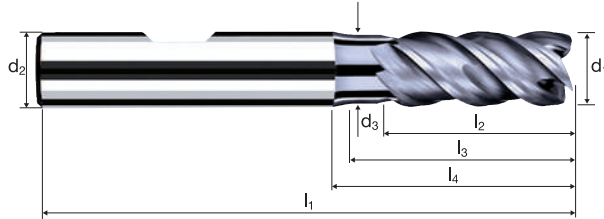
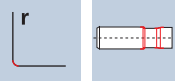


# Cylindrical end mills NVDS

Smooth-edged, normal version, short neck  
High-performance penetration edge



HM  
MG10    λ 45°  
          γ 0°



Roughing HPC    Roughing HDC    Finishing

Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500						Inox Stainless	Ti Titanium	GG(G) Tool Steel Nickel-Alloys
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Example: Order-N°.											POLYCHROM	
Coating    Article-N°    ø-Code												
P    8200    220												
Ø Code	d <sub>1</sub> e8	d <sub>2</sub> h5	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	r	α	z		
220	4.00	6.00	3.70	57	8.00	16.00	20.82	0.100	3.0°	4	●	
260	5.00	6.00	4.60	57	10.00	18.00	21.27	0.100	1.5°	4	●	
300	6.00	6.00	5.50	57	12.00	18.15	20.00	0.100	0.0°	4	●	
391	8.00	8.00	7.40	63	19.00	23.63	26.00	0.150	0.0°	4	●	
450	10.00	10.00	9.20	72	23.00	27.99	31.00	0.200	0.0°	4	●	
501	12.00	12.00	11.00	83	27.00	33.29	37.00	0.200	0.0°	4	●	
610	16.00	16.00	15.00	92	32.00	38.73	43.00	0.200	0.0°	4	●	
682	20.00	20.00	19.00	104	39.00	48.23	53.00	0.200	0.0°	4	●	

