Internal Threading Technology

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The optimal choice of precision cutting tool offers the best opportunity for increased productivity. In today's modern manufacturing environment it is crucial to have an optimal match between tools, machines, materials, and experience.

LMT is a team of specialists offering technical expertise for designing and supplying Total Performance Solutions for the metal cutting industry.

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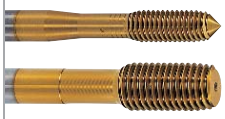
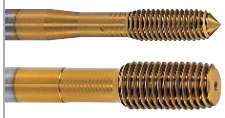
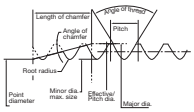
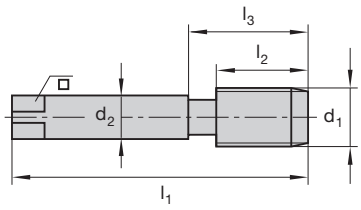
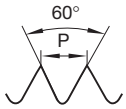
	Description	Chamfer Style	Coating	Coolant Style	Page
Rasant – V	40° spiral, 10–12° rake angle. Powdered metal substrate for a broad range of applications at higher cutting speeds when compared to conventional HSS and HSS-E substrates.				
	Full Bottoming	E	TiCN Plus	External	4–5
	Modified Bottoming	C	TiCN	External	8–9
Rasant – IQ Plus	15° and 40° spiral, 11° rake angle. Powdered metal substrate for a broad range of applications at higher cutting speeds when compared to conventional HSS and HSS-E substrates. Unique IQ plus coating for maximum tool life in all steel applications.	C	IQ Plus	External	6–7
Rasant – V Magic	40° spiral, TiCN Plus with steam oxide cutting face provides chip control in “gummy” materials.	C	TiCN Plus	External	10–11
HPT 40° Spiral	40° spiral, 8° rake angle. Premium powdered metal substrate for a broad range of applications at higher cutting speeds when compared to conventional HSS and HSS-E substrates. Cylindrical shank, ideal for use with Bilz ThermoGrip tool holders.	C	TiCN Plus	Internal	12–13
HPT 15° Spiral	15° spiral, 8° rake angle. Premium powdered metal substrate for a broad range of applications at higher cutting speeds when compared to conventional HSS and HSS-E substrates. Cylindrical shank, ideal for use with Bilz ThermoGrip tool holders.	C	TiCN Plus	Internal	14–15
Cast Iron Taps	Straight flute, 5-6° rake angle. HSS-E substrate with optimized geometry for a wide range of cast iron applications.	C	AL2 Plus	Internal	16–17
Rasant – FS	Designed for HST (High Speed Tapping) with a 40° spiral and a number of modifications to the standard tap design. Our “Full Speed” geometry makes this series of taps capable of much higher cutting speeds when compared to conventional high performance taps.	C	TiCN Plus	External	18–19
Rasant – FS	Designed for HST (High Speed Tapping). Same as above, with coolant through the center of the tool.	C	TiCN Plus	Internal	20–21
Rasant – V H11	40° spiral, 10–12° rake angle. Powdered metal substrate for a broad range of applications at higher cutting speeds when compared to conventional HSS and HSS-E substrates. H11 limit, perfect for anodized or heat treatable work pieces.	C	TiCN Plus	External	22
Markant – IQ Plus	12–14° rake angle. Powdered metal substrate for a broad range of applications at higher cutting speeds when compared to conventional HSS and HSS-E substrates.	C	IQ Plus	External	24–25

	Description	Chamfer Style	Coating	Coolant Style	Page
Markant – V	12–14° rake angle. Powdered metal substrate for a broad range of applications at higher cutting speeds when compared to conventional HSS and HSS-E substrates.	B	TiCN Plus	External	26–27
Markant – FS	Designed for HST (High Speed Tapping) with a number of modifications to the standard tap design. Our “Full Speed” geometry makes this series of taps capable of much higher cutting speeds when compared to conventional high performance taps.	B	TiCN Plus	External	28–29
Markant – FS	Designed for HST (High Speed Tapping). Same as above, with coolant through (Exit holes in the point grooves).	B	TiCN Plus	Internal	30–31
Form – V	Polygonal cross section, designed for MQL (Minimal Quantity Lubrication). Powdered metal substrate for a broad range of applications at higher cutting speeds when compared to conventional HSS and HSS-E substrates.	C	TiCN Plus	External	32–33
Form – FS 	Designed for HST (High Speed Tapping). Polygonal cross section with external lube grooves. Our “Full Speed” geometry makes this series of taps capable of much higher cutting speeds when compared to conventional high performance taps.	C	TiCN Plus	External	34–35
Form – FS 	Designed for HST (High Speed Tapping). Same as above, with coolant through the center of the tool.	C	TiCN Plus	Internal	36–37
Form – VHM-IK	Solid carbide substrate for higher cutting speeds. Polygonal cross section with external oil grooves. Larger sizes have internal coolant.	C	None	Internal / External	38–39
Form – HPF	“High Performance Forming” Combination of steel shank and carbide insert allows for extremely high cutting speeds and extends the application range for Thread Forming.	E	TiCN Plus	External	40–41
NPT/NPTF/NPS/NPSF	Straight flute and spiral flute high performance, powdered metal pipe taps. Spiral flute ideal for tapping of stainless and low carbon steel. Straight flute for tool steel and cast iron applications.	C C C	AL2 Plus TiCN Plus TiCN Plus	External External External	42 42 43
	Technical Data				44–71



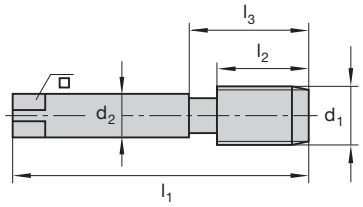


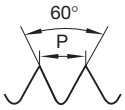
Style	Rasant - V
Dimension Standards	DIN Length / ANSI Shank
Type of Application	Blind holes
Maximum Thread Depth	3 x D
Flute Style	40° R.H. Spiral
Chamfer Style	E (1.5–2 Threads)
Tolerance Class	2B / 3B *
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	–
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
#6	32	1401032	56 (2.205)	8 (0.315)	18 (0.709)	3.58 (0.141)	2.79 (0.110)	3
#6	40	1401138	56 (2.205)	8 (0.315)	18 (0.709)	3.58 (0.141)	2.79 (0.110)	3
#8	32	1401033	63 (2.480)	8 (0.315)	21 (0.827)	4.27 (0.168)	3.33 (0.131)	3
#8	36	1401139	63 (2.480)	8 (0.315)	21 (0.827)	4.27 (0.168)	3.33 (0.131)	3
#10	24	1401034	70 (2.756)	11 (0.433)	25 (0.984)	4.93 (0.194)	3.86 (0.152)	3
#10	32	1401140	70 (2.756)	11 (0.433)	25 (0.984)	4.93 (0.194)	3.86 (0.152)	3
#12	24	1401035	80 (3.150)	11 (0.433)	30 (1.181)	5.59 (0.220)	4.19 (0.165)	3
#12	28	1401141	80 (3.150)	11 (0.433)	30 (1.181)	5.59 (0.220)	4.19 (0.165)	3
1/4	20	1401036	80 (3.150)	13 (0.512)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
1/4	28	1401142	80 (3.150)	13 (0.512)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
5/16	18	1401037	90 (3.543)	14 (0.551)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
5/16	24	1401143	90 (3.543)	14 (0.551)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
3/8	16	1401038	100 (3.937)	16 (0.630)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
3/8	24	1401144	100 (3.937)	16 (0.630)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
7/16	14	1401039	100 (3.937)	18 (0.709)	–	8.20 (0.323)	6.15 (0.242)	3
7/16	20	1401145	100 (3.937)	18 (0.709)	–	8.20 (0.323)	6.15 (0.242)	3
1/2	13	1401040	110 (4.331)	20 (0.787)	–	9.32 (0.367)	6.99 (0.275)	4
1/2	20	1401146	100 (3.937)	18 (0.709)	–	9.32 (0.367)	6.99 (0.275)	4
9/16	12	1401041	110 (4.331)	21 (0.827)	–	10.90 (0.429)	8.18 (0.322)	4
9/16	18	1401147	100 (3.937)	20 (0.787)	–	10.90 (0.429)	8.18 (0.322)	4
5/8	11	1401042	110 (4.331)	23 (0.906)	–	12.19 (0.480)	9.14 (0.360)	4
5/8	18	1401148	100 (3.937)	20 (0.787)	–	12.19 (0.480)	9.14 (0.360)	4
3/4	10	1401043	125 (4.921)	25 (0.984)	–	14.99 (0.590)	11.23 (0.442)	4
3/4	16	1401149	110 (4.331)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	4
7/8	9	1401044	140 (5.512)	28 (1.102)	–	17.70 (0.697)	13.28 (0.523)	4
7/8	14	1401150	125 (4.921)	25 (0.984)	–	17.70 (0.697)	13.28 (0.523)	4
1"	8	1401045	160 (6.299)	32 (1.260)	–	20.32 (0.800)	15.24 (0.600)	4
1"	12	1401151	140 (5.512)	28 (1.102)	–	20.32 (0.800)	15.24 (0.600)	5

*All taps are manufactured to Class 3B tolerance, however they can be used in Class 2B applications as well.

See page 56 for more details.

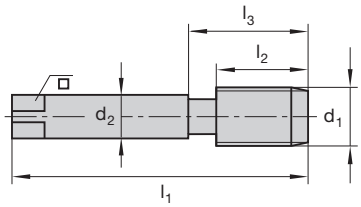


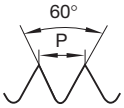


Style	Rasant - V
Dimension Standards	DIN Length / DIN Shank
Type of Application	Blind holes
Maximum Thread Depth	3 x D
Flute Style	40° R.H. Spiral
Chamfer Style	E (1.5–2 Threads)
Tolerance Class	ISO 2 (6H)
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	–
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
M3	0.5	1400939	56 (2.205)	4 (0.157)	18 (0.709)	3.5 (0.138)	2.7 (0.106)	3
M4	0.7	1400940	63 (2.480)	5 (0.197)	21 (0.827)	4.5 (0.177)	3.4 (0.134)	3
M5	0.8	1400941	70 (2.756)	7 (0.276)	25 (0.984)	6 (0.236)	4.9 (0.193)	3
M6	1	1400942	80 (3.150)	8 (0.315)	30 (1.181)	6 (0.236)	4.9 (0.193)	3
M8	1	1400927	90 (3.543)	14 (0.551)	35 (1.378)	6 (0.236)	4.9 (0.193)	3
M8	1.25	1400943	90 (3.543)	10 (0.394)	35 (1.378)	8 (0.315)	6.2 (0.244)	3
M9	1	1402928	90 (3.543)	15 (0.591)	35 (1.378)	7 (0.276)	5.5 (0.217)	3
M10	1	1402929	90 (3.543)	15 (0.591)	35 (1.378)	7 (0.276)	5.5 (0.217)	3
M10	1.25	1400930	90 (3.543)	15 (0.591)	39 (1.535)	7 (0.276)	5.5 (0.217)	3
M10	1.5	1400944	100 (3.937)	12 (0.472)	39 (1.535)	10 (0.394)	8 (0.315)	3
M11	1	1400931	90 (3.543)	15 (0.591)	–	8 (0.315)	6.2 (0.244)	4
M12	1	1400932	100 (3.937)	14 (0.551)	–	9 (0.354)	7 (0.276)	4
M12	1.25	1400933	100 (3.937)	14 (0.551)	–	9 (0.354)	7 (0.276)	4
M12	1.75	1400945	110 (4.331)	14 (0.551)	–	9 (0.354)	7 (0.276)	3
M14	1.5	1400935	100 (3.937)	16 (0.630)	–	11 (0.433)	9 (0.354)	4
M14	2	1400946	110 (4.331)	16 (0.630)	–	11 (0.433)	9 (0.354)	3
M16	1.5	1400936	100 (3.937)	18 (0.709)	–	12 (0.472)	9 (0.354)	4
M16	2	1400947	110 (4.331)	18 (0.709)	–	12 (0.472)	9 (0.354)	3
M18	1.5	1400937	110 (4.331)	20 (0.787)	–	14 (0.551)	11 (0.433)	4
M18	2.5	1400948	125 (4.921)	20 (0.787)	–	14 (0.551)	11 (0.433)	4
M20	1.5	1400938	125 (4.921)	20 (0.787)	–	16 (0.630)	12 (0.472)	4
M20	2.5	1400949	140 (5.512)	20 (0.787)	–	16 (0.630)	12 (0.472)	4

