



Being the best through innovation



HSS-PM

TANK-POWER END MILLS

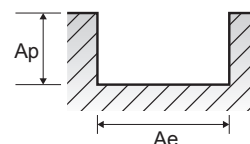
- High Toughness for Stainless Steels, Carbon steels and Alloy Steels

E9983, E9984 SERIES

2 FLUTE - SLOTTING

SFM(Vc) = ft./min.
 IPT(fz) = in./tooth
 RPM = rev./min.
 IPM(Feed) = in./min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)											
						1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	7/8	1		
P	1	Non-alloy steel	1.0D	0.5D	SFM (Vc)	150	185	205	205	205	215	215	195	180	185		
					IPT (fz)	.0006	.0011	.0014	.0019	.0024	.0028	.0035	.0040	.0039	.0037		
					RPM	4600	3800	3150	2500	2100	1650	1300	1000	800	710		
	2		1.0D	0.5D	SFM (Vc)	125	155	175	170	175	175	180	160	155	155		
					IPT (fz)	.0007	.0011	.0014	.0020	.0025	.0030	.0033	.0038	.0038	.0040		
					RPM	3800	3150	2650	2100	1800	1350	1100	820	680	590		
	3-4		1.0D	0.5D	SFM (Vc)	105	130	135	140	140	135	140	140	130	120		
					IPT (fz)	.0007	.0012	.0016	.0020	.0026	.0033	.0036	.0037	.0038	.0042		
					RPM	3150	2600	2100	1700	1450	1050	860	710	560	470		
	5		1.0D	0.5D	SFM (Vc)	70	80	90	90	90	85	90	90	85	90		
					IPT (fz)	.0007	.0011	.0014	.0018	.0023	.0029	.0034	.0036	.0036	.0037		
RPM		2150			1650	1350	1100	910	670	540	450	380	340				
P	6	Low alloy steel	1.0D	0.5D	SFM (Vc)	125	155	175	170	175	175	180	160	155	155		
					IPT (fz)	.0007	.0011	.0014	.0020	.0025	.0030	.0033	.0038	.0038	.0040		
					RPM	3800	3150	2650	2100	1800	1350	1100	820	680	590		
	7		1.0D	0.5D	SFM (Vc)	105	130	135	140	140	135	140	140	130	120		
					IPT (fz)	.0007	.0012	.0016	.0020	.0026	.0033	.0036	.0037	.0038	.0042		
					RPM	3150	2600	2100	1700	1450	1050	860	710	560	470		
	8		1.0D	0.5D	SFM (Vc)	70	80	90	90	90	85	90	90	85	90		
					IPT (fz)	.0007	.0011	.0014	.0018	.0023	.0029	.0034	.0036	.0036	.0037		
					RPM	2150	1650	1350	1100	910	670	540	450	380	340		
	9		1.0D	0.5D	SFM (Vc)	55	65	70	70	70	70	70	70	70	60		
					IPT (fz)	.0007	.0010	.0014	.0018	.0024	.0028	.0033	.0035	.0033	.0036		
RPM		1650			1350	1050	860	720	530	430	360	300	240				
P	10	High alloyed steel, and tool steel	1.0D	0.5D	SFM (Vc)	125	155	175	170	175	175	180	160	155	155		
					IPT (fz)	.0007	.0011	.0014	.0020	.0025	.0030	.0033	.0038	.0038	.0040		
					RPM	3800	3150	2650	2100	1800	1350	1100	820	680	590		
	11.1		1.0D	0.5D	SFM (Vc)	70	80	90	90	90	85	90	90	85	90		
					IPT (fz)	.0007	.0011	.0014	.0018	.0023	.0029	.0034	.0036	.0036	.0037		
					RPM	2150	1650	1350	1100	910	670	540	450	380	340		
	M		14.1	Stainless steel	1.0D	0.5D	SFM (Vc)	55	65	70	70	70	70	70	70	70	60
							IPT (fz)	.0007	.0010	.0014	.0018	.0024	.0028	.0033	.0035	.0033	.0036
							RPM	1650	1350	1050	860	720	530	430	360	300	240
	K		15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.5D	SFM (Vc)	125	155	175	170	175	175	180	160	155	155
							IPT (fz)	.0007	.0011	.0014	.0020	.0025	.0030	.0033	.0038	.0038	.0040
RPM		3800					3150	2650	2100	1800	1350	1100	820	680	590		



