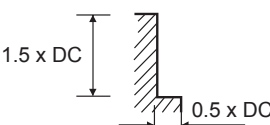


CUTTING DATA

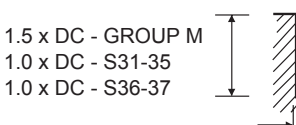
171329, 176323, 177323, 178323, 179323 (4 Flute VX)

VDI MATERIAL GROUP		HRc	SIDE CUTTING	Size (mm)								
				3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
P	1-5	Non-alloy Steel	<25	v_c (m/min)	152	152	152	152	152	168	168	168
				n	16128	12096	9677	8064	6048	5348	4456	2674
				f_z	0.005	0.008	0.011	0.016	0.027	0.038	0.047	0.065
				f (mm/min)	323	387	513	516	653	813	838	695
	6-9	Low alloy Steel	25-35	v_c (m/min)	107	107	107	107	107	117	117	117
				n	11353	8515	6812	5677	4257	3724	3104	1862
				f_z	0.005	0.008	0.011	0.016	0.027	0.038	0.047	0.065
				f (mm/min)	227	272	300	363	460	566	583	484
	10-11	High alloy Steel, Tool Steel	35-45	v_c (m/min)	64	64	64	64	64	70	70	70
				n	6791	5093	4074	3395	2546	2228	1857	1114
				f_z	0.003	0.006	0.008	0.011	0.019	0.027	0.032	0.037
				f (mm/min)	81	122	130	149	194	241	238	201
M	12	Ferritic/ Martensitic Stainless Steel		v_c (m/min)	161	161	161	161	161	161	161	161
				n	17083	12812	10250	8541	6406	5125	4270	2562
				f_z	0.004	0.006	0.009	0.013	0.022	0.034	0.040	0.055
				f (mm/min)	273	307	369	444	564	697	683	564
	13	Martensitic Stainless Steel		v_c (m/min)	115	115	115	115	115	115	115	115
				n	12202	9151	7321	6104	4576	3661	3050	1830
				f_z	0.005	0.008	0.013	0.018	0.028	0.048	0.056	0.063
				f (mm/min)	244	293	381	439	512	703	683	564
	14	Austenitic Stainless Steel		v_c (m/min)	104	104	104	104	104	104	104	104
				n	11035	8276	6621	5517	4138	3310	2759	1655
				f_z	0.005	0.008	0.013	0.018	0.028	0.048	0.055	0.062
				f (mm/min)	221	265	344	397	463	636	607	510
K	15-20	Cast Iron		v_c (m/min)	112	112	112	112	112	123	123	123
				n	11884	8913	7130	5942	4456	3915	3263	2447
				f_z	0.006	0.010	0.014	0.020	0.034	0.048	0.058	0.065
				f (mm/min)	285	357	399	475	606	752	757	634
S	31-35	HRSA Fe & Ni/Co Based		v_c (m/min)	31	31	31	31	31	31	31	31
				n	3289	2467	1974	1645	1233	987	822	617
				f_z	0.005	0.007	0.012	0.018	0.031	0.047	0.055	0.064
				f (mm/min)	66	69	95	118	153	186	181	152
	36-37	Titanium/ Titanium Alloys		v_c (m/min)	81	81	81	81	81	81	81	81
				n	8594	6446	5157	4297	3223	2578	2149	1611
				f_z	0.004	0.007	0.011	0.016	0.025	0.043	0.050	0.056
				f (mm/min)	138	180	227	275	322	445	430	356

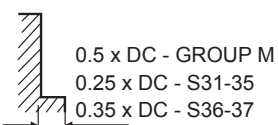
MATERIAL GROUPS P,K



1.5 x DC - GROUP M
1.0 x DC - S31-35
1.0 x DC - S36-37



0.5 x DC - GROUP M
0.25 x DC - S31-35
0.35 x DC - S36-37



Recommended cutting depths are **maximum** depths, and **speeds and feeds are a starting point** based on these depths.
All recommendations are based on ideal machining conditions. Adjustments may need to be made according to your set-up.
For long series and long necked tools it may be necessary to reduce feed rate by up to 50%.

