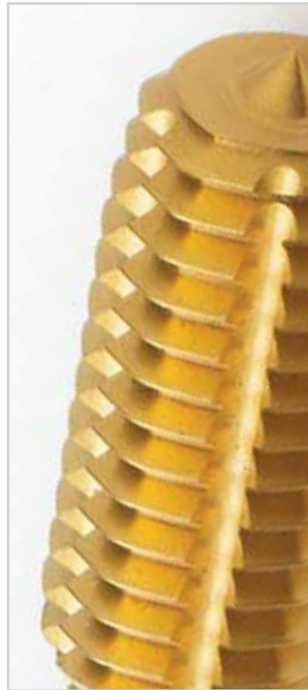


The Right Tool at the Right Time



Forming Taps

Metric Coarse Range

Features & Benefits

Material

Manufactured from premium grade High Speed Cobalt (HSS-E) for:

- Increased hardness and toughness
- Improved edge strength
- Longer tool life

Surface Treatment

Titanium Nitride (TiN) coating reduces friction, resulting in longer tool life; a bright finish option is also available.

Flute Geometry and Chamfer

The thread profile generates low torque. This not only ensures a smooth surface finish on the completed thread but also promotes longer tool life. Oil grooves on the E294 facilitate the flow of coolant to the machining area.

Available with:

- Chamfer form E for blind holes.
- Chamfer form C for blind and through holes.

Threading Depth

Threading to depths of up to 3.5 x Diameter

Thread Form

All taps are available in Metric thread form.

Tool Holding

These tap ranges have been designed for use with a high quality floating tool holder. Maximum performance of CNC machines can be fully exploited.

Standard

Available in DIN 2174 standard

Marking and Labeling

Forming Taps have different pre-hole drilling requirements to thread cutting taps. Please refer to the recommendation tables on page 3 of this brochure.

For additional customer convenience, the correct pre-hole drilling diameter is clearly marked on the shank of the tool and also on the label.



Customer Benefits

- High performance and productivity in a wide range of materials
- Chamfer type C can be used for both through and blind holes
- Chip-free threading operation produces a stronger thread than cutting taps with increased load bearing capabilities. Higher cutting speeds are, therefore, recommended.
- Greater accuracy of finished thread with lower surface roughness.
- Highly stable design means less risk of tap breakage and optimum process security.
- Oil groove option facilitates coolant flow to the machining area, further increasing tool life.

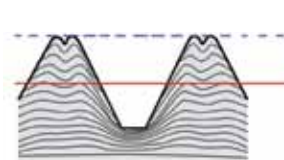
Threading with taps

Flow of material when forming a thread

The tapping hole size depends upon the material being drilled, the cutting conditions selected and the condition of the equipment being used. If material is pushed up at the thread entry by the tap and/or the life of the tap is too short, select a slightly larger drill diameter. If on the other hand the profile of the thread formed is insufficient, then select a slightly smaller drill diameter.



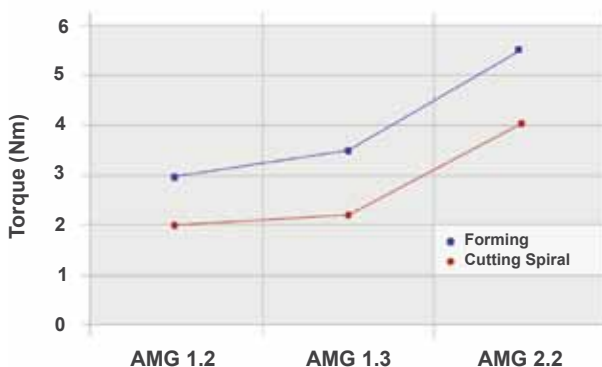
Section of thread obtained by forming tap on steel C45



Drilled hole for a cutting tap
Drilled hole for a forming tap

Cold forming taps require more power on the spindle, compared to a cutting tap of the same size, since it generates higher torque.

M6 blind hole Vc 30 m/min



Torque comparison between forming and cutting taps in different material groups.

