

GUHRING

Solid Carbide Thread Milling Cutters



Second Edition

Thread milling cutters by

GUHRING

Features and Benefits:

Sub-micro grain carbide substrate

Longer tool life with tighter tolerances

More cost-effective than indexable thread mills

PVD TiCN coating standard on many series

Extends tool life by providing heat and wear resistance

Helical flute design reduces chatter

The same carbide thread mill can produce

- Right or left hand threads
- Single or multiple thread leads

Countersink style thread mills (TMC, DTMC) eliminate secondary operations

Coolant-fed style thread mills

For improved chip evacuation and better surface finish

Drill & thread mill styles (DTMC) combine drill and threading into one tool



Well-suited for:

- Steels
- Stainless steels
- Titanium and alloys
- High-temperature alloys
- Non-ferrous materials

Guhring carbide thread milling cutter types



MTM SP – Micro-thread milling cutter w/o countersinking step

Straight shank with spiral flute and without internal coolant delivery, standard type for the milling of threads in small holes

Thread type: UNC, UNF



TM SP – thread milling cutter w/o countersinking step

Straight shank with spiral flute with/without internal coolant delivery, standard type for the milling of one thread size

Thread type: M, MF, NPT, NPTF, UNC, UNF



TMC SP – thread milling cutter with countersinking step

45° countersinking step, spiral flute and internal coolant delivery, for countersinking and thread milling one thread size

Thread type: M, MF, NPT, NPTF, UNC, UNF



TMU SP – universal thread milling cutter

Straight shank with spiral flute and internal coolant delivery, multi-range tool for the production of various thread sizes with the same pitch

Thread type: M/MF, UNC, UNF



DTMC SP – drill/thread milling cutter

2-fluted drill/thread milling cutter with 45° countersinking step, spiral flute and with/without internal coolant delivery, for tapping size holes, countersinking and thread milling of one thread size

Thread type: M, MF, UNC, UNF

Special thread milling cutters



In addition to the four standard types described above, the following thread milling cutters can be supplied on request:

- TM SP and TMC SP thread milling cutters for thread length 3xD
- DTMC SP three-fluted drill/thread milling cutter with or without internal cooling, thread length 2xD, 2.5xD, 3xD
- Solid carbide thread milling cutters to customer specific demands and drawings

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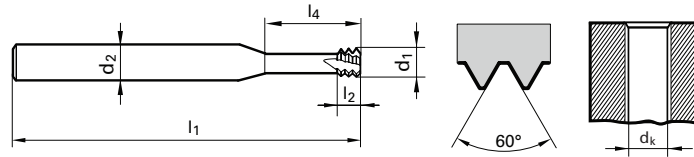
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UNC / UNF

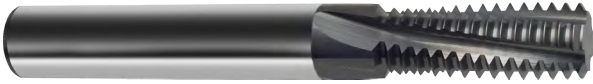


- Micro-thread milling cutter

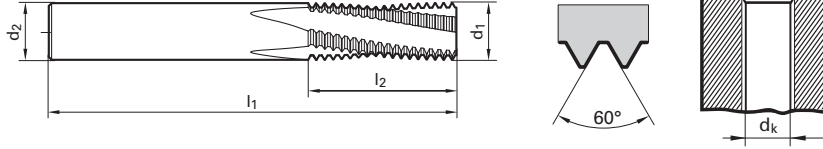
Series	4223
Thread Depth	3 X D
Tool Material	Solid Carbide
Coating	TiCN
Shank	HA (round)
Countersink	No



UNC Size	UNF Size	P Pitch	dk (min) inch	d1 mm	d2 mm	l1 mm	l2 mm	l4 mm	No. flutes	4223 EDP #
No. 1	No. 1	72	0.058	1.45	3	39	1.1	5.75	3	9042230018530
No. 1	No. 2	64	0.056	1.40	3	39	1.2	6.00	3	9042230018540
No. 2	No. 3	56	0.067	1.65	3	39	1.4	7.00	4	9042230021840
No. 3	No. 4	48	0.076	1.90	3	39	1.6	8.00	4	9042230025150
No. 4	No. 6	40	0.085	2.10	6	58	1.9	9.00	4	9042230028450
No. 5		40	0.098	2.45	6	58	1.9	10.00	4	9042230031750
No. 6	No. 8	36	0.134	3.30	6	58	2.1	12.00	4	9042230041650
		32	0.104	2.55	6	58	2.4	11.00	4	9042230035050
No. 8	No. 10	32	0.130	3.20	6	58	2.4	13.00	4	9042230041660
		32	0.156	3.70	6	58	2.4	15.00	4	9042230048250
No. 10 & 12	No. 12	28	0.177	4.20	6	58	2.7	16.00	4	9042230054850
	1/4	28	0.211	5.00	6	58	2.7	19.60	4	9042230063490
	5/16 & 3/8	24	0.145	3.50	6	58	3.2	16.00	4	9042230048260
1/4	7/16	24	0.267	6.60	8	64	3.2	24.00	4	9042230079370
		20	0.196	4.75	6	58	3.8	19.80	4	9042230063500
5/16	5/8	20	0.383	8.00	8	64	3.8	34.60	4	9042230111120
		18	0.252	6.00	6	58	4.2	23.00	4	9042230079380
3/8	7/16	18	0.565	12.00	12	84	4.2	35.00	4	9042230158740
		16	0.307	6.70	8	64	4.8	25.00	4	9042230095250
7/16		14	0.360	7.70	8	64	5.4	25.00	4	9042230111130

UNC

Series **4128**
Thread Depth **2 X D**
Tool Material **Solid Carbide**
Coating **TiCN**
Shank **HA (round)**
Countersink **No**



UNC Size	dk inch	d1 inch	d2 inch	l1 inch	l2 inch	No. flutes	4128 EDP #
10 -24	0.154	0.136	0.250	2.500	0.437	3	9041280048260
12 -24	0.177	0.161	0.250	2.500	0.480	3	9041280054860
1/4 -20	0.201	0.185	0.250	2.500	0.575	3	9041280063500
5/16-18	0.259	0.242	0.250	2.500	0.693	3	9041280079380
3/8 -16	0.315	0.301	0.313	2.500	0.843	3	9041280095250
7/16-14	0.370	0.354	0.375	3.000	0.965	3	9041280111130
1/2 -13	0.425	0.371	0.375	3.000	1.114	3	9041280127000
9/16-12	0.480	0.449	0.500	3.752	1.209	4	9041280142880
5/8 -11	0.531	0.496	0.500	3.752	1.409	4	9041280158750
3/4 -10	0.650	0.621	0.625	4.252	1.551	4	9041280190500
7/8 - 9	0.768	0.621	0.625	4.252	1.835	4	9041280222250
1 - 8	0.876	0.621	0.625	4.252	1.937	4	9041280254000

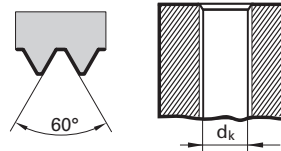
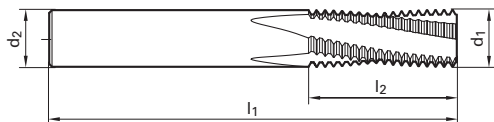
UNF

Series **4129**
Thread Depth **2 X D**
Tool Material **Solid Carbide**
Coating **TiCN**
Shank **HA (round)**
Countersink **No**

UNF Size	dk inch	d1 inch	d2 inch	l1 inch	l2 inch	No. flutes	4129 EDP #
10 -32	0.161	0.150	0.250	2.500	0.453	3	9041290048260
12 -28	0.181	0.169	0.250	2.500	0.480	3	9041290054860
1/4 -28	0.217	0.203	0.250	2.500	0.555	3	9041290063500
5/16-24	0.271	0.242	0.250	2.500	0.689	3	9041290079380
3/8 -24	0.335	0.309	0.313	2.500	0.811	3	9041290095250
7/16-20	0.390	0.371	0.375	3.000	0.976	3	9041290111130
1/2 -20	0.453	0.371	0.375	3.000	1.075	3	9041290127000
9/16-18	0.508	0.449	0.500	3.752	1.193	4	9041290142880
5/8 -18	0.571	0.496	0.500	3.752	1.307	4	9041290158750
3/4 -16	0.689	0.621	0.625	4.252	1.531	4	9041290190500
7/8 -14	0.803	0.621	0.625	4.252	1.823	4	9041290222250
1 -12	0.915	0.621	0.625	4.252	1.791	4	9041290254000

METRIC

Series 4132
Thread Depth 2 X D
Tool Material Solid Carbide
Coating TiCN
Shank HA (round)
Countersink No



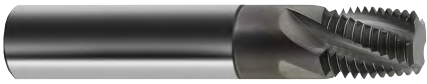
Metric Size	dk mm	d1 mm	d2 mm	l1 mm	l2 mm	No. flutes	4132 EDP #
M6 X 1.0	5.0	4.80	6.0	54.0	13.5	3	9041320060000
M8 X 1.25	6.8	6.40	8.0	62.0	18.1	3	9041320080000
M10 X 1.5	8.5	7.95	10.0	74.0	21.8	3	9041320100000
M12 X 1.75	10.2	9.95	10.0	74.0	25.4	4	9041320120000
M14 X 2.0	12.0	11.20	12.0	90.0	31.0	4	9041320140000
M16 X 2.0	14.0	12.80	14.0	90.0	35.0	4	9041320160000
M20 X 2.5	17.5	14.95	16.0	102.0	41.3	4	9041320200000

METRIC

Series 4133
Thread Depth 2 X D
Tool Material Solid Carbide
Coating TiCN
Shank HB (w/flat)
Countersink No

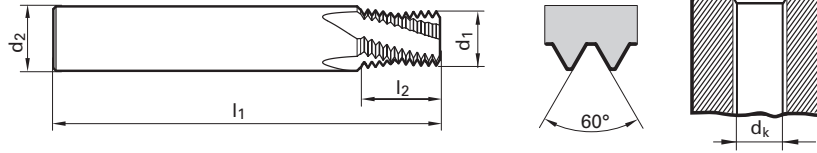
Metric Size	dk mm	d1 mm	d2 mm	l1 mm	l2 mm	No. flutes	4133 EDP #
M6 X 1.0	5.0	4.80	6.0	54.0	13.5	3	9041330060000
M8 X 1.25	6.8	6.40	8.0	62.0	18.1	3	9041330080000
M10 X 1.5	8.5	7.95	10.0	74.0	21.8	3	9041330100000
M12 X 1.75	10.2	9.95	10.0	74.0	25.4	4	9041330120000
M14 X 2.0	12.0	11.20	12.0	90.0	31.0	4	9041330140000
M16 X 2.0	14.0	12.80	14.0	90.0	35.0	4	9041330160000
M20 X 2.5	17.5	14.95	16.0	102.0	41.3	4	9041330200000

NPT



- Solid carbide cutters with straight shanks
- Spiral fluted for vibration dampening

Series	4130
Thread Depth	2 X D
Tool Material	Solid Carbide
Coating	TiCN
Shank	HA (round)
Countersink	No



NPT	dk	d1	d2	l1	l2	No.	4130
Size	inch	inch	inch	inch	inch	flutes	EDP #
1/16-27	0.242	0.213	0.312	2.250	0.390	3	9041300081900
1/8-27	0.335	0.288	0.312	2.250	0.390	3	9041300106200
1/4-18	0.433	0.391	0.500	3.250	0.583	4	9041300141400
3/8-18	0.571	0.441	0.500	3.250	0.583	4	9041300175700
1/2-14	0.703	0.571	0.625	3.500	0.748	4	9041300219000
1 - 11 1/2	1.142	0.689	0.750	3.750	0.913	5	9041300341800

NPTF

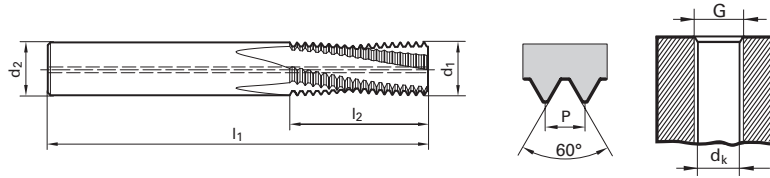


Series	4131
Thread Depth	2 X D
Tool Material	Solid Carbide
Coating	TiCN
Shank	HA (round)
Countersink	No

NPTF	dk	d1	d2	l1	l2	No.	4131
Size	inch	inch	inch	inch	inch	flutes	EDP #
1/16-27	0.240	0.213	0.312	2.250	0.390	3	9041310081900
1/8-27	0.333	0.288	0.312	2.250	0.390	3	9041310106200
1/4-18	0.429	0.391	0.500	3.250	0.583	4	9041310141400
3/8-18	0.563	0.441	0.500	3.250	0.583	4	9041310175700
1/2-14	0.693	0.571	0.625	3.500	0.748	4	9041310219000
1 - 11 1/2	1.132	0.689	0.750	3.750	0.913	5	9041310341800

UNC

Series	4134
Thread Depth	2 X D
Tool Material	Coolant Fed Carbide
Coating	TiCN
Shank	HA (round)
Countersink	No



UNC Size	dk inch	d1 mm	d2 mm	l1 mm	l2 mm	No. flutes	4134 EDP #
10 -24	0.154	3.400	6.000	54.000	11.100	3	9041340048260
12 -24	0.177	4.100	6.000	54.000	12.200	3	9041340054860
1/4 -20	0.201	4.700	6.000	54.000	14.600	3	9041340063500
5/16-18	0.260	6.100	8.000	64.000	17.600	3	9041340079380
3/8 -16	0.315	7.600	8.000	64.000	21.400	3	9041340095250
7/16-14	0.370	9.000	10.000	74.000	24.500	3	9041340111130
1/2 -13	0.425	9.950	10.000	74.000	28.300	4	9041340127000
9/16-12	0.480	11.400	12.000	90.000	30.700	4	9041340142880
5/8 -11	0.531	12.700	14.000	90.000	35.800	4	9041340158750

