

# E Series Application Guide – Speed & Feed (inch)

ISO Code	Work Material	Type of Cut	Axial DOC	Radial DOC	Number of Flutes	Speed (SFM)			Feed (Inches Per Tooth)									
						Uncoated	TiCN	AlTiN	1/16	1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	1
<b>K</b>	Cast Iron - Gray	Slotting	.5 x D	1 x D	4	--	350	350	.00032	.0006	.0010	.0013	.0016	.0019	.0026	.0032	.0038	.0051
		Peripheral - Rough	1 x D	.5 x D	4	--	400	400	.00040	.0008	.0012	.0016	.0020	.0024	.0032	.0040	.0048	.0064
		Peripheral - Finish	1.5 x D	.01 x D	4	--	450	450	.00046	.0009	.0014	.0018	.0023	.0027	.0036	.0046	.0055	.0073
	Cast Iron - Ductile	Slotting	.5 x D	1 x D	4	--	250	250	.00030	.0006	.0009	.0012	.0015	.0018	.0024	.0030	.0036	.0048
		Peripheral - Rough	1 x D	.5 x D	4	--	275	275	.00038	.0008	.0011	.0015	.0019	.0023	.0030	.0038	.0045	.0060
		Peripheral - Finish	1.5 x D	.01 x D	4	--	325	325	.00042	.0008	.0013	.0017	.0021	.0025	.0034	.0042	.0051	.0068
<b>P</b>	Low Carbon Steels 1018, 12L14, 8620	Slotting	.5 x D	1 x D	4	250	275	300	.00030	.0006	.0009	.0012	.0015	.0018	.0024	.0030	.0036	.0048
		Slotting	.5 x D	1 x D	3	250	275	300	.00030	.0006	.0009	.0012	.0015	.0018	.0024	.0030	.0036	.0048
		Peripheral - Rough	1 x D	.5 x D	4	275	300	325	.00038	.0008	.0011	.0015	.0019	.0023	.0030	.0038	.0045	.0060
		Peripheral - Rough	1 x D	.5 x D	3	275	300	325	.00038	.0008	.0011	.0015	.0019	.0023	.0030	.0038	.0045	.0060
		Finish	1.5 x D	.01 x D	4	300	325	350	.00047	.0009	.0014	.0019	.0024	.0028	.0038	.0047	.0057	.0075
	Medium Carbon Steels 4140, 4340	Slotting	.5 x D	1 x D	4	225	250	275	.00027	.0005	.0008	.0011	.0014	.0016	.0022	.0027	.0032	.0043
		Peripheral - Rough	1 x D	.5 x D	4	250	275	300	.00034	.0007	.0010	.0014	.0017	.0020	.0027	.0034	.0041	.0054
		Finish	1.5 x D	.01 x D	4	275	300	325	.00042	.0008	.0013	.0017	.0021	.0025	.0034	.0042	.0051	.0068
	Tool & Die Steels ≤ 48 HRC A2, D2, H13, P20	Slotting	.5 x D	1 x D	4	225	250	275	.00025	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
		Peripheral - Rough	1 x D	.5 x D	4	250	275	300	.00031	.0006	.0009	.0013	.0016	.0019	.0025	.0031	.0038	.0050
		Finish	1.5 x D	.01 x D	4	275	300	325	.00039	.0008	.0012	.0016	.0020	.0024	.0031	.0039	.0047	.0063
	<b>H</b>	Hardened Steels 49 HRC to 58 HRC	Slotting	.25 x D	1 x D	4	60	75	225	.00014	.0003	.0004	.0006	.0007	.0008	.0011	.0014	.0017
Peripheral - Rough			1 x D	.25 x D	4	80	100	250	.00017	.0003	.0005	.0007	.0009	.0010	.0014	.0017	.0021	.0028
Finish			1.5 x D	.01 x D	4	100	125	275	.00019	.0004	.0006	.0008	.0009	.0011	.0015	.0019	.0023	.0030
<b>M</b>	Martensitic Stainless Steels 416, 410, 440C	Slotting	.5 x D	1 x D	4	--	250	250	.00020	.0004	.0006	.0008	.0010	.0012	.0016	.0020	.0024	.0032
		Peripheral - Rough	1 x D	.5 x D	4	--	275	275	.00025	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
		Finish	1.5 x D	.01 x D	4	--	325	325	.00031	.0006	.0009	.0013	.0016	.0019	.0025	.0031	.0038	.0050
	Austenitic Stainless Steels 303, 304, 316	Slotting	.5 x D	1 x D	4	200	225	250	.00020	.0004	.0006	.0008	.0010	.0012	.0016	.0020	.0024	.0032
		Slotting	.5 x D	1 x D	3	200	225	250	.00020	.0004	.0006	.0008	.0010	.0012	.0016	.0020	.0024	.0032
		Peripheral - Rough	1 x D	.5 x D	4	250	275	300	.00025	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