Drill diameters for cold forming taps - Recommendation table

Drill diameter can be calculated from:

$$D = D_{nom} - 0,0068 * P * 65$$

D = Drill diameter (mm)
 D_{nom} = Tap nominal diameter (mm)
 P = Tap pitch (mm)
 65 in the formula stands for desired thread height in %

ISO Metric Coarse Thread		
Tap	Max. Internal Diam. mm	Pre Hole Diameter mm
3	2.599	2.78
3.5	3.010	3.23
4	3.422	3.69
5	4.334	4.65
6	5.153	5.56
8	6.912	7.45
10	8.676	9.34
12	10.441	11.23
14	12.210	13.12
16	14.210	15.12

Application

Material Groups

- Excellent for Application
- Good for Application

Example

30 = Peripheral speed in metres/minute +/- 10%



E291 E292 E293 E294 E295 E296

M3 - M16 M3 - M16 M3 - M10 M3 - M16 M3 - M12 M3 - M10



Application Material Group		Hardness HB	Tensile strength N/mm ²							ISO	
1. Steel	1.1	Magnetic soft steel	< 120	< 400	■30	■55	■55	■55	■55	■55	P
	1.2	Structural steel, case carburizing steel	< 200	< 700	■27	■60	■60	■60	■60	■60	P
	1.3	Plain Carbon steel	< 250	< 850	■23	■45	■45	■45	■45	■45	P
	1.4	Alloy steel	< 250	< 850	■20	■40	■40	■40	■40	■40	P
	1.5	Alloy steel, Hardened and tempered steel	> 250 < 350	> 850 < 1200		■20	■20	■20	■20	■20	P
	1.6	Alloy steel, Hardened and tempered steel	> 350	> 1200 < 1620							P
	1.7	Alloy steel, Heat treated	49-55 HRc	> 1620							H
	1.8	Alloy steel, Hardened & Wear resistant steel	55-63 HRc	> 1980							H
2. Stainless Steel	2.1	Free machining, Stainless Steel	< 250	< 850		■18	■18	■18	■18	■18	M
	2.2	Austenitic	< 250	< 850		■15	■15	■15	■15	■15	M
	2.3	Ferritic + Austenitic, Ferritic, Martensitic	< 300	< 1000		■10	■10	■10	■10	■10	M
	2.4	Precipitation Hardened	< 320 < 410	> 1100 < 4100							M
3. Cast Iron	3.1	Lamellar graphite	> 150	> 500							K
	3.2	Lamellar graphite	> 150 ≤ 300	> 500 < 1000							K
	3.3	Nodular graphite, Malleable Cast Iron	< 200	< 700							K
	3.4	Nodular graphite, Malleable Cast Iron	> 200 < 300	> 700 < 1000							K
4. Titanium	4.1	Titanium, unalloyed	< 200	< 700		■35	■35	■35	■35	■35	S
	4.2	Titanium, alloyed	< 270	< 900							S
	4.3	Titanium, alloyed	> 270 < 350	> 900 ≤ 1250							S
5. Nickel	5.1	Nickel, unalloyed	< 150	< 500		■20	■20	■20	■20	■20	S
	5.2	Nickel, alloyed	> 270	> 900		■8	■8	■8	■8	■8	S
	5.3	Nickel, alloyed	> 270 < 350	> 900 < 1200							S
6. Copper	6.1	Copper	< 100	< 350		■25	■25	■25	■25	■25	N
	6.2	β-Brass, Bronze	< 200	< 700							N
	6.3	α-Brass	< 200	< 700		■40	■40	■40	■40	■40	N
	6.4	High Strength Bronze	< 470	< 1500							N
7. Aluminium Magnesium	7.1	Al, Mg, unalloyed	< 100	< 350	■26	■55	■55	■55	■55	■55	N
	7.2	Al alloyed, Si < 0.5%	< 150	< 500	■38	■55	■55	■55	■55	■55	N
	7.3	Al alloyed, Si > 0.5% < 10%	< 120	< 400	■22	■40	■40	■40	■40	■40	N
	7.4	Al alloyed, Si > 10% Whisker reinforced Al-alloys Mg-alloys	< 120	< 400		■25	■25	■25	■25	■25	N
8. Synthetic materials	8.1	Thermoplastics	---	---							O
	8.2	Thermosetting plastics	---	---							O
	8.3	Reinforced plastic materials	---	---							O
9. Hard material	9.1	Cermets (metals-ceramics)	< 550	< 1700							H
	10. Graphite	10.1	Graphite	< 100							O