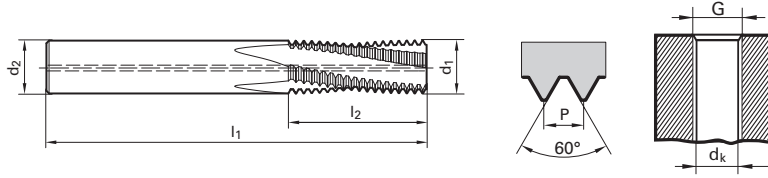
UNC

Series	4135
Thread Depth	2 X D
Tool Material	Coolant Fed Carbide
Coating	TiCN
Shank	HB (w/flat)
Countersink	No

UNC Size	dk inch	d1 mm	d2 mm	l1 mm	l2 mm	No. flutes	4135 EDP #
10 -24	0.154	3.400	6.000	54.000	11.100	3	9041350048260
12 -24	0.177	4.100	6.000	54.000	12.200	3	9041350054860
1/4 -20	0.201	4.700	6.000	54.000	14.600	3	9041350063500
5/16-18	0.260	6.100	8.000	64.000	17.600	3	9041350079380
3/8 -16	0.315	7.600	8.000	64.000	21.400	3	9041350095250
7/16-14	0.370	9.000	10.000	74.000	24.500	3	9041350111130
1/2 -13	0.425	9.950	10.000	74.000	28.300	4	9041350127000
9/16-12	0.480	11.400	12.000	90.000	30.700	4	9041350142880
5/8 -11	0.531	12.700	14.000	90.000	35.800	4	9041350158750

UNF

Series **4136**
Thread Depth **2 X D**
Tool Material **Coolant Fed Carbide**
Coating **TiCN**
Shank **HA (round)**
Countersink **No**



UNF Size	dk inch	d1 mm	d2 mm	l1 mm	l2 mm	No. flutes	4136 EDP #
10 -32	0.161	3.800	6.000	54.000	11.500	3	9041360048260
12 -28	0.181	4.300	6.000	54.000	12.200	3	9041360054860
1/4 -28	0.217	5.100	6.000	54.000	14.100	3	9041360063500
5/16-24	0.272	6.300	8.000	64.000	17.500	3	9041360079380
3/8 -24	0.335	7.800	8.000	64.000	20.600	3	9041360095250
7/16-20	0.390	9.400	10.000	74.000	24.800	3	9041360111130
1/2 -20	0.453	9.950	10.000	74.000	27.300	4	9041360127000
9/16-18	0.508	11.400	12.000	90.000	30.300	4	9041360142880
5/8 -18	0.571	12.700	14.000	90.000	33.200	4	9041360158750

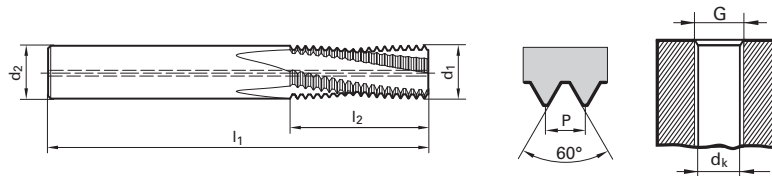
UNF

Series **4137**
Thread Depth **2 X D**
Tool Material **Coolant Fed Carbide**
Coating **TiCN**
Shank **HB (w/flat)**
Countersink **No**

UNF Size	dk inch	d1 mm	d2 mm	l1 mm	l2 mm	No. flutes	4137 EDP #
10 -32	0.161	3.800	6.000	54.000	11.500	3	9041370048260
12 -28	0.181	4.300	6.000	54.000	12.200	3	9041370054860
1/4 -28	0.217	5.100	6.000	54.000	14.100	3	9041370063500
5/16-24	0.272	6.300	8.000	64.000	17.500	3	9041370079380
3/8 -24	0.335	7.800	8.000	64.000	20.600	3	9041370095250
7/16-20	0.390	9.400	10.000	74.000	24.800	3	9041370111130
1/2 -20	0.453	9.950	10.000	74.000	27.300	4	9041370127000
9/16-18	0.508	11.400	12.000	90.000	30.300	4	9041370142880
5/8 -18	0.571	12.700	14.000	90.000	33.200	4	9041370158750

METRIC/METRIC FINE

Series	3737
Thread Depth	2 X D
Tool Material	Coolant Fed Carbide
Coating	TiCN
Shank	HA (round)
Countersink	No



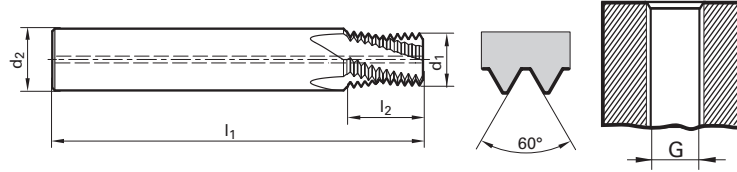
Metric Size	dk mm	d2 mm	d1 mm	l1 mm	l2 mm	No. flutes	3737 EDP #
M 6 X 1.0	5.0	6.0	4.80	54.0	13.5	3	9037370060000
M 8 X 1.25	6.8	8.0	6.40	62.0	18.1	3	9037370080000
M 8 X 1.0	7.0	8.0	6.40	62.0	17.5	3	9037370080050
M10 X 1.5	8.5	10.0	7.95	74.0	21.8	3	9037370100000
M10 X 1.0	9.0	10.0	7.95	74.0	21.5	3	9037370100050
M10 X1.25	8.8	10.0	7.95	74.0	21.9	3	9037370100060
M12 X 1.75	10.2	10.0	9.95	74.0	25.4	4	9037370120000
M12 X 1.50	10.5	10.0	9.95	74.0	26.3	4	9037370120070
M14 X 2.0	12.0	12.0	11.20	90.0	31.0	4	9037370140000
M14 X1.50	12.5	12.0	11.20	90.0	30.8	4	9037370140070
M16 X 2.0	14.0	14.0	12.80	90.0	35.0	4	9037370160000
M16 X1.50	14.5	14.0	12.80	90.0	33.8	4	9037370160070
M20 X 2.5	17.5	16.0	14.95	102.0	41.3	4	9037370200000
M20 X1.50	18.5	16.0	14.95	102.0	42.8	4	9037370200070

NPT



- DIN Length

Series	3754
Thread Depth	2 X D, DIN length
Tool Material	Coolant Fed Carbide
Coating	TiCN
Shank	HA (round)
Countersink	No



NPT Size	dk inch	d1 mm	d2 mm	l1 mm	l2 mm	No. flutes	3754 EDP #
1/16-27	0.242	5.90	8.00	54.00	9.90	3	9037540081900
1/8-27	0.335	7.30	8.00	64.00	9.90	4	9037540106200
1/4-18	0.433	9.95	12.00	72.00	19.00	4	9037540141400
3/8-18	0.571	12.50	14.00	80.00	14.80	4	9037540175700

NPTF



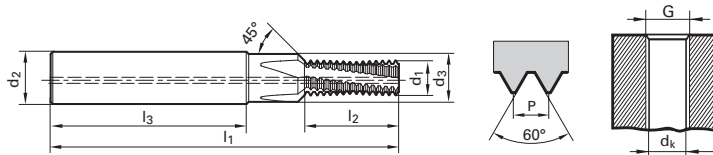
- DIN Length

Series	3757
Thread Depth	2 X D, DIN length
Tool Material	Coolant Fed Carbide
Coating	TiCN
Shank	HA (round)
Countersink	No

NPTF Size	dk inch	d1 mm	d2 mm	l1 mm	l2 mm	No. flutes	3757 EDP #
1/16-27	0.240	5.90	8.00	54.00	9.90	3	9037570081900
1/8-27	0.333	7.30	8.00	64.00	9.90	4	9037570106200
1/4-18	0.429	9.95	12.00	72.00	19.00	4	9037570141400
3/8-18	0.563	12.50	14.00	80.00	14.80	4	9037570175700

UNC

Series **3517**
Thread Depth **2 X D**
Tool Material **Coolant Fed Carbide**
Coating **TiCN**
Shank **HA (round)**
Countersink **Yes**



UNC Size	dk inch	d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	l3 mm	No. flutes	3517 EDP #
1/4-20	0.201	4.800	8.000	6.600	62.00	14.60	36.00	3	9035170063500
5/16-18	0.260	5.950	10.000	9.000	74.00	17.60	40.00	3	9035170079380
3/8-16	0.315	7.100	12.000	11.000	80.00	21.40	45.00	4	9035170095250
7/16-14	0.370	7.950	12.000	11.000	80.00	24.50	45.00	4	9035170111130
1/2-13	0.425	9.950	14.000	13.500	90.00	28.30	45.00	4	9035170127000

UNC

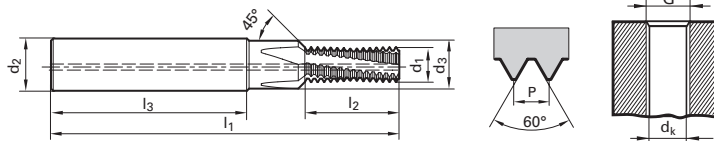
Series **3535**
Thread Depth **2 X D**
Tool Material **Coolant Fed Carbide**
Coating **TiCN**
Shank **HB (w/flat)**
Countersink **Yes**

UNC Size	dk inch	d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	l3 mm	No. flutes	3535 EDP #
1/4-20	0.201	4.800	8.000	6.600	62.00	14.60	36.00	3	9035350063500
5/16-18	0.260	5.950	10.000	9.000	74.00	17.60	40.00	3	9035350079380
3/8-16	0.315	7.100	12.000	11.000	80.00	21.40	45.00	4	9035350095250
7/16-14	0.370	7.950	12.000	11.000	80.00	24.50	45.00	4	9035350111130
1/2-13	0.425	9.950	14.000	13.500	90.00	28.30	45.00	4	9035350127000

UNF



Series 3519
Thread Depth 2 X D
Tool Material Coolant Fed Carbide
Coating TiCN
Shank HA (round)
Countersink Yes



UNF Size	dk inch	d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	l3 mm	No. flutes	3519 EDP #
1/4-28	0.217	4.800	8.000	6.600	62.00	14.10	36.00	3	9035190063500
5/16-24	0.272	5.950	10.000	9.000	74.00	17.50	40.00	3	9035190079380
3/8-24	0.335	7.950	12.000	11.000	80.00	20.60	45.00	4	9035190095250
7/16-20	0.390	7.950	12.000	11.000	80.00	24.80	45.00	4	9035190111130
1/2-20	0.453	9.950	14.000	13.500	90.00	27.30	45.00	4	9035190127000

UNF



Series 3537
Thread Depth 2 X D
Tool Material Coolant Fed Carbide
Coating TiCN
Shank HB (w/flat)
Countersink Yes

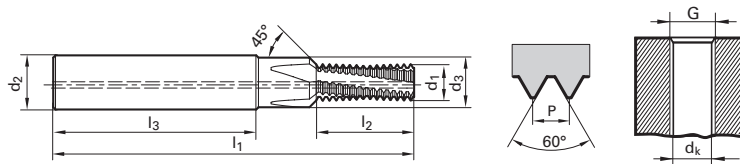
UNF Size	dk inch	d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	l3 mm	No. flutes	3537 EDP #
1/4-28	0.217	4.800	8.000	6.600	62.00	14.10	36.00	3	9035370063500
5/16-24	0.272	5.950	10.000	9.000	74.00	17.50	40.00	3	9035370079380
3/8-24	0.335	7.950	12.000	11.000	80.00	20.60	45.00	4	9035370095250
7/16-20	0.390	7.950	12.000	11.000	80.00	24.80	45.00	4	9035370111130
1/2-20	0.453	9.950	14.000	13.500	90.00	27.30	45.00	4	9035370127000

TMC SP

METRIC

- Coolant fed ≥ 4 mm dia.

Series	3526
Thread Depth	2 X D
Tool Material	Coolant Fed Carbide
Coating	TiCN
Shank	HA (round)
Countersink	Yes



Metric Size	dk mm	d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	l3 mm	No. flutes	3526 EDP #
M3 X 0.50	2.50	2.30	6.0	3.4	48.0	6.8	36.0	3	9035260030000
M4 X 0.70	3.30	3.00	6.0	4.5	48.0	8.8	36.0	3	9035260040000
M5 X 0.80	4.20	4.00	6.0	5.5	54.0	10.8	36.0	3	9035260050000
M6 X 1.00	5.00	4.80	8.0	6.6	62.0	13.5	36.0	3	9035260060000
M8 X 1.25	6.80	6.40	10.0	9.0	74.0	18.1	40.0	3	9035260080000
M10 X 1.50	8.50	7.95	12.0	11.0	80.0	21.8	45.0	4	9035260100000
M12 X 1.75	10.20	9.95	14.0	13.5	90.0	25.4	45.0	4	9035260120000
M14 X 2.00	12.00	11.20	16.0	15.5	102.0	31.0	48.0	4	9035260140000
M16 X 2.00	14.00	12.80	18.0	17.5	102.0	35.0	48.0	4	9035260160000
M20 X 2.50	17.50	14.50	20.0	21.5	125.0	41.3	50.0	4	9035260200000

METRIC FINE

Series	3528
Thread Depth	2 X D
Tool Material	Coolant Fed Carbide
Coating	TiCN
Shank	HA (round)
Countersink	Yes

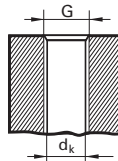
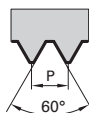
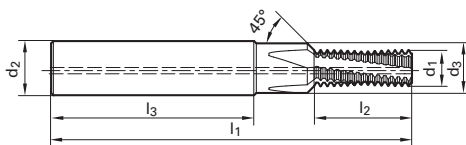
Metric Fine Size	dk mm	d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	l3 mm	No. flutes	3528 EDP #
M4 X 0.50	3.50	3.00	6.0	4.5	48.0	8.8	36.0	3	9035280040030
M5 X 0.50	4.50	4.00	6.0	5.5	54.0	10.8	36.0	3	9035280050030
M6 X 0.50	5.50	4.80	8.0	6.6	62.0	12.8	36.0	3	9035280060030
M6 X 0.75	5.20	4.80	8.0	6.6	62.0	13.1	36.0	3	9035280060040
M8 X 0.75	7.20	6.40	10.0	9.0	74.0	16.9	40.0	3	9035280080040
M8 X 1.00	7.00	6.40	10.0	9.0	74.0	17.5	40.0	3	9035280080050
M10 X 1.00	9.00	7.95	12.0	11.0	80.0	21.5	45.0	4	9035280100050
M10 X 1.25	8.80	7.95	12.0	11.0	80.0	21.9	45.0	4	9035280100060
M12 X 1.00	11.00	9.95	14.0	13.5	90.0	25.5	45.0	4	9035280120050
M12 X 1.50	10.50	9.95	14.0	13.5	90.0	26.3	45.0	4	9035280120070
M14 X 1.50	12.50	11.20	16.0	15.5	102.0	30.8	48.0	4	9035280140070
M16 X 1.50	14.50	12.80	18.0	17.5	102.0	33.8	48.0	4	9035280160070

METRIC



- Coolant fed ≥ 4 mm dia.

