Cutting Speeds and Feed Rates

Material groups		Material designation	Hardness (HB)	Tensile strength Rm (N/mm²)	Vc (m/min)	Feed rate fz (mm/tooth)	SFM (Surface feet/min)	Feed rate fz (inch/tooth)
					Coated		Coated	
Steels	11	Free-cutting steels	< 200	< 700	50 – 100	0.020 – 0.060	164 – 328	0.0007 – 0.0023
	12	Structural / cementation steels	< 200	< 700	50 – 100	0.010 – 0.050	164 – 328	0.0003 – 0.0019
	13	Carbon steels	< 300	< 1000	50 – 100	0.010 – 0.050	164 – 328	0.0003 – 0.0019
	14	Alloy steels <850 N/mm²	< 250	< 850	50 – 100	0.010 – 0.050	164 – 328	0.0003 – 0.0019
	15	Alloy steels hard. / temp. >850 - <1150 N/mm²	> 250	> 850	40 – 80	0.010 – 0.050	131 – 262	0.0003 – 0.0019
	16	High tensile alloy steels <55 HRC	> 250	> 850	30 – 60	0.008 – 0.040	98 – 197	0.0003 – 0.0015
Stainless Steels	21	Free machining stainless steels	< 250	< 850	40 – 80	0.010 – 0.040	131 – 262	0.0003 – 0.0015
	22	Austenitic stainless steels	< 250	< 850	30 – 50	0.010 – 0.040	98 – 164	0.0003 – 0.0015
	23	Ferritic and martensitic <850 N/mm²	< 250	< 850	30 – 60	0.010 – 0.040	98 – 197	0.0003 – 0.0015
	24	Ferritic and martens. >850 - <1150 N/mm²	> 250	> 850	30 – 50	0.010 – 0.030	98 – 164	0.0003 – 0.0011
Cast Iron	31	Cast iron	< 250	< 850	70 – 140	0.010 – 0.050	230 – 459	0.0003 – 0.0019
	32	Spheroidal graphite + malleable cast iron	< 250	< 850	50 – 100	0.010 – 0.050	164 – 328	0.0003 – 0.0019
Titanium	41	Pure titanium	< 250	< 850	30 – 50	0.010 – 0.040	98 – 164	0.0003 – 0.0015
	42	Titanium alloys	> 250	> 850	30 – 50	0.010 – 0.040	98 – 164	0.0003 – 0.0015
Nickel	51	Nickel alloys 1 <850 N/mm²	< 250	< 850	40 – 60	0.010 – 0.030	131 – 197	0.0003 – 0.0011
	52	Nickel alloys 2 >850 - <1150 N/mm²	> 250	> 850	30 – 50	0.010 – 0.030	98 – 164	0.0003 – 0.0011
	53	Nickel alloys 3 >1150 - ≤1600 N/mm²	> 340	> 1150	30 – 50	0.005 – 0.030	98 – 164	0.0002 – 0.0011
Copper	62	Short chip brass, phosphor bronze, gun metal	< 200	< 700	100 – 200	0.010 – 0.050	328 – 656	0.0003 – 0.0019
	63	Long chip brass	< 200	< 700	100 – 200	0.010 – 0.050	328 – 656	0.0003 – 0.0019
Aluminium Magnesium	71	Al unalloyed	< 100	< 350	100 – 200	0.010 – 0.050	328 – 656	0.0003 – 0.0019
	72	Al alloyed Si < 1.5 %	< 150	< 500	100 – 200	0.010 – 0.050	328 – 656	0.0003 – 0.0019
	73	Al alloyed Si > 1.5 % - < 10 %	< 120	< 400	100 – 200	0.010 – 0.050	328 – 656	0.0003 – 0.0019
	74	Al alloyed Si > 10 %, Mg-Alloys	< 120	< 400	70 – 140	0.010 – 0.050	230 – 459	0.0003 – 0.0019
Plastic Compounds	81	Thermoplastics	-	-	80 – 180	0.050 – 0.100	131 – 590	0.0019 – 0.0039
	82	Duroplastics	-	-	80 – 180	0.020 – 0.080	131 – 590	0.0007 – 0.0031
	83	Glass fibre reinforced plastics	-	-	50 – 150	0.020 – 0.100	164 – 492	0.0007 – 0.0039
Precious Metals	91	Yellow Gold	-	-	80 – 120	0.020 – 0.080	262 – 394	0.0007 – 0.0031
	92	Red Gold	-	-	50 – 100	0.010 – 0.050	164 – 328	0.0003 – 0.0019
	93	White Gold	-	-	40 – 80	0.010 – 0.040	131 – 262	0.0003 – 0.0015
	94	Silver	-	-	50 – 100	0.010 – 0.050	164 – 328	0.0003 – 0.0019

