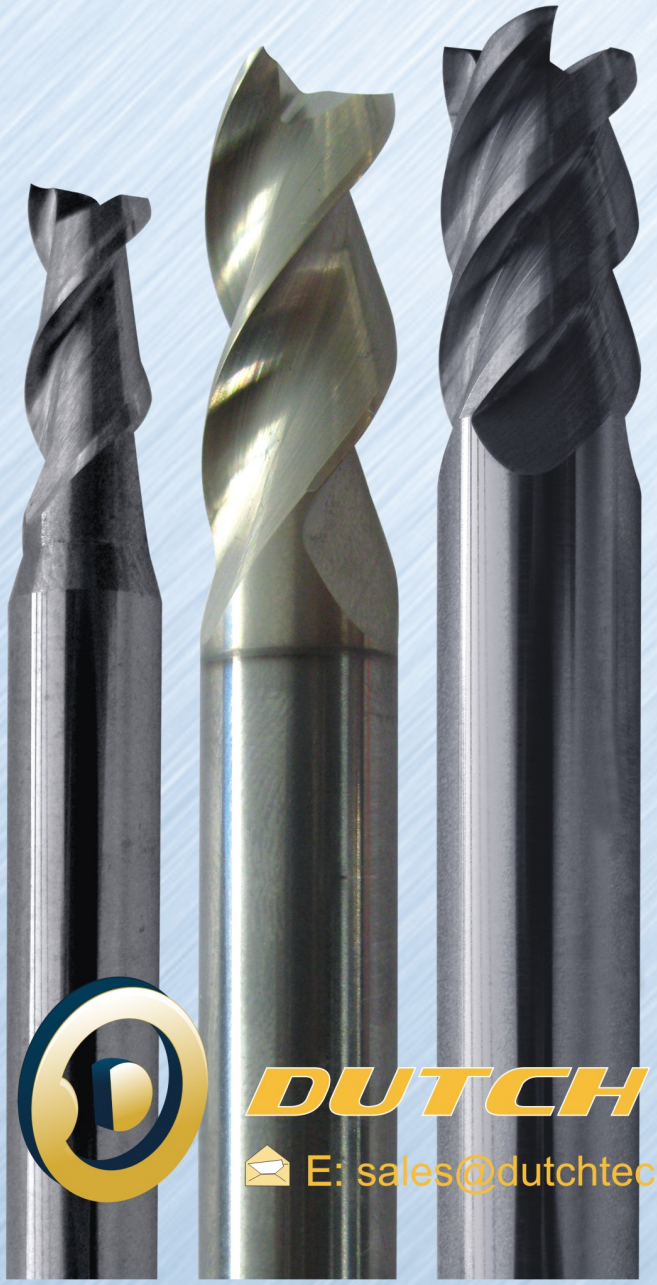
Razor Mill

High Performance End Mills for Aluminium

- Specifically Engineered for Aluminium & Non-Ferrous Applications and provides effective chip removal at high feed rates.
- Target Applications include Mold & Die, Aerospace and Automotive Industry
- High Helix increases effective rake for greater shearing ability without reducing edge strength
- Vibration Free Milling
- Better and Improved Workpiece Surface Quality
- Superior Flute Finish offers smooth flowing of chips generated.



DUTCH TECH TOOLS

E: sales@dutchtechtools.com

UGC 12

45°

45°(0.08 -0.40 mm

DIN 6527 K

DIN 6535 HB

Run Out ⩽0.010 mm

All dimensions are in millimeters.

								13252780	13252784	13252740	13252744
								BRIGHT	BRIGHT	COATED	COATED
								HA	HB	HA	HB
							d_1 tol	⩽6 = -0.015 -0.020 > 6 = -0.020 -0.040	⩽6 = -0.015 -0.020 > 6 = -0.020 -0.040	⩽6 = -0.015 -0.020 > 6 = -0.020 -0.040	⩽6 = -0.015 -0.020 > 6 = -0.020 -0.040
							d_2 tol	h_6	h_6	h_6	h_6
d_1	d_2	d_3	l_1	l_2	l_3	z		Item #	Item #	Item #	Item #
3.00	6	2.75	57	7	14	2		132527800300	132527840300	132527400300	132527440300
4.00	6	3.50	57	8	13	2		132527800400	132527840400	132527400400	132527440400
5.00	6	4.50	57	10	11	2		132527800500	132527840500	132527400500	132527440500
6.00	6	5.50	57	10	11	2		132527800600	132527840600	132527400600	132527440600
8.00	8	7.40	63	16	11	2		132527800800	132527840800	132527400800	132527440800
10.00	10	9.20	72	19	13	2		132527801000	132527841000	132527401000	132527441000
12.00	12	11.20	83	22	16	2		132527801200	132527841200	132527401200	132527441200
16.00	16	15.20	92	26	18	2		132527801600	132527841600	132527401600	132527441600
20.00	20	19.20	104	32	22	2		132527802000	132527842000	132527402000	132527442000

