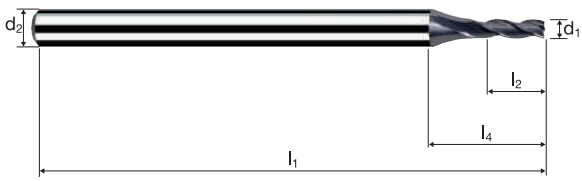
Cylindrical end mills

Shank ø 3mm, 3xd

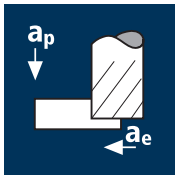
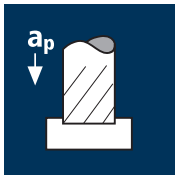
HM MG10	λ 30° γ 8°
90°	



Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless	Ti Titanium	CuZn Brass Gold / Platinum Copper

Example: **Order-N°.** Coating **M** Article-N°. **45713** ø-Code **040**

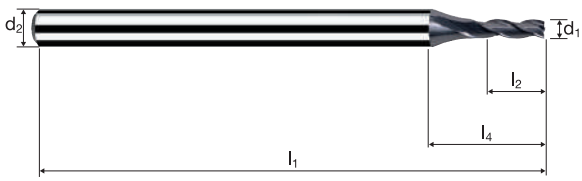
Ø Code	d_1 ±0.01	d_2 h6	l_1	l_2	l_4	α	z	MICRO M45713
040	0.40	3.00	40	1.20	6.50	12.5°	3	●
050	0.50	3.00	40	1.50	6.61	11.5°	3	●
060	0.60	3.00	40	1.80	6.72	11.0°	3	●
070	0.70	3.00	40	2.10	6.84	10.5°	3	●
080	0.80	3.00	40	2.40	6.95	10.0°	3	●
090	0.90	3.00	40	2.70	7.06	9.0°	3	●
100	1.00	3.00	40	3.00	7.18	8.5°	3	●
104	1.10	3.00	40	3.30	7.34	8.0°	3	●
108	1.20	3.00	40	3.60	7.45	7.5°	3	●
112	1.30	3.00	40	3.90	7.57	7.0°	3	●
116	1.40	3.00	40	4.20	7.68	6.5°	3	●
120	1.50	3.00	40	4.50	7.79	6.0°	3	●
123	1.60	3.00	40	4.80	7.91	5.5°	3	●
126	1.70	3.00	40	5.10	8.02	5.0°	3	●
130	1.80	3.00	40	5.40	8.13	4.5°	3	●
135	1.90	3.00	40	5.70	8.25	4.5°	3	●
140	2.00	3.00	40	6.00	8.36	4.0°	3	●