NEW

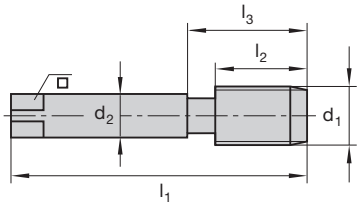


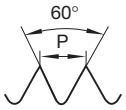


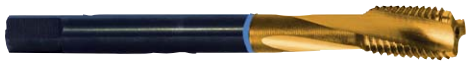
Style	Rasant - V
Dimension Standards	DIN Length / ANSI Shank
Type of Application	Blind holes
Maximum Thread Depth	3 x D
Flute Style	40° R.H. Spiral
Chamfer Style	C (2–3 Threads)
Tolerance Class	3B
Surface Treatment	IQ Plus
Special Features	Coating
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
#6	32	9117733	56 (2.205)	8 (0.315)	18 (0.709)	3.58 (0.141)	2.79 (0.110)	3
#6	40	9117734	56 (2.205)	8 (0.315)	18 (0.709)	3.58 (0.141)	2.79 (0.110)	3
#8	32	9124600	63 (2.480)	8 (0.315)	21 (0.827)	4.27 (0.168)	3.33 (0.131)	3
#8	36	9117735	63 (2.480)	8 (0.315)	21 (0.827)	4.27 (0.168)	3.33 (0.131)	3
#10	24	9117736	70 (2.756)	11 (0.433)	25 (0.984)	4.93 (0.194)	3.86 (0.152)	3
#10	32	9117737	70 (2.756)	11 (0.433)	25 (0.984)	4.93 (0.194)	3.86 (0.152)	3
#12	24	9117738	80 (3.150)	11 (0.433)	30 (1.181)	5.59 (0.220)	4.19 (0.165)	3
#12	28	9117749	80 (3.150)	11 (0.433)	30 (1.181)	5.59 (0.220)	4.19 (0.165)	3
1/4	20	9117750	80 (3.150)	13 (0.512)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
1/4	28	9117751	80 (3.150)	13 (0.512)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
5/16	18	9117752	90 (3.543)	14 (0.551)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
5/16	24	9117753	90 (3.543)	14 (0.551)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
3/8	16	9117754	100 (3.937)	16 (0.630)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
3/8	24	9117755	100 (3.937)	16 (0.630)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
7/16	14	9117756	100 (3.937)	18 (0.709)	–	8.20 (0.323)	6.15 (0.242)	3
7/16	20	9117757	100 (3.937)	18 (0.709)	–	8.20 (0.323)	6.15 (0.242)	3
1/2	13	9124601	110 (4.331)	20 (0.787)	–	9.32 (0.367)	6.99 (0.275)	3
1/2	20	9117759	100 (3.937)	18 (0.709)	–	9.32 (0.367)	6.99 (0.275)	4
9/16	12	9117760	110 (4.331)	21 (0.827)	–	10.90 (0.429)	8.18 (0.322)	3
9/16	18	9117761	100 (3.937)	20 (0.787)	–	10.90 (0.429)	8.18 (0.322)	4
5/8	11	9117764	110 (4.331)	23 (0.906)	–	12.19 (0.480)	9.14 (0.360)	3
5/8	18	9117765	100 (3.937)	20 (0.787)	–	12.19 (0.480)	9.14 (0.360)	4
3/4	10	9124602	125 (4.921)	25 (0.984)	–	14.99 (0.590)	11.23 (0.442)	4
3/4	16	9117766	110 (4.331)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	4

NEW



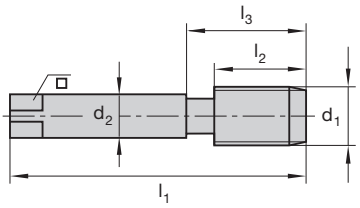


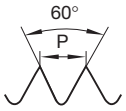


Style	Rasant - V
Dimension Standards	DIN Length / DIN Shank
Type of Application	Blind holes
Maximum Thread Depth	3 x D
Flute Style	15° R.H. Spiral
Chamfer Style	C (2–3 Threads)
Tolerance Class	ISO 2 (6H)
Surface Treatment	IQ Plus
Special Features	Coating
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
M6	1	1390207	80 (3.150)	8 (0.315)	30 (1.181)	6 (0.236)	4.9 (0.193)	3
M8	1.25	1390208	90 (3.543)	10 (0.394)	35 (1.378)	8 (0.315)	6.2 (0.244)	3
M10	1.5	1390209	100 (3.937)	12 (0.472)	39 (1.535)	10 (0.394)	8 (0.315)	3
M12	1.75	1390210	110 (4.331)	14 (0.551)	–	9 (0.354)	7 (0.276)	3
M14	2	1390211	110 (4.331)	20 (0.787)	–	11 (0.433)	9 (0.354)	3

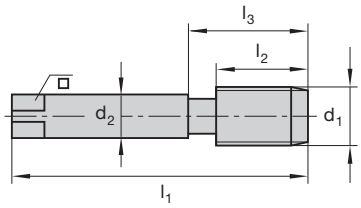
NEW

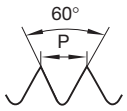




Style	Rasant - V
Dimension Standards	DIN Length / DIN Shank
Type of Application	Blind holes
Maximum Thread Depth	3 x D
Flute Style	40° R.H. Spiral
Chamfer Style	C (2–3 Threads)
Tolerance Class	ISO 2 (6H)
Surface Treatment	IQ Plus
Special Features	Coating
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
M6	1	1390185	80 (3.150)	8 (0.315)	30 (1.181)	6 (0.236)	4.9 (0.193)	3
M8	1.25	1390186	90 (3.543)	10 (0.394)	35 (1.378)	8 (0.315)	6.2 (0.244)	3
M10	1.5	1390187	100 (3.937)	12 (0.472)	39 (1.535)	10 (0.394)	8 (0.315)	3
M12	1.75	1390188	110 (4.331)	14 (0.551)	–	9 (0.354)	7 (0.276)	3
M14	2	1390189	110 (4.331)	20 (0.787)	–	11 (0.433)	9 (0.354)	3

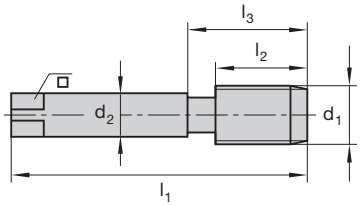


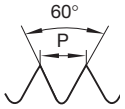


Style	Rasant - V
Dimension Standards	DIN Length / ANSI Shank
Type of Application	Blind holes
Maximum Thread Depth	3 x D
Flute Style	40° R.H. Spiral
Chamfer Style	C (2–3 Threads)
Tolerance Class	2B / 3B *
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	–
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
#6	32	1400993	56 (2.205)	8 (0.315)	18 (0.709)	3.58 (0.141)	2.79 (0.110)	3
#6	40	1401103	56 (2.205)	8 (0.315)	18 (0.709)	3.58 (0.141)	2.79 (0.110)	3
#8	32	1400995	63 (2.480)	8 (0.315)	21 (0.827)	4.27 (0.168)	3.33 (0.131)	3
#8	36	1401105	63 (2.480)	8 (0.315)	21 (0.827)	4.27 (0.168)	3.33 (0.131)	3
#10	24	1400997	70 (2.756)	11 (0.433)	25 (0.984)	4.93 (0.194)	3.86 (0.152)	3
#10	32	1401107	70 (2.756)	11 (0.433)	25 (0.984)	4.93 (0.194)	3.86 (0.152)	3
#12	24	1400999	80 (3.150)	11 (0.433)	30 (1.181)	5.59 (0.220)	4.19 (0.165)	3
#12	28	1401109	80 (3.150)	11 (0.433)	30 (1.181)	5.59 (0.220)	4.19 (0.165)	3
1/4	20	1401001	80 (3.150)	13 (0.512)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
1/4	28	1401111	80 (3.150)	13 (0.512)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
5/16	18	1401003	90 (3.543)	14 (0.551)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
5/16	24	1401113	90 (3.543)	14 (0.551)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
3/8	16	1401005	100 (3.937)	16 (0.630)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
3/8	24	1401115	100 (3.937)	16 (0.630)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
7/16	14	1401007	100 (3.937)	18 (0.709)	–	8.20 (0.323)	6.15 (0.242)	3
7/16	20	1401117	100 (3.937)	18 (0.709)	–	8.20 (0.323)	6.15 (0.242)	3
1/2	13	1401009	110 (4.331)	20 (0.787)	–	9.32 (0.367)	6.99 (0.275)	3
1/2	20	1401119	100 (3.937)	18 (0.709)	–	9.32 (0.367)	6.99 (0.275)	4
9/16	12	1401011	110 (4.331)	21 (0.827)	–	10.90 (0.429)	8.18 (0.322)	3
9/16	18	1401121	100 (3.937)	20 (0.787)	–	10.90 (0.429)	8.18 (0.322)	4
5/8	11	1401013	110 (4.331)	23 (0.906)	–	12.19 (0.480)	9.14 (0.360)	3
5/8	18	1401123	100 (3.937)	20 (0.787)	–	12.19 (0.480)	9.14 (0.360)	4
3/4	10	1401015	125 (4.921)	25 (0.984)	–	14.99 (0.590)	11.23 (0.442)	4
3/4	16	1401125	110 (4.331)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	4
7/8	9	1401017	140 (5.512)	28 (1.102)	–	17.70 (0.697)	13.28 (0.523)	4
7/8	14	1401127	125 (4.921)	25 (0.984)	–	17.70 (0.697)	13.28 (0.523)	4
1"	8	1401019	160 (6.299)	32 (1.260)	–	20.32 (0.800)	15.24 (0.600)	4
1"	12	1401129	140 (5.512)	28 (1.102)	–	20.32 (0.800)	15.24 (0.600)	5
1-1/8"	7	1401021	180 (7.087)	36 (1.417)	–	22.76 (0.896)	17.07 (0.672)	4
1-1/8"	12	1401131	150 (5.906)	28 (1.102)	–	22.76 (0.896)	17.07 (0.672)	5
1-1/4"	7	1401023	180 (7.087)	36 (1.417)	–	25.93 (1.021)	19.45 (0.766)	4
1-1/4"	12	1401133	150 (5.906)	28 (1.102)	–	25.93 (1.021)	19.45 (0.766)	5
1-3/8"	6	1401025	200 (7.874)	42 (1.654)	–	28.14 (1.108)	21.11 (0.831)	4
1-3/8"	12	1401135	170 (6.693)	30 (1.181)	–	28.14 (1.108)	21.11 (0.831)	6
1-1/2"	6	1401027	200 (7.874)	42 (1.654)	–	31.32 (1.233)	23.50 (0.925)	4
1-1/2"	12	1401137	170 (6.693)	30 (1.181)	–	31.32 (1.233)	23.50 (0.925)	6
1-3/4"	5	401029	220 (8.661)	50 (1.969)	–	36.32 (1.430)	27.23 (1.072)	5
2"	4.5	1401031	250 (9.843)	56 (2.205)	–	41.76 (1.644)	31.32 (1.233)	5

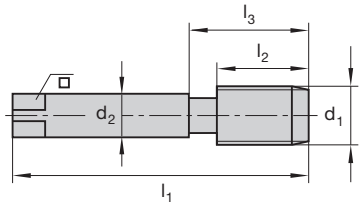
*All taps are manufactured to Class 3B tolerance, however they can be used in Class 2B applications as well.
See page 56 for more details.