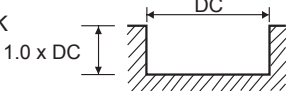
v_c - cutting speed (m/min)
 n - RPM (rev/min)
 f_z - feed per tooth (mm)
 f - feed rate (mm/min)
 a_p - axial depth of cut
 a_e - radial depth of cut

CUTTING DATA

171329, 176323, 177323, 178323, 179323 (4 Flute VX)

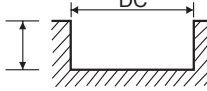
VDI MATERIAL GROUP		HRc	SLOTTING	Size (mm)								
				3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
P	1-5	Non-alloy Steel	<25	v_c (m/min)	152	152	152	152	152	168	168	168
				n	16128	12096	9677	8064	6048	5348	4456	2674
				f_z	0.005	0.008	0.011	0.016	0.027	0.038	0.047	0.065
				f (mm/min)	323	387	513	516	653	813	838	695
	6-9	Low alloy Steel	25-35	v_c (m/min)	107	107	107	107	107	117	117	117
				n	11353	8515	6812	5677	4257	3724	3104	1862
				f_z	0.005	0.008	0.011	0.016	0.027	0.038	0.047	0.065
				f (mm/min)	227	272	300	363	460	566	583	484
	10-11	High alloy Steel, Tool Steel	35-45	v_c (m/min)	64	64	64	64	64	70	70	70
				n	6791	5093	4074	3395	2546	2228	1857	1114
				f_z	0.003	0.006	0.008	0.011	0.019	0.027	0.032	0.037
				f (mm/min)	81	122	130	149	194	241	238	201
M	12	Ferritic/ Martensitic Stainless Steel		v_c (m/min)	161	161	161	161	161	161	161	161
				n	17083	12812	10250	8541	6406	5125	4270	2562
				f_z	0.004	0.006	0.009	0.013	0.022	0.034	0.040	0.055
				f (mm/min)	273	307	369	444	564	697	683	564
	13	Martensitic Stainless Steel		v_c (m/min)	115	115	115	115	115	115	115	115
				n	12202	9151	7321	6104	4576	3661	3050	1830
				f_z	0.005	0.008	0.013	0.018	0.028	0.048	0.056	0.077
				f (mm/min)	244	293	381	439	512	703	683	564
	14	Austenitic Stainless Steel		v_c (m/min)	104	104	104	104	104	104	104	104
				n	11035	8276	6621	5517	4138	3310	2759	1655
				f_z	0.005	0.008	0.013	0.018	0.028	0.048	0.055	0.077
				f (mm/min)	221	265	344	397	463	636	607	510
K	15-20	Cast Iron		v_c (m/min)	112	112	112	112	112	123	123	123
				n	11884	8913	7130	5942	4456	3915	3263	1958
				f_z	0.006	0.010	0.014	0.020	0.034	0.048	0.058	0.081
				f (mm/min)	285	357	399	475	606	752	757	634
S	31-35	HRSA Fe & Ni/Co Based		v_c (m/min)	31	31	31	31	31	31	31	31
				n	3289	2467	1974	1645	1233	987	822	493
				f_z	0.005	0.007	0.012	0.018	0.031	0.047	0.055	0.077
				f (mm/min)	66	69	95	118	153	186	181	152
	36-37	Titanium/ Titanium Alloys		v_c (m/min)	81	81	81	81	81	81	81	81
				n	8594	6446	5157	4297	3223	2578	2149	1289
				f_z	0.004	0.007	0.011	0.016	0.025	0.043	0.050	0.069
				f (mm/min)	138	180	227	275	322	445	430	356

MATERIAL GROUP P, K



1.0 x DC

1.0 x DC - GROUP M
0.5 x DC - S31-35
0.5 x DC - S36-37



0.5 x DC

Recommended cutting depths are **maximum** depths, and **speeds and feeds are a starting point** based on these depths.
All recommendations are based on ideal machining conditions. Adjustments may need to be made according to your set-up.
For long series and long necked tools it may be necessary to reduce feed rate by up to 50%.

v_c - cutting speed (m/min)
n - RPM (rev/min)
 f_z - feed per tooth (mm)
f - feed rate (mm/min)
 a_p - axial depth of cut
 a_e - radial depth of cut