X-POWER PRO END MILLS

RECOMMENDED CUTTING CONDITIONS

GM815 SERIES — 4 FLUTE BALL NOSE

NORMAL SPEED

ISO	VDI 3323	Material Description	Ae	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0
P	1-4	Non-alloy steel	0.2D	SFM(Vc)	345	425	460	490	560	625	690	755	820
				IPT(fz)	.0005	.0008	.0010	.0013	.0018	.0027	.0035	.0044	.0054
				RPM	16740	13750	11160	9510	9060	7580	6700	6110	4970
				IPM(FEED)	34	41	46	51	64	81	95	107	107
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
	5		0.2D	SFM(Vc)	245	330	360	395	445	490	560	605	655
				IPT(fz)	.0004	.0007	.0009	.0012	.0018	.0024	.0029	.0035	.0042
				RPM	11890	10670	8730	7670	7200	5940	5430	4890	3970
				IPM(FEED)	19	28	33	36	51	56	64	69	66
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
	6-7	Low alloy steel	0.2D	SFM(Vc)	345	425	460	490	560	625	690	755	820
				IPT(fz)	.0005	.0008	.0010	.0013	.0018	.0027	.0035	.0044	.0054
				RPM	16740	13750	11160	9510	9060	7580	6700	6110	4970
				IPM(FEED)	34	41	46	51	64	81	95	107	107
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
	8-9		0.2D	SFM(Vc)	245	330	360	395	445	490	560	605	655
				IPT(fz)	.0004	.0007	.0009	.0012	.0018	.0024	.0029	.0035	.0042
				RPM	11890	10670	8730	7670	7200	5940	5430	4890	3970
				IPM(FEED)	19	28	33	36	51	56	64	69	66
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
	10	High alloyed steel, and tool steel	0.2D	SFM(Vc)	345	425	460	490	560	625	690	755	820
				IPT(fz)	.0005	.0008	.0010	.0013	.0018	.0027	.0035	.0044	.0054
				RPM	16740	13750	11160	9510	9060	7580	6700	6110	4970
				IPM(FEED)	34	41	46	51	64	81	95	107	107
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
	11.1 - 11.2		0.2D	SFM(Vc)	245	330	360	395	445	490	560	605	655
				IPT(fz)	.0004	.0007	.0009	.0012	.0018	.0024	.0029	.0035	.0042
				RPM	11890	10670	8730	7670	7200	5940	5430	4890	3970
				IPM(FEED)	19	28	33	36	51	56	64	69	66
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.2D	SFM(Vc)	345	425	460	490	560	625	690	755	820
				IPT(fz)	.0005	.0008	.0010	.0013	.0018	.0027	.0035	.0044	.0054
				RPM	16740	13750	11160	9510	9060	7580	6700	6110	4970
				IPM(FEED)	34	41	46	51	64	81	95	107	107
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
H	38.1 - 39.2	Hardened steel	0.1D	SFM(Vc)	100	150	180	195	215	215	215	230	230
				IPT(fz)	.0003	.0005	.0006	.0007	.0009	.0013	.0016	.0021	.0027
				RPM	4850	4850	4370	3780	3480	2610	2090	1860	1400
				IPM(FEED)	6	9	11	11	12	13	13	16	15
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
	40	Chilled Cast Iron	0.2D	SFM(Vc)	245	330	360	395	445	490	560	605	655
				IPT(fz)	.0004	.0007	.0009	.0012	.0018	.0024	.0029	.0035	.0042
				RPM	11890	10670	8730	7670	7200	5940	5430	4890	3970
				IPM(FEED)	19	28	33	36	51	56	64	69	66
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
	41	Hardened Cast Iron	0.1D	SFM(Vc)	100	150	180	195	215	215	215	230	230
				IPT(fz)	.0003	.0005	.0006	.0007	.0009	.0013	.0016	.0021	.0027
				RPM	4850	4850	4370	3780	3480	2610	2090	1860	1400
				IPM(FEED)	6	9	11	11	12	13	13	16	15
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3

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

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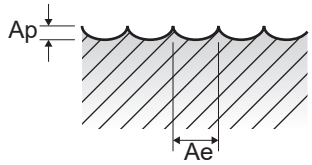

X-POWER PRO END MILLS

RECOMMENDED CUTTING CONDITIONS

GM815 SERIES — 4 FLUTE BALL NOSE

HIGH SPEED

ISO	VDI 3323	Material Description	Ae	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0
P	1-5	Non-alloy steel	0.05D	SFM(Vc)	460	690	900	1130	1360	1445	1510	1590	1655
				IPT(fz)	.0010	.0014	.0021	.0025	.0028	.0035	.0041	.0047	.0054
				RPM	22320	22320	21830	21930	21990	17530	14650	12860	10040
				IPM(FEED)	91	126	179	221	246	248	242	243	215
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
	6-9	Low alloy steel	0.05D	SFM(Vc)	460	690	900	1130	1360	1445	1510	1590	1655
				IPT(fz)	.0010	.0014	.0021	.0025	.0028	.0035	.0041	.0047	.0054
				RPM	22320	22320	21830	21930	21990	17530	14650	12860	10040
				IPM(FEED)	91	126	179	221	246	248	242	243	215
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
	10 - 11.2	High alloyed steel, and tool steel	0.05D	SFM(Vc)	460	690	900	1130	1360	1445	1510	1590	1655
				IPT(fz)	.0010	.0014	.0021	.0025	.0028	.0035	.0041	.0047	.0054
				RPM	22320	22320	21830	21930	21990	17530	14650	12860	10040
				IPM(FEED)	91	126	179	221	246	248	242	243	215
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	SFM(Vc)	460	690	900	1130	1360	1445	1510	1590	1655
				IPT(fz)	.0010	.0014	.0021	.0025	.0028	.0035	.0041	.0047	.0054
				RPM	22320	22320	21830	21930	21990	17530	14650	12860	10040
				IPM(FEED)	91	126	179	221	246	248	242	243	215
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
H	38.1 - 39.2	Hardened steel	0.05D	SFM(Vc)	460	560	590	655	690	720	755	785	820
				IPT(fz)	.0007	.0009	.0013	.0015	.0018	.0022	.0025	.0028	.0031
				RPM	22320	18110	14310	12710	11160	8730	7330	6350	4970
				IPM(FEED)	60	65	72	76	79	77	74	71	62
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
	40	Chilled Cast Iron	0.05D	SFM(Vc)	460	690	900	1130	1360	1445	1510	1590	1655
				IPT(fz)	.0010	.0014	.0021	.0025	.0028	.0035	.0041	.0047	.0054
				RPM	22320	22320	21830	21930	21990	17530	14650	12860	10040
				IPM(FEED)	91	126	179	221	246	248	242	243	215
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
	41	Hardened Cast Iron	0.05D	SFM(Vc)	460	560	590	655	690	720	755	785	820
				IPT(fz)	.0007	.0009	.0013	.0015	.0018	.0022	.0025	.0028	.0031
				RPM	22320	18110	14310	12710	11160	8730	7330	6350	4970
				IPM(FEED)	60	65	72	76	79	77	74	71	62
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3

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