Application	Material	d1 [mm]	z	v <sub>c</sub> [m/min]	f <sub>s</sub> [mm]	a <sub>p</sub> [mm]	a <sub>e</sub> [mm]	n [min <sup>-1</sup> ]	v <sub>r</sub> [mm/min]	Q [cm <sup>3</sup> /min]	q <sub>Z</sub> [°]					
	Steel < 850 N/mm <sup>2</sup> 	4.00	4	180	0.035	6.000	1.600	14325	2005	19.3	20°					
		5.00	4	180	0.040	7.500	2.000	11460	1835	27.5	20°					
		6.00	4	180	0.050	9.000	2.400	9550	1910	41.3	20°					
		8.00	4	180	0.060	12.000	3.200	7160	1720	66.0	20°					
		10.00	4	180	0.075	15.000	4.000	5730	1720	103.1	20°					
		12.00	4	180	0.085	18.000	4.800	4775	1625	140.3	20°					
		16.00	4	180	0.095	24.000	6.400	3580	1360	209.0	20°					
		20.00	4	180	0.110	30.000	8.000	2865	1260	302.5	20°					
			Steel 850 - 1100 N/mm <sup>2</sup> 	4.00	4	150	0.030	6.000	1.600	11935	1430	13.8	18°			
				5.00	4	150	0.035	7.500	2.000	9550	1335	20.1	18°			
6.00	4			150	0.040	9.000	2.400	7960	1275	27.5	18°					
8.00	4			150	0.050	12.000	3.200	5970	1195	45.8	18°					
10.00	4			150	0.065	15.000	4.000	4775	1240	74.5	18°					
12.00	4			150	0.075	18.000	4.800	3980	1195	103.1	18°					
16.00	4			150	0.085	24.000	6.400	2985	1015	155.8	18°					
20.00	4			150	0.100	30.000	8.000	2385	955	229.2	18°					
Cold work tool steel (12% Cr), high alloyed [1.2379]				4.00	4	70	0.030	6.000	1.600	5570	670	6.4	12°			
				5.00	4	70	0.035	7.500	2.000	4455	625	9.4	12°			
		6.00	4	70	0.040	9.000	2.400	3715	595	12.8	12°					
		8.00	4	70	0.050	12.000	3.200	2785	555	21.4	12°					
		10.00	4	70	0.060	15.000	4.000	2230	535	32.1	12°					
		12.00	4	70	0.075	18.000	4.800	1855	555	48.1	12°					
		16.00	4	70	0.085	24.000	6.400	1395	475	72.7	12°					
		20.00	4	70	0.095	30.000	8.000	1115	425	101.6	12°					
		Inox normal [Cr-Ni/1.4301] [Cr-Ni-Mo/1.4571]		4.00	4	90	0.020	6.000	1.600	7160	575	5.5	12°			
				5.00	4	90	0.025	7.500	2.000	5730	575	8.6	12°			
6.00	4			90	0.030	9.000	2.400	4775	575	12.4	12°					
8.00	4			90	0.035	12.000	3.200	3580	500	19.3	12°					
10.00	4			90	0.045	15.000	4.000	2865	515	30.9	12°					
12.00	4			90	0.055	18.000	4.800	2385	525	45.4	12°					
16.00	4			90	0.065	24.000	6.400	1790	465	71.5	12°					
20.00	4			90	0.080	30.000	8.000	1430	460	110.0	12°					
Application	Material			Steel < 850 N/mm <sup>2</sup> 		4.00	4	145	0.025	5.000	4.000	11540	1155	23.1	32°	8.0
						5.00	4	145	0.030	6.250	5.000	9230	1110	34.6	32°	10.0
		6.00	4			145	0.040	7.500	6.000	7690	1230	55.4	32°	12.0		
		8.00	4			145	0.045	10.000	8.000	5770	1040	83.1	32°	16.0		
		10.00	4			145	0.055	12.500	10.000	4615	1015	126.9	32°	20.0		
		12.00	4			145	0.065	15.000	12.000	3845	1000	180.0	32°	24.0		
		16.00	4			145	0.070	20.000	16.000	2885	810	258.5	32°	32.0		
		20.00	4			145	0.085	25.000	20.000	2310	785	392.3	32°	40.0		
		Steel 850 - 1100 N/mm <sup>2</sup> 				4.00	4	120	0.020	5.000	4.000	9550	765	15.3	29°	9.0
						5.00	4	120	0.025	6.250	5.000	7640	765	23.9	29°	11.3
6.00	4			120	0.030	7.500	6.000	6365	765	34.4	29°	13.5				
8.00	4			120	0.040	10.000	8.000	4775	765	61.1	29°	18.0				
10.00	4			120	0.050	12.500	10.000	3820	765	95.5	29°	22.6				
12.00	4			120	0.055	15.000	12.000	3185	700	126.1	29°	27.1				
16.00	4			120	0.065	20.000	16.000	2385	620	198.6	29°	36.1				
20.00	4			120	0.075	25.000	20.000	1910	575	286.5	29°	45.1				
Cold work tool steel (12% Cr), high alloyed [1.2379]				4.00	4	55	0.025	5.000	4.000	4375	440	8.8	19°	14.5		
				5.00	4	55	0.025	6.250	5.000	3500	350	10.9	19°	18.2		
		6.00	4	55	0.030	7.500	6.000	2920	350	15.8	19°	21.8				
		8.00	4	55	0.040	10.000	8.000	2190	350	28.0	19°	29.0				
		10.00	4	55	0.045	12.500	10.000	1750	315	39.4	19°	36.3				
		12.00	4	55	0.055	15.000	12.000	1460	320	57.8	19°	43.6				
		16.00	4	55	0.065	20.000	16.000	1095	285	91.0	19°	58.1				
		20.00	4	55	0.070	25.000	20.000	875	245	122.5	19°	72.6				
		Inox normal [Cr-Ni/1.4301] [Cr-Ni-Mo/1.4571]		4.00	4	70	0.015	5.000	4.000	5570	335	6.7	14°	20.1		
				5.00	4	70	0.020	6.250	5.000	4455	355	11.1	14°	25.1		
6.00	4			70	0.025	7.500	6.000	3715	370	16.7	14°	30.1				
8.00	4			70	0.025	10.000	8.000	2785	280	22.3	14°	40.1				
10.00	4			70	0.035	12.500	10.000	2230	310	39.0	14°	50.1				
12.00	4			70	0.040	15.000	12.000	1855	295	53.5	14°	60.2				
16.00	4			70	0.050	20.000	16.000	1395	280	89.1	14°	80.2				
20.00	4			70	0.060	25.000	20.000	1115	265	133.7	14°	100.3				