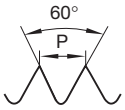




Style	Rasant - V
Dimension Standards	DIN Length / DIN Shank
Type of Application	Blind holes
Maximum Thread Depth	3 x D
Flute Style	40° R.H. Spiral
Chamfer Style	C (2–3 Threads)
Tolerance Class	ISO 2 (6H)
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	–
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
M3	0.5	1400408	56 (2.205)	4 (0.157)	18 (0.709)	3.5 (0.138)	2.7 (0.106)	3
M4	0.7	1400417	63 (2.480)	5 (0.197)	21 (0.827)	4.5 (0.177)	3.4 (0.134)	3
M5	0.8	1400426	70 (2.756)	7 (0.276)	25 (0.984)	6 (0.236)	4.9 (0.193)	3
M6	1	1400435	80 (3.150)	8 (0.315)	30 (1.181)	6 (0.236)	4.9 (0.193)	3
M8	1	1400908	90 (3.543)	14 (0.551)	35 (1.378)	6 (0.236)	4.9 (0.193)	3
M8	1.25	1400444	90 (3.543)	10 (0.394)	35 (1.378)	8 (0.315)	6.2 (0.244)	3
M9	1	1401843	90 (3.543)	15 (0.591)	35 (1.378)	7 (0.276)	5.5 (0.217)	3
M10	1	1400917	90 (3.543)	15 (0.591)	35 (1.378)	7 (0.276)	5.5 (0.217)	3
M10	1.25	1400926	100 (3.937)	15 (0.591)	39 (1.535)	7 (0.276)	5.5 (0.217)	3
M10	1.5	1400453	100 (3.937)	12 (0.472)	39 (1.535)	10 (0.394)	8 (0.315)	3
M11	1	1400839	90 (3.543)	15 (0.591)	–	8 (0.315)	6.2 (0.244)	4
M12	1	1400837	100 (3.937)	14 (0.551)	–	9 (0.354)	7 (0.276)	4
M12	1.25	1400841	100 (3.937)	14 (0.551)	–	9 (0.354)	7 (0.276)	4
M12	1.75	1400462	110 (4.331)	14 (0.551)	–	9 (0.354)	7 (0.276)	3
M14	1.5	1400864	100 (3.937)	16 (0.630)	–	11 (0.433)	9 (0.354)	4
M14	2	1400464	110 (4.331)	16 (0.630)	–	11 (0.433)	9 (0.354)	3
M16	1.5	1400873	100 (3.937)	18 (0.709)	–	12 (0.472)	9 (0.354)	4
M16	2	1400471	110 (4.331)	18 (0.709)	–	12 (0.472)	9 (0.354)	3
M18	1.5	1400882	110 (4.331)	20 (0.787)	–	14 (0.551)	11 (0.433)	4
M18	2.5	1400473	125 (4.921)	20 (0.787)	–	14 (0.551)	11 (0.433)	4
M20	1.5	1400891	125 (4.921)	20 (0.787)	–	16 (0.630)	12 (0.472)	4
M20	2.5	1400480	140 (5.512)	20 (0.787)	–	16 (0.630)	12 (0.472)	4



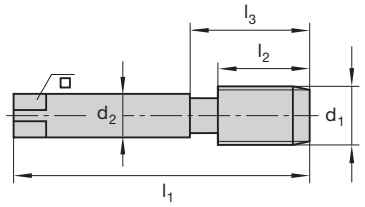


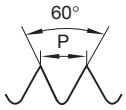
Style	Rasant - V Magic
Dimension Standards	DIN Length / ANSI Shank
Type of Application	Blind holes
Maximum Thread Depth	3 x D
Flute Style	40° R.H. Spiral
Chamfer Style	C (2–3 Threads)
Tolerance Class	2B / 3B *
Surface Treatment	TiCN Plus (Multi-Layer PVD) / Steam Oxide
Special Features	Secondary coating on cutting face for controlled chip removal Conical thread runout
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
#6	32	1401046	56 (2.205)	8 (0.315)	18 (0.709)	3.58 (0.141)	2.79 (0.110)	3
#6	40	1401152	56 (2.205)	8 (0.315)	18 (0.709)	3.58 (0.141)	2.79 (0.110)	3
#8	32	1401047	63 (2.480)	8 (0.315)	21 (0.827)	4.27 (0.168)	3.33 (0.131)	3
#8	36	1401153	63 (2.480)	8 (0.315)	21 (0.827)	4.27 (0.168)	3.33 (0.131)	3
#10	24	1401048	70 (2.756)	11 (0.433)	25 (0.984)	4.93 (0.194)	3.86 (0.152)	3
#10	32	1401154	70 (2.756)	11 (0.433)	25 (0.984)	4.93 (0.194)	3.86 (0.152)	3
#12	24	1401049	80 (3.150)	11 (0.433)	30 (1.181)	5.59 (0.220)	4.19 (0.165)	3
#12	28	1401155	80 (3.150)	11 (0.433)	30 (1.181)	5.59 (0.220)	4.19 (0.165)	3
1/4	20	1401050	80 (3.150)	13 (0.512)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
1/4	28	1401156	80 (3.150)	13 (0.512)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
5/16	18	1401051	90 (3.543)	14 (0.551)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
5/16	24	1401157	90 (3.543)	14 (0.551)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
3/8	16	1401052	100 (3.937)	16 (0.630)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
3/8	24	1401158	100 (3.937)	16 (0.630)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
7/16	14	1401053	100 (3.937)	18 (0.709)	–	8.20 (0.323)	6.15 (0.242)	3
7/16	20	1401159	100 (3.937)	18 (0.709)	–	8.20 (0.323)	6.15 (0.242)	3
1/2	13	1401054	110 (4.331)	20 (0.787)	–	9.32 (0.367)	6.99 (0.275)	3
1/2	20	1401160	100 (3.937)	18 (0.709)	–	9.32 (0.367)	6.99 (0.275)	4
9/16	12	1401055	110 (4.331)	21 (0.827)	–	10.90 (0.429)	8.18 (0.322)	3
9/16	18	1401161	100 (3.937)	20 (0.787)	–	10.90 (0.429)	8.18 (0.322)	4
5/8	11	1401056	110 (4.331)	23 (0.906)	–	12.19 (0.480)	9.14 (0.360)	3
5/8	18	1401162	100 (3.937)	20 (0.787)	–	12.19 (0.480)	9.14 (0.360)	4
3/4	10	1401057	125 (4.921)	25 (0.984)	–	14.99 (0.590)	11.23 (0.442)	4
3/4	16	1401163	110 (4.331)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	4
7/8	9	1401058	140 (5.512)	28 (1.102)	–	17.70 (0.697)	13.28 (0.523)	4
7/8	14	1401164	125 (4.921)	25 (0.984)	–	17.70 (0.697)	13.28 (0.523)	4
1"	8	1401059	160 (6.299)	32 (1.260)	–	20.32 (0.800)	15.24 (0.600)	4
1"	12	1401165	140 (5.512)	28 (1.102)	–	20.32 (0.800)	15.24 (0.600)	5
1-1/8"	7	1401060	180 (7.087)	36 (1.417)	–	22.76 (0.896)	17.07 (0.672)	4
1-1/8"	12	1401166	150 (5.906)	28 (1.102)	–	22.76 (0.896)	17.07 (0.672)	5
1-1/4"	7	1401061	180 (7.087)	36 (1.417)	–	25.93 (1.021)	19.45 (0.766)	4
1-1/4"	12	1401167	150 (5.906)	28 (1.102)	–	25.93 (1.021)	19.45 (0.766)	5
1-3/8"	6	1401062	200 (7.874)	42 (1.654)	–	28.14 (1.108)	21.11 (0.831)	4
1-3/8"	12	1401168	170 (6.693)	30 (1.181)	–	28.14 (1.108)	21.11 (0.831)	6
1-1/2"	6	1401063	200 (7.874)	42 (1.654)	–	31.32 (1.233)	23.50 (0.925)	4
1-1/2"	12	1401169	170 (6.693)	30 (1.181)	–	31.32 (1.233)	23.50 (0.925)	6
1-3/4"	5	1401064	220 (8.661)	50 (1.969)	–	36.32 (1.430)	27.23 (1.072)	5
2"	4.5	1401065	250 (9.843)	56 (2.205)	–	41.76 (1.644)	31.32 (1.233)	5

*All taps are manufactured to Class 3B tolerance, however they can be used in Class 2B applications as well.

See page 56 for more details.





Style	Rasant - V Magic
Dimension Standards	DIN Length / DIN Shank
Type of Application	Blind holes
Maximum Thread Depth	3 x D
Flute Style	40° R.H. Spiral
Chamfer Style	C (2–3 Threads)
Tolerance Class	ISO 2 (6H)
Surface Treatment	TiCN Plus (Multi-Layer PVD) / Steam Oxide
Special Features	Secondary coating on cutting face for controlled chip removal Conical thread runout
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
M4	0.7	1402549	63 (2.480)	5 (0.197)	21 (0.827)	4.5 (0.177)	3.4 (0.134)	3
M5	0.8	1402539	70 (2.756)	7 (0.276)	25 (0.984)	6 (0.236)	4.9 (0.193)	3
M6	1	1402540	80 (3.150)	8 (0.315)	30 (1.181)	6 (0.236)	4.9 (0.193)	3
M8	1	1402551	90 (3.543)	14 (0.551)	35 (1.378)	6 (0.236)	4.9 (0.193)	3
M8	1.25	1402541	90 (3.543)	10 (0.394)	35 (1.378)	8 (0.315)	6.2 (0.244)	3
M9	1	1400950	90 (3.543)	15 (0.591)	35 (1.378)	7 (0.276)	5.5 (0.217)	3
M10	1	1402552	90 (3.543)	15 (0.591)	35 (1.378)	7 (0.276)	5.5 (0.217)	3
M10	1.25	1402553	100 (3.937)	15 (0.591)	39 (1.535)	7 (0.276)	5.5 (0.217)	3
M10	1.5	1402542	100 (3.937)	12 (0.472)	39 (1.535)	10 (0.394)	8 (0.315)	3
M11	1	1400951	90 (3.543)	15 (0.591)	–	8 (0.315)	6.2 (0.244)	4
M12	1	1402554	100 (3.937)	14 (0.551)	–	9 (0.354)	7 (0.276)	4
M12	1.25	1402555	100 (3.937)	14 (0.551)	–	9 (0.354)	7 (0.276)	4
M12	1.5	1402556	100 (3.937)	14 (0.551)	–	9 (0.354)	7 (0.276)	4
M12	1.75	1402543	110 (4.331)	14 (0.551)	–	9 (0.354)	7 (0.276)	3
M14	1.5	1402557	100 (3.937)	16 (0.630)	–	11 (0.433)	9 (0.354)	4
M14	2	1402561	110 (4.331)	16 (0.630)	–	11 (0.433)	9 (0.354)	3
M16	1.5	1402558	100 (3.937)	18 (0.709)	–	12 (0.472)	9 (0.354)	4
M16	2	1402544	110 (4.331)	18 (0.709)	–	12 (0.472)	9 (0.354)	3
M18	1.5	1402559	110 (4.331)	20 (0.787)	–	14 (0.551)	11 (0.433)	4
M18	2.5	1402562	125 (4.921)	20 (0.787)	–	14 (0.551)	11 (0.433)	4
M20	1.5	1402560	125 (4.921)	20 (0.787)	–	16 (0.630)	12 (0.472)	4
M20	2.5	1402545	140 (5.512)	20 (0.787)	–	16 (0.630)	12 (0.472)	4
M24	3	1402546	160 (6.299)	25 (0.984)	–	18 (0.709)	14.5 (0.571)	4
M27	3	1402547	160 (6.299)	30 (1.181)	–	20 (0.787)	16 (0.630)	4
M30	3.5	1402548	180 (7.087)	35 (1.378)	–	22 (0.866)	18 (0.709)	4