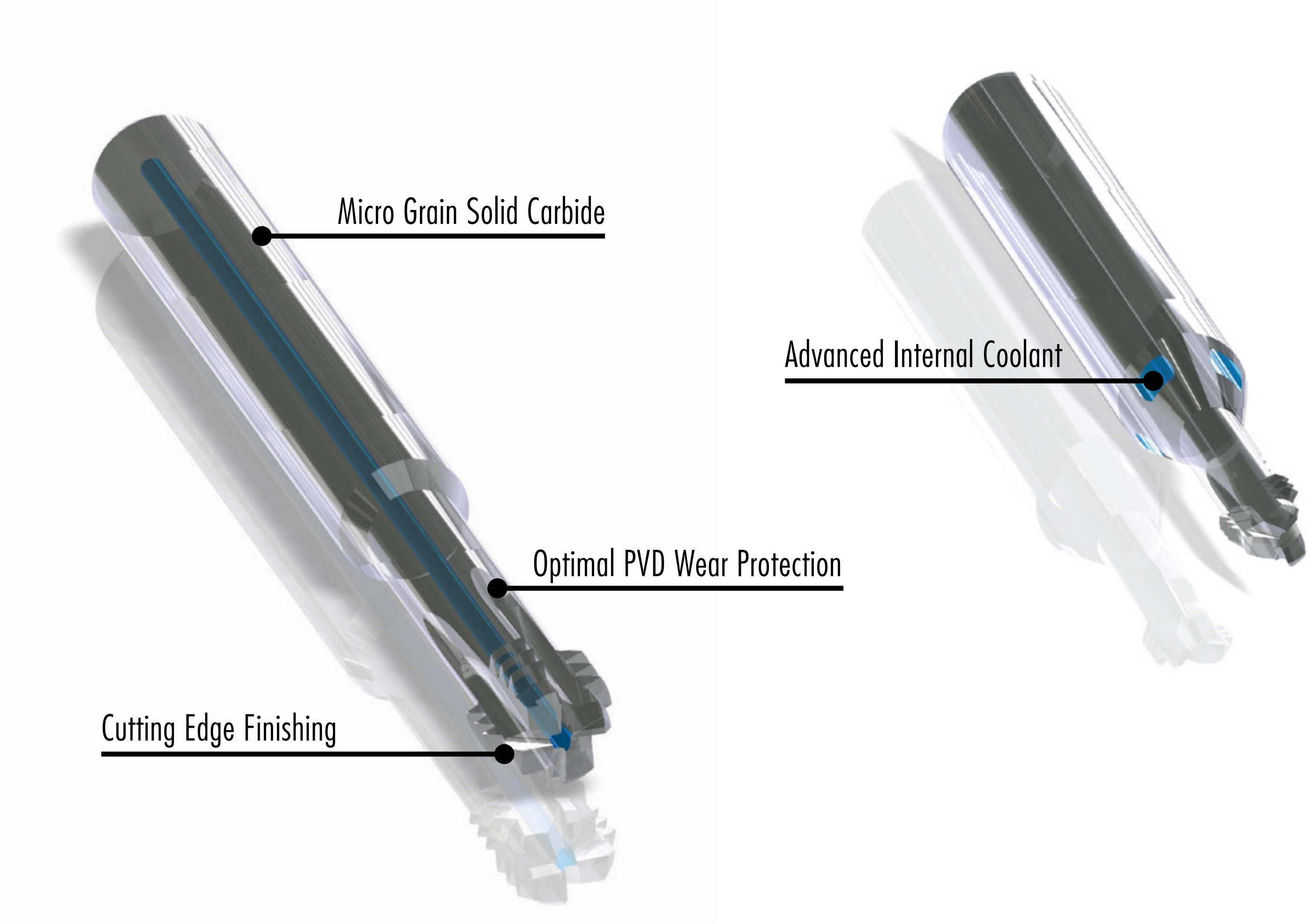
DC THREADING TECHNOLOGY

EN-ID-1015

DC® THREADING TECHNOLOGY

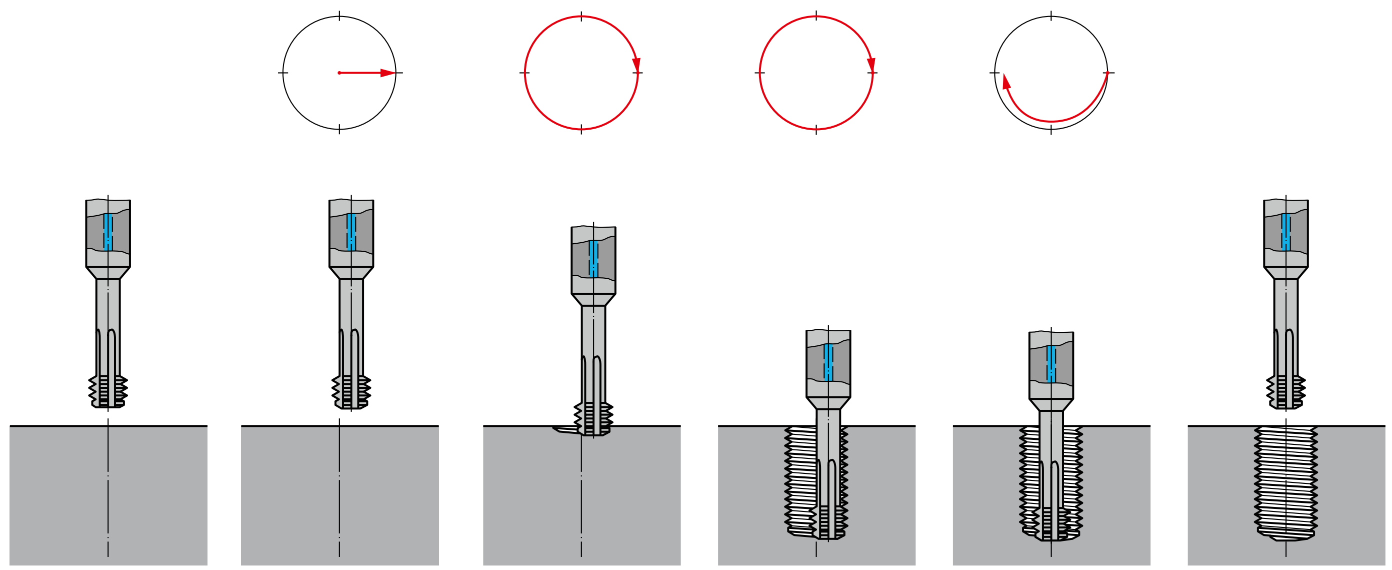
ZBGF

Circular Thread Milling *EVOLVED*



Thread Milling Cycle

- Left rotation (counterclockwise)
- Threading up to 3xD$_1$ possible
- Use internal coolant for best chip evacuation (min 20 bar)



M ISO DIN 13

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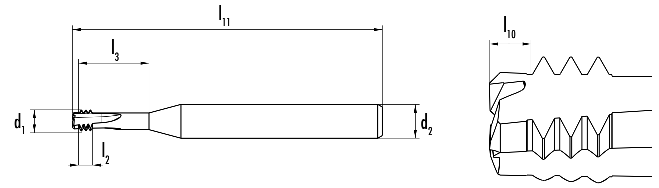
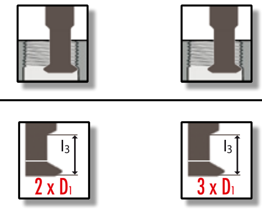
ZBGF6065VS VS

ZBGF6067VS VS

ZBGF6065VS	ZBGF6067VS





⌀ D_1 M	P mm	d_1 mm	l_{11} mm	l_2 mm	l_3 mm	d_2 h6 mm	l_{10} mm		ID
3	0.50	2.43	55	1.5	7.5	4	0.75	3	181605