E291	M	DIN 2174	6HX		3XD	HSS-E	C 2-3.5				
E292	M	DIN 2174	6HX		3XD	HSS-E	C 2-3.5			TiN	
E293	M	DIN 2174	6HX		3XD	HSS-E	E 1.5-2			TiN	
E294	M	DIN 2174	6HX		3.5XD	HSS-E	C 2-3.5			TiN	

E291

- M Machine Forming Tap
- M Maschinen-Gewindeformer

E292

- M Roltappen
- M Tarauds à refouler

E293

- M Machos de laminación
- M Machos de Máq. De Laminación

- M Machine Forming Tap - Oil grooves
- M Maschinen-Gewindeformer, Ölnuten

E294

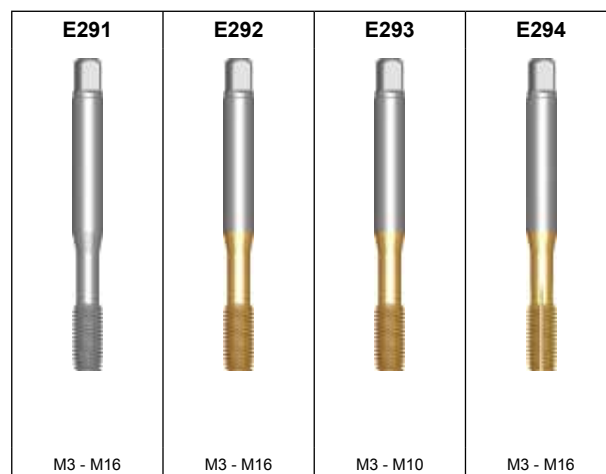
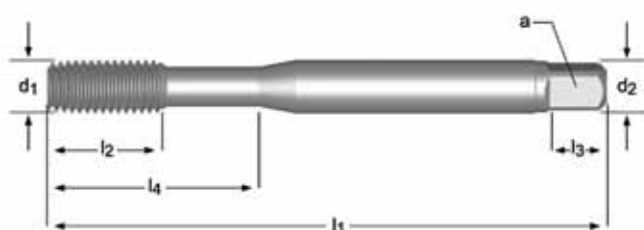
- M Roltappen met smeergroeven
- M Tarauds à refouler
- M Machos de laminación, con ranuras de lubricación
- M Machos de Máq. De Laminación, Rasgos p/ Lubr.