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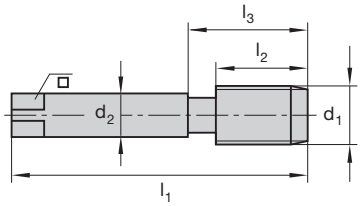
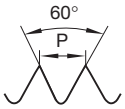
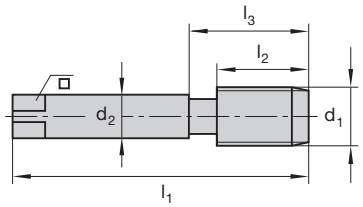


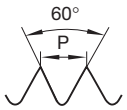


Style	HPT
Dimension Standards	DIN Length / ANSI Shank
Type of Application	Blind holes
Maximum Thread Depth	3 x D
Flute Style	40° R.H. Spiral
Chamfer Style	C (2–3 Threads)
Tolerance Class	2B / 3B
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	Coolant through the center of the tool
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
1/4	20	9116565	80 (3.150)	13 (0.512)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
1/4	28	9116566	80 (3.150)	13 (0.512)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
5/16	18	9116567	90 (3.543)	14 (0.551)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
5/16	24	9116568	90 (3.543)	14 (0.551)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
3/8	16	9116569	100 (3.937)	16 (0.630)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
3/8	24	9116570	100 (3.937)	16 (0.630)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
7/16	14	9116571	100 (3.937)	18 (0.709)	–	8.20 (0.323)	6.15 (0.242)	3
7/16	20	9116572	100 (3.937)	18 (0.709)	–	8.20 (0.323)	6.15 (0.242)	3
1/2	13	9116573	110 (4.331)	20 (0.787)	–	9.32 (0.367)	6.99 (0.275)	3
1/2	20	9116574	100 (3.937)	18 (0.709)	–	9.32 (0.367)	6.99 (0.275)	4
9/16	12	9116575	110 (4.331)	21 (0.827)	–	10.90 (0.429)	8.18 (0.322)	3
9/16	18	9116576	100 (3.937)	20 (0.787)	–	10.90 (0.429)	8.18 (0.322)	4
5/8	11	9116577	110 (4.331)	23 (0.906)	–	12.19 (0.480)	9.14 (0.360)	3
5/8	18	9116578	100 (3.937)	20 (0.787)	–	12.19 (0.480)	9.14 (0.360)	4
3/4	10	9116579	125 (4.921)	25 (0.984)	–	14.99 (0.590)	11.23 (0.442)	4
3/4	16	9116580	110 (4.331)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	4

NEW





Style	HPT
Dimension Standards	DIN Length / DIN Shank
Type of Application	Blind holes
Maximum Thread Depth	3 x D
Flute Style	40° R.H. Spiral
Chamfer Style	C (2–3 Threads)
Tolerance Class	ISO 2 (6H)
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	Coolant through the center of the tool
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)				Z (Flutes)
			l_1	l_2	d_2	Square	
M5	0.8	1400133	70 (2.750)	8 (0.315)	6 (0.236)	4.9 (0.193)	3
M6	1	1400134	80 (3.150)	10 (0.394)	6 (0.236)	4.9 (0.193)	3
M8	1	1400162	90 (3.543)	10 (0.394)	6 (0.236)	4.9 (0.193)	3
M8	1.25	1400135	90 (3.543)	13 (0.512)	8 (0.315)	6.2 (0.244)	3
M10	1	1400163	90 (3.543)	10 (0.394)	8 (0.315)	6.2 (0.244)	3
M10	1.25	1400164	100 (3.937)	13 (0.512)	8 (0.315)	6.2 (0.244)	3
M10	1.5	1400136	100 (3.937)	15 (0.591)	10 (0.394)	8 (0.315)	3
M12	1	1400165	100 (3.937)	10 (0.394)	10 (0.394)	8 (0.315)	4
M12	1.5	1400166	100 (3.937)	15 (0.591)	10 (0.394)	8 (0.315)	4
M12	1.75	1400137	110 (4.331)	18 (0.709)	9 (0.354)	7 (0.276)	3
M14	1	1400167	100 (3.937)	10 (0.394)	12 (0.472)	9 (0.354)	4
M14	1.5	1400168	100 (3.937)	15 (0.591)	12 (0.472)	9 (0.354)	4
M16	1	1400169	100 (3.937)	10 (0.394)	12 (0.472)	9 (0.354)	4
M16	1.5	1400170	100 (3.937)	15 (0.591)	12 (0.472)	9 (0.354)	4
M16	2	1400138	110 (4.331)	20 (0.787)	12 (0.472)	9 (0.354)	4
M18	1.5	1400171	110 (4.331)	15 (0.591)	14 (0.551)	11 (0.433)	4
M20	1.5	1400172	125 (4.921)	15 (0.591)	16 (0.630)	12 (0.472)	5
M20	2.5	1400139	140 (5.512)	25 (0.984)	16 (0.630)	12 (0.472)	4

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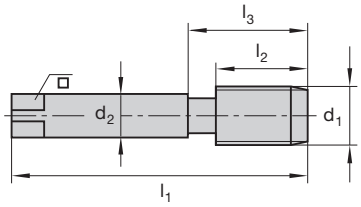
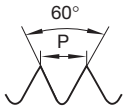
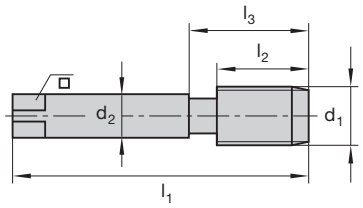


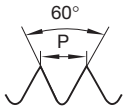


Style	HPT
Dimension Standards	DIN Length / ANSI Shank
Type of Application	Blind holes
Maximum Thread Depth	2 x D
Flute Style	15° R.H. Spiral
Chamfer Style	C (2–3 Threads)
Tolerance Class	2B / 3B
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	Coolant through the center of the tool
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
1/4	20	9116549	80 (3.150)	13 (0.512)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
1/4	28	9116550	80 (3.150)	13 (0.512)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
5/16	18	9116551	90 (3.543)	14 (0.551)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
5/16	24	9116552	90 (3.543)	14 (0.551)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
3/8	16	9116553	100 (3.937)	16 (0.630)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
3/8	24	9116554	100 (3.937)	16 (0.630)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
7/16	14	9116555	100 (3.937)	18 (0.709)	–	8.20 (0.323)	6.15 (0.242)	3
7/16	20	9116556	100 (3.937)	18 (0.709)	–	8.20 (0.323)	6.15 (0.242)	3
1/2	13	9116557	110 (4.331)	20 (0.787)	–	9.32 (0.367)	6.99 (0.275)	3
1/2	20	9116558	100 (3.937)	18 (0.709)	–	9.32 (0.367)	6.99 (0.275)	4
9/16	12	9116559	110 (4.331)	21 (0.827)	–	10.90 (0.429)	8.18 (0.322)	3
9/16	18	9116560	100 (3.937)	20 (0.787)	–	10.90 (0.429)	8.18 (0.322)	4
5/8	11	9116561	110 (4.331)	23 (0.906)	–	12.19 (0.480)	9.14 (0.360)	3
5/8	18	9116562	100 (3.937)	20 (0.787)	–	12.19 (0.480)	9.14 (0.360)	4
3/4	10	9116563	125 (4.921)	25 (0.984)	–	14.99 (0.590)	11.23 (0.442)	4
3/4	16	9116564	110 (4.331)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	4

NEW





Style	HPT
Dimension Standards	DIN Length / DIN Shank
Type of Application	Blind holes
Maximum Thread Depth	2 x D
Flute Style	15° R.H. Spiral
Chamfer Style	C (2–3 Threads)
Tolerance Class	ISO 2 (6H)
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	Coolant through the center of the tool
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)				Z (Flutes)
			l_1	l_2	d_2	Square	
M5	0.8	1400126	70 (2.750)	10 (0.394)	6 (0.236)	4.9 (0.193)	3
M6	1	1400127	80 (3.150)	12 (0.472)	6 (0.236)	4.9 (0.193)	3
M8	1	1400151	90 (3.543)	10 (0.394)	6 (0.236)	4.9 (0.193)	3
M8	1.25	1400128	90 (3.543)	15 (0.591)	8 (0.315)	6.2 (0.244)	3
M10	1	1400152	90 (3.543)	10 (0.394)	8 (0.315)	6.2 (0.244)	3
M10	1.25	1400153	100 (3.937)	13 (0.512)	8 (0.315)	6.2 (0.244)	3
M10	1.5	1400129	100 (3.937)	18 (0.709)	10 (0.394)	8 (0.315)	3
M12	1	1400154	100 (3.937)	10 (0.394)	10 (0.394)	8 (0.315)	4
M12	1.5	1400155	100 (3.937)	15 (0.591)	10 (0.394)	8 (0.315)	4
M12	1.75	1400130	110 (4.331)	21 (0.827)	9 (0.354)	7 (0.276)	3
M14	1	1400156	100 (3.937)	10 (0.394)	12 (0.472)	9 (0.354)	4
M14	1.5	1400157	100 (3.937)	15 (0.591)	12 (0.472)	9 (0.354)	4
M16	1	1400158	100 (3.937)	10 (0.394)	12 (0.472)	9 (0.354)	4
M16	1.5	1400159	100 (3.937)	15 (0.591)	12 (0.472)	9 (0.354)	4
M16	2	1400131	110 (4.331)	24 (0.945)	12 (0.472)	9 (0.354)	4
M18	1.5	1400160	110 (4.331)	15 (0.591)	14 (0.551)	11 (0.433)	4
M20	1.5	1400161	125 (4.921)	15 (0.591)	16 (0.630)	12 (0.472)	5
M20	2.5	1400132	140 (5.512)	30 (1.181)	16 (0.630)	12 (0.472)	4