Series	3759
Thread Depth	2.5 X D
Tool Material	Coolant Fed Carbide
Coating	TiCN
Shank	HA (round)
Countersink	Yes



Metric Size	dk mm	d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	l3 mm	No. flutes	3759 EDP #
M3 X 0.50	2.50	2.30	6.0	3.4	48.0	7.8	36.0	3	9037590030000
M4 X 0.70	3.30	3.00	6.0	4.5	48.0	10.9	36.0	3	9037590040000
M5 X 0.80	4.20	4.00	6.0	5.5	54.0	13.2	36.0	3	9037590050000
M6 X 1.00	5.00	4.80	8.0	6.6	62.0	16.5	36.0	3	9037590060000
M8 X 1.25	6.80	6.40	10.0	9.0	74.0	21.9	40.0	3	9037590080000
M10 X 1.50	8.50	7.95	12.0	11.0	80.0	26.3	45.0	4	9037590100000
M12 X 1.75	10.20	9.95	14.0	13.5	90.0	32.4	45.0	4	9037590120000
M14 X 2.00	12.00	11.20	16.0	15.5	102.0	37.0	48.0	4	9037590140000
M16 X 2.00	14.00	12.80	18.0	17.5	102.0	43.0	48.0	4	9037590160000
M20 X 2.50	17.50	14.50	20.0	21.5	125.0	48.8	50.0	4	9037590200000

METRIC



- Coolant fed ≥ 4 mm dia.

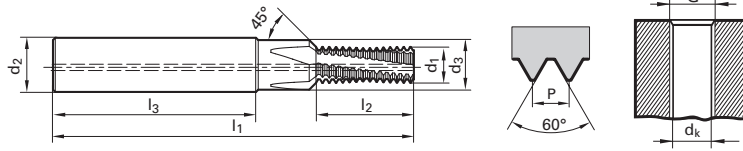
Series	3760
Thread Depth	2.5 X D
Tool Material	Coolant Fed Carbide
Coating	TiCN
Shank	HB (w/flat)
Countersink	Yes

Metric Size	dk mm	d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	l3 mm	No. flutes	3760 EDP #
M3 X 0.50	2.50	2.30	6.0	3.4	48.0	7.8	36.0	3	9037600030000
M4 X 0.70	3.30	3.00	6.0	4.5	48.0	10.9	36.0	3	9037600040000
M5 X 0.80	4.20	4.00	6.0	5.5	54.0	13.2	36.0	3	9037600050000
M6 X 1.00	5.00	4.80	8.0	6.6	62.0	16.5	36.0	3	9037600060000
M8 X 1.25	6.80	6.40	10.0	9.0	74.0	21.9	40.0	3	9037600080000
M10 X 1.50	8.50	7.95	12.0	11.0	80.0	26.3	45.0	4	9037600100000
M12 X 1.75	10.20	9.95	14.0	13.5	90.0	32.4	45.0	4	9037600120000
M14 X 2.00	12.00	11.20	16.0	15.5	102.0	37.0	48.0	4	9037600140000
M16 X 2.00	14.00	12.80	18.0	17.5	102.0	43.0	48.0	4	9037600160000
M20 X 2.50	17.50	14.50	20.0	21.5	125.0	48.8	50.0	4	9037600200000

METRIC FINE



Series	3762
Thread Depth	2.5 X D
Tool Material	Coolant Fed Carbide
Coating	TiCN
Shank	HA (round)
Countersink	Yes



Metric Fine Size	dk mm	d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	l3 mm	No. flutes	3762 EDP #
M4 X 0.50	3.50	3.00	6.0	4.5	48.0	10.30	36.0	3	9037620040030
M5 X 0.50	4.50	4.00	6.0	5.5	54.0	12.80	36.0	3	9037620050030
M6 X 0.50	5.50	4.80	8.0	6.6	62.0	15.30	36.0	3	9037620060030
M6 X 0.75	5.20	4.80	8.0	6.6	62.0	15.40	36.0	3	9037620060040
M8 X 0.75	7.20	6.40	10.0	9.0	74.0	20.60	40.0	3	9037620080040
M8 X 1.00	7.00	6.40	10.0	9.0	74.0	20.50	40.0	3	9037620080050
M10 X 1.00	9.00	7.95	12.0	11.0	80.0	25.50	45.0	4	9037620100050
M10 X 1.25	8.80	7.95	12.0	11.0	80.0	25.50	45.0	4	9037620100060
M12 X 1.00	11.00	9.95	14.0	13.5	90.0	30.50	45.0	4	9037620120050
M12 X 1.50	10.50	9.95	14.0	13.5	90.0	30.80	45.0	4	9037620120070
M14 X 1.50	12.50	11.20	16.0	15.5	102.0	38.30	48.0	4	9037620140070
M16 X 1.50	14.50	12.80	18.0	17.5	102.0	41.30	48.0	4	9037620160070

METRIC FINE



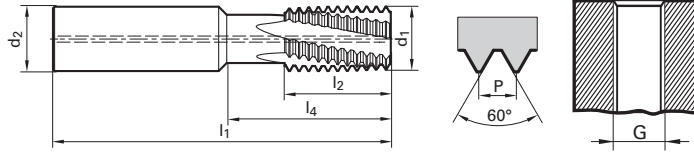
Series	3763
Thread Depth	2.5 X D
Tool Material	Coolant Fed Carbide
Coating	TiCN
Shank	HB (w/flat)
Countersink	Yes

Metric Fine Size	dk mm	d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	l3 mm	No. flutes	3763 EDP #
M4 X 0.50	3.50	3.00	6.0	4.5	48.0	10.30	36.0	3	9037630040030
M5 X 0.50	4.50	4.00	6.0	5.5	54.0	12.80	36.0	3	9037630050030
M6 X 0.50	5.50	4.80	8.0	6.6	62.0	15.30	36.0	3	9037630060030
M6 X 0.75	5.20	4.80	8.0	6.6	62.0	15.40	36.0	3	9037630060040
M8 X 0.75	7.20	6.40	10.0	9.0	74.0	20.60	40.0	3	9037630080040
M8 X 1.00	7.00	6.40	10.0	9.0	74.0	20.50	40.0	3	9037630080050
M10 X 1.00	9.00	7.95	12.0	11.0	80.0	25.50	45.0	4	9037630100050
M10 X 1.25	8.80	7.95	12.0	11.0	80.0	25.50	45.0	4	9037630100060
M12 X 1.00	11.00	9.95	14.0	13.5	90.0	30.50	45.0	4	9037630120050
M12 X 1.50	10.50	9.95	14.0	13.5	90.0	30.80	45.0	4	9037630120070
M14 X 1.50	12.50	11.20	16.0	15.5	102.0	38.30	48.0	4	9037630140070
M16 X 1.50	14.50	12.80	18.0	17.5	102.0	41.30	48.0	4	9037630160070

UNC/UNF



- One thread mill produces multiple thread sizes with the same pitch



Series
Thread Depth
Tool Material
Coating
Shank
Countersink

3595
Multi-Range
Coolant Fed Carbide
TiCN
HA (round)
No

TPI inch	G min inch	d1 mm	d2 mm	l1 mm	l2 mm	l4	No. flutes	3595 EDP #
24	≥ 1/2	9.950	10.000	70.000	16.00	25.000	4	9035950102400
10	≥ 3/4	11.950	12.000	80.000	20.000	31.000	4	9035950121000
16	≥ 5/8	11.950	12.000	80.000	20.000	31.000	4	9035950121600
18	≥ 5/8	11.950	12.000	80.000	20.000	31.000	4	9035950121800
20	≥ 11/16	11.950	12.000	80.000	20.000	31.000	4	9035950122000
24	≥ 5/8	11.950	12.000	80.000	20.000	31.000	4	9035950122400
12	≥ 7/8	15.950	16.000	90.000	25.000	40.000	5	9035950161200
14	≥ 7/8	15.950	16.000	90.000	25.000	40.000	5	9035950161400
16	≥ 7/8	15.950	16.000	90.000	25.000	40.000	5	9035950161600
18	≥ 7/8	15.950	16.000	90.000	25.000	40.000	5	9035950161800
20	≥ 13/16	15.950	16.000	90.000	25.000	40.000	5	9035950162000
7	≥ 1	19.950	20.000	105.000	33.000	50.000	5	9035950200700
8	≥ 1	19.950	20.000	105.00	33.000	50.000	5	9035950200800
12	≥ 1	19.950	20.000	105.00	33.000	50.000	5	9035950201200
14	≥ 1	19.950	20.000	105.00	33.000	50.000	5	9035950201400
16	≥ 1	19.950	20.000	105.00	33.000	50.000	5	9035950201600

UNC/UNF



- One thread mill produces multiple thread sizes with the same pitch

Series
Thread Depth
Tool Material
Coating
Shank
Countersink

3596
Multi-Range
Coolant Fed Carbide
TiCN
HB (w/flat)
No

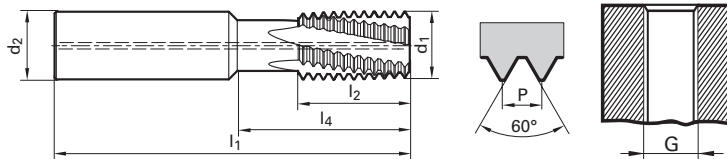
TPI inch	G min inch	d1 mm	d2 mm	l1 mm	l2 mm	l4	No. flutes	3596 EDP #
24	≥ 1/2	9.950	10.000	70.000	16.00	25.000	4	9035960102400
10	≥ 3/4	11.950	12.000	80.000	20.000	31.000	4	9035960121000
16	≥ 5/8	11.950	12.000	80.000	20.000	31.000	4	9035960121600
18	≥ 5/8	11.950	12.000	80.000	20.000	31.000	4	9035960121800
20	≥ 11/16	11.950	12.000	80.000	20.000	31.000	4	9035960122000
24	≥ 5/8	11.950	12.000	80.000	20.000	31.000	4	9035960122400
12	≥ 7/8	15.950	16.000	90.000	25.000	40.000	5	9035960161200
14	≥ 7/8	15.950	16.000	90.000	25.000	40.000	5	9035960161400
16	≥ 7/8	15.950	16.000	90.000	25.000	40.000	5	9035960161600
18	≥ 7/8	15.950	16.000	90.000	25.000	40.000	5	9035960161800
20	≥ 13/16	15.950	16.000	90.000	25.000	40.000	5	9035960162000
7	≥ 1	19.950	20.000	105.000	33.000	50.000	5	9035960200700
8	≥ 1	19.950	20.000	105.00	33.000	50.000	5	9035960200800
12	≥ 1	19.950	20.000	105.00	33.000	50.000	5	9035960201200
14	≥ 1	19.950	20.000	105.00	33.000	50.000	5	9035960201400
16	≥ 1	19.950	20.000	105.00	33.000	50.000	5	9035960201600

METRIC/METRIC FINE



- One thread mill produces multiple thread sizes with the same pitch

Series	3541
Thread Depth	Multi-Range
Tool Material	Coolant Fed Carbide
Coating	TiCN
Shank	HA (round)
Countersink	No



Pitch mm	G min mm	d1 mm	d2 mm	l1 mm	l2 mm	l4	No. flutes	3541 EDP #
0.50	≥ 10	7.95	8.00	64.0	20.0	--	4	9035410108050
1.00	≥ 12	9.95	10.0	70.0	16.0	25.0	4	9035410101000
1.25	≥ 12	9.95	10.0	70.0	16.0	25.0	4	9035410101250
1.50	≥ 12	9.95	10.0	70.0	16.0	25.0	4	9035410101500
1.00	≥ 14	11.95	12.0	80.0	20.0	31.0	4	9035410121000
1.25	≥ 14	11.95	12.0	80.0	20.0	31.0	4	9035410121250
1.50	≥ 14	11.95	12.0	80.0	20.0	31.0	4	9035410121500
1.00	≥ 18	15.95	16.0	90.0	25.0	40.0	5	9035410161000
1.50	≥ 18	15.95	16.0	90.0	25.0	40.0	5	9035410161500
2.00	≥ 18	15.95	16.0	90.0	25.0	40.0	5	9035410162000
3.00	≥ 24	17.95	18.0	102.0	33.0	50.0	5	9035410183000
1.00	≥ 24	19.95	20.0	105.0	33.0	50.0	5	9035410201000
1.50	≥ 26	19.95	20.0	105.0	33.0	50.0	5	9035410201500
2.00	≥ 27	19.95	20.0	105.0	33.0	50.0	5	9035410202000
2.50	≥ 30	19.95	20.0	105.0	33.0	50.0	5	9035410202500
3.00	≥ 30	19.95	20.0	105.0	33.0	50.0	5	9035410203000
3.50	≥ 30	19.95	20.0	105.0	33.0	50.0	5	9035410203500

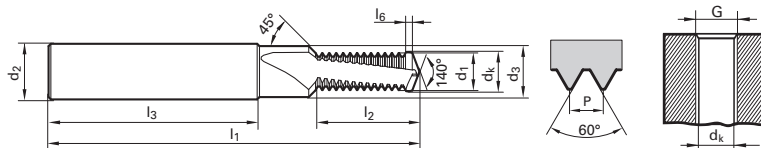
A Multi-Range thread mill is capable of creating more than one diameter of the same thread form, which makes these tools popular in a job shop environment. When selecting a Multi-Range thread mill, the user must first select the thread pitch or TPI to be machined and then determine the minimum hole major diameter "G" of the thread to be produced.