Suggested Speeds and Feeds

Application	d_1 [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]
Unalloyed aluminium	3	2	350	0.040	3.0	1.2	37155	2972	10.70
	4	2	350	0.050	4.0	1.6	27866	2787	17.83
	5	2	350	0.050	5.0	2.0	22293	2229	22.29
	6	2	350	0.075	6.0	2.4	18577	2787	40.13
	8	2	350	0.100	8.0	3.2	13933	2787	71.34
	10	2	350	0.125	10.0	4.0	11146	2787	111.46
	12	2	350	0.125	12.00	4.8	9289	2322	133.76
	16	2	350	0.185	16.00	6.4	6967	2578	263.95
	20	2	350	0.215	20.00	8.0	5573	2396	383.44
Wrought aluminium alloys Si<6%	3	2	900	0.035	3.0	1.20	95541	6688	24.08
	4	2	900	0.045	4.0	1.60	71656	6449	41.27
	5	2	900	0.055	5.0	2.00	57325	6306	63.06
	6	2	900	0.070	6.0	2.40	47771	6688	96.31
	8	2	900	0.090	8.0	3.20	35828	6449	165.10
	10	2	900	0.115	10.00	4.00	28662	6592	263.69
	12	2	900	0.135	12.00	4.80	23885	6449	371.46
	16	2	900	0.180	16.00	6.40	17914	6449	660.38
	20	2	900	0.225	20.00	8.00	14331	6449	1031.85

Application	d_1 [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]
Unalloyed copper	3	2	600	0.030	3.0	1.2	63694	3822	13.76
	4	2	600	0.040	4.0	1.6	47771	3822	24.46
	5	2	600	0.050	5.0	2.0	38217	3822	38.22
	6	2	600	0.060	6.0	2.4	31847	3822	55.03
	8	2	600	0.080	8.0	3.2	23885	3822	97.83
	10	2	600	0.100	10.0	4.0	19108	3822	152.87
	12	2	600	0.120	12.0	4.8	15924	3822	220.13
	16	2	600	0.160	16.0	6.4	11943	3822	391.34
	20	2	600	0.200	20.0	8.0	9554	3822	611.46
Thermo-plastics	3	2	1200	0.040	3.0	1.2	127389	10191	36.69
	4	2	1200	0.050	4.0	1.6	95541	9554	61.15
	5	2	1200	0.065	5.0	2.0	76433	9936	99.36
	6	2	1200	0.075	6.0	2.4	63694	9554	137.58
	8	2	1200	0.100	8.0	3.2	47771	9554	244.59
	10	2	1200	0.125	10.0	4.0	38217	9554	382.17
	12	2	1200	0.150	12.0	4.8	31847	9554	550.32
	16	2	1200	0.200	16.0	6.4	23885	9554	978.34
	20	2	1200	0.250	20.0	8.0	19108	9554	1528.66

Application	d_1 [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]
Unalloyed aluminium	3	2	300	0.025	3.0	3.0	31847	1592	14.33
	4	2	300	0.035	4.0	4.0	23885	1672	26.75
	5	2	300	0.040	5.0	5.0	19108	1529	38.22
	6	2	300	0.050	6.0	6.0	15924	1592	57.32
	8	2	300	0.065	8.0	8.0	11943	1553	99.36
	10	2	300	0.085	10.0	10.0	9554	1624	162.42
	12	2	300	0.100	12.0	12.0	7962	1592	229.30
	16	2	300	0.135	16.0	16.0	5971	1612	412.74
	20	2	300	0.165	20.0	20.0	4777	1576	630.57
Wrought aluminium alloys Si<6%	3	2	800	0.025	3.0	1.2	84926	4246	15.29
	4	2	800	0.035	4.0	1.6	63694	4459	28.54
	5	2	800	0.040	5.0	2.0	50955	4076	40.76
	6	2	800	0.050	6.0	2.4	42463	4246	61.15
	8	2	800	0.065	8.0	3.2	31847	4140	105.99
	10	2	800	0.085	10.0	4.0	25478	4331	173.25
	12	2	800	0.100	12.0	4.8	21231	4246	244.59
	16	2	800	0.135	16.0	6.4	15924	4299	240.25
	20	2	800	0.165	20.0	8.0	12739	4204	672.61