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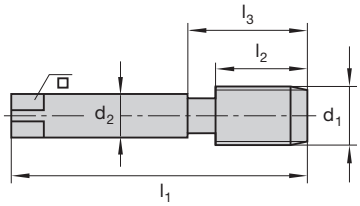
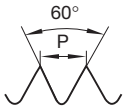
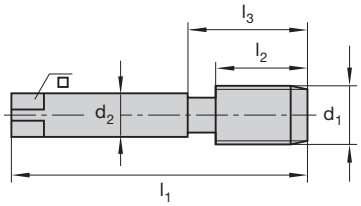


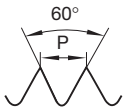


Style	Cast Iron
Dimension Standards	DIN Length / ANSI Shank
Type of Application	Blind holes
Maximum Thread Depth	3 x D
Flute Style	Straight Flutes
Chamfer Style	C (2–3 Threads)
Tolerance Class	2B / 3B
Surface Treatment	AL2 Plus
Special Features	Axial coolant channel with front outlet
Substrate	HSS-E

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
1/4	20	9101599	80 (3.150)	13 (0.512)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
1/4	28	9101596	80 (3.150)	13 (0.512)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
5/16	18	9104890	90 (3.543)	14 (0.551)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
5/16	24	9104891	90 (3.543)	14 (0.551)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
3/8	16	9104892	100 (3.937)	16 (0.630)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
3/8	24	9104893	100 (3.937)	16 (0.630)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
7/16	14	9104894	100 (3.937)	18 (0.709)	–	8.20 (0.323)	6.15 (0.242)	3
7/16	20	9104895	100 (3.937)	18 (0.709)	–	8.20 (0.323)	6.15 (0.242)	3
1/2	13	9104896	110 (4.331)	20 (0.787)	–	9.32 (0.367)	6.99 (0.275)	3
1/2	20	9104897	100 (3.937)	18 (0.709)	–	9.32 (0.367)	6.99 (0.275)	4
9/16	12	9104898	110 (4.331)	21 (0.827)	–	10.90 (0.429)	8.18 (0.322)	3
9/16	18	9104899	100 (3.937)	20 (0.787)	–	10.90 (0.429)	8.18 (0.322)	4
5/8	11	9104900	110 (4.331)	23 (0.906)	–	12.19 (0.480)	9.14 (0.360)	3
5/8	18	9104901	100 (3.937)	20 (0.787)	–	12.19 (0.480)	9.14 (0.360)	4
3/4	10	9101597	125 (4.921)	25 (0.984)	–	14.99 (0.590)	11.23 (0.442)	4
3/4	16	9101598	110 (4.331)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	4

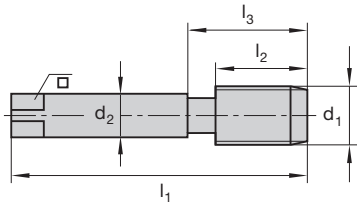
NEW

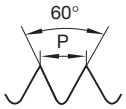




Style	Cast Iron
Dimension Standards	DIN Length / DIN Shank
Type of Application	Blind holes
Maximum Thread Depth	3 x D
Flute Style	Straight Flutes
Chamfer Style	C (2–3 Threads)
Tolerance Class	ISO 2 (6H)
Surface Treatment	AL2 Plus
Special Features	Axial coolant channel with front outlet
Substrate	HSS-E

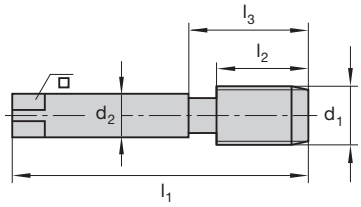
d_1	P	EDP No.	Dimensions (mm/inches)				Z (Flutes)
			l_1	l_2	d_2	Square	
M6	1	1387844	80 (3.150)	16 (0.6299)	6 (0.2362)	4.9 (0.1929)	–
M8	1.25	1387845	90 (3.543)	18 (0.7087)	8 (0.3150)	6.2 (0.2441)	–
M10	1.5	1387846	100 (3.937)	20 (0.7874)	10 (0.3937)	8 (0.3150)	–
M12	1.75	1387890	110 (4.331)	24 (0.9449)	9 (0.3543)	7 (0.2756)	–
M14	2	1387891	110 (4.331)	26 (1.0236)	11 (0.4331)	9 (0.3543)	–
M16	2	1387892	110 (4.331)	28 (1.1024)	12 (0.4724)	9 (0.3543)	–
M18	2.5	1387893	125 (4.921)	32 (1.2598)	14 (0.5512)	11 (0.4331)	–
M20	2.5	1387894	140 (5.512)	32 (1.2598)	16 (0.7874)	12 (0.4724)	–

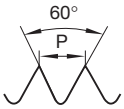




Style	Rasant - F.S.
Dimension Standards	DIN Length / ANSI Shank
Type of Application	Blind holes
Maximum Thread Depth	3 x D
Flute Style	40° R.H. Spiral
Chamfer Style	C (2–3 Threads)
Tolerance Class	2B / 3B *
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	“Full Speed” geometry
Substrate	HSS-E-PM

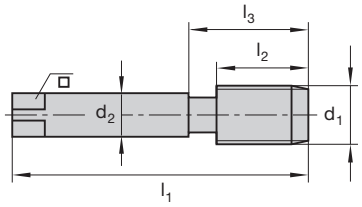
d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
1/4	20	1401444	80 (3.150)	16 (0.630)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
1/4	28	1401451	80 (3.150)	16 (0.630)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
5/16	18	1401445	90 (3.543)	18 (0.709)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
5/16	24	1401452	90 (3.543)	18 (0.709)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
3/8	16	1401446	100 (3.937)	20 (0.787)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
3/8	24	1401453	100 (3.937)	20 (0.787)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
7/16	14	1401447	100 (3.937)	20 (0.787)	–	8.20 (0.323)	6.15 (0.242)	3
7/16	20	1401454	100 (3.937)	16 (0.630)	–	8.20 (0.323)	6.15 (0.242)	3
1/2	13	1401448	110 (4.331)	24 (0.945)	–	9.32 (0.367)	6.99 (0.275)	3
1/2	20	1401455	100 (3.937)	20 (0.787)	–	9.32 (0.367)	6.99 (0.275)	4
5/8	11	1401449	110 (4.331)	22 (0.866)	–	12.19 (0.480)	9.14 (0.360)	3
5/8	18	1401456	100 (3.937)	20 (0.787)	–	12.19 (0.480)	9.14 (0.360)	4
3/4	10	1401450	125 (4.921)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	4
3/4	16	1401457	110 (4.331)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	4

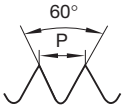




Style	Rasant - F.S.
Dimension Standards	DIN Length / DIN Shank
Type of Application	Blind holes
Maximum Thread Depth	3 x D
Flute Style	40° R.H. Spiral
Chamfer Style	C (2–3 Threads)
Tolerance Class	ISO 2 (6H)
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	“Full Speed” geometry
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
M6	1	1401437	80 (3.150)	8 (0.315)	30 (1.181)	6 (0.236)	4.9 (0.193)	3
M8	1.25	1401438	90 (3.543)	10 (0.394)	35 (1.378)	8 (0.315)	6.2 (0.244)	3
M10	1	1401441	90 (3.543)	15 (0.591)	35 (1.378)	7 (0.276)	5.5 (0.217)	3
M10	1.25	1401442	100 (3.937)	15 (0.591)	39 (1.535)	7 (0.276)	5.5 (0.217)	3
M10	1.5	1401439	100 (3.937)	12 (0.472)	39 (1.535)	10 (0.394)	8 (0.315)	3
M12	1.0	1401443	100 (3.937)	14 (0.551)	–	9 (0.354)	7 (0.276)	4
M12	1.75	1401440	110 (4.331)	14 (0.551)	–	9 (0.354)	7 (0.276)	3



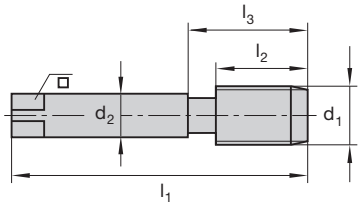


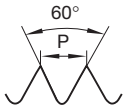
Style	Rasant - F.S.
Dimension Standards	DIN Length / ANSI Shank
Type of Application	Blind holes
Maximum Thread Depth	3 x D
Flute Style	40° R.H. Spiral
Chamfer Style	C (2–3 Threads)
Tolerance Class	2B / 3B *
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	"Full Speed" geometry Coolant through the center of the tool
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
1/4	20	1401423	80 (3.150)	16 (0.630)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
1/4	28	1401430	80 (3.150)	16 (0.630)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
5/16	18	1401424	90 (3.543)	18 (0.709)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
5/16	24	1401431	90 (3.543)	18 (0.709)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
3/8	16	1401425	100 (3.937)	20 (0.787)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
3/8	24	1401432	100 (3.937)	20 (0.787)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
7/16	14	1401426	100 (3.937)	20 (0.787)	–	8.20 (0.323)	6.15 (0.242)	3
7/16	20	1401433	100 (3.937)	16 (0.630)	–	8.20 (0.323)	6.15 (0.242)	3
1/2	13	1401427	110 (4.331)	24 (0.945)	–	9.32 (0.367)	6.99 (0.275)	3
1/2	20	1401434	100 (3.937)	20 (0.787)	–	9.32 (0.367)	6.99 (0.275)	4
5/8	11	1401428	110 (4.331)	22 (0.866)	–	12.19 (0.480)	9.14 (0.360)	3
5/8	18	1401435	100 (3.937)	20 (0.787)	–	12.19 (0.480)	9.14 (0.360)	4
3/4	10	1401429	125 (4.921)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	4
3/4	16	1401436	110 (4.331)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	4

*All taps are manufactured to Class 3B tolerance, however they can be used in Class 2B applications as well.

See page 56 for more details.

