

CUTTING DATA

116365 (2 Flute)													
VDI MATERIAL GROUP	MATERIAL	HRc		Size (mm)									
				0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
P	1-5	Non-alloy Steel	<25	v_c (m/min)	26	37	49	57	60	62	63	66	68
				n	41000	39200	39000	36200	31800	28100	25000	23300	21600
				f_z	0.001	0.004	0.001	0.002	0.002	0.003	0.003	0.004	0.004
				f (mm/min)	80	80	75	145	125	170	150	185	170
	6-9	Low alloy Steel	25-35	v_c (m/min)	16	22	29	34	36	37	38	40	41
				n	25000	23300	23000	21600	19000	16800	15100	14100	13000
				f_z	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.003	0.004
				f (mm/min)	50	45	45	85	75	100	90	85	100
	10-11	High alloy Steel, Tool Steel	35-45	v_c (m/min)	16	22	29	34	36	37	38	40	41
				n	25000	23300	23000	21600	19000	16800	15100	14100	13000
				f_z	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.003	0.004
				f (mm/min)	50	45	45	85	75	100	90	85	100
M	14	Austenitic Stainless Steel	v_c (m/min)	13	18	25	28	30	31	31	33	34	
			n	20000	19000	19800	17800	15900	14000	12300	11600	10800	
			f_z	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.003	0.004	
			f (mm/min)	40	35	40	70	65	85	75	70	85	
K	15-20	Cast Iron	v_c (m/min)	26	37	49	57	60	62	63	66	68	
			n	41000	39200	39000	36200	31800	28100	25000	23300	21600	
			f_z	0.001	0.004	0.001	0.002	0.002	0.003	0.003	0.004	0.004	
			f (mm/min)	80	80	75	145	125	170	150	185	170	
H	38	Hardened Steel	45-55	v_c (m/min)	11	15	20	23	24	25	25	27	27
				n	17500	15900	15900	14600	12700	11300	9900	9500	8500
				f_z	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002
				f (mm/min)	35	30	30	30	25	20	40	35	30
	40	Chilled Cast Iron		v_c (m/min)	16	22	29	34	36	37	38	40	41
				n	25000	23300	23000	21600	19000	16800	15100	14100	13000
				f_z	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.003	0.004
				f (mm/min)	50	45	45	85	75	100	90	85	100
	41	Hardened Cast Iron		v_c (m/min)	11	15	20	23	24	25	25	27	27
				n	17500	15900	15900	14600	12700	11300	9900	9500	8500
				f_z	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002
				f (mm/min)	35	30	30	30	25	20	40	35	30

<p>MATERIAL GROUP P, K</p> <p>a_p : $\varnothing 0.2\text{mm} - \varnothing 1.0\text{mm} = 0.15 \times \text{DC}$ a_p : $\varnothing 1.5\text{mm} - \varnothing 3.0\text{mm} = 0.2 \times \text{DC}$ a_p : $\varnothing 3.5\text{mm} - \varnothing 20.0\text{mm} = 0.5 \times \text{DC}$</p>	<p>MATERIAL GROUP M, H</p> <p>a_p : $\varnothing 0.2\text{mm} - \varnothing 1.0\text{mm} = 0.02 \times \text{DC}$ a_p : $\varnothing 1.5\text{mm} - \varnothing 20.0\text{mm} = 0.05 \times \text{DC}$</p>
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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)
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 a_e - radial depth of cut