METRIC



- Drill and thread mill with one tool
- Recommended for non-ferrous materials

Series	3778
Thread Depth	2 X D
Tool Material	Solid Carbide
Coating	Bright Finish
Shank	HA (round)
Countersink	Yes



Metric Size	dk mm	d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	l3 mm	l6 mm	No. flutes	3778 EDP #
M3 X 0.50	2.50	2.40	6.0	3.4	48.0	7.0	36.0	0.50	2	9037780030000
M4 X 0.70	3.30	3.20	6.0	4.5	48.0	9.0	36.0	0.70	2	9037780040000
M5 X 0.80	4.20	4.00	6.0	5.5	54.0	11.2	36.0	0.80	2	9037780050000
M6 X 1.00	5.00	4.75	8.0	6.6	62.0	13.9	36.0	1.00	2	9037780060000
M8 X 1.25	6.80	6.35	10.0	9.0	74.0	18.7	40.0	1.25	2	9037780080000
M10 X 1.50	8.50	7.95	12.0	11.0	80.0	22.5	45.0	1.50	2	9037780100000
M12 X 1.75	10.20	9.95	14.0	13.5	90.0	26.1	45.0	1.50	2	9037780120000
M14 X 2.00	12.00	11.20	16.0	15.5	102.0	31.7	48.0	1.50	2	9037780140000
M16 X 2.00	14.00	13.20	18.0	17.5	102.0	36.0	48.0	1.50	2	9037780160000

METRIC



- Drill and thread mill with one tool
- Recommended for non-ferrous materials

Series	3780
Thread Depth	2 X D
Tool Material	Solid Carbide
Coating	TiCN
Shank	HA (round)
Countersink	Yes

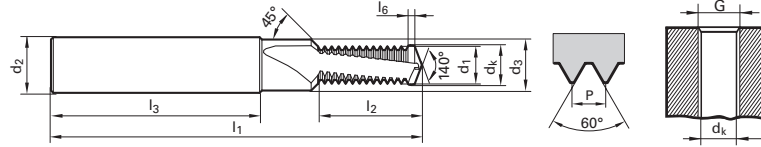
Metric Size	dk mm	d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	l3 mm	l6 mm	No. flutes	3780 EDP #
M3 X 0.50	2.50	2.40	6.0	3.4	48.0	7.0	36.0	0.50	2	9037800030000
M4 X 0.70	3.30	3.20	6.0	4.5	48.0	9.0	36.0	0.70	2	9037800040000
M5 X 0.80	4.20	4.00	6.0	5.5	54.0	11.2	36.0	0.80	2	9037800050000
M6 X 1.00	5.00	4.75	8.0	6.6	62.0	13.9	36.0	1.00	2	9037800060000
M8 X 1.25	6.80	6.35	10.0	9.0	74.0	18.7	40.0	1.25	2	9037800080000
M10 X 1.50	8.50	7.95	12.0	11.0	80.0	22.5	45.0	1.50	2	9037800100000
M12 X 1.75	10.20	9.95	14.0	13.5	90.0	26.1	45.0	1.50	2	9037800120000
M14 X 2.00	12.00	11.20	16.0	15.5	102.0	31.7	48.0	1.50	2	9037800140000
M16 X 2.00	14.00	13.20	18.0	17.5	102.0	36.0	48.0	1.50	2	9037800160000

METRIC FINE



- Drill and thread mill with one tool
- Recommended for non-ferrous materials

Series	3790
Thread Depth	2 X D
Tool Material	Solid Carbide
Coating	Bright Finish
Shank	HA (round)
Countersink	Yes



Metric Fine Size	dk mm	d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	l3 mm	l6 mm	No. flutes	3790 EDP #
M4 X 0.50	3.50	3.20	6.0	4.5	48.0	8.7	36.0	0.50	2	9037900040030
M5 X 0.50	4.50	4.00	6.0	5.5	54.0	10.8	36.0	0.50	2	9037900050030
M6 X 0.75	5.20	4.75	8.0	6.6	62.0	12.9	36.0	0.75	2	9037900060040
M8 X 0.75	7.20	6.35	10.0	9.0	74.0	17.1	40.0	0.75	2	9037900080040
M8 X 1.00	7.00	6.35	10.0	9.0	74.0	17.3	40.0	1.00	2	9037900080050
M10 X 1.00	9.00	7.95	12.0	11.0	80.0	21.6	45.0	1.00	2	9037900100050
M10 X 1.25	8.80	7.95	12.0	11.0	80.0	21.6	45.0	1.25	2	9037900100060
M12 X 1.00	11.00	9.95	14.0	13.5	90.0	26.0	45.0	1.00	2	9037900120050
M12 X 1.50	10.50	9.95	14.0	13.5	90.0	27.4	45.0	1.50	2	9037900120070
M14 X 1.50	12.50	11.20	16.0	15.5	102.0	30.7	48.0	1.50	2	9037900140070
M16 X 1.50	14.50	13.20	18.0	17.5	102.0	34.1	48.0	1.50	2	9037900160070

METRIC FINE



- Drill and thread mill with one tool
- Recommended for non-ferrous materials

Series	3792
Thread Depth	2 X D
Tool Material	Solid Carbide
Coating	TiCN
Shank	HA (round)
Countersink	Yes

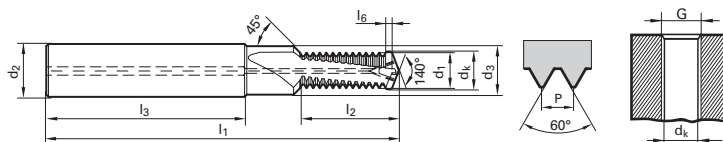
Metric Fine Size	dk mm	d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	l3 mm	l6 mm	No. flutes	3792 EDP #
M4 X 0.50	3.50	3.20	6.0	4.5	48.0	8.7	36.0	0.50	2	9037920040030
M5 X 0.50	4.50	4.00	6.0	5.5	54.0	10.8	36.0	0.50	2	9037920050030
M6 X 0.75	5.20	4.75	8.0	6.6	62.0	12.9	36.0	0.75	2	9037920060040
M8 X 0.75	7.20	6.35	10.0	9.0	74.0	17.1	40.0	0.75	2	9037920080040
M8 X 1.00	7.00	6.35	10.0	9.0	74.0	17.3	40.0	1.00	2	9037920080050
M10 X 1.00	9.00	7.95	12.0	11.0	80.0	21.6	45.0	1.00	2	9037920100050
M10 X 1.25	8.80	7.95	12.0	11.0	80.0	21.6	45.0	1.25	2	9037920100060
M12 X 1.00	11.00	9.95	14.0	13.5	90.0	26.0	45.0	1.00	2	9037920120050
M12 X 1.50	10.50	9.95	14.0	13.5	90.0	27.4	45.0	1.50	2	9037920120070
M14 X 1.50	12.50	11.20	16.0	15.5	102.0	30.7	48.0	1.50	2	9037920140070
M16 X 1.50	14.50	13.20	18.0	17.5	102.0	34.1	48.0	1.50	2	9037920160070

UNC



- Drill and thread mill with one tool
- Recommended for non-ferrous materials

Series	4139
Thread Depth	2 X D
Tool Material	Coolant Fed Carbide
Coating	TiCN
Shank	HA (round)
Countersink	Yes



UNC Size	dk inch	d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	l3 mm	l6 mm	No. flutes	4139 EDP #
1/4-20	0.201	5.000	8.000	6.600	62.000	14.900	36.000	1.30	2	9041390063500
5/16-18	0.260	6.250	10.000	9.000	74.000	18.100	40.000	1.50	2	9041390079380
3/8-16	0.315	7.500	12.000	11.000	80.000	22.100	45.000	1.50	2	9041390095250
7/16-14	0.370	8.800	12.000	11.000	80.000	25.000	45.000	1.50	2	9041390111130
1/2-13	0.425	10.200	14.000	13.500	90.000	26.900	45.000	1.50	2	9041390127000
9/16-12	0.480	11.600	16.000	15.500	102.000	31.200	48.000	1.50	2	9041390142880
5/8-11	0.531	13.000	18.000	17.500	102.000	36.300	48.000	1.50	2	9041390158750

UNF



- Drill and thread mill with one tool
- Recommended for non-ferrous materials

Series	4141
Thread Depth	2 X D
Tool Material	Coolant Fed Carbide
Coating	TiCN
Shank	HA (round)
Countersink	Yes

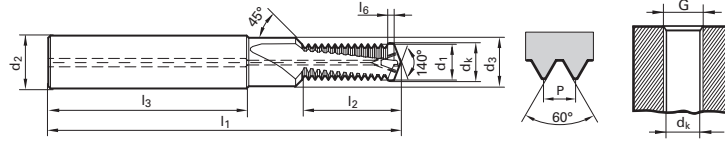
UNF Size	dk inch	d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	l3 mm	l6 mm	No. flutes	4141 EDP #
1/4-28	0.217	5.000	8.000	6.600	62.000	12.800	36.000	1.00	2	9041410063500
5/16-24	0.272	6.250	10.000	9.000	74.000	18.200	40.000	1.10	2	9041410079380
3/8-24	0.335	7.950	12.000	11.000	80.000	20.600	45.000	1.10	2	9041410095250
7/16-20	0.390	9.500	12.000	11.000	80.000	24.700	45.000	1.30	2	9041410111130
1/2-20	0.453	10.200	14.000	13.500	90.000	27.500	45.000	1.30	2	9041410127000
9/16-18	0.508	11.600	16.000	15.500	102.000	30.600	48.000	1.50	2	9041410142880
5/8-18	0.571	13.000	18.000	17.500	102.000	33.700	48.000	1.50	2	9041410158750

METRIC



- Drill and thread mill with one tool
- Recommended for non-ferrous materials
- Coolant fed $\geq$ M4 dia.

Series	3779
Thread Depth	2 X D
Tool Material	Coolant Fed Carbide
Coating	Bright Finish
Shank	HA (round)
Countersink	Yes



Metric Size	dk mm	d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	l3 mm	l6 mm	No. flutes	3779 EDP #
M4 X 0.70	3.30	3.20	6.0	4.5	48.0	9.0	36.0	0.70	2	9037790040000
M5 X 0.80	4.20	4.00	6.0	5.5	54.0	11.2	36.0	0.80	2	9037790050000
M6 X 1.00	5.00	4.75	8.0	6.6	62.0	13.9	36.0	1.00	2	9037790060000
M8 X 1.25	6.80	6.35	10.0	9.0	74.0	18.7	40.0	1.25	2	9037790080000
M10 X 1.50	8.50	7.95	12.0	11.0	80.0	22.5	45.0	1.50	2	9037790100000
M12 X 1.75	10.20	9.95	14.0	13.5	90.0	26.1	45.0	1.50	2	9037790120000
M14 X 2.00	12.00	11.20	16.0	15.5	102.0	31.7	48.0	1.50	2	9037790140000
M16 X 2.00	14.00	13.20	18.0	17.5	102.0	36.0	48.0	1.50	2	9037790160000

METRIC



- Drill and thread mill with one tool
- Recommended for non-ferrous materials
- Coolant fed $\geq$ M4 dia.

Series	3781
Thread Depth	2 X D
Tool Material	Coolant Fed Carbide
Coating	TiCN
Shank	HA (round)
Countersink	Yes

Metric Size	dk mm	d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	l3 mm	l6 mm	No. flutes	3781 EDP #
M3 X 0.50	2.50	2.40	6.0	3.4	48.0	7.0	36.0	0.50	2	9037810030000
M4 X 0.70	3.30	3.20	6.0	4.5	48.0	9.0	36.0	0.70	2	9037810040000
M5 X 0.80	4.20	4.00	6.0	5.5	54.0	11.2	36.0	0.80	2	9037810050000
M6 X 1.00	5.00	4.75	8.0	6.6	62.0	13.9	36.0	1.00	2	9037810060000
M8 X 1.25	6.80	6.35	10.0	9.0	74.0	18.7	40.0	1.25	2	9037810080000
M10 X 1.50	8.50	7.95	12.0	11.0	80.0	22.5	45.0	1.50	2	9037810100000
M12 X 1.75	10.20	9.95	14.0	13.5	90.0	26.1	45.0	1.50	2	9037810120000
M14 X 2.00	12.00	11.20	16.0	15.5	102.0	31.7	48.0	1.50	2	9037810140000
M16 X 2.00	14.00	13.20	18.0	17.5	102.0	36.0	48.0	1.50	2	9037810160000



-
- Technical drawing of a tapered roller bearing. The main view shows the bearing with dimensions: d_2 (outer diameter), d_1 (inner diameter), d_k (pitch diameter), d_3 (flange outer diameter), l_1 (total length), l_2 (length to the end of the tapered roller), l_3 (length of the tapered roller), l_6 (width of the tapered roller), and 45° (taper angle). Two cross-sections are shown: the left one shows the tapered roller with a 60° angle and a pressure P ; the right one shows the bearing housing with dimensions G (width) and d_k (pitch diameter).

