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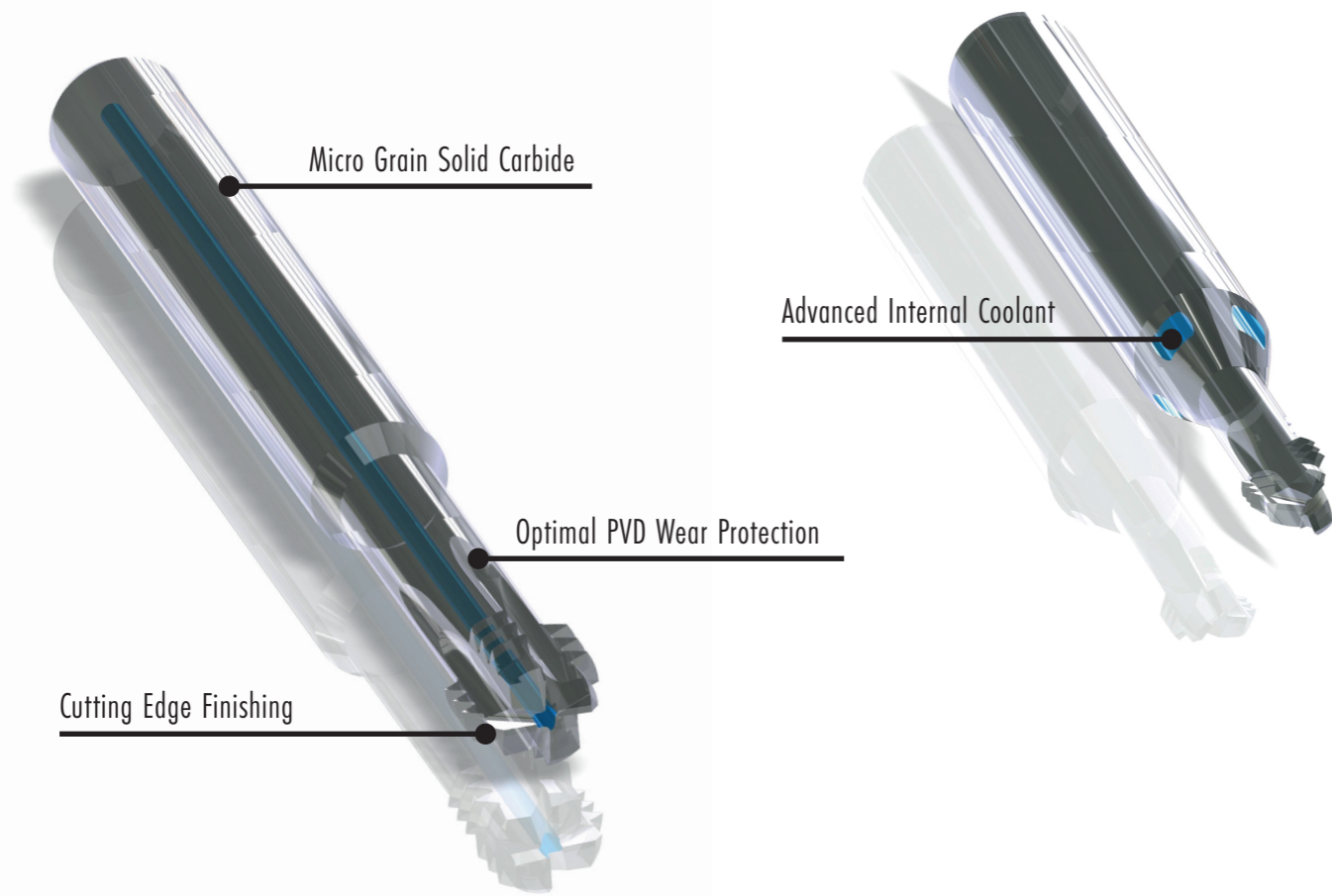