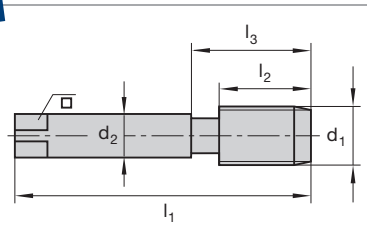


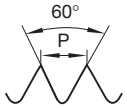


Style	Rasant - F.S.
Dimension Standards	DIN Length / DIN Shank
Type of Application	Blind holes
Maximum Thread Depth	3 x D
Flute Style	40° R.H. Spiral
Chamfer Style	C (2–3 Threads)
Tolerance Class	ISO 2 (6H)
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	"Full Speed" geometry Coolant through the center of the tool
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
M6	1	1401416	80 (3.150)	8 (0.315)	30 (1.181)	6 (0.236)	4.9 (0.193)	3
M8	1.25	1401417	90 (3.543)	10 (0.394)	35 (1.378)	8 (0.315)	6.2 (0.244)	3
M10	1	1401420	90 (3.543)	15 (0.591)	35 (1.378)	7 (0.276)	5.5 (0.217)	3
M10	1.25	1401421	100 (3.937)	15 (0.591)	39 (1.535)	7 (0.276)	5.5 (0.217)	3
M10	1.5	1401418	100 (3.937)	12 (0.472)	39 (1.535)	10 (0.394)	8 (0.315)	3
M12	1.0	1401422	100 (3.937)	14 (0.551)	–	9 (0.354)	7 (0.276)	4
M12	1.75	1401419	110 (4.331)	14 (0.551)	–	9 (0.354)	7 (0.276)	3

NEW



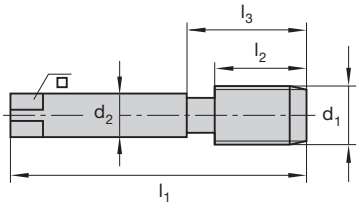


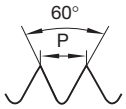
Style	Rasant - V
Dimension Standards	DIN Length / ANSI Shank
Type of Application	Blind holes
Maximum Thread Depth	3 x D
Flute Style	40° R.H. Spiral
Chamfer Style	C (2–3 Threads)
Tolerance Class	2B + .005″
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	–
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
#6	32	9100557	56 (2.205)	8 (0.315)	18 (0.709)	3.58 (0.141)	2.79 (0.110)	3
#6	40	9100559	56 (2.205)	8 (0.315)	18 (0.709)	3.58 (0.141)	2.79 (0.110)	3
#8	32	9100560	63 (2.480)	8 (0.315)	21 (0.827)	4.27 (0.168)	3.33 (0.131)	3
#8	36	9100561	63 (2.480)	8 (0.315)	21 (0.827)	4.27 (0.168)	3.33 (0.131)	3
#10	24	9100562	70 (2.756)	11 (0.433)	25 (0.984)	4.93 (0.194)	3.86 (0.152)	3
#10	32	9100563	70 (2.756)	11 (0.433)	25 (0.984)	4.93 (0.194)	3.86 (0.152)	3
#12	24	9100564	80 (3.150)	11 (0.433)	30 (1.181)	5.59 (0.220)	4.19 (0.165)	3
#12	28	9100565	80 (3.150)	11 (0.433)	30 (1.181)	5.59 (0.220)	4.19 (0.165)	3
1/4	20	9100584	80 (3.150)	13 (0.512)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
1/4	28	9100567	80 (3.150)	13 (0.512)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
5/16	18	9100568	90 (3.543)	14 (0.551)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
5/16	24	9100569	90 (3.543)	14 (0.551)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
3/8	16	9100570	100 (3.937)	16 (0.630)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
3/8	24	9100571	100 (3.937)	16 (0.630)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
7/16	14	9100572	100 (3.937)	18 (0.709)	–	8.20 (0.323)	6.15 (0.242)	3
7/16	20	9100573	100 (3.937)	18 (0.709)	–	8.20 (0.323)	6.15 (0.242)	3
1/2	13	9100574	110 (4.331)	20 (0.787)	–	9.32 (0.367)	6.99 (0.275)	3
1/2	20	9100575	100 (3.937)	18 (0.709)	–	9.32 (0.367)	6.99 (0.275)	4
9/16	12	9100576	110 (4.331)	21 (0.827)	–	10.90 (0.429)	8.18 (0.322)	3
9/16	18	9100577	100 (3.937)	20 (0.787)	–	10.90 (0.429)	8.18 (0.322)	4
5/8	11	9100578	110 (4.331)	23 (0.906)	–	12.19 (0.480)	9.14 (0.360)	3
5/8	18	9100579	100 (3.937)	20 (0.787)	–	12.19 (0.480)	9.14 (0.360)	4
3/4	10	9100585	125 (4.921)	25 (0.984)	–	14.99 (0.590)	11.23 (0.442)	4
3/4	16	9100582	110 (4.331)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	4

Notes

NEW

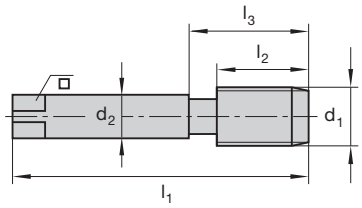


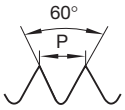


Style	IQ Plus Markant
Dimension Standards	DIN Length / ANSI Shank
Type of Application	Blind holes
Maximum Thread Depth	3 x D
Flute Style	40° R.H. Spiral
Chamfer Style	C (2–3 Threads)
Tolerance Class	3B
Surface Treatment	IQ Plus
Special Features	Coating
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
#6	32	9117767	56 (2.205)	8 (0.315)	18 (0.709)	3.58 (0.141)	2.79 (0.110)	3
#6	40	9117770	56 (2.205)	8 (0.315)	18 (0.709)	3.58 (0.141)	2.79 (0.110)	3
#8	32	9117771	63 (2.480)	8 (0.315)	21 (0.827)	4.27 (0.168)	3.33 (0.131)	3
#8	36	9117775	63 (2.480)	8 (0.315)	21 (0.827)	4.27 (0.168)	3.33 (0.131)	3
#10	24	9117778	70 (2.756)	11 (0.433)	25 (0.984)	4.93 (0.194)	3.86 (0.152)	3
#10	32	9117781	70 (2.756)	11 (0.433)	25 (0.984)	4.93 (0.194)	3.86 (0.152)	3
#12	24	9117793	80 (3.150)	11 (0.433)	30 (1.181)	5.59 (0.220)	4.19 (0.165)	3
#12	28	9117795	80 (3.150)	11 (0.433)	30 (1.181)	5.59 (0.220)	4.19 (0.165)	3
1/4	20	9117796	80 (3.150)	13 (0.512)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
1/4	28	9117797	80 (3.150)	13 (0.512)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
5/16	18	9117798	90 (3.543)	14 (0.551)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
5/16	24	9117799	90 (3.543)	14 (0.551)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
3/8	16	9124603	100 (3.937)	16 (0.630)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
3/8	24	9117801	100 (3.937)	16 (0.630)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
7/16	14	9117803	100 (3.937)	18 (0.709)	–	8.20 (0.323)	6.15 (0.242)	3
7/16	20	9117804	100 (3.937)	18 (0.709)	–	8.20 (0.323)	6.15 (0.242)	3
1/2	13	9117805	110 (4.331)	20 (0.787)	–	9.32 (0.367)	6.99 (0.275)	3
1/2	20	9117806	100 (3.937)	18 (0.709)	–	9.32 (0.367)	6.99 (0.275)	4
9/16	12	9117807	110 (4.331)	21 (0.827)	–	10.90 (0.429)	8.18 (0.322)	3
9/16	18	9117808	100 (3.937)	20 (0.787)	–	10.90 (0.429)	8.18 (0.322)	4
5/8	11	9117809	110 (4.331)	23 (0.906)	–	12.19 (0.480)	9.14 (0.360)	3
5/8	18	9117810	100 (3.937)	20 (0.787)	–	12.19 (0.480)	9.14 (0.360)	4
3/4	10	9124604	125 (4.921)	25 (0.984)	–	14.99 (0.590)	11.23 (0.442)	4
3/4	16	9124605	110 (4.331)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	4

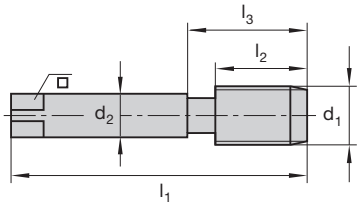
NEW

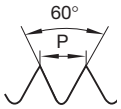




Style	IQ Plus Markant
Dimension Standards	DIN Length / DIN Shank
Type of Application	Blind holes
Maximum Thread Depth	3 x D
Flute Style	Spiral Point
Chamfer Style	B (3–5 Threads)
Tolerance Class	6H
Surface Treatment	IQ Plus
Special Features	Coating
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)				Z (Flutes)
			l_1	l_2	d_2	Square	
M6	1.00	1390098	80 (3.150)	11 (0.433)	6 (0.236)	4.9 (0.193)	3
M8	1.25	1390099	90 (3.543)	13 (0.512)	8 (0.315)	6.2 (0.244)	3
M10	1.50	1390100	100 (3.937)	15 (0.591)	10 (0.394)	8 (0.315)	3
M12	1.75	1390101	110 (4.331)	18 (0.709)	9 (0.354)	7 (0.276)	3
M14	2.00	1390102	110 (4.331)	20 (0.787)	11 (0.433)	9 (0.354)	3

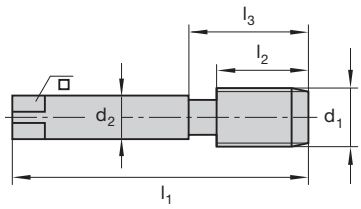


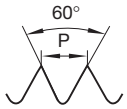


Style	Markant - V
Dimension Standards	DIN Length / ANSI Shank
Type of Application	Through
Maximum Thread Depth	> 3 x D
Flute Style	Straight flute / Spiral point
Chamfer Style	B (3.5–5 Threads)
Tolerance Class	2B / 3B *
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	–
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
#6	32	1400953	56 (2.205)	8 (0.315)	18 (0.709)	3.58 (0.141)	2.79 (0.110)	3
#6	40	1401067	56 (2.205)	8 (0.315)	18 (0.709)	3.58 (0.141)	2.79 (0.110)	3
#8	32	1400955	63 (2.480)	8 (0.315)	21 (0.827)	4.27 (0.168)	3.33 (0.131)	3
#8	36	1401069	63 (2.480)	8 (0.315)	21 (0.827)	4.27 (0.168)	3.33 (0.131)	3
#10	24	1400957	70 (2.756)	11 (0.433)	25 (0.984)	4.93 (0.194)	3.86 (0.152)	3
#10	32	1401071	70 (2.756)	11 (0.433)	25 (0.984)	4.93 (0.194)	3.86 (0.152)	3
#12	24	1400959	80 (3.150)	11 (0.433)	30 (1.181)	5.59 (0.220)	4.19 (0.165)	3
#12	28	1401073	80 (3.150)	11 (0.433)	30 (1.181)	5.59 (0.220)	4.19 (0.165)	3
1/4	20	1400961	80 (3.150)	13 (0.512)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
1/4	28	1401075	80 (3.150)	13 (0.512)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
5/16	18	1400963	90 (3.543)	14 (0.551)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
5/16	24	1401077	90 (3.543)	14 (0.551)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
3/8	16	1400965	100 (3.937)	16 (0.630)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
3/8	24	1401079	100 (3.937)	16 (0.630)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
7/16	14	1400967	100 (3.937)	18 (0.709)	–	8.20 (0.323)	6.15 (0.242)	3
7/16	20	1401081	100 (3.937)	18 (0.709)	–	8.20 (0.323)	6.15 (0.242)	3
1/2	13	1400969	110 (4.331)	20 (0.787)	–	9.32 (0.367)	6.99 (0.275)	3
1/2	20	1401083	100 (3.937)	18 (0.709)	–	9.32 (0.367)	6.99 (0.275)	3
9/16	12	1400971	110 (4.331)	21 (0.827)	–	10.90 (0.429)	8.18 (0.322)	3
9/16	18	1401085	100 (3.937)	20 (0.787)	–	10.90 (0.429)	8.18 (0.322)	4
5/8	11	1400973	110 (4.331)	23 (0.906)	–	12.19 (0.480)	9.14 (0.360)	3
5/8	18	1401087	100 (3.937)	20 (0.787)	–	12.19 (0.480)	9.14 (0.360)	4
3/4	10	1400975	125 (4.921)	25 (0.984)	–	14.99 (0.590)	11.23 (0.442)	4
3/4	16	1401089	110 (4.331)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	4
7/8	9	1400977	140 (5.512)	28 (1.102)	–	17.70 (0.697)	13.28 (0.523)	4
7/8	14	1401091	125 (4.921)	25 (0.984)	–	17.70 (0.697)	13.28 (0.523)	4
1"	8	1400979	160 (6.299)	32 (1.260)	–	20.32 (0.800)	15.24 (0.600)	4
1"	12	1401093	140 (5.512)	28 (1.102)	–	20.32 (0.800)	15.24 (0.600)	4
1-1/8"	7	1400981	180 (7.087)	36 (1.417)	–	22.76 (0.896)	17.07 (0.672)	4
1-1/8"	12	1401095	150 (5.906)	28 (1.102)	–	22.76 (0.896)	17.07 (0.672)	4
1-1/4"	7	1400983	180 (7.087)	36 (1.417)	–	25.93 (1.021)	19.45 (0.766)	4
1-1/4"	12	1401097	150 (5.906)	28 (1.102)	–	25.93 (1.021)	19.45 (0.766)	4
1-3/8"	6	1400985	200 (7.874)	42 (1.654)	–	28.14 (1.108)	21.11 (0.831)	4
1-3/8"	12	1401099	170 (6.693)	30 (1.181)	–	28.14 (1.108)	21.11 (0.831)	6
1-1/2"	6	1400987	200 (7.874)	42 (1.654)	–	31.32 (1.233)	23.50 (0.925)	4
1-1/2"	12	1401101	170 (6.693)	30 (1.181)	–	31.32 (1.233)	23.50 (0.925)	6
1-3/4"	5	1400989	220 (8.661)	50 (1.969)	–	36.32 (1.430)	27.23 (1.072)	5