4	0.70	3.05	55	2.1	10.1	6	1.05	3	181606
5	0.80	4.08	55	2.4	12.4	6	1.20	3	181607
6	1.00	4.50	64	3.0	15.0	6	1.50	4	181608
8	1.25	5.95	64	3.8	19.8	6	1.88	4	181609
10	1.50	7.95	74	4.5	24.5	8	2.25	4	181610
12	1.75	9.95	80	5.3	29.3	10	2.63	4	181611
16	2.00	11.95	92	6.0	38.0	12	3.00	4	181612

⌀ D_1 M	P mm	d_1 mm	l_{11} mm	l_2 mm	l_3 mm	d_2 h6 mm	l_{10} mm		ID
3	0.50	2.43	55	1.5	10.5	4	0.75	3	181613
4	0.70	3.05	55	2.1	14.1	6	1.05	3	181614
5	0.80	4.08	55	2.4	17.4	6	1.20	3	181615
6	1.00	4.50	72	3.0	21.0	6	1.50	4	181616
8	1.25	5.95	72	3.8	27.8	6	1.88	4	181617
10	1.50	7.95	90	4.5	34.5	8	2.25	4	181618
12	1.75	9.95	102	5.3	41.3	10	2.63	4	181619
16	2.00	11.95	115	6.0	54.0	12	3.00	4	181620