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THREADING
TECHNOLOGY

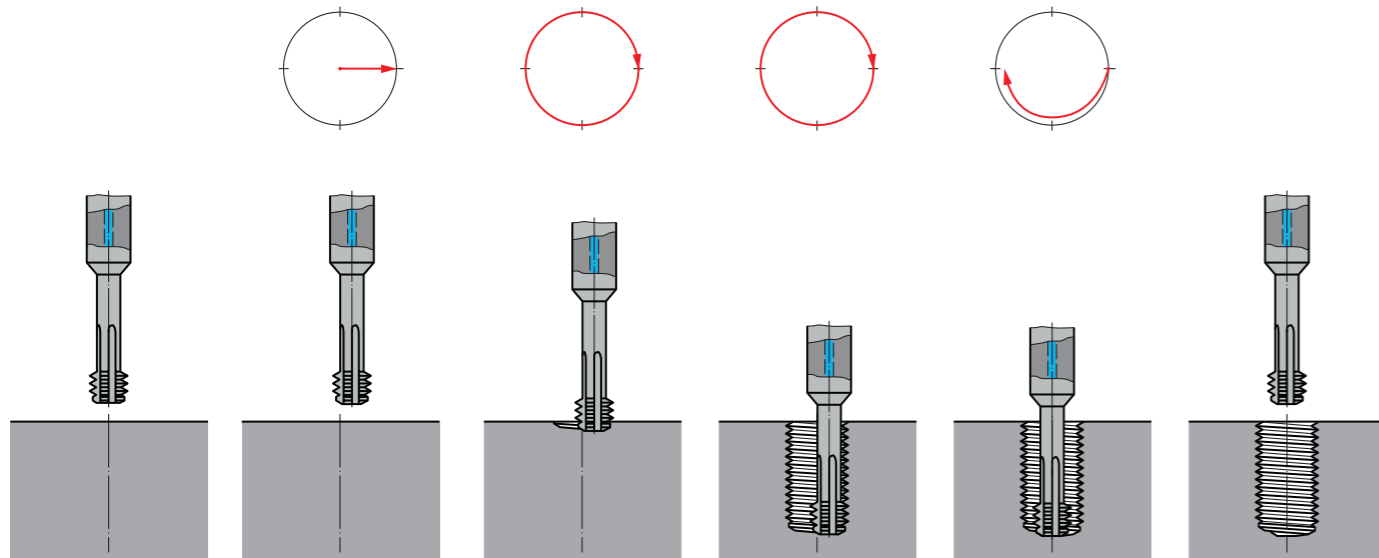
EN-ID-1015

Circular Thread Milling **EVOLVED**



Thread Milling Cycle

- Left rotation (counterclockwise)
- Threading up to $3 \times D_1$ possible
- Use internal coolant for best chip evacuation (min 20 bar)



M ISO DIN 13

VHM
CAR

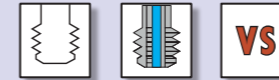


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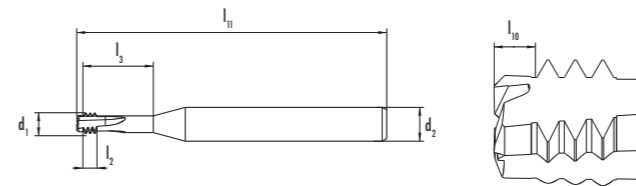
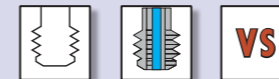
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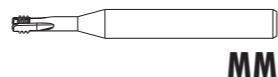


$\varnothing D_1$ M	P mm	d_1 mm	l_{11} mm	l_2 mm	l_3 mm	$d_2 h6$ mm	l_{10} mm		ID
3	0.50	2.43	55	1.5	7.5	4	0.75	3	181605
4	0.70	3.05	55	2.1	10.1	6	1.05	3	181606
5	0.80	4.08	55	2.4	12.4	6	1.20	3	181607
6	1.00	4.50	64	3.0	15.0	6	1.50	4	181608
8	1.25	5.95	64	3.8	19.8	6	1.88	4	181609
10	1.50	7.95	74	4.5	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

$\varnothing D_1$ 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

YouTube

UNC ANSI B1.1

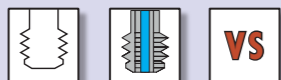


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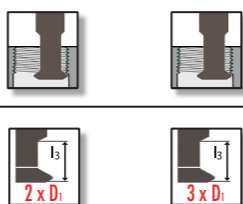
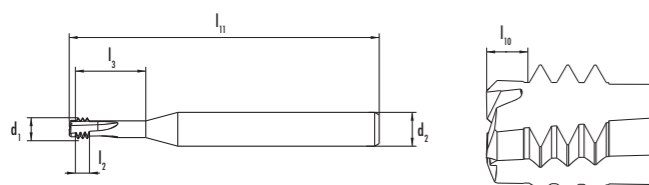
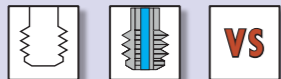
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$\varnothing D_1$ UNCTPI	P mm	d_1 mm	l_{11} mm	l_2 mm	l_3 mm	d_2 h6 mm	l_{10}	
4	40	2.11	55	1.9	7.6	4	0.95	3
6	32	2.59	55	2.4	9.4	4	1.19	3
8	32	3.10	55	2.4	10.8	6	1.19	3
10	24	3.60	55	3.2	12.9	6	1.59	3
1/4	20	4.80	64	3.8	16.6	6	1.91	4
5/16	18	5.95	64	4.2	20.2	6	2.12	4
3/8	16	7.10	74	4.8	23.9	8	2.38	4
1/2	13	9.95	80	5.9	31.3	10	2.93	4
5/8	11	11.95	92	6.9	38.7	12	3.46	4