CBN
END MILLS

i-Xmill
END MILLS

i-SMART
MODULAR
END MILLS

X5070
END MILLS

4G MILL
END MILLS

X-POWER
PRO
END MILLS

TitaNox-
POWER
END MILLS

JET-POWER
END MILLS

V7 PLUS A
END MILLS

V7 MILL
INOX

ALU-POWER
HPC
END MILLS

ALU-
POWER
END MILLS

D-POWER
GRAPHITE
END MILLS

STANDARD
CARBIDE

ONLY ONE
COATED PM60
END MILLS

SINE-
POWER

TANK-
POWER
END MILLS

STANDARD
COBALT &
HSS

TECHNICAL
DATA



TANK-POWER END MILLS

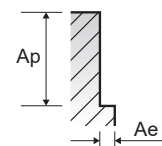
RECOMMENDED CUTTING CONDITIONS

E9985, E9986 SERIES

4 FLUTE - SIDE CUTTING

SFM(Vc) = ft./min.
IPT(fz) = in./tooth
RPM = rev./min.
IPM(Feed) = in./min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	7/8	1
P	1	Non-alloy steel	0.1D	1.5D	SFM(Vc)	205	225	250	255	245	250	260	275	235	260
					IPT(fz)	.0007	.0011	.0015	.0018	.0025	.0029	.0031	.0032	.0038	.0037
					RPM	6300	4600	3800	3100	2500	1900	1600	1400	1030	1000
	2		0.1D	1.5D	SFM(Vc)	195	200	215	215	215	225	230	225	215	215
					IPT(fz)	.0006	.0010	.0014	.0018	.0023	.0027	.0030	.0033	.0033	.0036
					RPM	6000	4100	3300	2600	2200	1720	1410	1150	930	830
	3-4		0.1D	1.5D	SFM(Vc)	140	150	165	165	165	165	165	165	165	160
					IPT(fz)	.0006	.0010	.0013	.0018	.0022	.0028	.0033	.0035	.0036	.0035
					RPM	4250	3040	2500	2000	1680	1270	1000	830	680	620
	5		0.1D	1.5D	SFM(Vc)	90	100	110	115	115	115	115	115	110	110
					IPT(fz)	.0007	.0010	.0014	.0017	.0022	.0027	.0032	.0031	.0034	.0033
RPM		2700			2070	1700	1400	1180	860	690	580	470	420		
6	0.1D	1.5D	SFM(Vc)	195	200	215	215	215	225	230	225	215	215		
			IPT(fz)	.0006	.0010	.0014	.0018	.0023	.0027	.0030	.0033	.0033	.0036		
			RPM	6000	4100	3300	2600	2200	1720	1410	1150	930	830		
7	0.1D	1.5D	SFM(Vc)	140	150	165	165	165	165	165	165	155	160		
			IPT(fz)	.0006	.0010	.0013	.0018	.0022	.0028	.0033	.0035	.0036	.0035		
			RPM	4250	3040	2500	2000	1680	1270	1000	830	680	620		
8	0.1D	1.5D	SFM(Vc)	90	100	110	115	115	115	115	115	110	110		
			IPT(fz)	.0007	.0010	.0014	.0017	.0022	.0027	.0032	.0031	.0034	.0033		
			RPM	2700	2070	1700	1400	1180	860	690	580	470	420		
9	0.1D	1.5D	SFM(Vc)	75	85	90	95	95	90	100	90	90	95		
			IPT(fz)	.0005	.0009	.0013	.0016	.0020	.0010	.0027	.0030	.0033	.0034		
			RPM	2320	1780	1400	1150	960	690	620	470	390	360		
10	0.1D	1.5D	SFM(Vc)	195	200	215	215	215	225	230	225	215	215		
			IPT(fz)	.0006	.0010	.0014	.0018	.0023	.0027	.0030	.0033	.0033	.0036		
			RPM	6000	4100	3300	2600	2200	1720	1410	1150	930	830		
11.1	0.1D	1.5D	SFM(Vc)	90	100	110	115	115	115	115	115	110	110		
			IPT(fz)	.0007	.0010	.0014	.0017	.0022	.0027	.0032	.0031	.0034	.0033		
			RPM	2700	2070	1700	1400	1180	860	690	580	470	420		
M	14.1	Stainless steel	0.1D	0.5D	SFM(Vc)	75	85	90	95	95	90	100	90	90	95
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	SFM(Vc)	195	200	215	215	215	225	230	225	215	215
					IPT(fz)	.0006	.0010	.0014	.0018	.0023	.0027	.0030	.0033	.0033	.0036
					RPM	6000	4100	3300	2600	2200	1720	1410	1150	930	830
					SFM(Vc)	14	16	18	19	21	19	17	15	12	12



