

E Series Application Guide – Speed & Feed (metric)

ISO Code	Work Material	Type of Cut	Axial DOC	Radial DOC	Number of Flutes	Speed (M/min)			Feed (MM per Tooth)									
						Uncoated	TiCN	AlTiN	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0
K	Cast Iron - Gray	Slotting	.5 x D	1 x D	4	--	107	107	.0154	.0205	.0256	.0307	.0410	.0512	.0614	.0717	.0768	.1026
		Peripheral - Rough	1 x D	.5 x D	4	--	122	122	.0192	.0256	.0320	.0384	.0512	.0640	.0768	.0896	.0960	.1282
		Peripheral - Finish	1.5 x D	.01 x D	4	--	137	137	.0219	.0291	.0364	.0437	.0583	.0729	.0874	.1020	.1093	.1460
	Cast Iron - Ductile	Slotting	.5 x D	1 x D	4	--	76	76	.0144	.0192	.0240	.0288	.0384	.0480	.0576	.0672	.0720	.0962
		Peripheral - Rough	1 x D	.5 x D	4	--	84	84	.0180	.0240	.0300	.0360	.0480	.0600	.0720	.0840	.0900	.1202
		Peripheral - Finish	1.5 x D	.01 x D	4	--	99	99	.0204	.0271	.0339	.0407	.0543	.0678	.0814	.0950	.1018	.1359
P	Low Carbon Steels 1018, 12L14, 8620	Slotting	.5 x D	1 x D	4	76	84	91	.0144	.0192	.0240	.0288	.0384	.0480	.0576	.0672	.0720	.0962
		Slotting	.5 x D	1 x D	3	76	84	91	.0144	.0192	.0240	.0288	.0384	.0480	.0576	.0672	.0720	.0962
		Peripheral - Rough	1 x D	.5 x D	4	84	91	99	.0180	.0240	.0300	.0360	.0480	.0600	.0720	.0840	.0900	.1202
		Peripheral - Rough	1 x D	.5 x D	3	84	91	99	.0180	.0240	.0300	.0360	.0480	.0600	.0720	.0840	.0900	.1202
		Finish	1.5 x D	.01 x D	4	91	99	107	.0226	.0301	.0377	.0452	.0603	.0754	.0904	.1055	.1131	.1510
	Medium Carbon Steels 4140, 4340	Slotting	.5 x D	1 x D	4	69	76	84	.0130	.0173	.0216	.0259	.0346	.0432	.0518	.0605	.0648	.0866
		Peripheral - Rough	1 x D	.5 x D	4	76	84	91	.0162	.0216	.0270	.0324	.0432	.0540	.0648	.0756	.0810	.1082
		Finish	1.5 x D	.01 x D	4	84	91	99	.0204	.0271	.0339	.0407	.0543	.0678	.0814	.0950	.1018	.1359
	Tool & Die Steels ≤ 48 HRC A2, D2, H13, P20	Slotting	.5 x D	1 x D	4	69	76	84	.0120	.0160	.0200	.0240	.0320	.0400	.0480	.0560	.0600	.0802
		Peripheral - Rough	1 x D	.5 x D	4	76	84	91	.0150	.0200	.0250	.0300	.0400	.0500	.0600	.0700	.0750	.1002
		Finish	1.5 x D	.01 x D	4	84	91	99	.0188	.0251	.0314	.0377	.0503	.0628	.0754	.0879	.0942	.1259
	H	Hardened Steels 49 HRC to 58 HRC	Slotting	.25 x D	1 x D	4	18	23	69	.0067	.0089	.0111	.0133	.0177	.0222	.0266	.0310	.0333
Peripheral - Rough			1 x D	.25 x D	4	24	30	76	.0083	.0111	.0139	.0166	.0222	.0277	.0333	.0388	.0416	.0555
Finish			1.5 x D	.01 x D	4	30	38	84	.0090	.0121	.0151	.0181	.0241	.0301	.0362	.0422	.0452	.0604
M	Martensitic Stainless Steels 416, 410, 440C	Slotting	.5 x D	1 x D	4	--	76	76	.0096	.0128	.0160	.0192	.0256	.0320	.0384	.0448	.0480	.0641
		Peripheral - Rough	1 x D	.5 x D	4	--	84	84	.0120	.0160	.0200	.0240	.0320	.0400	.0480	.0560	.0600	.0802
		Finish	1.5 x D	.01 x D	4	--	99	99	.0151	.0201	.0251	.0301	.0402	.0502	.0603	.0703	.0754	.1007
	Austenitic Stainless Steels 303, 304, 316	Slotting	.5 x D	1 x D	4	61	69	76	.0096	.0128	.0160	.0192	.0256	.0320	.0384	.0448	.0480	.0641
		Slotting	.5 x D	1 x D	3	61	69	76	.0096	.0128	.0160	.0192	.0256	.0320	.0384	.0448	.0480	.0641
		Peripheral - Rough	1 x D	.5 x D	4	76	84	91	.0120	.0160	.0200	.0240	.0320	.0400	.0480	.0560	.0600	.0802
		Peripheral - Rough	1 x D	.5 x D	3	76	84	91	.0120	.0160	.0200	.0240	.0320	.0400	.0480	.0560	.0600	.0802