ID

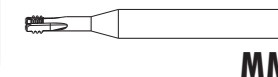
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$\varnothing D_1$ UNCTPI	P mm	d_1 mm	l_{11} mm	l_2 mm	l_3 mm	d_2 h6 mm	l_{10}	
4	40	2.11	55	1.9	10.5	4	0.95	3
6	32	2.59	55	2.4	12.9	4	1.19	3
8	32	3.10	55	2.4	14.9	6	1.19	3
10	24	3.60	55	3.2	17.7	6	1.59	3
1/4	20	4.80	72	3.8	22.9	6	1.91	4
5/16	18	5.95	72	4.2	28.1	6	2.12	4
3/8	16	7.10	90	4.8	33.4	8	2.38	4
1/2	13	9.95	102	5.9	44.0	10	2.93	4
5/8	11	11.95	115	6.9	54.6	12	3.46	4

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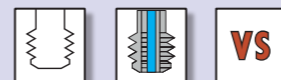


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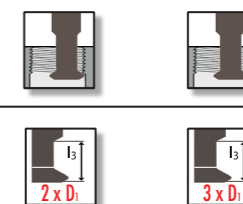
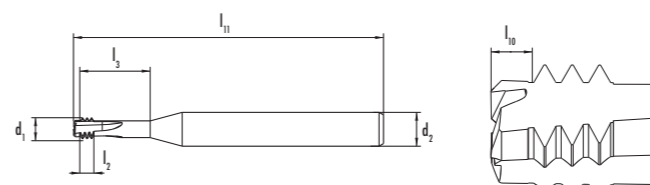
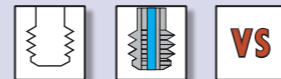
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$\varnothing D_1$ UNFTPI	P mm	d_1 mm	l_{11} mm	l_2 mm	l_3 mm	d_2 h6 mm	l_{10}	
4	48	2.23	55	1.6	7.3	4	0.79	3
8	36	3.10	55	2.1	10.5	6	1.06	3
10	32	3.91	55	2.4	12.1	6	1.19	3
1/4	28	4.80	64	2.7	15.5	6	1.36	4
5/16	24	5.95	64	3.2	19.1	6	1.59	4
3/8	24	7.10	74	3.2	22.3	8	1.59	4
7/16	20	7.95	74	3.8	26.1	8	1.91	4
1/2	20	9.95	80	3.8	29.3	10	1.91	4
5/8	18	11.95	92	4.2	36.0	12	2.12	4

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$\varnothing D_1$ UNFTPI	P mm	d_1 mm	l_{11} mm	l_2 mm	l_3 mm	d_2 h6 mm	l_{10}	
4	48	2.23	55	1.6	10.2	4	0.79	3
8	36	3.10	55	2.1	14.7	6	1.06	3
10	32	3.91	55	2.4	16.9	6	1.19	3
1/4	28	4.80	72	2.7	21.8	6	1.36	4
5/16	24	5.95	72	3.2	27.0	6	1.59	4
3/8	24	7.10	90	3.2	31.8	8	1.59	4
7/16	20	7.95	90	3.8	37.2	8	1.91	4
1/2	20	9.95	102	3.8	42.0	10	1.91	4
5/8	18	11.95	115	4.2	51.9	12	2.12	4

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Cutting Speeds and Feed Rates

Material groups	Material designation	Hardness (HB)	Tensile strength Rm (N/mm ²)	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/mm ²	< 250	< 850	50 – 100	0.010 – 0.050	164 – 328	0.0003 – 0.0019		
	15 Alloy steels hard. / temp. >850 - <1150 N/mm ²	> 250	> 850	40 – 80	0.010 – 0.050	131 – 262	0.0003 – 0.0019		
Stainless Steels	16 High tensile alloy steels <55 HRC	> 250	> 850	30 – 60	0.008 – 0.040	98 – 197	0.0003 – 0.0015		
	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/mm ²	< 250	< 850	30 – 60	0.010 – 0.040	98 – 197	0.0003 – 0.0015		
	24 Ferritic and martens. >850 - <1150 N/mm ²	> 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/mm ²	< 250	< 850	40 – 60	0.010 – 0.030	131 – 197	0.0003 – 0.0011		
	52 Nickel alloys 2 >850 - <1150 N/mm ²	> 250	> 850	30 – 50	0.010 – 0.030	98 – 164	0.0003 – 0.0011		
	53 Nickel alloys 3 >1150 - ≤1600 N/mm ²	> 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		
Plastic Compounds	74 Al alloyed Si > 10 %, Mg-Alloys	< 120	< 400	70 – 140	0.010 – 0.050	230 – 459	0.0003 – 0.0019		
	81 Thermoplastics	.	.	80 – 180	0.050 – 0.100	262 – 590	0.0019 – 0.0039		
	82 Duroplastics	.	.	80 – 180	0.020 – 0.080	262 – 590	0.0007 – 0.0031		
Precious Metals	83 Glass fibre reinforced plastics	.	.	50 – 150	0.020 – 0.100	164 – 492	0.0007 – 0.0039		
	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			