YG TANK-POWER END MILLS

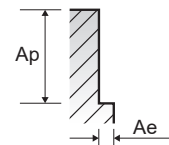
RECOMMENDED CUTTING CONDITIONS

E9988 SERIES

3&4 FLUTE - SIDE CUTTING

SFM(Vc) = ft./min.
IPT(fz) = in./tooth
RPM = rev./min.
IPM(Feed) = in./min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)							
						1/4	5/16	3/8	1/2	5/8	3/4	7/8	1
P	1-2	Non-alloy steel	0.3D	1.5D	SFM (Vc)	250	250	265	240	215	175	165	165
					IPT (fz)	.0007	.0009	.0010	.0017	.0028	.0054	.0058	.0075
					RPM	3850	3050	2700	1850	1300	900	720	630
	3-4		0.3D	1.5D	SFM (Vc)	165	170	165	155	140	115	110	110
					IPT (fz)	.0007	.0010	.0012	.0018	.0034	.0068	.0074	.0096
					RPM	2500	2100	1700	1200	850	580	480	420
	5		0.3D	1.5D	SFM (Vc)	125	140	140	125	115	95	85	90
					IPT (fz)	.0006	.0007	.0009	.0014	.0026	.0055	.0058	.0075
					RPM	1900	1700	1450	960	690	480	380	340
	6		0.3D	1.5D	SFM (Vc)	250	250	265	240	215	175	165	165
					IPT (fz)	.0007	.0009	.0010	.0017	.0028	.0054	.0058	.0075
					RPM	3850	3050	2700	1850	1300	900	720	630
7	0.3D	1.5D	SFM (Vc)	165	170	165	155	140	115	110	110		
			IPT (fz)	.0007	.0010	.0012	.0018	.0034	.0068	.0074	.0096		
			RPM	2500	2100	1700	1200	850	580	480	420		
8-9	0.3D	1.5D	SFM (Vc)	125	140	140	125	115	95	85	90		
			IPT (fz)	.0006	.0007	.0009	.0014	.0026	.0055	.0058	.0075		
			RPM	1900	1700	1450	960	690	480	380	340		
10	0.3D	1.5D	SFM (Vc)	250	250	265	240	215	175	165	165		
			IPT (fz)	.0007	.0009	.0010	.0017	.0028	.0054	.0058	.0075		
			RPM	3850	3050	2700	1850	1300	900	720	630		
11.1	0.3D	1.5D	SFM (Vc)	125	140	140	125	115	95	85	90		
			IPT (fz)	.0006	.0007	.0009	.0014	.0026	.0055	.0058	.0075		
			RPM	1900	1700	1450	960	690	480	380	340		
M	14.1	Stainless steel	0.3D	1.5D	SFM (Vc)	125	140	140	125	115	95	85	90
					IPT (fz)	.0006	.0007	.0009	.0014	.0026	.0055	.0058	.0075
					RPM	1900	1700	1450	960	690	480	380	340
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.3D	1.5D	SFM (Vc)	250	250	265	240	215	175	165	165
					IPT (fz)	.0007	.0009	.0010	.0017	.0028	.0054	.0058	.0075
					RPM	3850	3050	2700	1850	1300	900	720	630
					IPM (FEED)	8	8	9	10	11	15	17	19