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116365 (2 Flute)													
VDI MATERIAL GROUP	MATERIAL	HRc		Size (mm)									
				1.2	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	
P	1-5	Non-alloy Steel	<25	v_c (m/min)	68	71	73	80	84	91	95	98	99
				n	18000	15000	11600	10100	8900	8200	7500	6900	6300
				f_z	0.005	0.006	0.009	0.01	0.012	0.06	0.021	0.023	0.027
				f (mm/min)	180	180	200	200	210	265	310	320	340
	6-9	Low alloy Steel	25-35	v_c (m/min)	41	42	48	52	52	56	58	59	59
				n	10800	8900	7600	6600	5500	5000	4600	4100	3700
				f_z	0.005	0.006	0.008	0.01	0.013	0.017	0.021	0.023	0.026
				f (mm/min)	110	105	120	130	140	170	190	190	195
	10-11	High alloy Steel, Tool Steel	35-45	v_c (m/min)	41	42	48	52	52	56	58	59	59
				n	10800	8900	7600	6600	5500	5000	4600	4100	3700
				f_z	0.005	0.006	0.008	0.01	0.013	0.017	0.021	0.023	0.026
				f (mm/min)	110	105	120	130	140	170	190	190	195
M	14	Austenitic Stainless Steel	v_c (m/min)	34	35	40	43	44	47	49	50	50	
			n	9000	7400	6300	5400	4600	4200	3900	3500	3100	
			f_z	0.005	0.006	0.008	0.01	0.014	0.016	0.021	0.023	0.027	
			f (mm/min)	90	90	100	100	130	130	130	160	170	
K	15-20	Cast Iron	v_c (m/min)	68	71	73	80	84	91	95	98	99	
			n	18000	15000	11600	10100	8900	8200	7500	6900	6300	
			f_z	0.005	0.006	0.009	0.01	0.012	0.06	0.021	0.023	0.027	
			f (mm/min)	180	180	200	200	210	265	310	320	340	
H	38	Hardened Steel	45-55	v_c (m/min)	27	28	32	33	32	35	37	37	36
				n	7100	5900	5000	4200	3400	3100	2900	2600	2200
				f_z	0.002	0.003	0.004	0.005	0.006	0.007	0.007	0.009	0.011
				f (mm/min)	30	35	40	40	40	45	40	45	50
	40	Chilled Cast Iron		v_c (m/min)	41	42	48	52	52	56	58	59	59
				n	10800	8900	7600	6600	5500	5000	4600	4100	3700
				f_z	0.005	0.006	0.008	0.01	0.013	0.017	0.021	0.023	0.026
				f (mm/min)	110	105	120	130	140	170	190	190	195
	41	Hardened Cast Iron		v_c (m/min)	27	28	32	33	32	35	37	37	36
				n	7100	5900	5000	4200	3400	3100	2900	2600	2200
				f_z	0.002	0.003	0.004	0.005	0.006	0.007	0.007	0.009	0.011
				f (mm/min)	30	35	40	40	40	45	40	45	50

<p>MATERIAL GROUP P, K</p> <p>a_p : $\varnothing 0.2\text{mm} - \varnothing 1.0\text{mm} = 0.15 \times \text{DC}$ a_p : $\varnothing 1.5\text{mm} - \varnothing 3.0\text{mm} = 0.2 \times \text{DC}$ a_p : $\varnothing 3.5\text{mm} - \varnothing 20.0\text{mm} = 0.5 \times \text{DC}$</p>	<p>MATERIAL GROUP M, H</p> <p>a_p : $\varnothing 0.2\text{mm} - \varnothing 1.0\text{mm} = 0.02 \times \text{DC}$ a_p : $\varnothing 1.5\text{mm} - \varnothing 20.0\text{mm} = 0.05 \times \text{DC}$</p>
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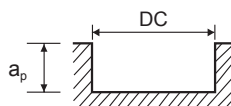
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116365 (2 Flute)													
VDI MATERIAL GROUP	MATERIAL	HRc		Size (mm)									
				6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	
P	1-5	Non-alloy Steel	<25	v_c (m/min)	105	107	107	107	106	106	105	104	102
				n	5500	5200	4800	4500	4200	3950	3700	3480	3240
				f_z	0.033	0.036	0.039	0.043	0.018	0.049	0.05	0.051	0.053
				f (mm/min)	365	375	380	390	400	390	370	355	345
	6-9	Low alloy Steel	25-35	v_c (m/min)	63	64	65	64	63	64	64	64	63
				n	3300	3100	2950	2700	2500	2400	2200	2100	2000
				f_z	0.034	0.036	0.037	0.039	0.042	0.042	0.042	0.042	0.043
				f (mm/min)	220	220	215	210	210	200	190	180	170
	10-11	High alloy Steel, Tool Steel	35-45	v_c (m/min)	63	64	65	64	63	64	64	64	63
				n	3300	3100	2950	2700	2500	2400	2200	2100	2000
				f_z	0.034	0.036	0.037	0.039	0.042	0.042	0.042	0.042	0.043
				f (mm/min)	220	220	215	210	210	200	190	180	170
M	14	Austenitic Stainless Steel	v_c (m/min)	54	54	54	54	53	53	53	53	53	
			n	2800	2600	2450	2300	2100	1980	1870	1770	1680	
			f_z	0.033	0.036	0.038	0.042	0.045	0.046	0.048	0.049	0.051	
			f (mm/min)	190	190	185	190	190	180	180	175	170	
K	15-20	Cast Iron	v_c (m/min)	105	107	107	107	106	106	105	104	102	
			n	5500	5200	4800	4500	4200	3950	3700	3480	3240	
			f_z	0.033	0.036	0.039	0.043	0.018	0.049	0.05	0.051	0.053	
			f (mm/min)	365	375	380	390	400	390	370	355	345	
H	38	Hardened Steel	45-55	v_c (m/min)	38	39	40	41	42	43	43	43	43
				n	2000	1900	1800	1740	1670	1610	1520	1440	1370
				f_z	0.015	0.016	0.018	0.021	0.024	0.023	0.022	0.022	0.023
				f (mm/min)	60	60	65	70	80	75	65	60	60
	40	Chilled Cast Iron		v_c (m/min)	63	64	65	64	63	64	64	64	63
				n	3300	3100	2950	2700	2500	2400	2200	2100	2000
				f_z	0.034	0.036	0.037	0.039	0.042	0.042	0.042	0.042	0.043
				f (mm/min)	220	220	215	210	210	200	190	180	170
	41	Hardened Cast Iron		v_c (m/min)	38	39	40	41	42	43	43	43	43
				n	2000	1900	1800	1740	1670	1610	1520	1440	1370
				f_z	0.015	0.016	0.018	0.021	0.024	0.023	0.022	0.022	0.023
				f (mm/min)	60	60	65	70	80	75	65	60	60

