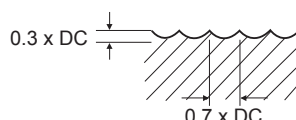


CUTTING DATA

313303, 313323, 314303, 314323, (2 Flute, Ball Nose)															
VDI MATERIAL GROUP			HRc		Size (mm)										
					2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0
P	1-5	Non-alloy Steel	<25	v _c (m/min)	80	105	110	125	135	155	170	190	200	205	225
				n	12730	11140	8755	7960	7160	6165	5410	5040	4545	4080	3580
				f _z	0.026	0.025	0.035	0.045	0.06	0.089	0.122	0.15	0.165	0.18	0.201
				f (mm/min)	660	555	615	715	860	1100	1320	1510	1500	1470	1440
	6-9	Low alloy Steel	25-35	v _c (m/min)	80	105	110	125	135	155	170	190	200	205	225
				n	12730	11140	8755	7960	7160	6165	5410	5040	4545	4080	3580
				f _z	0.026	0.025	0.035	0.045	0.06	0.089	0.122	0.15	0.165	0.18	0.201
				f (mm/min)	660	555	615	715	860	1100	1320	1510	1500	1470	1440
K	15-20	Cast Iron		v _c (m/min)	65	65	65	65	65	65	65	65	60	65	65
				n	10345	6895	5170	4140	3450	2585	2070	1725	1365	1295	1035
				f _z	0.01	0.016	0.028	0.04	0.053	0.092	0.112	0.131	0.164	0.177	0.2
				f (mm/min)	205	220	290	330	365	475	460	450	445	460	415
N	21-24	Aluminium/ Aluminium Alloys		v _c (m/min)	195	195	195	190	195	200	195	195	190	195	185
				n	31035	20690	15520	12095	10345	7960	6205	5170	4320	3880	2945
				f _z	0.006	0.01	0.013	0.019	0.023	0.034	0.044	0.061	0.073	0.07	0.092
				f (mm/min)	370	415	400	460	475	540	545	630	630	540	540

Diagram illustrating the chip load and depth of cut for a 2-flute ball nose end mill. The chip load is labeled $0.3 \times DC$ and the depth of cut is labeled $0.7 \times DC$.



► The feed rate for long, long reach and uncoated tools should be reduced by up to 50%

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