		Peripheral - Rough	1 x D	.5 x D	3	250	275	300	.00025	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
		Finish	1.5 x D	.01 x D	4	300	325	350	.00031	.0006	.0009	.0013	.0016	.0019	.0025	.0031	.0038	.0050
	Precipitation Hardening Stainless Steels 17-4 PH, 15-5 PH	Slotting	.25 x D	1 x D	4	175	200	225	.00020	.0004	.0006	.0008	.0010	.0012	.0016	.0020	.0024	.0031
		Peripheral - Rough	1 x D	.25 x D	4	200	225	250	.00025	.0005	.0007	.0010	.0012	.0015	.0020	.0025	.0029	.0039
		Finish	1.5 x D	.01 x D	4	225	250	275	.00027	.0005	.0008	.0011	.0013	.0016	.0021	.0027	.0032	.0043
	<b>S</b>	Titanium Alloys	Slotting	.25 x D	1 x D	4	175	200	225	.00020	.0004	.0006	.0008	.0010	.0012	.0016	.0020	.0024
Peripheral - Rough			1 x D	.25 x D	4	200	225	250	.00025	.0005	.0007	.0010	.0012	.0015	.0020	.0025	.0029	.0039
Finish			1.5 x D	.01 x D	4	225	250	275	.00027	.0005	.0008	.0011	.0013	.0016	.0021	.0027	.0032	.0043
High Temperature Alloys Inconel, Haynes, Stellite, Hastalloy		Slotting	.25 x D	1 x D	4	35	40	45	.00017	.0003	.0005	.0007	.0009	.0010	.0014	.0017	.0021	.0028
		Peripheral - Rough	1 x D	.25 x D	4	45	50	60	.00022	.0004	.0006	.0009	.0011	.0013	.0017	.0022	.0026	.0035
		Finish	1.5 x D	.01 x D	4	55	55	65	.00024	.0005	.0007	.0009	.0012	.0014	.0019	.0024	.0028	.0038
<b>N</b>	Aluminum Alloys 2024, 6061, 7075	Slotting	.5 x D	1 x D	2	350	550	--	.00038	.0008	.0011	.0015	.0019	.0023	.0030	.0038	.0046	.0061
		Peripheral - Rough	1 x D	.5 x D	2	450	650	--	.00048	.0010	.0014	.0019	.0024	.0029	.0038	.0048	.0057	.0076
		Peripheral - Finish	1.5 x D	.01 x D	3	550	--	--	.00053	.0011	.0016	.0021	.0027	.0032	.0043	.0053	.0064	.0085
	Copper Alloys Brass & Bronze	Slotting	.5 x D	1 x D	2	275	350	350	.00040	.0008	.0012	.0016	.0020	.0024	.0032	.0040	.0048	.0064
		Peripheral - Rough	1 x D	.5 x D	2	300	400	400	.00050	.0010	.0015	.0020	.0025	.0030	.0040	.0050	.0060	.0080
		Peripheral - Rough	1 x D	.5 x D	3	300	--	400	.00045	.0009	.0014	.0018	.0023	.0027	.0036	.0045	.0054	.0072
		Peripheral - Finish	1.5 x D	.01 x D	2	350	450	450	.00063	.0013	.0019	.0025	.0031	.0038	.0050	.0063	.0075	.0101
		Peripheral - Finish	1.5 x D	.01 x D	3	350	--	450	.00057	.0011	.0017	.0023	.0028	.0034	.0045	.0057	.0068	.0090
	Composites, Plastics	Slotting	.5 x D	1 x D	4	300	350	350	.00040	.0008	.0012	.0016	.0020	.0024	.0032	.0040	.0048	.0064
		Peripheral - Rough	1 x D	.5 x D	4	375	450	450	.00050	.0010	.0015	.0020	.0025	.0030	.0040	.0050	.0060	.0080
		Peripheral - Finish	1.5 x D	.01 x D	4	450	650	650	.00057	.0011	.0017	.0023	.0028	.0034	.0045	.0057	.0068	.0090
	Magnesium Alloys	Slotting	.5 x D	1 x D	2	350	550	550	.00040	.0008	.0012	.0016	.0020	.0024	.0032	.0040	.0048	.0064
		Peripheral - Rough	1 x D	.5 x D	2	450	650	650	.00050	.0010	.0015	.0020	.0025	.0030	.0040	.0050	.0060	.0080
		Peripheral - Finish	1.5 x D	.01 x D	2	550	750	750	.00057	.0011	.0017	.0023	.0028	.0034	.0045	.0057	.0068	.0090
	Graphite	Slotting	.5 x D	1 x D	4	350	400	450	.00045	.0009	.0014	.0018	.0023	.0027	.0036	.0045	.0054	.0072
		Peripheral - Rough	1 x D	.5 x D	4	425	475	525	.00056	.0011	.0017	.0023	.0028	.0034	.0045	.0056	.0068	.0090
		Peripheral - Finish	1.5 x D	.01 x D	4	500	550	600	.00063	.0013	.0019	.0025	.0031	.0038	.0050	.0063	.0075	.0101

D = Tool Diameter

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