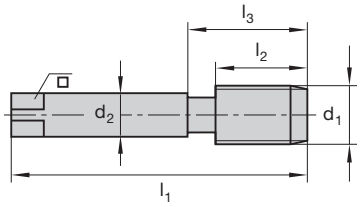
*All taps are manufactured to Class 3B tolerance, however they can be used in Class 2B applications as well.
See page 56 for more details.

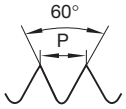




Style	Markant - V
Dimension Standards	DIN Length / DIN Shank
Type of Application	Through holes
Maximum Thread Depth	3 x D
Flute Style	Straight flute / Spiral point
Chamfer Style	B (3.5–5 Threads)
Tolerance Class	ISO 2 (6H)
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	–
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
M3	0.50	1393906	56 (2.205)	6 (0.236)	18 (0.709)	3.5 (0.138)	2.7 (0.106)	3
M4	0.70	1393915	63 (2.480)	8 (0.315)	21 (0.827)	4.5 (0.177)	3.4 (0.134)	3
M5	0.80	1393924	70 (2.756)	10 (0.394)	25 (0.984)	6 (0.236)	4.9 (0.193)	3
M6	1.00	1393933	80 (3.150)	11 (0.433)	30 (1.181)	6 (0.236)	4.9 (0.193)	3
M8	1.00	1394433	90 (3.543)	14 (0.551)	35 (1.378)	6 (0.236)	4.9 (0.193)	3
M8	1.25	1393942	90 (3.543)	13 (0.512)	35 (1.378)	8 (0.315)	6.2 (0.244)	3
M9	1.00	1394434	90 (3.543)	15 (0.591)	35 (1.378)	7 (0.276)	5.5 (0.217)	3
M10	1.00	1394435	90 (3.543)	15 (0.591)	35 (1.378)	7 (0.276)	5.5 (0.217)	3
M10	1.25	1394427	100 (3.937)	24 (0.945)	39 (1.535)	7 (0.276)	5.5 (0.217)	3
M10	1.50	1393951	100 (3.937)	15 (0.591)	39 (1.535)	10 (0.394)	8 (0.315)	3
M11	1.00	1394432	90 (3.543)	15 (0.591)	–	8 (0.315)	6.2 (0.244)	4
M12	1.00	1394436	100 (3.937)	18 (0.709)	–	9 (0.354)	7 (0.276)	4
M12	1.25	1394337	100 (3.937)	18 (0.709)	–	9 (0.354)	7 (0.276)	4
M12	1.75	1393960	110 (4.331)	18 (0.709)	–	9 (0.354)	7 (0.276)	3
M14	1.50	1394439	100 (3.937)	20 (0.787)	–	11 (0.433)	9 (0.354)	4
M14	2.00	1393785	110 (4.331)	20 (0.787)	–	11 (0.433)	9 (0.354)	3
M16	1.50	1394440	100 (3.937)	20 (0.787)	–	12 (0.472)	9 (0.354)	4
M16	2.00	1393979	110 (4.331)	22 (0.866)	–	12 (0.472)	9 (0.354)	3
M18	1.50	1394441	110 (4.331)	22 (0.866)	–	14 (0.551)	11 (0.433)	4
M18	2.50	1393809	125 (4.921)	22 (0.866)	–	14 (0.551)	11 (0.433)	3
M20	1.50	1394442	125 (4.921)	25 (0.984)	–	16 (0.630)	12 (0.472)	4
M20	2.50	1393818	140 (5.512)	25 (0.984)	–	16 (0.630)	12 (0.472)	3



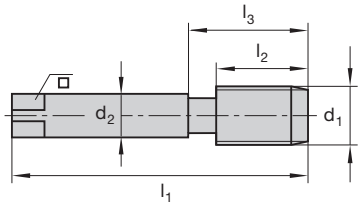


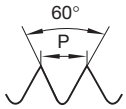
Style	Markant - F.S.
Dimension Standards	DIN Length / ANSI Shank
Type of Application	Through holes
Maximum Thread Depth	3 x D
Flute Style	Straight flute / Spiral point
Chamfer Style	B (3.5–5 Threads)
Tolerance Class	2B / 3B *
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	“Full Speed” geometry
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
1/4	20	1401402	80 (3.150)	16 (0.630)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
1/4	28	1401409	80 (3.150)	16 (0.630)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
5/16	18	1401403	90 (3.543)	18 (0.709)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
5/16	24	1401410	90 (3.543)	18 (0.709)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
3/8	16	1401404	100 (3.937)	20 (0.787)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
3/8	24	1401411	100 (3.937)	20 (0.787)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
7/16	14	1401405	100 (3.937)	20 (0.787)	–	8.20 (0.323)	6.15 (0.242)	3
7/16	20	1401412	100 (3.937)	16 (0.630)	–	8.20 (0.323)	6.15 (0.242)	3
1/2	13	1401406	110 (4.331)	24 (0.945)	–	9.32 (0.367)	6.99 (0.275)	3
1/2	20	1401413	100 (3.937)	20 (0.787)	–	9.32 (0.367)	6.99 (0.275)	4
5/8	11	1401407	110 (4.331)	22 (0.866)	–	12.19 (0.480)	9.14 (0.360)	3
5/8	18	1401414	100 (3.937)	20 (0.787)	–	12.19 (0.480)	9.14 (0.360)	4
3/4	10	1401408	125 (4.921)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	4
3/4	16	1401415	110 (4.331)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	4

*All taps are manufactured to Class 3B tolerance, however they can be used in Class 2B applications as well.

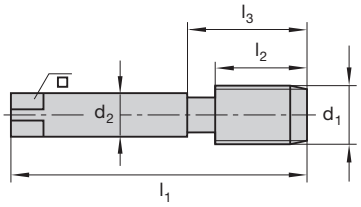
See page 56 for more details.

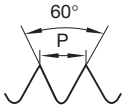




Style	Markant - F.S.
Dimension Standards	DIN Length / DIN Shank
Type of Application	Through Holes
Maximum Thread Depth	3 x D
Flute Style	Straight flute / Spiral point
Chamfer Style	B (3.5–5 Threads)
Tolerance Class	ISO 2 (6H)
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	“Full Speed” geometry
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
M6	1.00	1401395	80 (3.150)	8 (0.315)	30 (1.181)	6 (0.236)	4.9 (0.193)	3
M8	1.25	1401396	90 (3.543)	10 (0.394)	35 (1.378)	8 (0.315)	6.2 (0.244)	3
M10	1.00	1401399	90 (3.543)	15 (0.591)	35 (1.378)	7 (0.276)	5.5 (0.217)	3
M10	1.25	1401400	100 (3.937)	15 (0.591)	39 (1.535)	7 (0.276)	5.5 (0.217)	3
M10	1.50	1401397	100 (3.937)	12 (0.472)	39 (1.535)	10 (0.394)	8 (0.315)	3
M12	1.00	1401401	100 (3.937)	14 (0.551)	–	9 (0.354)	7 (0.276)	4
M12	1.75	1401398	110 (4.331)	14 (0.551)	–	9 (0.354)	7 (0.276)	3

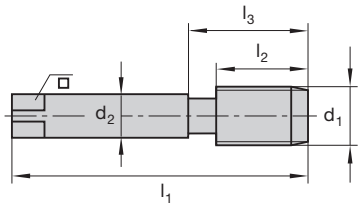


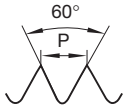


Style	Markant - F.S.
Dimension Standards	DIN Length / ANSI Shank
Type of Application	Through holes
Maximum Thread Depth	3 x D
Flute Style	Straight flute / Spiral point
Chamfer Style	B (3.5–5 Threads)
Tolerance Class	2B / 3B *
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	"Full Speed" geometry Coolant through, exit holes in the point grooves
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
1/4	20	1401381	80 (3.150)	16 (0.630)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
1/4	28	1401388	80 (3.150)	16 (0.630)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
5/16	18	1401382	90 (3.543)	18 (0.709)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
5/16	24	1401389	90 (3.543)	18 (0.709)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
3/8	16	1401383	100 (3.937)	20 (0.787)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
3/8	24	1401390	100 (3.937)	20 (0.787)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
7/16	14	1401384	100 (3.937)	20 (0.787)	–	8.20 (0.323)	6.15 (0.242)	3
7/16	20	1401391	100 (3.937)	16 (0.630)	–	8.20 (0.323)	6.15 (0.242)	3
1/2	13	1401385	110 (4.331)	24 (0.945)	–	9.32 (0.367)	6.99 (0.275)	3
1/2	20	1401392	100 (3.937)	20 (0.787)	–	9.32 (0.367)	6.99 (0.275)	4
5/8	11	1401386	110 (4.331)	22 (0.866)	–	12.19 (0.480)	9.14 (0.360)	3
5/8	18	1401393	100 (3.937)	20 (0.787)	–	12.19 (0.480)	9.14 (0.360)	4
3/4	10	1401387	125 (4.921)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	4
3/4	16	1401394	110 (4.331)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	4

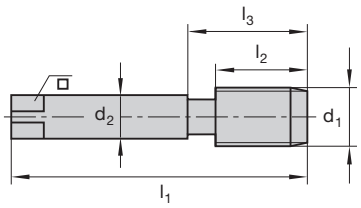
*All taps are manufactured to Class 3B tolerance, however they can be used in Class 2B applications as well.
See page 56 for more details.

