

# Cylindrical end mills

Smooth-edged, normal version, short neck

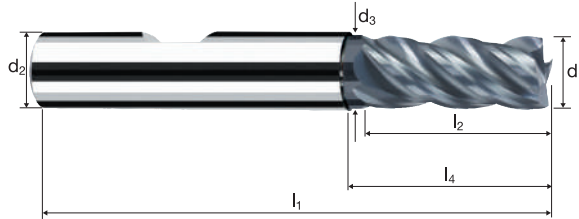


**HM**  
**MG10**

$\lambda$  40°  
 $\gamma$  6°

45°

Vario



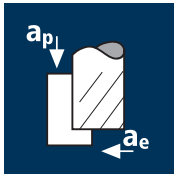
Roughing      Finishing

**ToolSchool** P46200 / P46300

Rm < 850    Rm 850-1100    Rm 1100-1300    **Inox** Stainless    **Ti** Titanium    **GG(G)** Tool Steel    Nickel-Alloys

Ø Code	d <sub>1</sub> e8	d <sub>2</sub> h6	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	45°	α	z	POLYCHROM	
											Order-N°	Article-N°
												<b>P45317</b>
												<b>P45217</b>
<b>100</b>	1.00	6.00	0.95	57	5.00	7.00	17.08	0.07	9.5°	4		●
<b>140</b>	2.00	6.00	1.90	57	7.00	10.00	18.31	0.10	7.5°	4		●
<b>178*</b>	3.00	3.00	-	45	8.00	-	-	0.10	0.0°	4		●
<b>180</b>	3.00	6.00	2.80	57	8.00	14.00	20.63	0.10	4.5°	4		●
<b>218*</b>	4.00	4.00	-	50	11.00	-	-	0.10	0.0°	4		●
<b>220</b>	4.00	6.00	3.70	57	11.00	16.00	20.95	0.10	3.0°	4		●
<b>258*</b>	5.00	5.00	-	50	13.00	-	-	0.15	0.0°	4		●
<b>260</b>	5.00	6.00	4.60	57	13.00	18.00	21.27	0.15	1.5°	4		●
<b>300</b>	6.00	6.00	5.50	57	13.00	19.34	20.00	0.15	0.0°	4		●
<b>391</b>	8.00	8.00	7.40	63	19.00	25.29	26.00	0.15	0.0°	4		●
<b>450</b>	10.00	10.00	9.20	72	22.00	30.20	31.00	0.20	0.0°	4		●
<b>501</b>	12.00	12.00	11.00	83	26.00	36.13	37.00	0.20	0.0°	4		●
<b>570</b>	14.00	14.00	13.00	83	26.00	36.13	37.00	0.20	0.0°	4		●
<b>610</b>	16.00	16.00	15.00	92	32.00	42.13	43.00	0.20	0.0°	4		●
<b>682</b>	20.00	20.00	19.00	104	38.00	52.13	53.00	0.20	0.0°	4		●
<b>772</b>	25.00	25.00	24.00	121	45.00	63.13	64.00	0.25	0.0°	4		●
* without clamping flat only, without short neck												

## Application



## Material

Steel  
< 850 N/mm<sup>2</sup>



Steel  
850 - 1100 N/mm<sup>2</sup>



Inox normal  
[Cr-Ni/1.4301]  
[Cr-Ni-Mo/1.4571]



Cast iron  
(lamellar / spheroidal)



Steel  
< 850 N/mm<sup>2</sup>



Steel  
850 - 1100 N/mm<sup>2</sup>



Inox normal  
[Cr-Ni/1.4301]  
[Cr-Ni-Mo/1.4571]



Cast iron  
(lamellar / spheroidal)