Application	d_1 [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]
Unalloyed copper	3	2	400	0.020	3.0	1.2	42463	1699	6.11
	4	2	400	0.025	4.0	1.6	31847	1592	10.19
	5	2	400	0.035	5.0	2.0	25478	1783	17.83
	6	2	400	0.040	6.0	2.4	21231	1699	24.46
	8	2	400	0.055	8.0	3.2	15924	1752	44.84
	10	2	400	0.065	10.0	4.0	12739	1656	66.24
	12	2	400	0.080	12.0	4.8	10616	1699	97.83
	16	2	400	0.105	16.0	6.4	7962	1672	171.21
	20	2	400	0.135	20.0	8.0	6369	1720	275.16
Thermo-plastics	3	2	1200	0.025	3.0	1.2	127389	6369	22.93
	4	2	1200	0.035	4.0	1.6	95541	6688	42.80
	5	2	1200	0.040	5.0	2.0	76433	6115	61.15
	6	2	1200	0.050	6.0	2.4	63694	6369	91.72
	8	2	1200	0.065	8.0	3.2	47771	6210	158.98
	10	2	1200	0.085	10.0	4.0	38217	6497	259.87
	12	2	1200	0.100	12.0	4.8	31847	6369	366.88
	16	2	1200	0.135	16.0	6.4	23885	6449	660.38
	20	2	1200	0.165	20.0	8.0	19108	6306	1008.92

UGC 12

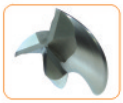
38°

45°(0.08 -0.40 mm

DIN 6527 L

DIN 6535 HB

Run Out ⩽ 0.010 mm



All dimensions are in millimeters.

								1335278	1335274	13352784	13352744
								BRIGHT	BRIGHT	COATED	COATED
								HA	HB	HA	HB
							d_1 tol	⩽6 = -0.015 -0.020 >6 = -0.020 -0.040	⩽6 = -0.015 -0.020 >6 = -0.020 -0.040	⩽6 = -0.015 -0.020 >6 = -0.020 -0.040	⩽6 = -0.015 -0.020 >6 = -0.020 -0.040
							d_2 tol	h_6	h_6	h_6	h_6
d_1	d_2	d_3	l_1	l_2	l_3	z		Item #	Item #	Item #	Item #
3.00	6	2.75	57	7	14	3		133527800300	133527400300	133527840300	133527440300
4.00	6	3.50	57	8	13	3		133527800400	133527400400	133527840400	133527440400
5.00	6	4.50	57	10	11	3		133527800500	133527400500	133527840500	133527440500
6.00	6	5.50	57	10	11	3		133527800600	133527400600	133527840600	133527440600
8.00	8	7.40	63	16	11	3		133527800800	133527400800	133527840800	133527440800
10.00	10	9.20	72	19	13	3		133527801000	133527401000	133527841000	133527441000
12.00	12	11.20	83	22	16	3		133527801200	133527401200	133527841200	133527441200
16.00	16	15.20	92	26	18	3		133527801600	133527401600	133527841600	133527441600
20.00	20	19.20	104	32	22	3		133527802000	133527402000	133527842000	133527442000