CBN END MILLS

i-Xmill END MILLS

i-SMART MODULAR END MILLS

X5070 END MILLS

4G MILL END MILLS

X-POWER PRO END MILLS

TitaNox-POWER END MILLS

JET-POWER END MILLS

V7 PLUS A END MILLS

V7 MILL INOX

ALU-POWER HPC END MILLS

ALU-POWER END MILLS

D-POWER GRAPHITE END MILLS

STANDARD CARBIDE

ONLY ONE COATED PM60 END MILLS

SINE-POWER

TANK-POWER END MILLS

STANDARD COBALT & HSS

TECHNICAL DATA

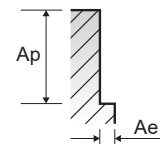


E9990, E9991, E9A86, E9A87, E9921 SERIES

MULTI FLUTE - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)								
						1/4	3/8	1/2	5/8	3/4	7/8	1		
P	1-2	Non-alloy steel	0.5D	1.5D	SFM (Vc)	175	185	190	190	190	195	195		
					IPT (fz)	.0010	.0017	.0024	.0031	.0038	.0034	.0038		
					RPM	2650	1900	1450	1150	960	850	740		
	3-4		0.5D	1.5D	SFM (Vc)	135	145	145	150	155	140	145		
					IPT (fz)	.0010	.0017	.0026	.0031	.0037	.0037	.0038		
					RPM	2050	1500	1100	910	780	620	560		
	5		0.5D	1.5D	SFM (Vc)	95	105	105	105	105	100	105		
					IPT (fz)	.0010	.0015	.0025	.0031	.0037	.0035	.0037		
					RPM	1450	1050	810	630	540	450	400		
	6		0.5D	1.5D	SFM (Vc)	175	185	190	190	190	195	195		
					IPT (fz)	.0010	.0017	.0024	.0031	.0038	.0034	.0038		
RPM		2650			1900	1450	1150	960	850	740				
7	0.5D	1.5D	SFM (Vc)	135	145	145	150	155	140	145				
			IPT (fz)	.0010	.0017	.0026	.0031	.0037	.0037	.0038				
			RPM	2050	1500	1100	910	780	620	560				
8	0.5D	1.5D	SFM (Vc)	95	105	105	105	105	100	105				
			IPT (fz)	.0010	.0015	.0025	.0031	.0037	.0035	.0037				
			RPM	1450	1050	810	630	540	450	400				
9	0.5D	1.5D	SFM (Vc)	80	85	85	85	85	85	80				
			IPT (fz)	.0009	.0015	.0023	.0029	.0034	.0033	.0038				
			RPM	1200	890	670	530	450	380	320				
10	0.5D	1.5D	SFM (Vc)	175	185	190	190	190	195	195				
			IPT (fz)	.0010	.0017	.0024	.0031	.0038	.0034	.0038				
			RPM	2650	1900	1450	1150	960	850	740				
11.1	0.5D	1.5D	SFM (Vc)	95	105	105	105	105	100	105				
			IPT (fz)	.0010	.0015	.0025	.0031	.0037	.0035	.0037				
			RPM	1450	1050	810	630	540	450	400				
M	14.1	Stainless steel	0.5D	1.5D	SFM (Vc)	125	125	125	125	125	125	125		
					IPT (fz)	.0010	.0017	.0024	.0032	.0038	.0034	.0038		
					RPM	1900	1270	950	760	630	540	470		
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	SFM (Vc)	175	185	190	190	190	195	195		
					IPT (fz)	.0010	.0017	.0024	.0031	.0038	.0034	.0038		
					RPM	2650	1900	1450	1150	960	850	740		
						IPM (FEED)	8	13	14	14	14	14	14	14

SFM(Vc) = ft./min.
 IPT(fz) = in./tooth
 RPM = rev./min.
 IPM(Feed) = in./min.