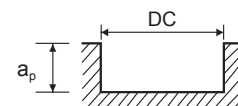
MATERIAL GROUP P, K

a_p : $\varnothing 0.2\text{mm} - \varnothing 1.0\text{mm} = 0.15 \times \text{DC}$
 a_p : $\varnothing 1.5\text{mm} - \varnothing 3.0\text{mm} = 0.2 \times \text{DC}$
 a_p : $\varnothing 3.5\text{mm} - \varnothing 20.0\text{mm} = 0.5 \times \text{DC}$



MATERIAL GROUP M, H

a_p : $\varnothing 0.2\text{mm} - \varnothing 1.0\text{mm} = 0.02 \times \text{DC}$
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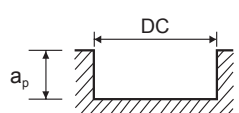
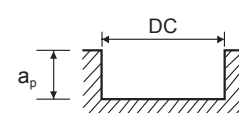


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CUTTING DATA

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VDI MATERIAL GROUP	MATERIAL	HRc		Size (mm)								
				10.5	11.0	12.0	13.0	14.0	15.0	16.0	20.0	
P	1-5	Non-alloy Steel	<25	v_c (m/min)	103	104	103	106	109	110	111	106
				n	3100	3000	2700	2500	2470	2330	2200	1680
				f_z	0.053	0.053	0.054	0.054	0.054	0.052	0.052	0.054
				f (mm/min)	330	320	295	280	265	240	230	180
	6-9	Low alloy Steel	25-35	v_c (m/min)	63	64	63	65	67	68	68	67
				n	1910	1850	1670	1590	1520	1440	1350	1060
				f_z	0.042	0.041	0.04	0.041	0.041	0.042	0.042	0.04
				f (mm/min)	160	150	130	130	125	120	115	85
	10-11	High alloy Steel, Tool Steel	35-45	v_c (m/min)	63	64	63	65	67	68	68	67
				n	1910	1850	1670	1590	1520	1440	1350	1060
				f_z	0.042	0.041	0.04	0.041	0.041	0.042	0.042	0.04
				f (mm/min)	160	150	130	130	125	120	115	85
M	14	Austenitic Stainless Steel	v_c (m/min)	53	53	51	52	53	53	53	53	
			n	1600	1530	1350	1270	1200	1120	1050	840	
			f_z	0.05	0.049	0.05	0.051	0.052	0.053	0.054	0.05	
			f (mm/min)	160	150	135	130	125	120	115	85	
K	15-20	Cast Iron	v_c (m/min)	103	104	103	106	109	110	111	106	
			n	3100	3000	2700	2500	2470	2330	2200	1680	
			f_z	0.053	0.053	0.054	0.054	0.054	0.052	0.052	0.054	
			f (mm/min)	330	320	295	280	265	240	230	180	
H	38	Hardened Steel	45-55	v_c (m/min)	43	44	44	45	45	45	45	43
				n	1300	1270	1160	1100	1020	955	895	680
				f_z	0.023	0.023	0.025	0.025	0.024	0.023	0.023	0.024
				f (mm/min)	60	60	55	55	50	45	40	35
	40	Chilled Cast Iron		v_c (m/min)	63	64	63	65	67	68	68	67
				n	1910	1850	1670	1590	1520	1440	1350	1060
				f_z	0.042	0.041	0.04	0.041	0.041	0.042	0.042	0.04
				f (mm/min)	160	150	130	130	125	120	115	85
	41	Hardened Cast Iron		v_c (m/min)	43	44	44	45	45	45	45	43
				n	1300	1270	1160	1100	1020	955	895	680
				f_z	0.023	0.023	0.025	0.025	0.024	0.023	0.023	0.024
				f (mm/min)	60	60	55	55	50	45	40	35

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