E291 ■ 1.1 1.2 1.3 1.4 7.1 7.2

■ 7.3

E292; E293; E294 ■ 1.1 1.2 1.3 1.4 2.1 2.2 4.1 5.1 7.1 7.2 7.3

■ 1.5 2.3 5.2 6.1 6.3 7.4

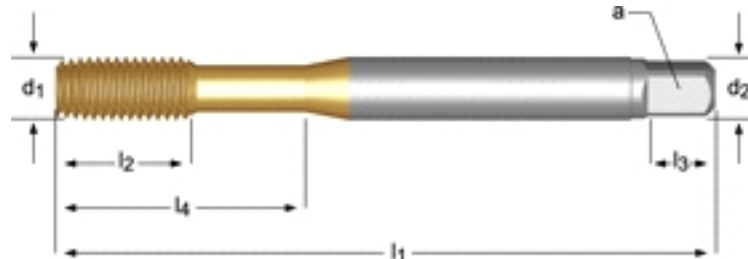


M	P	l ₁	l ₂	d ₂	□ a	l ₃	z		l ₄	E291	E292	E293	E294
mm	mm	mm	mm	mm	mm	mm			mm				
3	0.50	56	9	3.5	2.7	6	4	2.8	18	E291M3	E292M3	E293M3	E294M3
3.5	0.60	56	11	4.0	3.0	6	4	3.2	20	E291M3.5	E292M3.5		
4	0.70	63	12	4.5	3.4	6	5	3.7	21	E291M4	E292M4	E293M4	E294M4
5	0.80	70	13	6.0	4.9	8	5	4.6	25	E291M5	E292M5	E293M5	E294M5
6	1.00	80	15	6.0	4.9	8	5	5.5	30	E291M6	E292M6	E293M6	E294M6
8	1.25	90	18	8.0	6.2	9	5	7.4	35	E291M8	E292M8	E293M8	E294M8
10	1.50	100	20	10.0	8.0	11	5	9.3	39	E291M10	E292M10	E293M10	E294M10
12	1.75	110	23	9.0	7.0	10	5	11.2		E291M12	E292M12		E294M12
14	2.00	110	25	11.0	9.0	12	6	13.0					E294M14
16	2.00	110	25	12.0	9.0	12	6	15.0		E291M16	E292M16		E294M16

E292

M Machine Forming Tap

NEW
2013.02



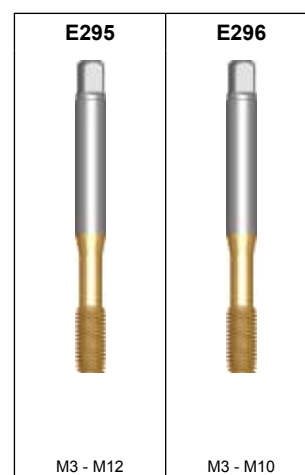
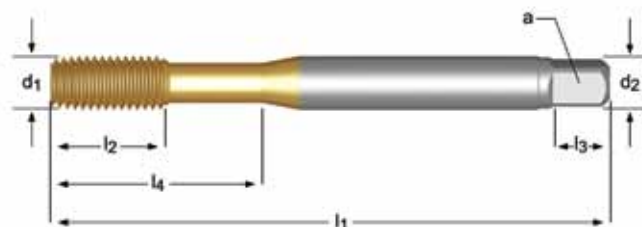
- 1.1
- 1.2
- 1.3
- 1.4
- 2.1
- 2.2
- 4.1
- 5.1
- 7.1
- 7.2
- 7.3
- 1.5
- 2.3
- 5.2
- 6.1
- 6.3
- 7.4

M	P mm	l ₁ mm	l ₂ mm	d ₂ Ø mm	a mm	l ₃ mm	z		l ₄ mm	e-code
1.6	0.35	40	8	2.5	2.1	5	3	1.4	-	E292M1.6
2	0.40	45	6	2.8	2.1	5	3	1.8	-	E292M2
2.5	0.45	50	8	2.8	2.1	5	3	2.3	-	E292M2.5
3	0.50	56	9	3.5	2.7	6	4	2.8	18	E292M3
3.5	0.60	56	11	4.0	3.0	6	4	3.2	20	E292M3.5
4	0.70	63	12	4.5	3.4	6	5	3.7	21	E292M4
5	0.80	70	13	6.0	4.9	8	5	4.6	25	E292M5
6	1.00	80	15	6.0	4.9	8	5	5.5	30	E292M6
8	1.25	90	18	8.0	6.2	9	5	7.4	35	E292M8
10	1.50	100	20	10.0	8.0	11	5	9.3	39	E292M10
12	1.75	110	23	9.0	7.0	10	5	11.2	-	E292M12
16	2.00	110	25	12.0	9.0	12	8	15.0	-	E292M16



- E295**
- M Machine Forming Tap
 - M Maschinen-Gewindeformer
 - M Roltappen
- E296**
- M Taraulds à refouler
 - M Machos de laminación
 - M Machos de Máq. De Laminación

