy steel	1.0D	D=1 : 0.15D 1<D≤3 : 0.2D D>3 : 0.5D	SFM	130	155	190	185	185	200	200	200	200	200
					IPT	.0002	.0005	.0007	.0008	.0010	.0013	.0014	.0015	.0015	.0016
					RPM	12730	7480	5270	4460	3630	3240	2770	2430	2160	1940
					IPM	4	7	7	7	7	8	8	7	7	6
	10	High alloyed steel, and tool steel	1.0D	D=1 : 0.15D 1<D≤3 : 0.2D D>3 : 0.5D	SFM	215	235	265	300	315	335	340	340	325	325
					IPT	.0002	.0003	.0006	.0008	.0010	.0012	.0015	.0018	.0019	.0020
					RPM	21010	11300	7350	7320	6110	5410	4710	4100	3500	3150
					IPM	7	7	8	11	12	13	14	15	13	13
M	14.1	Stainless steel	1.0D	D=1 : 0.15D 1<D≤3 : 0.2D D>3 : 0.5D	SFM	110	130	140	155	160	170	170	165	165	165
					IPT	.0001	.0003	.0006	.0008	.0010	.0013	.0015	.0016	.0017	.0019
					RPM	10500	6210	3880	3820	3120	2760	2360	2030	1780	1620
					IPM	3	4	5	6	6	7	7	7	6	6
K	15 - 20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	D=1 : 0.15D 1<D≤3 : 0.2D D>3 : 0.5D	SFM	215	235	265	300	315	335	340	340	325	325
					IPT	.0002	.0003	.0006	.0008	.0010	.0012	.0015	.0018	.0019	.0020
					RPM	21010	11300	7350	7320	6110	5410	4710	4100	3500	3150
					IPM	7	7	8	11	12	13	14	15	13	13
N	26 - 28	Copper and Copper Alloys (Bronze / Brass)	1.0D	0.5D	SFM	315	415	435	435	415	415	415	435	415	415
					IPT	.0002	.0004	.0007	.0007	.0010	.0013	.0015	.0017	.0019	.0022
					RPM	30560	20050	12060	10500	8020	6680	5750	5250	4470	4010
					IPM	9	16	16	16	16	17	17	18	17	17
	29.1	Non Metallic Materials	1.0D	0.5D	SFM	315	415	435	435	415	415	415	435	415	415
					IPT	.0002	.0004	.0007	.0007	.0010	.0013	.0015	.0017	.0019	.0022
					RPM	30560	20050	12060	10500	8020	6680	5750	5250	4470	4010
					IPM	9	16	16	16	16	17	17	18	17	17

RECOMMENDED CUTTING CONDITIONS



GMK33 SERIES

4 FLUTE SQUARE - SIDE CUTTING



SFM = Surface Feet per Minute
IPM = Inches Per Minute
RPM = Revolutions Per Minute
Ap : Inch (Axial Depth of Cut)
IPT = Inches Per Tooth
Ae : Inch (Radial Depth of Cut)