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
	Steel < 850 N/mm²	0.40	3	53	0.004	0.480	0.040	42175	505	9.7
		0.60	3	79	0.008	0.720	0.060	41910	1005	43.5
		0.80	3	106	0.010	0.960	0.080	42175	1265	97.2
		1.00	3	132	0.012	1.200	0.100	42015	1515	181.5
		1.20	3	158	0.014	1.440	0.120	41910	1760	304.2
		1.40	3	180	0.016	1.680	0.140	40925	1965	462.0
		1.60	3	180	0.018	1.920	0.160	35810	1935	594.0
		1.80	3	180	0.022	2.160	0.180	31830	2100	816.8
		2.00	3	180	0.024	2.400	0.200	28650	2065	990.1
	Short-chipping brass [CuZn]	0.40	3	53	0.004	0.480	0.040	42175	505	9.7
		0.60	3	79	0.008	0.720	0.060	41910	1005	43.5
		0.80	3	106	0.012	0.960	0.080	42175	1520	116.6
		1.00	3	132	0.014	1.200	0.100	42015	1765	211.8
		1.20	3	158	0.016	1.440	0.120	41910	2010	347.6
		1.40	3	185	0.018	1.680	0.140	42060	2270	534.2
		1.60	3	190	0.020	1.920	0.160	37800	2270	696.7
		1.80	3	190	0.024	2.160	0.180	33600	2420	940.6
		2.00	3	190	0.026	2.400	0.200	30240	2360	1132.2
	Inox normal [Cr-Ni/1.4301] [Cr-Ni-Mo/1.4571]	0.40	3	53	0.004	0.480	0.040	42175	505	9.7
		0.60	3	70	0.006	0.720	0.060	37135	670	28.9
		0.80	3	70	0.008	0.960	0.080	27850	670	51.3
		1.00	3	70	0.010	1.200	0.100	22280	670	80.2
		1.20	3	70	0.012	1.440	0.120	18570	670	115.5
		1.40	3	70	0.012	1.680	0.140	15915	575	134.8
		1.60	3	70	0.014	1.920	0.160	13925	585	179.7
		1.80	3	70	0.018	2.160	0.180	12380	670	259.9
		2.00	3	70	0.020	2.400	0.200	11140	670	320.9
	Titanium alloys > 300 HB [Ti6Al4V]	0.40	3	50	0.002	0.480	0.040	39790	240	4.6
		0.60	3	50	0.006	0.720	0.060	26525	475	20.6
		0.80	3	50	0.008	0.960	0.080	19895	475	36.7
		1.00	3	50	0.008	1.200	0.100	15915	380	45.8
		1.20	3	50	0.010	1.440	0.120	13265	400	68.8
		1.40	3	50	0.012	1.680	0.140	11370	410	96.3
		1.60	3	50	0.012	1.920	0.160	9945	360	110.0
		1.80	3	50	0.016	2.160	0.180	8840	425	165.0
		2.00	3	50	0.016	2.400	0.200	7960	380	183.3
	Steel < 850 N/mm²	0.40	3	53	0.004	0.050	0.400	42175	505	10.1
		0.60	3	79	0.006	0.070	0.600	41910	755	31.7
		0.80	3	106	0.008	0.100	0.800	42175	1010	81.0
		1.00	3	132	0.012	0.120	1.000	42015	1515	181.5
		1.20	3	158	0.014	0.140	1.200	41910	1760	295.7
		1.40	3	160	0.016	0.170	1.400	36380	1745	415.6
		1.60	3	160	0.018	0.190	1.600	31830	1720	522.5
		1.80	3	160	0.020	0.220	1.800	28295	1700	672.3
		2.00	3	160	0.022	0.240	2.000	25465	1680	806.7
	Short-chipping brass [CuZn]	0.40	3	53	0.004	0.050	0.400	42175	505	10.1
		0.60	3	79	0.006	0.070	0.600	41910	755	31.7
		0.80	3	106	0.008	0.100	0.800	42175	1010	81.0
		1.00	3	132	0.012	0.120	1.000	42015	1515	181.5
		1.20	3	158	0.014	0.140	1.200	41910	1760	295.7
		1.40	3	170	0.016	0.170	1.400	38650	1855	441.6
		1.60	3	170	0.018	0.190	1.600	33820	1825	555.2
		1.80	3	170	0.022	0.220	1.800	30065	1985	785.7
		2.00	3	170	0.024	0.240	2.000	27055	1950	935.1
	Inox normal [Cr-Ni/1.4301] [Cr-Ni-Mo/1.4571]	0.40	3	53	0.004	0.050	0.400	42175	505	10.1
		0.60	3	60	0.006	0.070	0.600	31830	575	24.1
		0.80	3	60	0.008	0.100	0.800	23875	575	45.8
		1.00	3	60	0.010	0.120	1.000	19100	575	68.8
		1.20	3	60	0.012	0.140	1.200	15915	575	96.3
		1.40	3	60	0.014	0.170	1.400	13640	575	136.4
		1.60	3	60	0.016	0.190	1.600	11935	575	174.2
		1.80	3	60	0.018	0.220	1.800	10610	575	226.9
		2.00	3	60	0.020	0.240	2.000	9550	575	275.0
	Titanium alloys > 300 HB [Ti6Al4V]	0.40	3	40	0.004	0.050	0.400	31830	380	7.6
		0.60	3	40	0.004	0.070	0.600	21220	255	10.7
		0.80	3	40	0.006	0.100	0.800	15915	285	22.9
		1.00	3	40	0.010	0.120	1.000	12730	380	45.8
		1.20	3	40	0.012	0.140	1.200	10610	380	64.2
		1.40	3	40	0.012	0.170	1.400	9095	325	77.9
		1.60	3	40	0.014	0.190	1.600	7960	335	101.6
		1.80	3	40	0.016	0.220	1.800	7075	340	134.5
		2.00	3	40	0.018	0.240	2.000	6365	345	165.0