Series	3793
Thread Depth	2 X D
Tool Material	Coolant Fed Carbide
Coating	TiCN
Shank	HA (round)
Countersink	Yes

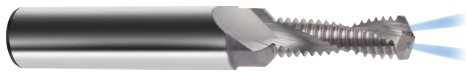


- Drill and thread mill with one tool
- Recommended for non-ferrous materials

Metric Fine	dk	d1	d2	d3	l1	l2	l3	l6	No.	3791
Size	mm	mm	mm	mm	mm	mm	mm	mm	flutes	EDP #
M4 X 0.50	3.50	3.20	6.0	4.5	48.0	8.6	36.0	0.50	2	9037910040030
M5 X 0.50	4.50	4.00	6.0	5.5	54.0	10.8	36.0	0.50	2	9037910050030
M6 X 0.75	5.20	4.75	8.0	6.6	62.0	12.9	36.0	0.75	2	9037910060040
M8 X 0.75	7.20	6.35	10.0	9.0	74.0	17.1	40.0	0.75	2	9037910080040
M8 X 1.00	7.00	6.35	10.0	9.0	74.0	17.3	40.0	1.00	2	9037910080050
M10 X 1.00	9.00	7.95	12.0	11.0	80.0	21.6	45.0	1.00	2	9037910100050
M10 X 1.25	8.80	7.95	12.0	11.0	80.0	21.6	45.0	1.25	2	9037910100060
M12 X 1.00	11.00	9.95	14.0	13.5	90.0	26.0	45.0	1.00	2	9037910120050
M12 X 1.50	10.50	9.95	14.0	13.5	90.0	27.4	45.0	1.50	2	9037910120070
M14 X 1.50	12.50	11.20	16.0	15.5	102.0	30.7	48.0	1.50	2	9037910140070
M16 X 1.50	14.50	13.20	18.0	17.5	102.0	34.1	48.0	1.50	2	9037910160070

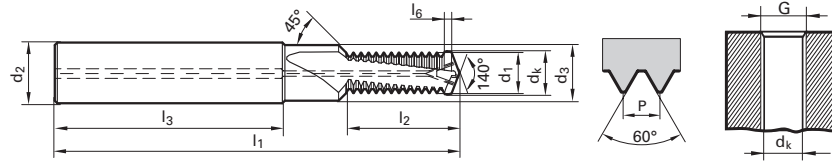
Metric Fine	dk	d1	d2	d3	l1	l2	l3	l6	No.	3793
Size	mm	mm	mm	mm	mm	mm	mm	mm	flutes	EDP #
M4 X 0.50	3.50	3.20	6.0	4.5	48.0	8.6	36.0	0.50	2	9037930040030
M5 X 0.50	4.50	4.00	6.0	5.5	54.0	10.8	36.0	0.50	2	9037930050030
M6 X 0.75	5.20	4.75	8.0	6.6	62.0	12.9	36.0	0.75	2	9037930060040
M8 X 0.75	7.20	6.35	10.0	9.0	74.0	17.1	40.0	0.75	2	9037930080040
M8 X 1.00	7.00	6.35	10.0	9.0	74.0	17.3	40.0	1.00	2	9037930080050
M10 X 1.00	9.00	7.95	12.0	11.0	80.0	21.6	45.0	1.00	2	9037930100050
M10 X 1.25	8.80	7.95	12.0	11.0	80.0	21.6	45.0	1.25	2	9037930100060
M12 X 1.00	11.00	9.95	14.0	13.5	90.0	26.0	45.0	1.00	2	9037930120050
M12 X 1.50	10.50	9.95	14.0	13.5	90.0	27.4	45.0	1.50	2	9037930120070
M14 X 1.50	12.50	11.20	16.0	15.5	102.0	30.7	48.0	1.50	2	9037930140070
M16 X 1.50	14.50	13.20	18.0	17.5	102.0	34.1	48.0	1.50	2	9037930160070

METRIC



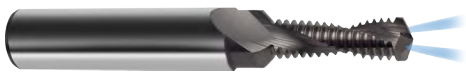
Series	3783
Thread Depth	2.5 X D
Tool Material	Coolant Fed Carbide
Coating	Bright Finish
Shank	HA (round)
Countersink	Yes

- Drill and thread mill with one tool
- Recommended for non-ferrous materials
- Coolant fed $\geq$ M4 dia.



Metric Size	dk mm	d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	l3 mm	l6 mm	No. flutes	3783 EDP #
M3 X 0.50	2.5	2.40	6.0	3.4	48.0	8.5	36.0	0.50	2	9037830030000
M4 X 0.70	3.3	3.20	6.0	4.5	48.0	11.1	36.0	0.70	2	9037830040000
M5 X 0.80	4.2	4.00	6.0	5.5	54.0	13.6	36.0	0.80	2	9037830050000
M6 X 1.00	5.0	4.75	8.0	6.6	62.0	16.9	36.0	1.00	2	9037830060000
M8 X 1.25	6.8	6.35	10.0	9.0	74.0	22.5	40.0	1.25	2	9037830080000
M10 X 1.50	8.5	7.95	12.0	11.0	80.0	27.0	45.0	1.50	2	9037830100000
M12 X 1.75	10.2	9.95	14.0	13.5	90.0	31.4	45.0	1.50	2	9037830120000
M14 X 2.00	12.0	11.20	16.0	15.5	102.0	39.7	48.0	1.50	2	9037830140000
M16 X 2.00	14.0	13.20	18.0	17.5	102.0	46.0	48.0	1.50	2	9037830160000

METRIC



Series	3785
Thread Depth	2.5 X D
Tool Material	Coolant Fed Carbide
Coating	TiCN
Shank	HA (round)
Countersink	Yes

- Drill and thread mill with one tool
- Recommended for non-ferrous materials
- Coolant fed $\geq$ M4 dia.

Metric Size	dk mm	d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	l3 mm	l6 mm	No. flutes	3785 EDP #
M3 X 0.50	2.5	2.40	6.0	3.4	48.0	8.5	36.0	0.50	2	9037830030000
M4 X 0.70	3.3	3.20	6.0	4.5	48.0	11.1	36.0	0.70	2	9037850040000
M5 X 0.80	4.2	4.00	6.0	5.5	54.0	13.6	36.0	0.80	2	9037850050000
M6 X 1.00	5.0	4.75	8.0	6.6	62.0	16.9	36.0	1.00	2	9037850060000
M8 X 1.25	6.8	6.35	10.0	9.0	74.0	22.5	40.0	1.25	2	9037850080000
M10 X 1.50	8.5	7.95	12.0	11.0	80.0	27.0	45.0	1.50	2	9037850100000
M12 X 1.75	10.2	9.95	14.0	13.5	90.0	31.4	45.0	1.50	2	9037850120000
M14 X 2.00	12.0	11.20	16.0	15.5	102.0	39.7	48.0	1.50	2	9037850140000
M16 X 2.00	14.0	13.20	18.0	17.5	102.0	46.0	48.0	1.50	2	9037850160000

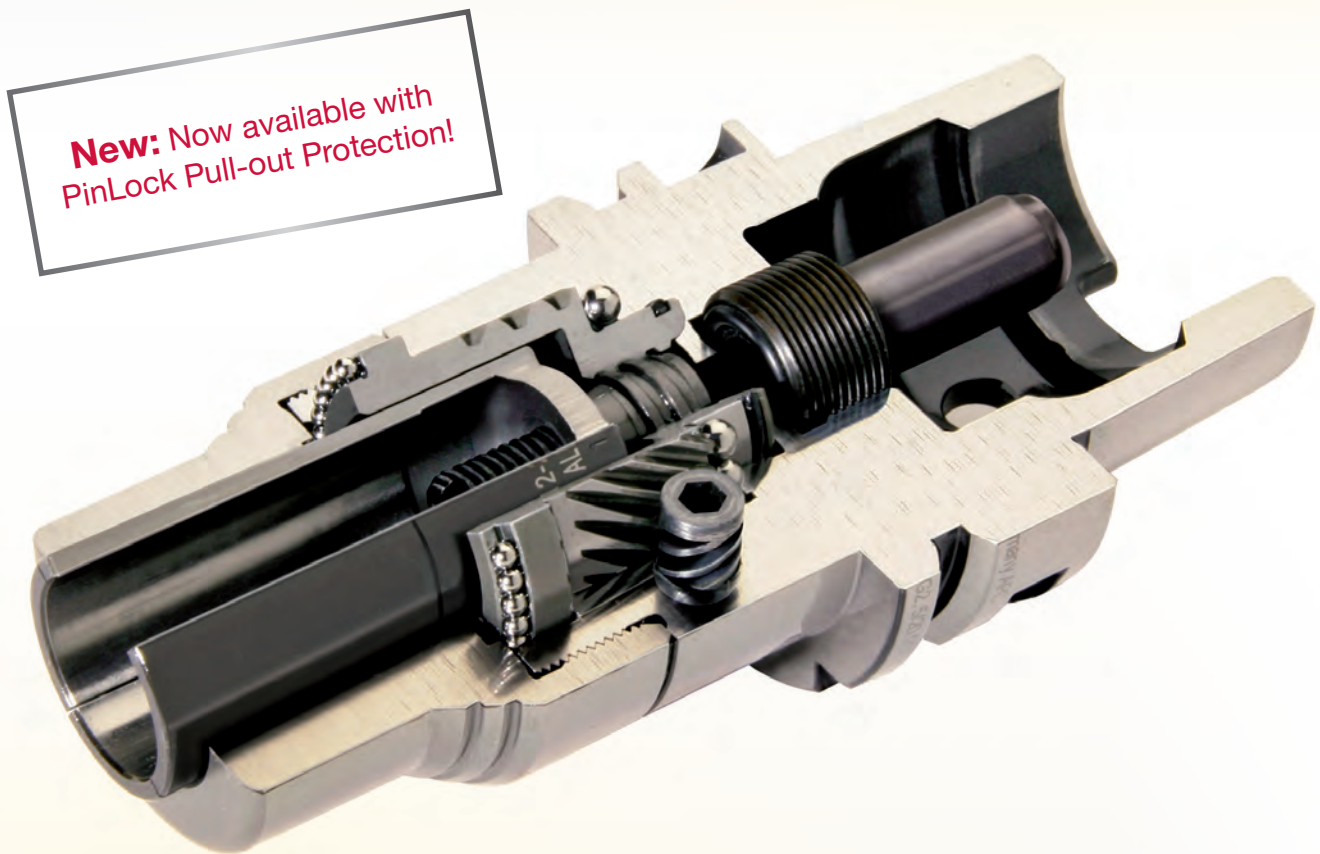
Recommended holders for thread mills:

HPC PRECISION CLAMPING CHUCKS

Recommended holders for thread mills:

HPC PRECISION CLAMPING CHUCKS

Guhring's precision clamping chucks offer extremely high clamping forces while maintaining extremely tight concentricity tolerances, making it an ideal solution for milling operations, as well as drilling and reaming applications. It excels in both heavy-duty and high-speed machining applications. The special clamping sleeve is clamped via a worm gear, which transfers the optimal clamping force onto the tool shank. This creates clamping forces of > 200 Nm for 12 mm shank diameters and > 300 Nm for 16 mm shank diameters.



New: Now available with
PinLock Pull-out Protection!

This system offers the following advantages:

- increased cutting depths in comparison to conventional tool holders
- increased radial engagement and subsequently higher material removal rate
- maintenance-free technology
- suitable for use with both round shanks and flatted shanks
- concentricity 3 μm with 2,5 x D
- balancing quality: G2.5 / 20.000 rev./min or $U < 1.2\text{gmm}$

