

CUTTING DATA

115370 (4 Flute Ball Nose)												
VDI MATERIAL GROUP	MATERIAL	HRc	NORMAL SPEED	Size (mm)								
				2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0
P	1-5 Non-alloy Steel	<25	a_p (mm)	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
			v_c (m/min)	105	130	140	150	170	190	210	230	250
			n	16710	13790	11140	9550	9020	7560	6685	6100	4975
			f_z	0.013	0.019	0.026	0.034	0.045	0.068	0.09	0.111	0.136
	6-9 Low alloy Steel	25-35	a_p (mm)	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
			v_c (m/min)	75	100	110	120	135	150	170	185	200
			n	11935	10640	8750	7640	7160	5970	5410	4905	3980
			f_z	0.01	0.17	0.024	0.03	0.045	0.06	0.075	0.089	0.106
	10-11 High alloy Steel, Tool Steel	35-45	a_p (mm)	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
			v_c (m/min)	75	100	110	120	135	150	170	185	200
			n	11935	10640	8750	7640	7160	5970	5410	4905	3980
			f_z	0.01	0.17	0.024	0.03	0.045	0.06	0.075	0.089	0.106
K	15-20 Cast Iron	a_p (mm)	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	
		v_c (m/min)	105	130	140	150	170	190	210	230	250	
		n	16710	13790	11140	9550	9020	7560	6685	6100	4975	
		f_z	0.013	0.019	0.026	0.034	0.045	0.068	0.09	0.111	0.136	
		f (mm/min)	870	1045	1160	1300	1620	2055	2405	2710	2705	
H	38 Hardened Steel	a_p (mm)	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	
		v_c (m/min)	30	45	55	60	65	65	65	70	70	
		n	4775	4775	4375	3820	3445	2585	2070	1855	1390	
		f_z	0.008	0.012	0.016	0.018	0.022	0.033	0.041	0.053	0.069	
		f (mm/min)	150	230	280	275	300	340	340	395	385	

MATERIAL GROUP
P, K

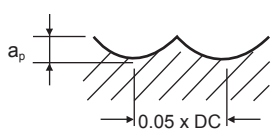
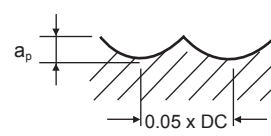
MATERIAL GROUP
H

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

115370 (4 Flute Ball Nose)												
VDI MATERIAL GROUP	MATERIAL	HRc	HIGH SPEED	Size (mm)								
				2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0
P	1-5 Non-alloy Steel	<25	a_p (mm)	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
			v_c (m/min)	140	210	275	345	415	440	460	485	505
			n	22280	22280	21880	21960	22015	17505	14640	12865	10045
			f_z	0.026	0.036	0.052	0.064	0.071	0.09	0.105	0.12	0.136
	6-9 Low alloy Steel	25-35	a_p (mm)	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
			v_c (m/min)	140	210	275	345	415	440	460	485	505
			n	22280	22280	21880	21960	22015	17505	14640	12865	10045
			f_z	0.026	0.036	0.052	0.064	0.071	0.09	0.105	0.12	0.136
	10-11 High alloy Steel, Tool Steel	35-45	a_p (mm)	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
			v_c (m/min)	140	210	275	345	415	440	460	485	505
			n	22280	22280	21880	21960	22015	17505	14640	12865	10045
			f_z	0.026	0.036	0.052	0.064	0.071	0.09	0.105	0.12	0.136
K	15-20 Cast Iron	a_p (mm)	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	
		v_c (m/min)	140	210	275	345	415	440	460	485	505	
		n	22280	22280	21880	21960	22015	17505	14640	12865	10045	
		f_z	0.026	0.036	0.052	0.064	0.071	0.09	0.105	0.12	0.136	
		f (mm/min)	2315	3210	4550	5620	6253	6300	6150	6175	5465	
H	38 Hardened Steel	a_p (mm)	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	
		v_c (m/min)	140	170	180	200	210	220	230	240	250	
		n	22280	18035	14320	12730	11140	8750	7320	6365	4975	
		f_z	0.017	0.023	0.032	0.038	0.045	0.056	0.064	0.071	0.079	
		f (mm/min)	1515	1660	1830	1935	2005	1960	1870	1805	1570	

<p>MATERIAL GROUP P, K</p> 	<p>MATERIAL GROUP H</p> 
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v_c - cutting speed (m/min)
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 f_z - feed per tooth (mm)
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 a_p - axial depth of cut
 a_e - radial depth of cut