Cylindrical end mills

Shank ø 3mm, 3xd

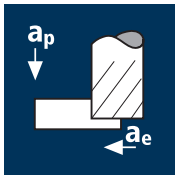
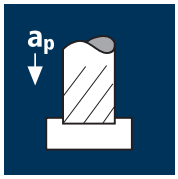
HM MG10	λ 30° γ 8°
90°	



Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless	Ti Titanium	CuZn Brass Gold / Platinum Copper

Example: **Order-N°.** Coating **M** Article-N°. **45713** ø-Code **143**

Ø Code	d_1 ±0.01	d_2 h6	l_1	l_2	l_4	α	z	MICRO M45713
143	2.10	3.00	40	6.30	8.47	3.5°	3	●
146	2.20	3.00	40	6.60	8.59	3.0°	3	●
150	2.30	3.00	40	6.90	8.70	2.5°	3	●
155	2.40	3.00	40	7.20	8.81	2.5°	3	●
160	2.50	3.00	40	7.50	8.93	2.0°	3	●
165	2.60	3.00	45	7.80	9.04	1.5°	3	●
170	2.70	3.00	45	8.10	9.15	1.0°	3	●
172	2.80	3.00	45	8.40	9.27	1.0°	3	●
176	2.90	3.00	45	8.70	9.38	0.5°	3	●