E295; E296	▪	1.1	1.2	1.3	1.4	2.1	2.2	4.1	5.1	7.1	7.2	7.3
	▪	1.5	2.3	5.2	6.1	6.3	7.4					



M	P mm	l ₁ mm	l ₂ mm	d ₂ Ø mm	a mm	l ₃ mm	z		l ₄ mm	E295	E296
3	0.50	56	9	3.5	2.7	6	4	2.8	18	E295M3	E296M3
3.5	0.60	56	11	4.0	3.0	6	4	3.2	20	E295M3.5	
4	0.70	63	12	4.5	3.4	6	5	3.7	21	E295M4	E296M4
5	0.80	70	13	6.0	4.9	8	5	4.6	25	E295M5	E296M5
6	1.00	80	15	6.0	4.9	8	5	5.5	30	E295M6	E296M6
8	1.25	90	18	8.0	6.2	9	5	7.4	35	E295M8	E296M8
10	1.50	100	20	10.0	8.0	11	5	9.3	39	E295M10	E296M10
12	1.75	110	23	9.0	7.0	10	5	11.2		E295M12	



The Right Tool at the Right Time



Dormer Tools
Morse Way
Waverley
Sheffield
S60 5BJ
United Kingdom
T: 0870 850 44 66
F: 0870 850 88 66
Email: dormer.uk@dormertools.com

Dormer Tools Central and Eastern Europe
Sandvik Slovakia s.r.o.
Hranicna 18
SK-82105 Bratislava
Slovakia - Slovensko
T: +421 2 5831 8206
F: +421 2 5341 3233
Email: dormer.cee@dormertools.com

Dormer Tools International
Morse Way
Waverley
Sheffield
S60 5BJ
United Kingdom
T: +44 114 2933838
F: +44 114 2933839
Email: dormer.int@dormertools.com
responsible for
Middle East
Far East

Dormer Tools Central and Eastern Europe
LLC Sandvik Russia
Ul. Polkovaia 1
RU- 127018 Moscow
Russia - Россия
T: +7 495 689 34 25
F: +7 495 689 34 25
Email: dormer.cee@dormertools.com

Dormer Tools
B.P 6209
45062 Orleans Cedex 2
France - France
T: +33 (0)2 38 41 40 15
F: +33 (0)2 38 41 40 30
Email: dormer.fr@dormertools.com

Dormer Tools
Via Varesina 184
20156 Milano
Italy - Italia
T: +39 02 38 04 51
F: +39 02 38 04 52 43
Email: dormer.it@dormertools.com

Dormer Tools
's-Gravelandsweg 401
NL-3125 BJ Schiedam
Netherlands - Nederland
T: +31 20 2080 282
F: +31 20 2080 282
Email: dormer.nl@dormertools.com

Sandvik Española, S.A.
Dormer Tools Ibérica
Parque Empresarial Puerta de Madrid
Este
C/ Tapiceros, 9
ES-28830 San Fernando de Henares,
Madrid
T: +34 91 660 51 17(ES)
F: +34 91 660 51 35(ES)
Email: dormer.es@dormertools.com
Spain - España
T: +351 21 424 54 21 (PT)
F: +351 21 424 54 25 (PT)
Email: dormer.pt@dormertools.com
Responsible for
Spain
España
Portugal
Portugal

responsible for
Germany - Deutschland
T: +31 20 2080 212
dormer.de@dormertools.com

Dormer Tools
Sandvik A/S
Boks 173
NO-1377 Billingstad
Norway - Norge
T: +47 67 17 56 00
F: +47 66 85 96 10
E-mail: dormer.no@dormertools.com
Kundeservice
T: direkt 800 10 113
F: direkt +46 35 16 52 90

Dormer Tools CEE
Sandvik in Austria GmbH
Postfach 90
AT-1211 Wien
Street address:
Scheydgasse 44
AT-1211 Wien
Austria - Österreich
T: +43 1 277 37 202
F: +43 1 277 37 203
Email: dormer.cee@dormertools.com

Dormer Tools
Sandvik A/S
Postboks 160
DK-2605 Brandby
Denmark - Danmark
T: +45 43 46 52 80
F: +45 43 46 52 81
Email: dormer.dk@dormertools.com
Kundtjeneste
T: direkt 808 82106
F: direkt +46 35 16 52 90

responsible for
Austria
Österreich
Belarus
Беларусь
Bulgaria
България
Croatia
Hrvatska
Czech Republic
Česká republika
Hungary
Magyarország
Lithuania
Lietuva
Ukraine
Україна
Bosnia-Herzegovina
Босна и Херцеговина