Suggested Speeds and Feeds

Application	d_1 [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]
Unalloyed aluminium	3	3	350	0.040	3.0	1.2	37155	4459	16.05
	4	3	350	0.050	4.0	1.6	27866	4180	26.75
	5	3	350	0.050	5.0	2.0	22293	3344	33.44
	6	3	350	0.075	6.0	2.4	18577	4180	60.19
	8	3	350	0.100	8.0	3.2	13933	4180	107.01
	10	3	350	0.125	10.0	4.0	11146	4180	167.20
	12	3	350	0.125	12.0	4.8	9289	3483	200.64
	16	3	350	0.185	16.0	6.4	6967	3866	395.92
	20	3	350	0.215	20.0	8.0	5573	3595	575.16
Wrought aluminium alloys Si<6%	3	3	900	0.035	3.0	1.2	95541	10032	36.11
	4	3	900	0.045	4.0	1.6	71656	9674	61.91
	5	3	900	0.055	5.0	2.0	57325	9459	94.59
	6	3	900	0.070	6.0	2.4	47771	10032	144.46
	8	3	900	0.090	8.0	3.2	35828	9674	247.64
	10	3	900	0.115	10.0	4.0	28662	9889	395.54
	12	3	900	0.135	12.0	4.8	23885	9674	557.20
	16	3	900	0.180	16.0	6.4	17914	9674	990.57
	20	3	900	0.225	20.0	8.0	14331	9674	1547.77

Application	d_1 [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]
Unalloyed copper	3	3	600	0.030	3.0	1.2	63694	5732	20.64
	4	3	600	0.040	4.0	1.6	47771	5732	36.69
	5	3	600	0.050	5.0	2.0	38217	5732	57.32
	6	3	600	0.060	6.0	2.4	31847	5732	82.55
	8	3	600	0.080	8.0	3.2	23885	5732	146.75
	10	3	600	0.100	10.0	4.0	19108	5732	229.30
	12	3	600	0.120	12.0	4.8	15924	5732	330.19
	16	3	600	0.160	16.0	6.4	11943	5732	587.01
	20	3	600	0.200	20.0	8.0	9554	5732	917.20
Thermo-plastics	3	3	1200	0.040	3.0	1.2	127389	15287	55.03
	4	3	1200	0.050	4.0	1.6	95541	14331	91.72
	5	3	1200	0.065	5.0	2.0	76433	14904	149.04
	6	3	1200	0.075	6.0	2.4	63694	14331	206.37
	8	3	1200	0.100	8.0	3.2	47771	14331	366.88
	10	3	1200	0.125	10.0	4.0	38217	14331	573.25
	12	3	1200	0.150	12.0	4.8	31847	14331	825.48
	16	3	1200	0.200	16.0	6.4	23885	14331	1467.52
	20	3	1200	0.250	20.0	8.0	19108	14331	2292.99

Application	d_1 [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]
Unalloyed aluminium	3	3	300	0.025	3.0	3.0	31847	2389	21.50
	4	3	300	0.035	4.0	4.0	23885	2508	40.13
	5	3	300	0.040	5.0	5.0	19108	2293	57.32
	6	3	300	0.050	6.0	6.0	15924	2389	85.99
	8	3	300	0.065	8.0	8.0	11943	2329	149.04
	10	3	300	0.085	10.0	10.0	9554	2436	243.63
	12	3	300	0.100	12.0	12.0	7962	2389	343.95
	16	3	300	0.135	16.0	16.0	5971	2418	619.11
	20	3	300	0.165	20.0	20.0	4777	2365	945.86
Wrought aluminium alloys Si<6%	3	3	800	0.020	3.0	1.2	84926	5096	18.34
	4	3	800	0.025	4.0	1.6	63694	4777	30.57
	5	3	800	0.035	5.0	2.0	50955	5350	53.50
	6	3	800	0.040	6.0	2.4	42463	5096	73.38
	8	3	800	0.055	8.0	3.2	31847	5255	134.52
	10	3	800	0.065	10.0	4.0	25478	4968	198.73
	12	3	800	0.080	12.0	4.8	21231	5096	293.50
	16	3	800	0.105	16.0	6.4	15924	5016	513.63
	20	3	800	0.135	20.0	8.0	12739	5159	825.48