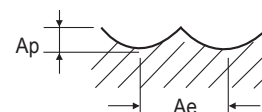


E9992 SERIES

2 FLUTE BALL NOSE - PROFILING

SFM(Vc) = ft./min.
 IPT(fz) = in./tooth
 RPM = rev./min.
 IPM(Feed) = in./min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	7/8	1
P	1	Non-alloy steel	0.5D	0.2D	SFM(Vc)	225	250	265	265	270	275	260	265	250	235
					IPT(fz)	.0009	.0015	.0021	.0028	.0036	.0042	.0052	.0054	.0057	.0059
					RPM	6800	5100	4050	3250	2750	2100	1600	1350	1100	890
	2		0.5D	0.2D	SFM(Vc)	175	195	205	210	205	210	205	205	200	180
					IPT(fz)	.0008	.0013	.0018	.0024	.0032	.0038	.0044	.0047	.0049	.0051
					RPM	5300	4000	3150	2550	2100	1600	1250	1050	870	690
	3-4		0.5D	0.2D	SFM(Vc)	115	130	135	140	140	145	140	135	130	115
					IPT(fz)	.0006	.0011	.0015	.0020	.0026	.0031	.0035	.0039	.0041	.0044
					RPM	3550	2650	2100	1700	1450	1100	860	700	560	450
	5		0.5D	0.2D	SFM(Vc)	60	65	70	70	70	70	70	70	70	60
					IPT(fz)	.0006	.0010	.0014	.0017	.0024	.0027	.0033	.0035	.0035	.0036
RPM		1850			1350	1100	860	700	530	430	360	300	240		
6	0.5D	0.2D	SFM(Vc)	175	195	205	210	205	210	205	205	200	180		
			IPT(fz)	.0008	.0013	.0018	.0024	.0032	.0038	.0044	.0047	.0049	.0051		
			RPM	5300	4000	3150	2550	2100	1600	1250	1050	870	690		
7	0.5D	0.2D	SFM(Vc)	115	130	135	140	140	145	140	135	130	115		
			IPT(fz)	.0006	.0011	.0015	.0020	.0026	.0031	.0035	.0039	.0041	.0044		
			RPM	3550	2650	2100	1700	1450	1100	860	700	560	450		
8-9	0.5D	0.2D	SFM(Vc)	60	65	70	70	70	70	70	70	70	60		
			IPT(fz)	.0006	.0010	.0014	.0017	.0024	.0027	.0033	.0035	.0035	.0036		
			RPM	1850	1350	1100	860	700	530	430	360	300	240		
10	0.5D	0.2D	SFM(Vc)	175	195	205	210	205	210	205	205	200	180		
			IPT(fz)	.0008	.0013	.0018	.0024	.0032	.0038	.0044	.0047	.0049	.0051		
			RPM	5300	4000	3150	2550	2100	1600	1250	1050	870	690		
11.1	0.5D	0.2D	SFM(Vc)	60	65	70	70	70	70	70	70	70	60		
			IPT(fz)	.0006	.0010	.0014	.0017	.0024	.0027	.0033	.0035	.0035	.0036		
			RPM	1850	1350	1100	860	700	530	430	360	300	240		
M 14.1	0.5D	0.2D	SFM(Vc)	60	65	70	70	70	70	70	70	70	60		
			IPT(fz)	.0006	.0010	.0014	.0017	.0024	.0027	.0033	.0035	.0035	.0036		
			RPM	1850	1350	1100	860	700	530	430	360	300	240		
K 15-20	0.5D	0.2D	SFM(Vc)	175	195	205	210	205	210	205	205	200	180		
			IPT(fz)	.0008	.0013	.0018	.0024	.0032	.0038	.0044	.0047	.0049	.0051		
			RPM	5300	4000	3150	2550	2100	1600	1250	1050	870	690		



※ The Feed, in long & extra long types, should be reduced by around 50%.