Montenegro
Црна Гора
Poland
Polska
Romania
România
Russia
Россия
Serbia
Србија
Slovakia
Slovensko
Slovenia
Slovenija

Dormer Tools
Fountain Plaza
Belgicastraat 5, bus 5/6
BE-1930 Zaventem
Belgium - België/Belgique
T: +32 3 440 59 01
F: +32 3 449 15 43
Email: dormer.be@dormertools.com

Dormer Tools
Box 618
SE-301 16 Halmstad
Sweden - Sverige
T: +46 (0) 35 16 52 00
F: +46 (0) 35 16 52 90
Email: dormer.se@dormertools.com
Kundservice
T: direkt +46 35 16 52 96
F: direkt +46 35 16 52 90

Dormer Tools
PL 52
FI-01511 Vantaa
Finland - Suomi
T: +358 205 44 121
F: +358 205 44 5199
Customer Service
T: direkt 0205 44 7003
F: direkt 0205 44 7004
Email: dormer.fi@dormertools.com

Dormer Tools
Sandvik A/S
Boks 173
NO-1377 Billingstad
Norway - Norge
T: +47 67 17 56 00
F: +47 66 85 96 10
E-mail: dormer.no@dormertools.com
Kundeservice
T: direkt 800 10 113
F: direkt +46 35 16 52 90

Dormer Tools
Sandvik A/S
Postboks 160
DK-2605 Brandby
Denmark - Danmark
T: +45 43 46 52 80
F: +45 43 46 52 81
Email: dormer.dk@dormertools.com
Kundtjeneste
T: direkt 808 82106
F: direkt +46 35 16 52 90

Dormer Tools
Av. João Paulo da Silva, 258
CEP 04777 020
São Paulo SP
Brazil - Brasil
T: +55 11 5660 3000
F: +55 11 5667 5883
Email: dormer.br@dormertools.com

Precision Dormer
2550 Meadowvale Blvd. Unit 3
Mississauga, ON L5N 8C2
Canada
T: (888) 336 7637
En Français: (888) 368 8457
F: (905) 542 7000
Email: dormertools.canada@precisiondormer.com

Precision Dormer
301 Industrial Ave.
Crystal Lake, IL 60012
United States of America
T: (800) 877 3745
F: 815 459 2804
Email: cs@precisiondormer.com
responsible for
United States of America
Mexico

Dormer Tools
5 Fowler Road
Dandenong 3175, Victoria
Australia
T: 1300 131 274
F: +61 3 9238 7105
Email: dormer.int@dormertools.com

Dormer Tools
Sandvik New Zealand
269 Ti Rakau Drive
Burswood
Manukau 2013
New Zealand
T: 0800 4 436 763
F: +64 9 2735857
Email: dormer.int@dormertools.com

Dormer Tools
No 4555 Yin Du Road
Xin Zhuang Industry Park
Shanghai 201108
China
T: +86 21 2416 0666
F: +86 21 5442 6315
Email: dormer.cn@dormertools.com

Dormer Tools
Sandvik Asia Ltd
Mumbai-Pune Road
Pune 411 012
India
T: +91 20 27 10 47 00
F: +91 20 27 14 57 36
Email: dormer.int@dormertools.com

Dormer Tools
Sandvik
P.O. Box 25038
East Rand 1462
South Africa
T: +27 11 929 5300
F: +27 11 570 9709
Email: dormer.int@dormertools.com

Dormer Tools
Sandvik Argentina S.A.
Rincón 3198
CP B1754BIL
San Justo - Buenos Aires
Argentina
T: 54 (11) 6777-6777
F: 54 (11) 4441-4467
Email: dormer.int@dormertools.com

Dormer Tools
Sandvik Chile S.A.
Avda. Presidente Edo.
Frei Montalva 9990
Quilicura Santiago
Chile
T: 56 2 6760313
F: 56 2 7385574
Email: dormer.int@dormertools.com



www.dormertools.com