Application	d_1 [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]
Unalloyed copper	3	3	400	0.025	3.0	1.2	42463	3185	11.46
	4	3	400	0.035	4.0	1.6	31847	3344	21.40
	5	3	400	0.040	5.0	2.0	25478	3057	30.57
	6	3	400	0.050	6.0	2.4	21231	3185	45.86
	8	3	400	0.065	8.0	3.2	15924	3105	79.49
	10	3	400	0.085	10.0	4.0	12739	3248	129.94
	12	3	400	0.100	12.0	4.8	10616	3185	183.44
	16	3	400	0.135	16.0	6.4	7962	3225	330.19
	20	3	400	0.165	20.0	8.0	6369	3153	504.46
Thermo-plastics	3	3	1200	0.030	3.0	1.2	127389	11465	41.27
	4	3	1200	0.040	4.0	1.6	95541	11465	73.38
	5	3	1200	0.050	5.0	2.0	76433	11465	114.65
	6	3	1200	0.060	6.0	2.4	63694	11465	165.10
	8	3	1200	0.080	8.0	3.2	47771	11465	293.50
	10	3	1200	0.100	10.0	4.0	38217	11465	458.60
	12	3	1200	0.120	12.0	4.8	31847	11465	660.38
	16	3	1200	0.160	16.0	6.4	23885	11465	1174.01
	20	3	1200	0.200	20.0	8.0	19108	11465	1834.39

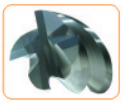
UGC 12

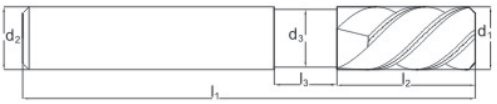
45°(0.08 -0.40 mm

DIN 6527 L

DIN 6535 HB

Run Out ⩽0.010 mm

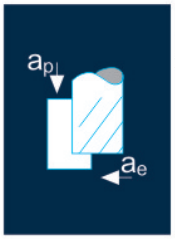




All dimensions are in millimeters.

								13452780	13452740	13452784	13452744
								BRIGHT	BRIGHT	COATED	COATED
								HA	HB	HA	HB
							d_1 tol	⩽6 = -0.015 -0.020 >6 = -0.020 -0.040	⩽6 = -0.015 -0.020 >6 = -0.020 -0.040	⩽6 = -0.015 -0.020 >6 = -0.020 -0.040	⩽6 = -0.015 -0.020 >6 = -0.020 -0.040
							d_2 tol	h_6	h_6	h_6	h_6
d_1	d_2	d_3	l_1	l_2	l_3	z		Item #	Item #	Item #	Item #
3.0	6	2.75	57	8	13	4		134527800300	134527400300	134527840300	134527440300
4.0	6	3.50	57	11	10	4		134527800400	134527400400	134527840400	134527440400
5.0	6	4.50	57	13	8	4		134527800500	134527400500	134527840500	134527440500
6.0	6	5.50	57	13	8	4		134527800600	134527400600	134527840600	134527440600
8.0	8	7.40	63	19	8	4		134527800800	134527400800	134527840800	134527440800
10.0	10	9.20	72	22	10	4		134527801000	134527401000	134527841000	134527441000
12.0	12	11.20	83	26	12	4		134527801200	134527401200	134527841200	134527441200
14.0	14	13.20	83	26	12	4		134527801400	134527401400	134527841400	134527441400
16.0	16	15.20	92	32	12	4		134527801600	134527401600	134527841600	134527441600
18.0	18	17.20	92	32	12	4		134527801800	134527401800	134527841800	134527441800
20.0	20	19.20	104	38	16	4		134527802000	134527402000	134527842000	134527442000

Suggested Speeds and Feeds



Application	d_1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm / min]	Q [cm³ / min]
Unalloyed aluminium	3	4	350	0.040	4.5	1.2	37155	5945	32.10
	4	4	350	0.050	6.0	1.6	27866	5573	53.50
	5	4	350	0.050	7.5	2.0	22293	4459	66.88
	6	4	350	0.075	9.0	2.4	18577	5573	120.38
	8	4	350	0.100	12.0	3.2	13933	5573	214.01
	10	4	350	0.125	15.0	4.0	11146	5573	334.39
	12	4	350	0.125	18.0	4.8	9289	4644	401.27
	16	4	350	0.185	24.0	6.4	6967	5155	791.85
	20	4	350	0.215	30.0	8.0	5573	4793	1150.32
Wrought aluminium alloys Si<6%	3	4	900	0.035	4.5	1.2	95541	13376	72.23
	4	4	900	0.045	6.0	1.6	71656	12898	123.82
	5	4	900	0.055	7.5	2.0	57325	12611	189.17
	6	4	900	0.070	9.0	2.4	47771	13376	288.92
	8	4	900	0.090	12.0	3.2	35828	12898	495.29
	10	4	900	0.115	15.0	4.0	28662	13185	791.08
	12	4	900	0.135	18.0	4.8	23885	12898	1114.39
	16	4	900	0.180	24.0	6.4	17914	12898	1981.15
	20	4	900	0.225	30.0	8.0	14331	12898	3095.54