		Finish	1.5 x D	.01 x D	4	91	99	107	.0151	.0201	.0251	.0301	.0402	.0502	.0603	.0703	.0754	.1007
	Precipitation Hardening Stainless Steels 17-4 PH, 15-5 PH	Slotting	.25 x D	1 x D	4	53	61	69	.0094	.0126	.0157	.0188	.0251	.0314	.0377	.0440	.0471	.0629
		Peripheral - Rough	1 x D	.25 x D	4	61	69	76	.0118	.0157	.0196	.0236	.0314	.0393	.0471	.0550	.0589	.0787
		Finish	1.5 x D	.01 x D	4	69	76	84	.0128	.0171	.0214	.0256	.0342	.0427	.0513	.0598	.0641	.0856
	S	Titanium Alloys	Slotting	.25 x D	1 x D	4	53	61	69	.0094	.0126	.0157	.0188	.0251	.0314	.0377	.0440	.0471
Peripheral - Rough			1 x D	.25 x D	4	61	69	76	.0118	.0157	.0196	.0236	.0314	.0393	.0471	.0550	.0589	.0787
Finish			1.5 x D	.01 x D	4	69	76	84	.0128	.0171	.0214	.0256	.0342	.0427	.0513	.0598	.0641	.0856
High Temperature Alloys Inconel, Haynes, Stellite, Hastalloy		Slotting	.25 x D	1 x D	4	11	12	14	.0083	.0111	.0139	.0166	.0222	.0277	.0333	.0388	.0416	.0555
		Peripheral - Rough	1 x D	.25 x D	4	14	15	18	.0104	.0139	.0173	.0208	.0277	.0346	.0416	.0485	.0520	.0694
		Finish	1.5 x D	.01 x D	4	17	17	20	.0113	.0151	.0188	.0226	.0302	.0377	.0452	.0528	.0565	.0755
N	Aluminum Alloys 2024, 6061, 7075	Slotting	.5 x D	1 x D	2	107	168	--	.0182	.0243	.0304	.0365	.0486	.0608	.0730	.0851	.0912	.1218
		Peripheral - Rough	1 x D	.5 x D	2	137	198	--	.0228	.0304	.0380	.0456	.0608	.0760	.0912	.1064	.1140	.1523
		Peripheral - Finish	1.5 x D	.01 x D	3	168	--	--	.0256	.0342	.0427	.0513	.0683	.0854	.1025	.1196	.1281	.1712
	Copper Alloys Brass & Bronze	Slotting	.5 x D	1 x D	2	84	107	107	.0192	.0256	.0320	.0384	.0512	.0640	.0768	.0896	.0960	.1282
		Peripheral - Rough	1 x D	.5 x D	2	91	122	122	.0240	.0320	.0400	.0480	.0640	.0800	.0960	.1120	.1200	.1603
		Peripheral - Rough	1 x D	.5 x D	3	91	--	122	.0216	.0288	.0360	.0432	.0576	.0720	.0864	.1008	.1080	.1443
		Peripheral - Finish	1.5 x D	.01 x D	2	107	137	137	.0301	.0402	.0502	.0603	.0804	.1005	.1206	.1407	.1507	.2014
		Peripheral - Finish	1.5 x D	.01 x D	3	107	--	137	.0271	.0362	.0452	.0543	.0724	.0904	.1085	.1266	.1357	.1813
		Peripheral - Finish	1.5 x D	.01 x D	3	107	--	137	.0271	.0362	.0452	.0543	.0724	.0904	.1085	.1266	.1357	.1813
	Composites, Plastics	Slotting	.5 x D	1 x D	4	91	107	107	.0192	.0256	.0320	.0384	.0512	.0640	.0768	.0896	.0960	.1282
		Peripheral - Rough	1 x D	.5 x D	4	114	137	137	.0240	.0320	.0400	.0480	.0640	.0800	.0960	.1120	.1200	.1603
		Peripheral - Finish	1.5 x D	.01 x D	4	137	198	198	.0271	.0362	.0452	.0543	.0724	.0904	.1085	.1266	.1357	.1813
	Magnesium Alloys	Slotting	.5 x D	1 x D	2	107	168	168	.0192	.0256	.0320	.0384	.0512	.0640	.0768	.0896	.0960	.1282
		Peripheral - Rough	1 x D	.5 x D	2	137	198	198	.0240	.0320	.0400	.0480	.0640	.0800	.0960	.1120	.1200	.1603
		Peripheral - Finish	1.5 x D	.01 x D	2	168	229	229	.0271	.0362	.0452	.0543	.0724	.0904	.1085	.1266	.1357	.1813
	Graphite	Slotting	.5 x D	1 x D	4	107	122	137	.0216	.0288	.0360	.0432	.0576	.0720	.0864	.1008	.1080	.1443
		Peripheral - Rough	1 x D	.5 x D	4	130	145	160	.0270	.0360	.0450	.0540	.0720	.0900	.1080	.1260	.1350	.1803
		Peripheral - Finish	1.5 x D	.01 x D	4	152	168	183	.0301	.0402	.0502	.0603	.0804	.1005	.1206	.1407	.1507	.2014

D = Tool Diameter

Information on tips and adjustments can be found in our Technical Resources section beginning on page 129.