Recommendations for Thread Milling Cutters

Material Group		Hardness		SFM (in/min)	Feed Rate (inch/tooth) for Thread Mill Diameter						
		Rc	Brn		#10	1/4"	3/8"	1/2"	5/8"	3/4"	1"
	Structural Steels		<180	260-400	0.0008	0.0015	0.0020	0.0030	0.0035	0.0035	0.0040
	Free cutting steels		<180	260-400	0.0008	0.0015	0.0020	0.0030	0.0035	0.0035	0.0040
	Unalloyed case hardened steels	<20	<230	260-400	0.0008	0.0015	0.0020	0.0030	0.0035	0.0035	0.0040
	Unalloyed heat-treatable steels	<25	<250	260-400	0.0008	0.0015	0.0020	0.0030	0.0035	0.0035	0.0040
	Alloyed case hardened steels	<25	<250	200-260	0.0004	0.0008	0.0012	0.0016	0.0020	0.0025	0.0030
	Alloyed heat-treatable steels	<30	<280	200-260	0.0004	0.0008	0.0012	0.0016	0.0020	0.0025	0.0030
	Alloyed tool steels	<35	<320	200-260	0.0004	0.0008	0.0012	0.0016	0.0020	0.0025	0.0030
	High speed tool steels	<38	<380	200-260	0.0004	0.0008	0.0012	0.0016	0.0020	0.0025	0.0030
	Hardened Steel (55RHC Max)	<55	<560	130-170	0.0003	0.0006	0.0009	0.0012	0.0016	0.0020	0.0024
	Stainless -- sulphuric		<180	160-230	0.0008	0.0015	0.0020	0.0030	0.0035	0.0035	0.0040
	Stainless - austenitic	<25	<250	160-230	0.0008	0.0015	0.0020	0.0030	0.0035	0.0035	0.0040
	Stainless - martensitic	<30	<280	130-230	0.0008	0.0015	0.0020	0.0030	0.0035	0.0035	0.0040
	Structural Steels	<20	<230	260-330	0.0008	0.0015	0.0020	0.0030	0.0035	0.0035	0.0040
	Case hardened steels	<25	<250	260-330	0.0008	0.0015	0.0020	0.0030	0.0035	0.0035	0.0040
	Heat-treatable steels	<25	<250	260-330	0.0008	0.0015	0.0020	0.0030	0.0035	0.0035	0.0040
	Nitriding steels	<30	<280	260-330	0.0008	0.0015	0.0020	0.0030	0.0035	0.0035	0.0040
	Al wrought alloys		<150	400-750	0.0020	0.0030	0.0040	0.0050	0.0060	0.0070	0.0080
	Al cast alloys <10% Si			500-1000	0.0020	0.0030	0.0040	0.0050	0.0060	0.0070	0.0080
	Al cast alloys >10% Si			330-660	0.0020	0.0030	0.0040	0.0050	0.0060	0.0070	0.0080
	Cast iron - Grey	<25	<240	330-500	0.0020	0.0030	0.0040	0.0050	0.0050	0.0060	0.0060
	Cast iron - ductile (alloyed)	<30	<280	260-400	0.0020	0.0030	0.0040	0.0050	0.0050	0.0060	0.0060
	Cast iron - malleable	<32	<300	260-400	0.0020	0.0030	0.0040	0.0050	0.0050	0.0060	0.0060
	Non-ferrous metals, copper alloys		<180	260-500	0.0020	0.0028	0.0035	0.0045	0.0065	0.0080	0.0100
	Brass, short-chipping		<180	200-300	0.0020	0.0028	0.0035	0.0045	0.0065	0.0080	0.0100
	Plastics, Carbon/glass reinforced			330-660	0.0020	0.0028	0.0035	0.0045	0.0065	0.0080	0.0100
	Titanium and Ti-alloys	<35	<320	130-200	0.0004	0.0008	0.0012	0.0016	0.0020	0.0025	0.0030
	Ni-alloys	<35	<320	130-200	0.0004	0.0008	0.0012	0.0016	0.0020	0.0025	0.0030
		<55	<560	130-170	0.0003	0.0006	0.0009	0.0012	0.0016	0.0020	0.0024

Drilling Parameters for DTMC Thread Mills

Material Group		Hardness		SFM (in/min)	Feed Rate (inch/tooth) for Thread Mill Diameter				
		Rc	Brn		#10	1/4"	3/8"	1/2"	5/8"
	Al wrought alloys		<150	400-750	0.0020	0.0040	0.0060	0.0080	0.0100
	Al cast alloys <10% Si			500-1000	0.0020	0.0060	0.0090	0.0120	0.0160
	Al cast alloys >10% Si			330-660	0.0020	0.0040	0.0070	0.0100	0.0120
	Cast iron - Grey	<25	<240	330-500	0.0020	0.0040	0.0060	0.0080	0.0100
	Cast iron - ductile (alloyed)	<30	<280	260-400	0.0020	0.0030	0.0040	0.0060	0.0080
	Cast iron - malleable	<32	<300	260-400	0.0020	0.0030	0.0040	0.0060	0.0080
	Non-ferrous metals, copper alloys		<180	260-500	0.0020	0.0060	0.0100	0.0120	0.0160
	Brass, short-chipping		<180	200-300	0.0020	0.0040	0.0060	0.0080	0.0100
	Plastics, Carbon/glass reinforced			330-660	0.0020	0.0060	0.0090	0.0120	0.0160

Recommendations for Micro-Thread Milling Cutters

Material Group		Hardness		SFM (in/min)	Feed Rate (inch/tooth) for Thread Mill Diameter												
		Rc	Brn		1 mm	1.5 mm	2 mm	3 mm	4 mm	5 mm	6 mm	7 mm	8 mm	9 mm	10 mm	12 mm	14 mm
	Structural Steels		<180	230-400	0.0015	0.0015	0.0019	0.0019	0.0024	0.0024	0.0028	0.0028	0.0031	0.0035	0.0035	0.0040	0.0047
	Free cutting steels		<180	230-400	0.0015	0.0015	0.0019	0.0019	0.0024	0.0024	0.0028	0.0028	0.0031	0.0035	0.0035	0.0040	0.0047
	Unalloyed case hardened steels	<20	<230	230-400	0.0015	0.0015	0.0019	0.0019	0.0024	0.0024	0.0028	0.0028	0.0031	0.0035	0.0035	0.0040	0.0047
	Unalloyed heat-treatable steels	<25	<250	230-400	0.0015	0.0015	0.0019	0.0019	0.0024	0.0024	0.0028	0.0028	0.0031	0.0035	0.0035	0.0040	0.0047
	Alloyed case hardened steels	<25	<250	200-300	0.0012	0.0012	0.0015	0.0015	0.0019	0.0019	0.0024	0.0024	0.0028	0.0028	0.0031	0.0035	0.0040
	Alloyed heat-treatable steels	<30	<280	200-300	0.0012	0.0012	0.0015	0.0015	0.0019	0.0019	0.0024	0.0024	0.0028	0.0028	0.0031	0.0035	0.0040
	Alloyed tool steels	<35	<320	200-300	0.0012	0.0012	0.0015	0.0015	0.0019	0.0019	0.0024	0.0024	0.0028	0.0028	0.0031	0.0035	0.0040
	High speed tool steels	<38	<380	200-260	0.0010	0.0010	0.0013	0.0013	0.0016	0.0016	0.0020	0.0020	0.0024	0.0024	0.0026	0.0030	0.0035
	Hardened Steel (55RHC Max)	<55	<560	130-170	0.0004	0.0007	0.0007	0.0012	0.0012	0.0014	0.0014	0.0015	0.0018	0.0018	0.0019	0.0019	0.0024
	Stainless -- sulphuric		<180	130-260	0.0008	0.0008	0.0008	0.0012	0.0012	0.0015	0.0019	0.0019	0.0019	0.0024	0.0024	0.0024	0.0028
	Stainless - austenitic	<25	<250	130-260	0.0008	0.0008	0.0008	0.0012	0.0012	0.0015	0.0019	0.0019	0.0019	0.0024	0.0024	0.0024	0.0028
	Stainless - martensitic	<30	<280	130-260	0.0008	0.0012	0.0012	0.0015	0.0015	0.0019	0.0019	0.0019	0.0024	0.0028	0.0028	0.0031	0.0035
	Structural Steels	<20	<230	230-400	0.0015	0.0015	0.0019	0.0019	0.0024	0.0024	0.0028	0.0028	0.0031	0.0035	0.0035	0.0040	0.0047
	Case hardened steels	<25	<250	200-300	0.0015	0.0015	0.0019	0.0019	0.0024	0.0024	0.0028	0.0028	0.0031	0.0035	0.0035	0.0040	0.0047
	Heat-treatable steels	<25	<250	230-400	0.0012	0.0012	0.0015	0.0015	0.0019	0.0019	0.0024	0.0024	0.0028	0.0028	0.0031	0.0035	0.0040
	Nitriding steels	<30	<280	200-300	0.0012	0.0012	0.0015	0.0015	0.0019	0.0019	0.0024	0.0024	0.0028	0.0028	0.0031	0.0035	0.0040
	Al wrought alloys		<150	260-500	0.0015	0.0019	0.0019	0.0024	0.0024	0.0028	0.0028	0.0031	0.0035	0.0040	0.0043	0.0047	0.0055
	Al cast alloys <10% Si			500-1000	0.0015	0.0019	0.0019	0.0024	0.0024	0.0028	0.0028	0.0031	0.0035	0.0040	0.0043	0.0047	0.0055
	Al cast alloys >10% Si			330-650	0.0015	0.0015	0.0019	0.0019	0.0024	0.0024	0.0028	0.0028	0.0031	0.0035	0.0035	0.0040	0.0047
	Cast iron - Grey	<25	<250	325-500	0.0015	0.0015	0.0019	0.0019	0.0024	0.0024	0.0028	0.0028	0.0031	0.0035	0.0035	0.0040	0.0047
	Cast iron - ductile (alloyed)	<30	<280	260-500	0.0015	0.0015	0.0019	0.0019	0.0024	0.0024	0.0028	0.0028	0.0031	0.0035	0.0035	0.0040	0.0047
	Cast iron - malleable	<35	<320	260-500	0.0015	0.0015	0.0019	0.0019	0.0024	0.0024	0.0028	0.0028	0.0031	0.0035	0.0035	0.0040	0.0047
	Non-ferrous metals, copper alloys		<180	260-500	0.0015	0.0019	0.0019	0.0024	0.0024	0.0028	0.0028	0.0031	0.0035	0.0040	0.0043	0.0047	0.0055
	Brass, short-chipping		<180	200-300	0.0015	0.0019	0.0019	0.0024	0.0024	0.0028	0.0028	0.0031	0.0035	0.0040	0.0043	0.0047	0.0055
	Plastics, Carbon/glass reinforced			200-650	0.0019	0.0019	0.0024	0.0028	0.0028	0.0031	0.0035	0.0035	0.0040	0.0043	0.0047	0.0051	0.0059
	Titanium and Ti-alloys		140-300	65-130	0.0007	0.0007	0.0007	0.0012	0.0012	0.0015	0.0019	0.0019	0.0019	0.0024	0.0024	0.0024	0.0028
			300-380	200-300	0.0012	0.0012	0.0015	0.0015	0.0019	0.0019	0.0024	0.0024	0.0028	0.0028	0.0031	0.0035	0.0040
	Ni-alloys	<32	<300	200-300	0.0012	0.0012	0.0015	0.0015	0.0019	0.0019	0.0024	0.0024	0.0028	0.0028	0.0031	0.0035	0.0040
		<55	<560	130-170	0.0004	0.0007	0.0007	0.0012	0.0012	0.0014	0.0014	0.0015	0.0018	0.0018	0.0019	0.0019	0.0024

Thread production with thread milling cutters and their advantages

Thread milling is like thread cutting in that it is a chip forming production process. A major benefit of thread milling is the size of the thread to be produced, as the cost of taps in large dimensions can question the economic efficiency of the production process. Furthermore, with larger diameters thread cutting requires more power from the machine tool. The possibility of machining materials with a higher tensile strength or hardness can also be a decisive factor in choosing thread milling.

With conventional thread cutting the thread is produced from the image of the tool profile, conditional on the chamfer lead for the workpiece. In contrast, with thread milling the thread is produced via a series of cutting paths by the milling cutter, whereby the pitch is generated by the machine. The thread mill makes numerous passes through the axis section of a thread during a spiral motion in axial tool-workpiece direction and thereby interpolates the contour of the thread.

A major factor is that cutting speeds and feed rates can be chosen independently of each other. Chip formation and tool loading can be considerably influenced via these setting parameters. A feature of the process is the formation of short, comma shaped chips in contrast to thread cutting.

To detach the chips, the direction of rotation of the machine spindle does not need to be reversed. The tools applied have a thread profile without pitch. Initially, the thread milling cutter is lowered along the hole axis to the required thread depth. In the approach cycle the thread milling cutter is plunged to the nominal diameter of the thread.

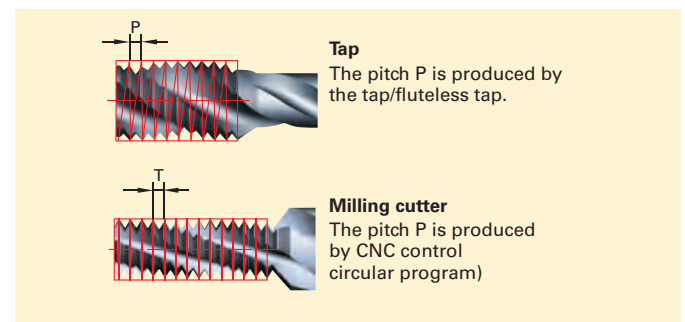
The thread is produced by a 360° circular interpolation. Finally, in the exit cycle the thread milling cutter is radially returned to the hole axis and then axially withdrawn from the thread.

A thread milling cutter can produce threads of varying diameters (or tolerances) with the same pitch. Right- or left-handed threads can be produced with the one tool. As thread milling produces only short chips, chip evacuation does not cause any problems.

With thread milling, an identical tool geometry can be applied for a multitude of materials. This considerably limits the multiplicity of tools required. In contrast to thread cutting, thread milling produces a complete thread which is virtually the total length of the applied tool.

Comparison of tool design between taps/thread milling cutters

In contrast to a tap, which basically consists of a single spiral shaped tooth, the series of teeth of a thread milling cutter do not form a spiral but are configured without pitch. This fundamental difference in tool design is attributed to the different processes which have already been described in an earlier chapter.



Dimensions and cutting section measurements

Apart from the thread pitch of the tool, the design of a thread milling cutter is principally very similar to that of a tap. Thread milling cutters are also characterized by dimensions and the size of the cutting section. The thread length l_2 and the total length l_1 are also part of the dimensions.

The different design forms incorporate milling cutters with or without collar as well as with or without countersinking chamfer. The cutting section sizes of a thread milling cutter consist of the flute length l_4 , the flute profile, the tooth with Z_b and the relief S . As with a tap, the flute length also incorporates the run-out of the flutes. They do not have to be as large as the flutes of a tap, as this machining process produces smaller chips. The chips do not remain in the flutes during the process and do therefore not restrict further chip development. The width of the tooth is therefore larger than with taps. The relief grinding helps to create the clearance angle required for milling cutters.