Application	d_1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm / min]	Q [cm³ / min]
Unalloyed copper	3	4	600	0.030	4.5	1.2	63694	7643	41.27
	4	4	600	0.040	6.0	1.6	47771	7643	73.38
	5	4	600	0.050	7.5	2.0	38217	7643	114.65
	6	4	600	0.060	9.0	2.4	31847	7643	165.10
	8	4	600	0.080	12.0	3.2	23885	7643	293.50
	10	4	600	0.100	15.0	4.0	19108	7643	458.60
	12	4	600	0.120	18.0	4.8	15924	7643	660.38
	16	4	600	0.160	24.0	6.4	11943	7643	1174.01
	20	4	600	0.200	30.0	8.0	9554	7643	1834.39
Thermo-plastics	3	4	1200	0.040	4.5	1.2	127389	20382	110.06
	4	4	1200	0.050	6.0	1.6	95541	19108	183.44
	5	4	1200	0.065	7.5	2.0	76433	19873	298.09
	6	4	1200	0.075	9.0	2.4	63694	19108	412.74
	8	4	1200	0.100	12.0	3.2	47771	19108	733.76
	10	4	1200	0.125	15.0	4.0	38217	19108	1146.50
	12	4	1200	0.150	18.0	4.8	31847	19108	1650.96
	16	4	1200	0.200	24.0	6.4	23885	19108	2935.03
	20	4	1200	0.250	30.0	8.0	19108	19108	4585.99

Application	d_1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm / min]	Q [cm³ / min]
Unalloyed aluminium	3	4	300	0.025	3.0	3.0	31847	3185	28.66
	4	4	300	0.035	4.0	4.0	23885	1672	26.75
	5	4	300	0.040	5.0	5.0	19108	3057	76.43
	6	4	300	0.050	6.0	6.0	15924	3185	114.65
	8	4	300	0.065	8.0	8.0	11943	3105	198.73
	10	4	300	0.085	10.0	10.0	9554	3248	324.84
	12	4	300	0.100	12.0	12.0	7962	3185	458.60
	16	4	300	0.135	16.0	16.0	5971	3225	825.48
	20	4	300	0.165	20.0	20.0	4777	3153	1261.15
Wrought aluminium alloys Si<6%	3	4	800	0.025	3.0	1.2	84926	8493	30.57
	4	4	800	0.035	4.0	1.6	63694	8917	57.07
	5	4	800	0.040	5.0	2.0	50955	8153	81.53
	6	4	800	0.050	6.0	2.4	42463	8493	122.29
	8	4	800	0.065	8.0	3.2	31847	8280	211.97
	10	4	800	0.085	10.0	4.0	25478	8662	346.50
	12	4	800	0.100	12.0	4.8	21231	8493	489.17
	16	4	800	0.135	16.0	6.4	15924	8599	880.51
	20	4	800	0.165	20.0	8.0	12739	8408	1345.22

Application	d_1 [mm]		v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm / min]	Q [cm³ / min]
Unalloyed copper	3	4	400	0.020	3.0	1.2	42463	3397	12.23
	4	4	400	0.025	4.0	1.6	31847	3185	20.38
	5	4	400	0.035	5.0	2.0	25478	3567	35.67
	6	4	400	0.040	6.0	2.4	21231	3397	48.92
	8	4	400	0.055	8.0	3.2	15924	3503	89.68
	10	4	400	0.065	10.0	4.0	12739	3312	132.48
	12	4	400	0.080	12.0	4.8	10616	3397	195.67
	16	4	400	0.105	16.0	6.4	7962	3344	342.42
	20	4	400	0.135	20.0	8.0	6369	3439	550.32
Thermo-plastics	3	4	1200	0.025	3.0	1.2	127389	12739	45.86
	4	4	1200	0.035	4.0	1.6	95541	13376	85.61
	5	4	1200	0.040	5.0	2.0	76433	12229	122.29
	6	4	1200	0.050	6.0	2.4	63694	12739	183.44
	8	4	1200	0.065	8.0	3.2	47771	12420	317.96
	10	4	1200	0.085	10.0	4.0	38217	12994	519.75
	12	4	1200	0.100	12.0	4.8	31847	12739	733.76
	16	4	1200	0.135	16.0	6.4	23885	12898	1320.76
	20	4	1200	0.165	20.0	8.0	19108	12611	2017.83

Symbols

Denotes the helix angle of the Tool. Large Helix angles are used for soft materials, small helix angles are for hard and brittle materials.

