FEEDS & SPEEDS FOR RF100 U, F, VA, A, SF, Ti, H, RF 50

METRIC

Stable conditions:
- good cooling
- sufficient performance
- short-chipping

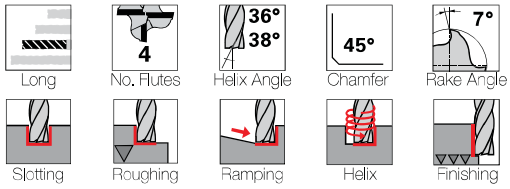
Application	v_c factor	f_z factor	Feed width (ae)	Feed depth (ap)
Slotting	1	1 (0.7 for a_p = 2xd)	1xd	0.5 up to 1xd
Roughing	1	1 (0.7 for a_p = 2xd)	0.4 up to 0.9xd	0.5 up to 1xd
Finishing	1	1	0.01 up to 0.1xd	1 up to 2xd
HPC-roughing	1.3	1.5	0.15 up to 0.4xd	1 up to 2xd
HSC-roughing	1.5	2	0.05 up to 0.15xd	1 up to 2xd

Material	Hardness	Recommended RF 100 type	Type of application	cut Vc	fz (mm/z) with nom. Ø							
					3	6	8	10	12	16	20	25
Structural + free-cutting steels, unalloyed heat-treatable + case hardened steels 1.0035 S185, 1.0486 P275N, 1.0345 P235GH, 1.0050, 1.0070, 1.8937 1.0718 11SMnPb30, 1.0736 11SMn37 1.0402 C22, 1.1178 C30E 1.0503 C45, 1.1191 C30E 1.0301 C10, 1.1121 C10E 1.1750 C75W, 1.2076 102Cr6, 1.2307 29CrMoV9	up to 850 N/mm²	F	Slotting	180	0.016	0.031	0.042	0.06	0.072	0.01	0.12	0.15
		F	Roughing	210	0.018	0.036	0.048	0.069	0.083	0.011	0.014	0.017
		SF	Finishing	360	0.017	0.034	0.046	0.066	0.079	0.11	0.13	0.17
Free-cutting steels, unalloyed case hardened steels, nitriding steels 1.0727 46 S20, 1.0728 60 S20, 1.0757 46SPb20 1.0601 C60, 1.1221 C60E 1.7043 38Cr4 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5 1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	850-1,200 N/mm²	F	Slotting	160	0.014	0.029	0.038	0.055	0.066	0.09	0.11	0.14
		F	Roughing	190	0.017	0.033	0.044	0.063	0.076	0.1	0.13	0.16
		SF	Finishing	320	0.016	0.032	0.042	0.061	0.073	0.1	0.12	0.15
Alloyed heat-treatable, tool and high speed steels 1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2379 X155CrVMo12-1 1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3 Spring steel = 1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4	850-1,400 N/mm²	U	Slotting	135	0.014	0.027	0.036	0.05	0.06	0.08	0.1	0.13
		U	Roughing	160	0.016	0.031	0.041	0.058	0.069	0.09	0.12	0.14
		SF	Finishing	270	0.015	0.03	0.04	0.055	0.066	0.06	0.11	0.14
Hardened steel Tool steel, heat-treatable steel, spring steel, high-speed steel, case hardened steel, etc. Z.B.: 1.2344 X40CrMoV5-1; 1.2767 X45NiCrMo4; 1.2379 X155CrVMo12-1 ;1.2080 X210Cr12 1.3343 S 6-5-2	up to 54 HRC	U	Slotting	70	0.011	0.021	0.028	0.04	0.048	0.06	0.08	0.1
		U	Roughing	100	0.014	0.027	0.036	0.052	0.062	0.08	0.1	0.13
		SF	Finishing	140	0.011	0.021	0.028	0.04	0.048	0.06	0.08	0.1
	54-60 HRC	H	Roughing	80	0.021	0.042	0.056	0.075	0.09	0.12	0.15	0.19
		H	Finishing	100	0.008	0.015	0.02	0.027	0.032	0.04	0.05	0.07
Stainless steel 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X10CrNiS18-9 USA = 303, 410, 420F, 430, 430F	up to 750 N/mm²	VA	Slotting	120	0.014	0.027	0.036	0.05	0.06	0.08	0.1	0.13
		VA	Roughing	140	0.016	0.031	0.041	0.058	0.069	0.09	0.12	0.14
		SF	Finishing	240	0.015	0.03	0.04	0.055	0.066	0.09	0.11	0.14
Stainless steel 1.4301X5CrNi18-10, 1.4303 X5CrNi18-12 1.4310 XCrNi18-8 USA = 304, 304L, 420	750-850 N/mm²	VA	Slotting	80	0.012	0.024	0.032	0.045	0.054	0.07	0.09	0.11
		VA	Roughing	100	0.014	0.028	0.037	0.052	0.062	0.08	0.1	0.12
		SF	Finishing	160	0.013	0.026	0.035	0.05	0.059	0.08	0.1	0.12
Stainless steel 1.4438 X2CrNiMo18-15-4, 1.4404 X2CrNiMo17-12-2, 1.4571 X6CrNiTi18-10 USA = 310, 316, 316B, 316L, 317	above 850 N/mm²	VA/F	Slotting	60	0.011	0.021	0.028	0.04	0.048	0.06	0.08	0.1
		VA/F	Roughing	80	0.013	0.025	0.034	0.048	0.058	0.08	0.1	0.12
		SF	Finishing	120	0.011	0.021	0.028	0.04	0.048	0.06	0.08	0.1
Special alloys (nickel based "Ni") Nimonic, Inconel, Monel, Hastelloy	up to 1,300 N/mm²	Ti/U	Slotting	60	0.008	0.017	0.022	0.032	0.038	0.05	0.06	0.08
		Ti/U	Roughing	80	0.01	0.02	0.027	0.038	0.046	0.06	0.08	0.1
		SF	Finishing	120	0.008	0.017	0.022	0.032	0.038	0.05	0.06	0.08
Titanium alloys ("Ti") 3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7164 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5	up to 1,300 N/mm²	Ti/U	Slotting	30	0.01	0.015	0.02	0.025	0.03	0.04	0.05	0.06
		Ti/U	Roughing	40	0.01	0.02	0.03	0.035	0.04	0.055	0.065	0.08
		SF	Finishing	60	0.015	0.025	0.035	0.045	0.05	0.065	0.08	0.12
Cast iron, grey cast iron, spheroidal graphite and malleable cast iron 0.6010 EN-GL100 (GG10), 0.6020 EN-GJL-200 (GG20), 0.7050 EN-GJS-500-7 (GGG50), 0.8535 EN-GJMW-350-4 (GTW35)	up to 240 HB 30	F	Slotting	160	0.017	0.033	0.044	0.065	0.078	0.1	0.13	0.16
		F	Roughing	190	0.019	0.038	0.051	0.075	0.09	0.12	0.15	0.19
		SF	Finishing	320	0.018	0.036	0.048	0.072	0.086	0.11	0.14	0.18
Cast iron, grey cast iron, spheroidal graphite and malleable cast iron 0.6025 EN-GL250 (GG25), 0.6035 EN-GJL-350 (GG35), 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)	above 240 HB 30	U	Slotting	140	0.015	0.03	0.04	0.055	0.066	0.09	0.11	0.14
		U	Roughing	170	0.017	0.035	0.046	0.063	0.076	0.1	0.13	0.16
		SF	Finishing	280	0.017	0.033	0.044	0.061	0.073	0.1	0.12	0.15
Aluminum, Al-wrought alloys, Al-alloys 3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1 3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	up to 3% Si	A	Slotting	500	0.02	0.039	0.052	0.08	0.096	0.13	0.16	0.2
		A	Roughing	600	0.022	0.045	0.06	0.092	0.11	0.15	0.18	0.23
		A	Finishing	1000	0.021	0.043	0.057	0.088	0.106	0.14	0.18	0.22
Aluminum-cast alloys 3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9 3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	above 3% Si	A	Slotting	230	0.017	0.033	0.044	0.06	0.072	0.1	0.12	0.15
		A	Roughing	280	0.019	0.038	0.051	0.069	0.083	0.11	0.14	0.17
		A	Finishing	350	0.018	0.036	0.048	0.066	0.079	0.11	0.13	0.17
Magnesium-alloys MgMn2, G-MgAl8Zn1, G-MgAl6Zn3	—	A	Slotting	180	0.015	0.03	0.04	0.055	0.066	0.09	0.11	0.14
		A	Roughing	210	0.017	0.035	0.046	0.063	0.076	0.1	0.13	0.16
		A	Finishing	360	0.017	0.033	0.044	0.061	0.073	0.1	0.12	0.15
Non-ferrous metals (copper, short- or long-chipping brass or bronze) 2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb 2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2 2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5 2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn 2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	up to 850 N/mm²	A	Slotting	250	0.017	0.033	0.044	0.06	0.072	0.1	0.12	0.15
		A	Roughing	290	0.019	0.038	0.051	0.069	0.083	0.11	0.14	0.17
		SF	Finishing	500	0.018	0.036	0.048	0.066	0.079	0.11	0.13	0.17