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min^{-1}]	v_f [mm/min]	Q [cm^3/min]
	Steel < 850 N/mm²	2.10	3	180	0.024	2.520	0.210	27285	1965	1.0
		2.20	3	180	0.026	2.640	0.220	26045	2030	1.2
		2.30	3	180	0.028	2.760	0.230	24910	2095	1.3
		2.40	3	180	0.028	2.880	0.240	23875	2005	1.4
		2.50	3	180	0.030	3.000	0.250	22920	2065	1.5
		2.60	3	180	0.030	3.120	0.260	22035	1985	1.6
		2.70	3	180	0.032	3.240	0.270	21220	2035	1.8
		2.80	3	180	0.032	3.360	0.280	20465	1965	1.8
		2.90	3	180	0.034	3.480	0.290	19755	2015	2.0
	Short-chipping brass [CuZn]	2.10	3	190	0.026	2.520	0.210	28800	2245	1.2
		2.20	3	190	0.028	2.640	0.220	27490	2310	1.3
		2.30	3	190	0.030	2.760	0.230	26295	2365	1.5
		2.40	3	190	0.030	2.880	0.240	25200	2270	1.6
		2.50	3	190	0.034	3.000	0.250	24190	2470	1.9
		2.60	3	190	0.034	3.120	0.260	23260	2375	1.9
		2.70	3	190	0.036	3.240	0.270	22400	2420	2.1
		2.80	3	190	0.036	3.360	0.280	21600	2335	2.2
		2.90	3	190	0.038	3.480	0.290	20855	2375	2.4
	Inox normal [Cr-Ni/1.4301] [Cr-Ni-Mo/1.4571]	2.10	3	70	0.020	2.520	0.210	10610	635	0.3
		2.20	3	70	0.020	2.640	0.220	10130	610	0.4
		2.30	3	70	0.022	2.760	0.230	9690	640	0.4
		2.40	3	70	0.022	2.880	0.240	9285	615	0.4
		2.50	3	70	0.024	3.000	0.250	8915	640	0.5
		2.60	3	70	0.024	3.120	0.260	8570	615	0.5
		2.70	3	70	0.026	3.240	0.270	8250	645	0.6
		2.80	3	70	0.026	3.360	0.280	7960	620	0.6
		2.90	3	70	0.028	3.480	0.290	7685	645	0.7
	Titanium alloys > 300 HB [Ti6Al4V]	2.10	3	50	0.016	2.520	0.210	7580	365	0.2
		2.20	3	50	0.018	2.640	0.220	7235	390	0.2
		2.30	3	50	0.020	2.760	0.230	6920	415	0.3
		2.40	3	50	0.020	2.880	0.240	6630	400	0.3
		2.50	3	50	0.022	3.000	0.250	6365	420	0.3
		2.60	3	50	0.022	3.120	0.260	6120	405	0.3
		2.70	3	50	0.022	3.240	0.270	5895	390	0.3
		2.80	3	50	0.022	3.360	0.280	5685	375	0.4
		2.90	3	50	0.024	3.480	0.290	5490	395	0.4
	Steel < 850 N/mm²	2.10	3	160	0.024	0.250	2.100	24250	1745	0.9
		2.20	3	160	0.024	0.260	2.200	23150	1665	1.0
		2.30	3	160	0.026	0.280	2.300	22145	1725	1.1
		2.40	3	160	0.026	0.290	2.400	21220	1655	1.2
		2.50	3	160	0.028	0.300	2.500	20370	1710	1.3
		2.60	3	160	0.028	0.310	2.600	19590	1645	1.3
		2.70	3	160	0.030	0.320	2.700	18865	1700	1.5
		2.80	3	160	0.032	0.340	2.800	18190	1745	1.7
		2.90	3	160	0.032	0.350	2.900	17560	1685	1.7
	Short-chipping brass [CuZn]	2.10	3	170	0.026	0.250	2.100	25770	2010	1.1
		2.20	3	170	0.026	0.260	2.200	24595	1920	1.1
		2.30	3	170	0.028	0.280	2.300	23525	1975	1.3
		2.40	3	170	0.028	0.290	2.400	22545	1895	1.3
		2.50	3	170	0.030	0.300	2.500	21645	1950	1.5
		2.60	3	170	0.030	0.310	2.600	20815	1875	1.5
		2.70	3	170	0.032	0.320	2.700	20040	1925	1.7
		2.80	3	170	0.034	0.340	2.800	19325	1970	1.9
		2.90	3	170	0.034	0.350	2.900	18660	1905	1.9
	Inox normal [Cr-Ni/1.4301] [Cr-Ni-Mo/1.4571]	2.10	3	60	0.022	0.250	2.100	9095	600	0.3
		2.20	3	60	0.022	0.260	2.200	8680	575	0.3
		2.30	3	60	0.022	0.280	2.300	8305	550	0.4
		2.40	3	60	0.022	0.290	2.400	7960	525	0.4
		2.50	3	60	0.024	0.300	2.500	7640	550	0.4
		2.60	3	60	0.024	0.310	2.600	7345	530	0.4
		2.70	3	60	0.026	0.320	2.700	7075	550	0.5
		2.80	3	60	0.028	0.340	2.800	6820	575	0.5
		2.90	3	60	0.028	0.350	2.900	6585	555	0.6
	Titanium alloys > 300 HB [Ti6Al4V]	2.10	3	40	0.020	0.250	2.100	6065	365	0.2
		2.20	3	40	0.020	0.260	2.200	5785	345	0.2
		2.30	3	40	0.020	0.280	2.300	5535	330	0.2
		2.40	3	40	0.020	0.290	2.400	5305	320	0.2
		2.50	3	40	0.022	0.300	2.500	5095	335	0.3
		2.60	3	40	0.022	0.310	2.600	4895	325	0.3
		2.70	3	40	0.024	0.320	2.700	4715	340	0.3
		2.80	3	40	0.026	0.340	2.800	4545	355	0.3
		2.90	3	40	0.026	0.350	2.900	4390	340	0.3