Denotes the point angle of the Tool.

The Tool is suitable for Radial and Axial Machining.

The Tool is suitable for Radial, Diagonal & Axial Machining.

Flute design with Fine Roughing Pitch

Flute design with Chipbreaker

The corner between front cutting edge and circumferential cutting edge is provided with protection chamfer of 45°. The size of the protecting chamfer is adjusted to the diamter of the tool and is within the mentioned range (in this case 0.08 to 0.40 mm)

The Tool is furnished with a corner radius.

Denotes the maximum drilling depth

Dimensions of the Drill corresponds to DIN 6537 (Short)

Dimension of the Drill corresponds to DIN 6537 (Long)

Dimension of the Milling Cutter corresponds to DIN 6527 (Short)

Dimension of the Milling Cutter corresponds to DIN 6527 (Long)

Shank Execution according to DIN 6535 HA (cylindrical shank for solid carbide tools)

Shank Execution according to DIN 6535 HB (cylindrical shank with clamping flat for solid carbide tools)

Cylindrical Shank

Cylindrical Shank with clamping flat.

Cylindrical Shank with Whistle Notch.

Tools with internal coolant Holes.

Micrograin Carbide with 10% Cobalt used.

Ultrafine Micrograin Carbide with 12% Cobalt used.

Formulas and abbreviations

d_1	Tool diameter
d_2	Diameter of the shank
d_3	Diameter of Recess / Neck
l_1	Total length of the tool
l_2	Length up to the end of the flute
l_3	Length of Recess / Neck
l_4	Length of the countersink phase (Step drills)
z	Number of cutting edges
r	Radius
f	Feed per revolution
n	Spindle speed
v_c	Cutting speed
v_f	Feed rate
Q	Material removal rate (removal of a certain material volume in a given time)

Formulas

Spindle speed n [min^{-1}]	$n = v_c \cdot 1000 / d / \pi$
Cutting speed v_c [m/min]	$v_c = d \cdot \pi \cdot n / 1000$
Feed per rotation f [mm]	$f = f_z \cdot z$
Feed speed v_f [mm/min]	$v_f = f_z \cdot z \cdot n$
Material removal rate Q [cm^3/ min]	$Q = (a_e \cdot a_p \cdot v_f) / 1000$

Hardness conversion table

R_m [N/mm²]	HV 10	HB	HRC	R_m[N/mm²]	HV 10	HB	HRC
240	75	71		920	287	273	28
255	80	76		940	293	278	29
270	85	81		970	302	287	30
285	90	86		995	310	295	31
305	95	90		1020	317	301	32
320	100	95		1050	327	311	33
335	105	100		1080	336	319	34
350	110	105		1110	345	328	35
370	115	109		1140	355	337	36
385	120	114		1170	364	346	37
400	125	119		1200	373	354	38
415	130	124		1230	382	363	39
430	135	128		1260	392	372	40
450	140	133		1300	403	383	41
465	145	138		1330	413	393	42
480	150	143		1360	423	402	43
495	155	147		1400	434	413	44
510	160	152		1440	446	424	45
530	165	157		1480	458	435	46
545	170	162		1530	473	449	47
560	175	166		1570	484	460	48
575	180	171		1620	497	472	49
595	185	176		1680	514	488	50
610	190	181		1730	527	501	51
625	195	185		1790	544	517	52
640	200	190		1845	560	532	53
660	205	195		1910	578	549	54
675	210	199		1980	596	567	55
690	215	204		2050	615	584	56
705	220	209		2140	639	607	57
720	225	214			655	622	58
740	230	219			675		59
755	235	223			698		60
770	240	228			720		61
785	245	233			745		62
800	250	238	22		773		63
820	255	242	23		800		64
835	260	247	24		829		65
860	268	255	25		864		66
870	272	258	26		900		67
900	280	266	27		940		68