All recommendations are valid for coated tools. For bright milling cutters please vc - 40% and fz -25%

RF 100 VA (4-flute) - Metric - Long Length

center cutting

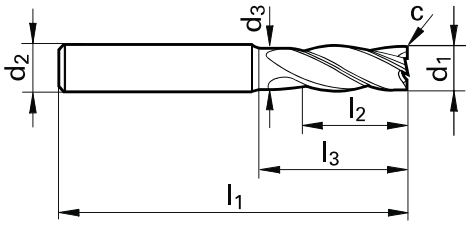


Tool material	**Solid Carbide**
Surface finish	nano-A™
Series	**3806** **3807**

Application group	Material examples	Ideal for
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	—
S	Ni / Ti alloys	●
H	Hardened steel	—

●=Optimal ○=Secondary

Speed and Feed data found on page 302



d1 h10 mm	d2 h6 mm	d3 mm	l1 mm	l2 mm	l3 mm	c mm x 45°	No. of Flutes	Code no.	EDP Number	
6.000	6.000	5.700	65.00	10.00	28.00	0.20	4	6.000	**9038060060000**	**9038070060000**
8.000	8.000	7.700	75.00	12.00	38.00	0.25	4	8.000	**9038060080000**	**9038070080000**
10.000	10.000	9.500	80.00	14.00	38.00	0.30	4	10.000	**9038060100000**	**9038070100000**
12.000	12.000	11.500	93.00	16.00	46.00	0.35	4	12.000	**9038060120000**	**9038070120000**
16.000	16.000	15.500	108.00	22.00	58.00	0.50	4	16.000	**9038060160000**	**9038070160000**
20.000	20.000	19.500	126.00	26.00	74.00	0.60	4	20.000	**9038060200000**	**9038070200000**

RF 100 VA

High-performance end mills for stainless steel

Summary of advantages

- Roughing and plain version
- Wide range of geometries
- Full size and under size availability
- Different lengths and cutting edge designs including ball-nose and roughing geometry
- For slotting, roughing, copying and finishing operations in VA steels and stainless steels
- Improved chip evacuation and reduced machining temperature thanks to optimized flute geometry
- High contour accuracy and minimum deflection
- Applicable with long projection lengths