Technical Information

Thread milling process and technology

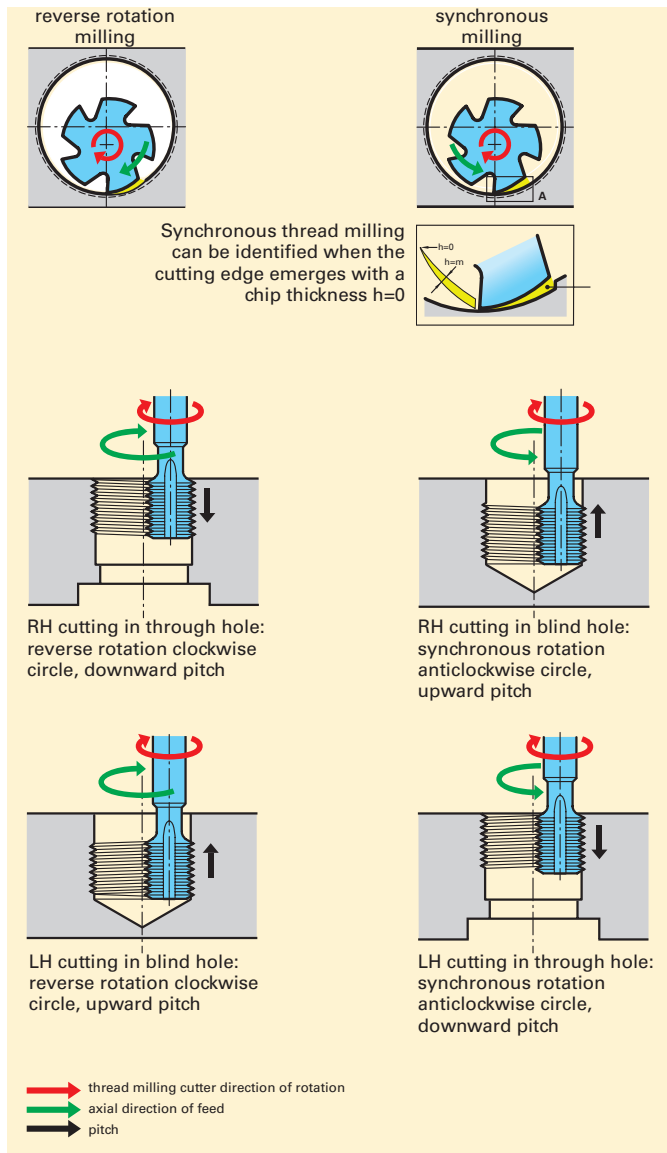
Machining combinations (reverse rotation/synchr. milling)

As the thread milling cutters are designed for right hand cutting, the direction of rotation is generally clockwise. By altering the axial direction of feed, reverse rotation or synchronous milling, all thread combinations can be produced.

The application conditions, such as blind or through hole, horizontal or vertical machining methods as well as the type of lubrication and chip removal determine the correct choice of milling procedure.

For thread milling, synchronous milling should be applied whenever possible, in order to achieve lower cutting forces, improved chip formation, a better tool life and surface quality.

Synchronous milling can be identified when the cutting edge emerges with chip thickness $h = 0$.



Interference and feed ratio

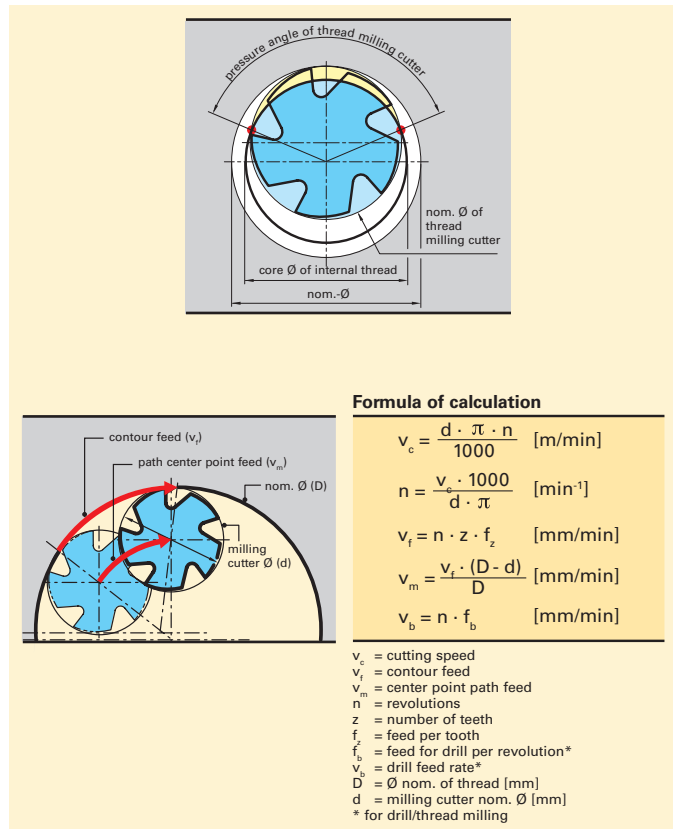
If the milling cutter diameter to the nominal thread diameter ratio of 70° is adhered to, a profile distortion, irrespective of the profile depth of the thread, should not occur. This factor is well proven.

This drawing illustrates that the diameter of the thread milling cutter and the profile depth determine the pressure angle to the thread diameter.

The feed at the cutting edge of the thread milling cutter is calculated by the cutting speed revolutions) and the feed rate per tooth.

With linear movement, the feed rate at the cutting edge is identical to that at the tool center. However, the helical interpolation follows the path of a circle in the plane. As the machine tool always calculates to the tool center, a command must be programmed for converting the cutting speed (contour related program). If such a command does not exist or the central point is programmed, the feed rate must be first converted.

The interactive control at the control panel always indicates the speed at the center point of the tool. When running with no load this is simple to check. If disregarded, the milling cutter runs at a speed many times faster than the feed which generally leads to tool breakages.



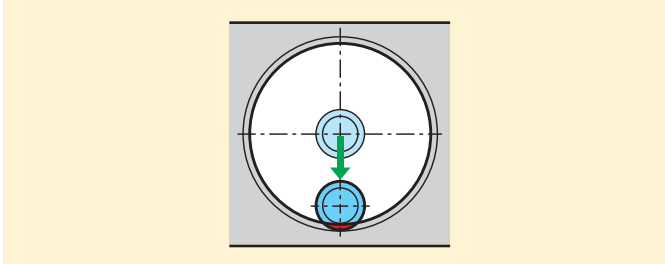
Technical Information

Thread milling process and technology

Thread milling cutter entry cycles

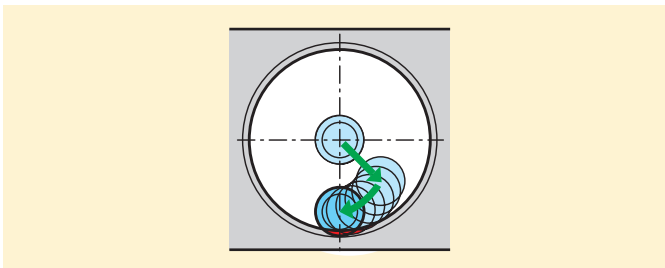
Linear plunging

With linear plunging of the thread milling cutter into the material, a very large angle of contact is created at the milling cutter which leads to long chips and a high loading on the tool. This is particularly the case when the difference in diameter between the hole size and the milling cutter is small. In addition, this method produces a small delay mark. This method is not suitable for accurate and small threads.



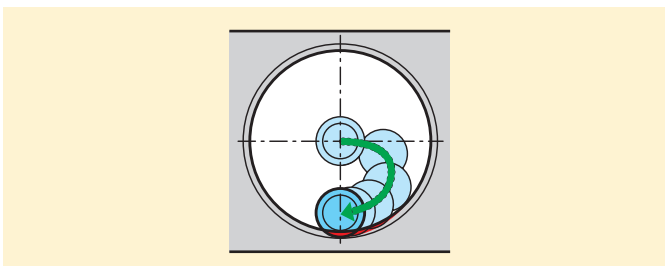
90° quarter circle entry cycle

A 90° entry cycle with a small difference in diameter between the tool and the thread removes a large part of chip volume during the linear section of the entry cycle. This method is therefore only recommended for relatively large differences in diameter between hole size and thread milling cutter (thread milling cutter TMU). The advantage using this entry method lies in the simple programming and the relatively short entry path.



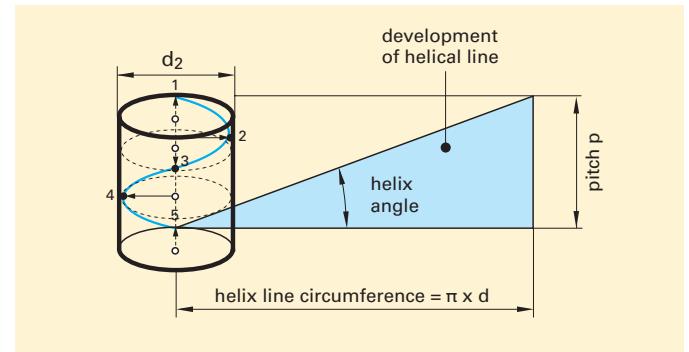
180° semicircle entry cycle

With a 180° entry cycle, the loading on the tool is the lowest when plunging, as the angle of contact is relatively small during the complete entry cycle. This method requires a little more sophistication in programming but has shown to be the most cost-efficient when thread milling with the TM, TMC and DTMC thread milling cutter.



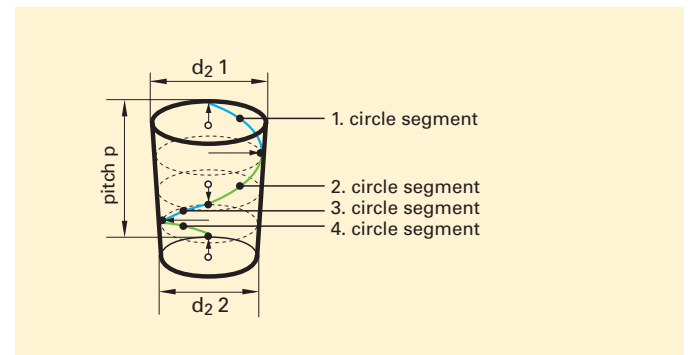
Helical interpolation (cyl. thread)

Helical interpolation is the overlaying of circular and linear movement. Different threads can be produced by the form of overlaying the direction of pitch and the direction of rotation of the circular movement.



Helical interpolation (conical thread)

In order to produce a perfectly round thread with a NPT thread milling cutter, it is necessary to take into account the pitch when NC-programming. In contrast to cylindrical threads, the machining path is not a 360° circle but four segments of a circle. With every one of the four segments the taper is corrected inwards.



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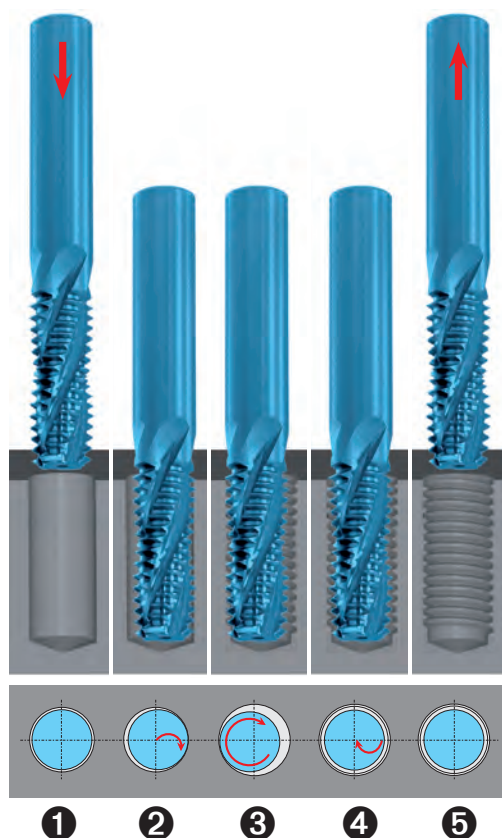


Technical Information

Thread milling cutters w/o countersinking step Type TM SP

Machine example

Coating:	TiCN	Tool material:	Steel
Thread:	M12	Cutting speed:	100 m/min
Pitch:	1.75 mm	Feed per tooth:	0.08 mm
Thread depth:	24 mm / 2 x D	Cutting time:	2.7 s



Programming example:

CNC Code:	Plain text
N10 M6T1	Tool call
N20 G90 G54 G00 X0.000Y0.000	Work offset
❶ N30 Z2.000 S3199 M3 D1	Positioning centered on start position above tapping size hole and spindle speed call-up
N40 G00 Z-21.725	Rapid movement to thread milling start position centered in tapping size hole
N50 G91	Switch to incremental
N60 G42 G01 X0.000Y4.975 F1000	Cutter radius compensation on
❷ N70 G02 X0.000Y-10.975 I0.000 J-5.488 Z-0.263 F87	180° entry cycle to profile depth, start thread milling process
❸ N80 G02 X0.000Y0.000 I0.000 J6.000 Z-1.750 F175	360° thread milling cycle with axial movement of the thread pitch in Z-direction
❹ N90 G02 X0.000Y10.975 I0.000 J5.488 Z-0.263 F350	180° withdrawal cycle to the thread center, end of thread milling
N100 G40 G01 X0.000Y-4.975 F1000	Cutter radius compensation off
N110 G90	Switch to absolute
❺ N120 G80 G53 G00 Z2.000	Withdrawal from hole to start position centered above tapping size hole
N130 M30 M95	End