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]
3.00	4	170	0.015	4.500	0.750	18040	1080	3.7
4.00	4	170	0.020	6.000	1.200	13530	1080	7.8
5.00	4	170	0.025	7.500	1.750	10825	1080	14.2
6.00	4	170	0.030	9.000	2.400	9020	1080	23.4
8.00	4	170	0.040	12.000	3.200	6765	1080	41.6
10.00	4	170	0.050	15.000	4.000	5410	1080	64.9
12.00	4	170	0.060	18.000	4.800	4510	1080	93.5
16.00	4	170	0.075	24.000	6.400	3380	1015	155.8
20.00	4	170	0.095	30.000	8.000	2705	1030	246.8
3.00	4	120	0.015	4.500	0.750	12730	765	2.6
4.00	4	120	0.020	6.000	1.200	9550	765	5.5
5.00	4	120	0.025	7.500	1.750	7640	765	10.0
6.00	4	120	0.030	9.000	2.400	6365	765	16.5
8.00	4	120	0.040	12.000	3.200	4775	765	29.3
10.00	4	120	0.050	15.000	4.000	3820	765	45.8
12.00	4	120	0.060	18.000	4.800	3185	765	66.0
16.00	4	120	0.075	24.000	6.400	2385	715	110.0
20.00	4	120	0.095	30.000	8.000	1910	725	174.2
3.00	4	80	0.010	4.500	0.750	8490	340	1.1
4.00	4	80	0.015	6.000	1.200	6365	380	2.8
5.00	4	80	0.020	7.500	1.750	5095	405	5.3
6.00	4	80	0.025	9.000	2.400	4245	425	9.2
8.00	4	80	0.030	12.000	3.200	3185	380	14.7
10.00	4	80	0.040	15.000	4.000	2545	405	24.4
12.00	4	80	0.050	18.000	4.800	2120	425	36.7
16.00	4	80	0.060	24.000	6.400	1590	380	58.7
20.00	4	80	0.075	30.000	8.000	1275	380	91.7
3.00	4	135	0.015	4.500	0.750	14325	860	2.9
4.00	4	135	0.020	6.000	1.200	10745	860	6.2
5.00	4	135	0.025	7.500	1.750	8595	860	11.3
6.00	4	135	0.030	9.000	2.400	7160	860	18.6
8.00	4	135	0.040	12.000	3.200	5370	860	33.0
10.00	4	135	0.050	15.000	4.000	4295	860	51.6
12.00	4	135	0.060	18.000	4.800	3580	860	74.3
16.00	4	135	0.085	24.000	6.400	2685	915	140.3
20.00	4	135	0.105	30.000	8.000	2150	900	216.6
3.00	4	135	0.010	1.800	3.000	14325	575	3.1
4.00	4	135	0.015	2.800	4.000	10745	645	7.2
5.00	4	135	0.020	4.000	5.000	8595	690	13.8
6.00	4	135	0.025	6.000	6.000	7160	715	25.8
8.00	4	135	0.030	8.000	8.000	5370	645	41.3
10.00	4	135	0.040	10.000	10.000	4295	690	68.8
12.00	4	135	0.045	12.000	12.000	3580	645	92.8
16.00	4	135	0.055	8.000	16.000	2685	590	75.6
20.00	4	135	0.070	10.000	20.000	2150	600	120.3
3.00	4	95	0.010	1.800	3.000	10080	405	2.2
4.00	4	95	0.015	2.800	4.000	7560	455	5.1
5.00	4	95	0.020	4.000	5.000	6050	485	9.7
6.00	4	95	0.025	6.000	6.000	5040	505	18.1
8.00	4	95	0.030	8.000	8.000	3780	455	29.0
10.00	4	95	0.040	10.000	10.000	3025	485	48.4
12.00	4	95	0.045	12.000	12.000	2520	455	65.3
16.00	4	95	0.055	8.000	16.000	1890	415	53.2
20.00	4	95	0.070	10.000	20.000	1510	425	84.7
3.00	4	65	0.008	1.300	3.000	6895	220	0.9
4.00	4	65	0.010	2.000	4.000	5175	205	1.7
5.00	4	65	0.015	2.800	5.000	4140	250	3.5
6.00	4	65	0.020	4.200	6.000	3450	275	7.0
8.00	4	65	0.025	8.000	8.000	2585	260	16.6
10.00	4	65	0.030	10.000	10.000	2070	250	24.8
12.00	4	65	0.040	12.000	12.000	1725	275	39.7
16.00	4	65	0.045	8.000	16.000	1295	235	29.8
20.00	4	65	0.055	10.000	20.000	1035	230	45.5
3.00	4	115	0.010	1.800	3.000	12200	490	2.6
4.00	4	115	0.015	2.800	4.000	9150	550	6.1
5.00	4	115	0.025	4.000	5.000	7320	730	14.6
6.00	4	115	0.025	6.000	6.000	6100	610	22.0
8.00	4	115	0.035	8.000	8.000	4575	640	41.0
10.00	4	115	0.040	10.000	10.000	3660	585	58.6
12.00	4	115	0.050	12.000	12.000	3050	610	87.9
16.00	4	115	0.065	8.000	16.000	2290	595	76.1
20.00	4	115	0.080	10.000	20.000	1830	585	117.1