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)								
						2	3	4	4.5	6	8	10	12	20
P	1-4	Non-alloy steel	D<3 : 0.1D D≥3 : 0.3D	D<3 : 1.0D D≥3 : 1.5D	SFM	400	400	400	400	400	400	440	440	440
					IPT	.0001	.0002	.0003	.0004	.0006	.0011	.0015	.0019	.0026
					RPM	19420	12950	9710	8630	6470	4850	4270	3550	2130
					IPM	9	10	12	14	16	21	26	26	22
	5	Non-alloy steel	D<3 : 0.1D D≥3 : 0.3D	D<3 : 1.0D D≥3 : 1.5D	SFM	280	280	280	280	280	280	310	310	310
					IPT	.0001	.0002	.0003	.0004	.0006	.0011	.0015	.0019	.0026
					RPM	13690	9130	6840	6040	4560	3420	2990	2490	1500
					IPM	6	7	9	10	11	15	18	18	15
	6-7	Low alloy steel	D<3 : 0.1D D≥3 : 0.3D	D<3 : 1.0D D≥3 : 1.5D	SFM	400	400	400	400	400	400	440	440	440
					IPT	.0001	.0002	.0003	.0004	.0006	.0011	.0015	.0019	.0026
					RPM	19420	12950	9710	8630	6470	4850	4270	3550	2130
					IPM	9	10	12	14	16	21	26	26	22
	8-9	Low alloy steel	D<3 : 0.1D D≥3 : 0.3D	D<3 : 1.0D D≥3 : 1.5D	SFM	280	280	280	280	280	280	310	310	310
					IPT	.0001	.0002	.0003	.0004	.0006	.0011	.0015	.0019	.0026
					RPM	13690	9130	6840	6040	4560	3420	2990	2490	1500
					IPM	6	7	9	10	11	15	18	18	15
	10	High alloyed steel, and tool steel	D<3 : 0.1D D≥3 : 0.3D	D<3 : 1.0D D≥3 : 1.5D	SFM	400	400	400	400	400	400	440	440	440
					IPT	.0001	.0002	.0003	.0004	.0006	.0011	.0015	.0019	.0026
					RPM	19420	12950	9710	8630	6470	4850	4270	3550	2130
					IPM	9	10	12	14	16	21	26	26	22
	11.1	High alloyed steel, and tool steel	D<3 : 0.1D D≥3 : 0.3D	D<3 : 1.0D D≥3 : 1.5D	SFM	280	280	280	280	280	280	310	310	310
					IPT	.0001	.0002	.0003	.0004	.0006	.0011	.0015	.0019	.0026
					RPM	13690	9130	6840	6040	4560	3420	2990	2490	1500
					IPM	6	7	9	10	11	15	18	18	15
	11.2	High alloyed steel, and tool steel	D<3 : 0.1D D≥3 : 0.3D	D<3 : 1.0D D≥3 : 1.5D	SFM	165	165	165	165	165	165	185	185	185
					IPT	.0001	.0001	.0002	.0003	.0004	.0007	.0011	.0013	.0018
					RPM	8120	5410	4060	3560	2710	2030	1780	1490	890
					IPM	3	3	4	4	5	6	8	7	6
M	12 - 13	Stainless steel	D<3 : 0.1D D≥3 : 0.3D	D<3 : 1.0D D≥3 : 1.5D	SFM	425	425	425	425	425	425	425	425	425
					IPT	.0001	.0002	.0002	.0003	.0005	.0009	.0013	.0016	.0022
					RPM	20530	13690	10270	9160	6840	5130	4110	3420	2050
					IPM	8	9	10	11	14	18	22	22	18
	14.1	Stainless steel	D<3 : 0.1D D≥3 : 0.3D	D<3 : 1.0D D≥3 : 1.5D	SFM	300	300	300	300	300	300	300	300	300
					IPT	.0001	.0002	.0003	.0004	.0007	.0011	.0019	.0022	.0030
					RPM	14640	9760	7320	6470	4880	3660	2930	2440	1460
					IPM	7	8	9	10	14	16	22	22	18
	14.2	Stainless steel	D<3 : 0.1D D≥3 : 0.3D	D<3 : 1.0D D≥3 : 1.5D	SFM	270	270	270	270	270	270	270	270	270
					IPT	.0001	.0002	.0003	.0004	.0007	.0011	.0019	.0022	.0030
					RPM	13210	8810	6610	5820	4400	3300	2640	2200	1320
					IPM	6	7	8	9	12	15	20	19	16
K	15 - 20	Grey cast iron Nodular cast iron Malleable cast iron	D<3 : 0.1D D≥3 : 0.3D	D<3 : 1.0D D≥3 : 1.5D	SFM	295	295	295	295	295	295	320	320	320
					IPT	.0002	.0002	.0004	.0005	.0008	.0013	.0019	.0023	.0032
					RPM	14320	9550	7160	6360	4780	3580	3120	2600	1560
					IPM	9	9	11	13	15	19	24	24	20
N	26 - 28	Copper and Copper Alloys (Bronze / Brass)	0.1D	1.5D	SFM	415	415	435	415	415	435	415	415	415
					IPT	.0006	.0009	.0011	.0014	.0019	.0025	.0032	.0038	.0064
					RPM	20050	13370	10500	8950	6690	5250	4010	3340	2010
					IPM	51	51	48	50	51	52	51	51	51
	29.1	Non Metallic Materials	0.1D	1.5D	SFM	415	415	435	415	415	435	415	415	415
					IPT	.0006	.0009	.0011	.0014	.0019	.0025	.0032	.0038	.0064
					RPM	20050	13370	10500	8950	6690	5250	4010	3340	2010
					IPM	51	51	48	50	51	52	51	51	51
S	31 - 35	Heat Resistant Super Alloys	D<3 : 0.1D D≥3 : 0.2D	1.0D	SFM	80	80	80	80	80	80	80	80	80
					IPT	.0001	.0002	.0003	.0004	.0007	.0012	.0018	.0022	.0030
					RPM	3980	2650	1990	1730	1330	1000	800	660	400
					IPM	2	2	2	3	4	5	6	6	5
	36 - 37	Titanium Alloys	D<3 : 0.1D D≥3 : 0.2D	1.0D	SFM	215	215	215	215	215	215	215	215	215
					IPT	.0001	.0002	.0003	.0004	.0006	.0010	.0017	.0020	.0027
					RPM	10350	6900	5170	4640	3450	2590	2070	1720	1040
					IPM	3	4	6	7	9	10	14	14	11