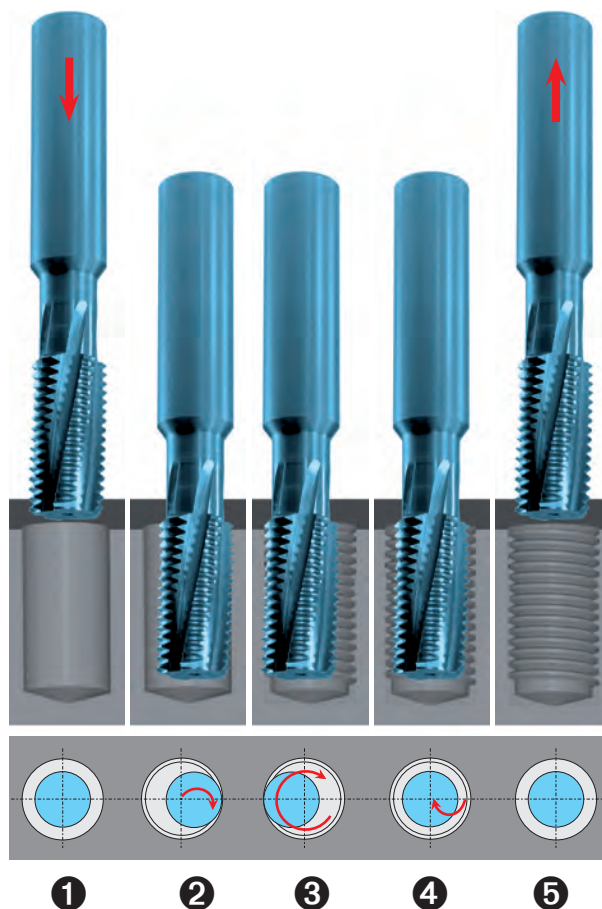
Technical Information

Universal thread milling cutter Type TMU SP - 1 milling cycle

Machine example

Coating:	bright
Thread:	M24
Pitch:	1.5 mm
Thread depth:	24 mm / M16x1.5

Tool material:	Cast Aluminum
Cutting speed:	220 m/min
Feed per tooth:	0.15 mm
Cutting time:	1.7 s



Programming example:

CNC Code:	Plain text
N10 M6T1	Tool call
N20 G90 G54 G00 X0.000Y0.000	Work offset
① N30 Z2.000 S3199 M3 D1	Positioning centered on start position above tapping size hole and spindle speed call-up
N40 G00 Z-21.725	Rapid movement to thread milling start position centered in tapping size hole
N50 G91	Switch to incremental
N60 G42 G01 X0.000Y4.975 F1000	Cutter radius compensation on
② N70 G02 X0.000Y10.975 I0.000 J-5.488 Z-0.263 F87	180° entry cycle, start of thread milling
③ N80 G02 X0.000Y0.000 I0.000 J6.000 Z-1.750 F175	360° thread milling cycle with axial movement of the thread pitch in Z-direction
④ N90 G02 X0.000Y10.975 I0.000 J5.488 Z-0.263 F350	180° withdrawal cycle to the thread center, end of thread milling
N100 G40 G01 X0.000Y-4.975 F1000	Cutter radius compensation off
N110 G90	Switch to absolute
⑤ N120 G80 G53 G00 Z2.000	Withdrawal from hole to start position centered above tapping size hole
N130 M30 M95	End

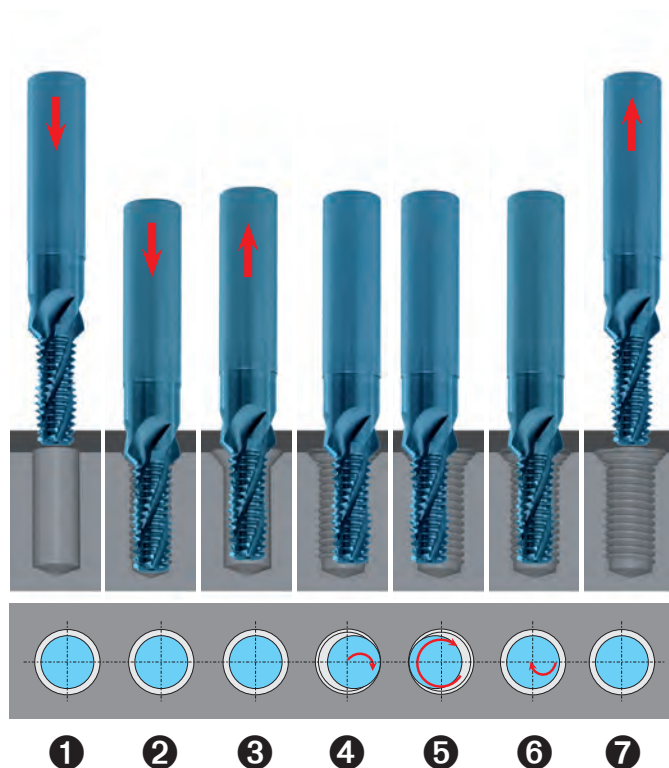
Technical Information

Thread milling cutters with countersinking step Type TMC SP

Machine example

Coating:	TiCN
Thread:	M16
Pitch:	1.5 mm
Thread depth:	40 mm / M16x1.5

Tool material:	5120 Alloyed Steel
Cutting speed:	100 m/min
Feed per tooth:	0.06 mm
Cutting time:	6.4 s



Programming example:

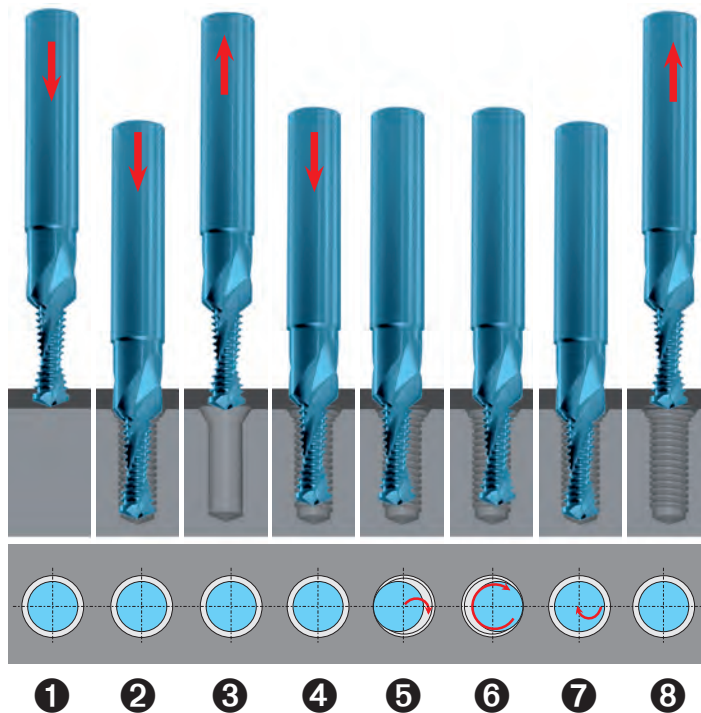
CNC Code:	Plain text
N10 M6T1	Tool call
N20 G90 G54 G00 X0.000Y0.000	Work offset
① N30 Z2.000 S497 M3 D1	Positioning centered on start position above tapping size hole and spindle speed call-up
N40 G00 X0.000Y0.000 Z-41.300	Rapid movement to countersinking start position
② N50 G01 X0.000Y0.000 Z-43.200 F119	Countersinking of 90° chamfer
③ N60 G00 Z-38.050 S2487	Rapid movement to thread milling start position centered in tapping size hole
N70 G91	Switch to incremental
N80 G42 G01 X0.000Y6.400 F1000	Cutter radius compensation on
④ N90 G02 X0.000Y14.400 I0.000 J-7.200 Z-0.225 F60	180° entry cycle, start of thread milling
⑤ N100 G02 X0.000Y0.000 I0.000 J8.000 Z-1.500 F119	360° thread milling cycle with axial movement of the thread pitch in Z-direction
⑥ N110 G02 X0.000Y14.400 I0.000 J7.200 Z-0.225 F239	180° withdrawal cycle to the thread center, end of thread milling
N120 G40 G01 X0.000Y-6.400 F1000	Cutter radius compensation off
N130 G90	Switch to absolute
⑦ N140 G80 G53 G00 Z2.000	Withdrawal from hole to start position centered above tapping size hole
N150 M30 M95	End

Technical Information

Drill/thread milling cutter Type DTMC SP

Machine example

Coating:	bright	Tool material:	Cast Iron
Thread:	M8	Cutting speed:	100 m/min
Pitch:	1.25 mm	Feed per tooth:	0.06 mm
Thread depth:	16 mm / 2 x D	Cutting time:	5.3 s



Programming example:

CNC Code:	Plain text
N10 M6 T1	Tool call
N20 G90 G54 G00 X0.000 Y0.000	Work offset
① N30 Z2.000 S5013 M3 D1	Positioning centered on start position above tapping size hole and spindle speed call-up
N40 G01 X0.000 Y0.000 Z-1.000 F251	Centering at half the feed rate
② N50 X0.000 Y0.000 Z-19.825 F501	Drilling the tapping size hole and countersinking 90° chamfer
③ N60 G00 X0.000 Y0.000 Z0.000 S5013	Withdrawal of tool from the hole for pecking
④ N70 Z-14.375	Rapid movement to thread milling start position centered in tapping size hole
N80 G91	Switch to incremental
N90 G42 G01 X0.000 Y3.175 F1000	Cutter radius compensation on
⑤ N100 G02 X0.000 Y-7.175 I0.000 J-3.588 Z-0.188 F62	180° entry cycle, start of thread milling
⑥ N110 G02 X0.000 Y0.000 I0.000 J4.000 Z-1.250 F124	360° thread milling cycle with axial movement of the thread pitch in Z-direction
⑦ N120 G02 X0.000 Y7.175 I0.000 J3.588 Z-0.188 F248	180° withdrawal cycle to the thread center, end of thread milling
N130 G40 G01 X0.000 Y-3.175 F1000	Cutter radius compensation off
N140 G90	Switch to absolute
⑧ N150 G80 G53 G00 Z2.000	Withdrawal from hole to start position centered above tapping size hole
N160 M30 M95	End

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Series	Type	Coolant Fed	Surface	Description	Page
3517	TMC SP	Yes	TiCN	UNC, 2 x D, with countersink, axial coolant, TiCN coated	14
3519	TMC SP	Yes	TiCN	UNF, 2 x D, with countersink, axial coolant, TiCN coated	15
3526	TMC SP	Yes	TiCN	Metric, 2 X D, with countersink, axial coolant, TiCN coated	16
3528	TMC SP	Yes	TiCN	Metric Fine, 2 X D, with countersink, axial coolant, TiCN coated	16
3535	TMC SP	Yes	TiCN	UNC, 2 X D, with countersink, axial coolant, TiCN coated	14
3537	TMC SP	Yes	TiCN	UNF, 2 X D, with countersink, axial coolant, TiCN coated	15
3541	TMU SP	Yes	TiCN	Metric/Metric Fine, multi-range, axial coolant, TiCN coated	20
3595	TMU SP	Yes	TiCN	UNC/UNF, multi-range, axial coolant, TiCN coated	19
3596	TMU SP	Yes	TiCN	UNC/UNF, multi-range, axial coolant, TiCN coated	19
3737	TM SP	Yes	TiCN	Metric, Metric Fine, 2 X D, axial coolant, TiCN coated	12
3754	TM SP	Yes	TiCN	NPT, axial coolant, TiCN coated	13
3757	TM SP	Yes	TiCN	NPTF, axial coolant, TiCN coated	13
3759	TMC SP	Yes	TiCN	Metric, 2.5 x D, with countersink, axial coolant, TiCN coated	17
3760	TMC SP	Yes	TiCN	Metric, 2.5 X D, with countersink, axial coolant, TiCN coated	17
3762	TMC SP	Yes	TiCN	Metric Fine, 2.5 x D, with countersink, axial coolant, TiCN coated	18
3763	TMC SP	Yes	TiCN	Metric Fine, 2.5 X D, with countersink, axial coolant, TiCN coated	18
3778	DTMC SP	No	Bright	Metric, 2 X D, with countersink, Bright finish	21
3779	DTMC SP	Yes	Bright	Metric, 2 X D, with countersink, axial coolant, Bright finish	24
3780	DTMC SP	No	TiCN	Metric, 2 X D, with countersink, TiCN coated	21
3781	DTMC SP	Yes	TiCN	Metric, 2 X D, with countersink, axial coolant, TiCN coated	24
3783	DTMC SP	Yes	Bright	Metric, 2.5 X D, with countersink, axial coolant, Bright finish	26
3785	DTMC SP	Yes	TiCN	Metric, 2.5 X D, with countersink, axial coolant, TiCN coated	26
3790	DTMC SP	No	Bright	Metric Fine, 2 X D, with countersink, Bright finish	22
3791	DTMC SP	Yes	Bright	Metric Fine, 2 X D, with countersink, axial coolant, Bright finish	25
3792	DTMC SP	No	TiCN	Metric Fine, 2 X D, with countersink, TiCN coated	22
3793	DTMC SP	Yes	TiCN	Metric Fine, 2 X D, with countersink, axial coolant, TiCN coated	25
4128	TM SP	No	TiCN	NPT, TiCN coated	7
4129	TM SP	No	TiCN	NPTF, TiCN coated	7
4130	TM SP	No	TiCN	NPT, TiCN coated	9
4131	TM SP	No	TiCN	NPTF, TiCN coated	9
4132	TM SP	No	TiCN	Metric, Bright finish	8
4133	TM SP	No	TiCN	Metric, TiCN coated	8
4134	TM SP	Yes	TiCN	UNC, Bright finish	10
4135	TM SP	Yes	TiCN	UNC, TiCN coated	10
4136	TM SP	Yes	TiCN	UNF, Bright finish	11
4137	TM SP	Yes	TiCN	UNF, TiCN coated	11
4139	DTMC SP	Yes	TiCN	UNC, 2 X D, with countersink, axial coolant, TiCN coated	23
4141	DTMC SP	Yes	TiCN	UNF, 2 X D, with countersink, axial coolant, TiCN coated	23
4223	MTM SP	No	TiCN	UNC/UNF, 3 x D, micro-thread milling cutter, TiCN coated	6

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