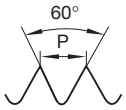




Style	Markant - F.S.
Dimension Standards	DIN Length / DIN Shank
Type of Application	Through Holes
Maximum Thread Depth	3 x D
Flute Style	Straight flute / Spiral point
Chamfer Style	B (3.5–5 Threads)
Tolerance Class	ISO 2 (6H)
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	"Full Speed" geometry Coolant through, exit holes in the point grooves
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Z (Flutes)
			l_1	l_2	l_3	d_2	Square	
M6	1.00	1401374	80 (3.150)	8 (0.315)	30 (1.181)	6 (0.236)	4.9 (0.193)	3
M8	1.25	1401375	90 (3.543)	10 (0.394)	35 (1.378)	8 (0.315)	6.2 (0.244)	3
M10	1.00	1401378	90 (3.543)	15 (0.591)	35 (1.378)	7 (0.276)	5.5 (0.217)	3
M10	1.25	1401379	100 (3.937)	15 (0.591)	39 (1.535)	7 (0.276)	5.5 (0.217)	3
M10	1.50	1401376	100 (3.937)	12 (0.472)	39 (1.535)	10 (0.394)	8 (0.315)	3
M12	1.00	1401380	100 (3.937)	14 (0.551)	–	9 (0.354)	7 (0.276)	4
M12	1.75	1401377	110 (4.331)	14 (0.551)	–	9 (0.354)	7 (0.276)	3



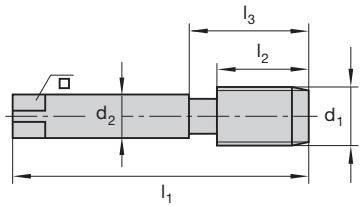


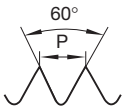
Style	Form - V
Dimension Standards	DIN Length / ANSI Shank
Type of Application	Blind and through holes
Maximum Thread Depth	2 x D
Flute Style	Straight Oil Grooves
Chamfer Style	C (2–3 Threads)
Tolerance Class	2B / 3B *
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	Polygonal cross-section Specially designed for MQL (Minimal Quantity Lubrication)
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Oil Grooves
			l_1	l_2	l_3	d_2	Square	
#6	32	1401327	56 (2.205)	8 (0.315)	18 (0.709)	3.58 (0.141)	2.79 (0.110)	3
#6	40	1401351	56 (2.205)	8 (0.315)	18 (0.709)	3.58 (0.141)	2.79 (0.110)	3
#8	32	1401329	63 (2.480)	8 (0.315)	21 (0.827)	4.27 (0.168)	3.33 (0.131)	4
#8	36	1401353	63 (2.480)	8 (0.315)	21 (0.827)	4.27 (0.168)	3.33 (0.131)	4
#10	24	1401331	70 (2.756)	11 (0.433)	25 (0.984)	4.93 (0.194)	3.86 (0.152)	4
#10	32	1401355	70 (2.756)	11 (0.433)	25 (0.984)	4.93 (0.194)	3.86 (0.152)	4
#12	24	1401333	80 (3.150)	11 (0.433)	30 (1.181)	5.59 (0.220)	4.19 (0.165)	4
#12	28	1401357	80 (3.150)	11 (0.433)	30 (1.181)	5.59 (0.220)	4.19 (0.165)	4
1/4	20	1401335	80 (3.150)	13 (0.512)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	4
1/4	28	1401359	80 (3.150)	13 (0.512)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	4
5/16	18	1401337	90 (3.543)	14 (0.551)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	4
5/16	24	1401361	90 (3.543)	14 (0.551)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	4
3/8	16	1401339	100 (3.937)	16 (0.630)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	4
3/8	24	1401363	100 (3.937)	16 (0.630)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	4
7/16	14	1401341	100 (3.937)	18 (0.709)	–	8.20 (0.323)	6.15 (0.242)	4
7/16	20	1401365	100 (3.937)	18 (0.709)	–	8.20 (0.323)	6.15 (0.242)	4
1/2	13	1401343	110 (4.331)	20 (0.787)	–	9.32 (0.367)	6.99 (0.275)	4
1/2	20	1401367	100 (3.937)	18 (0.709)	–	9.32 (0.367)	6.99 (0.275)	4
9/16	12	1401345	110 (4.331)	21 (0.827)	–	10.90 (0.429)	8.18 (0.322)	4
9/16	18	1401369	100 (3.937)	20 (0.787)	–	10.90 (0.429)	8.18 (0.322)	4
5/8	11	1401347	110 (4.331)	23 (0.906)	–	12.19 (0.480)	9.14 (0.360)	6
5/8	18	1401371	100 (3.937)	20 (0.787)	–	12.19 (0.480)	9.14 (0.360)	6
3/4	10	1401349	125 (4.921)	25 (0.984)	–	14.99 (0.590)	11.23 (0.442)	6
3/4	16	1401373	110 (4.331)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	6

*All taps are manufactured to Class 3B tolerance, however they can be used in Class 2B applications as well.

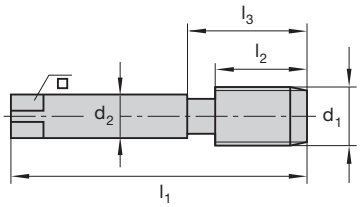
See page 56 for more details.

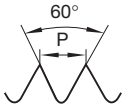




Style	Form - V
Dimension Standards	DIN Length / DIN Shank
Type of Application	Blind or through holes
Maximum Thread Depth	2 x D
Flute Style	Straight Oil Grooves
Chamfer Style	C (2–3 Threads)
Tolerance Class	6HX
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	Polygonal cross-section Specially designed for MQL (Minimal Quantity Lubrication)
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Oil Grooves
			l_1	l_2	l_3	d_2	Square	
M3	0.50	1401171	56 (2.205)	11 (0.433)	18 (0.709)	3.5 (0.138)	2.7 (0.106)	3
M4	0.70	1401173	63 (2.480)	13 (0.512)	21 (0.827)	4.5 (0.177)	3.4 (0.134)	3
M5	0.80	1401175	70 (2.756)	15 (0.591)	25 (0.984)	6 (0.236)	4.9 (0.193)	3
M6	1.00	1410657	80 (3.150)	16 (0.630)	30 (1.181)	6 (0.236)	4.9 (0.193)	3
M8	1.00	1401303	90 (3.543)	18 (0.709)	35 (1.378)	6 (0.236)	4.9 (0.193)	3
M8	1.25	1401179	90 (3.543)	18 (0.709)	35 (1.378)	8 (0.315)	6.2 (0.244)	3
M9	1.00	1401305	90 (3.543)	15 (0.591)	35 (1.378)	7 (0.276)	5.5 (0.217)	3
M10	1.00	1401307	90 (3.543)	15 (0.591)	35 (1.378)	7 (0.276)	5.5 (0.217)	3
M10	1.25	1401309	100 (3.937)	24 (0.945)	39 (1.535)	7 (0.276)	5.5 (0.217)	3
M10	1.50	1401181	100 (3.937)	20 (0.787)	39 (1.535)	10 (0.394)	8 (0.315)	3
M11	1.00	1401311	90 (3.543)	18 (0.709)	–	8 (0.315)	6.2 (0.244)	4
M12	1.00	1401313	100 (3.937)	18 (0.709)	–	9 (0.354)	7 (0.276)	4
M12	1.25	1401315	100 (3.937)	18 (0.709)	–	9 (0.354)	7 (0.276)	4
M12	1.50	1401317	100 (3.937)	18 (0.709)	–	9 (0.354)	7 (0.276)	4
M12	1.75	1401183	110 (4.331)	24 (0.945)	–	9 (0.354)	7 (0.276)	3
M14	1.50	1401319	100 (3.937)	20 (0.787)	–	11 (0.433)	9 (0.354)	4
M14	2.00	1401185	110 (4.331)	26 (1.024)	–	11 (0.433)	9 (0.354)	3
M16	1.50	1401321	100 (3.937)	20 (0.787)	–	12 (0.472)	9 (0.354)	4
M16	2.00	1401187	110 (4.331)	28 (1.102)	–	12 (0.472)	9 (0.354)	3
M18	1.50	1401323	110 (4.331)	20 (0.787)	–	14 (0.551)	11 (0.433)	4
M18	2.50	1401189	125 (4.921)	28 (1.102)	–	14 (0.551)	11 (0.433)	4
M20	1.50	1401325	125 (4.921)	20 (0.787)	–	16 (0.630)	12 (0.472)	4
M20	2.50	1401191	140 (5.512)	32 (1.260)	–	16 (0.630)	12 (0.472)	4

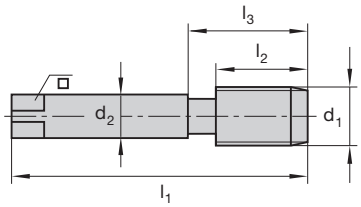


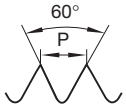


Style	Form - F.S.
Dimension Standards	DIN Length / ANSI Shank
Type of Application	Blind and through holes
Maximum Thread Depth	3 x D
Flute Style	Straight Oil Grooves
Chamfer Style	C (2–3 Threads)
Tolerance Class	2B / 3B *
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	"Full Speed" geometry Polygonal cross-section
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Oil Grooves
			l_1	l_2	l_3	d_2	Square	
1/4	20	1401486	80 (3.150)	16 (0.630)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
1/4	28	1401493	80 (3.150)	16 (0.630)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
5/16	18	1401487	90 (3.543)	18 (0.709)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
5/16	24	1401494	90 (3.543)	18 (0.709)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
3/8	16	1401488	100 (3.937)	20 (0.787)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
3/8	24	1401495	100 (3.937)	20 (0.787)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
7/16	14	1401489	100 (3.937)	20 (0.787)	–	8.20 (0.323)	6.15 (0.242)	3
7/16	20	1401496	100 (3.937)	16 (0.630)	–	8.20 (0.323)	6.15 (0.242)	3
1/2	13	1401490	110 (4.331)	24 (0.945)	–	9.32 (0.367)	6.99 (0.275)	3
1/2	20	1401497	100 (3.937)	20 (0.787)	–	9.32 (0.367)	6.99 (0.275)	4
5/8	11	1401491	110 (4.331)	22 (0.866)	–	12.19 (0.480)	9.14 (0.360)	3
5/8	18	1401498	100 (3.937)	20 (0.787)	–	12.19 (0.480)	9.14 (0.360)	4
3/4	10	1401492	125 (4.921)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	4
3/4	16	1401499	110 (4.331)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	4

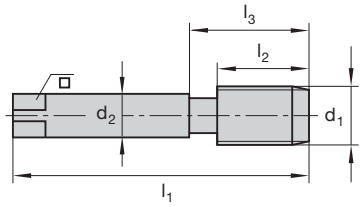
*All taps are manufactured to Class 3B tolerance, however they can be used in Class 2B applications as well.
See page 56 for more details.

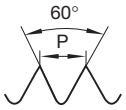




Style	Form - F.S.
Dimension Standards	DIN Length / DIN Shank
Type of Application	Blind and through holes
Maximum Thread Depth	3 x D
Flute Style	Straight Oil Grooves
Chamfer Style	C (2–3 Threads)
Tolerance Class	6HX
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	“Full Speed” geometry Polygonal cross-section
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Oil Grooves
			l_1	l_2	l_3	d_2	Square	
M6	1.00	1401479	80 (3.150)	8 (0.315)	30 (1.181)	6 (0.236)	4.9 (0.193)	3
M8	1.25	1401480	90 (3.543)	10 (0.394)	35 (1.378)	8 (0.315)	6.2 (0.244)	3
M10	1.00	1401483	90 (3.543)	15 (0.591)	35 (1.378)	7 (0.276)	5.5 (0.217)	3
M10	1.25	1401484	100 (3.937)	15 (0.591)	39 (1.535)	7 (0.276)	5.5 (0.217)	3
M10	1.50	1401481	100 (3.937)	12 (0.472)	39 (1.535)	10 (0.394)	8 (0.315)	3
M12	1.00	1401485	100 (3.937)	14 (0.551)	–	9 (0.354)	7 (0.276)	4
M12	1.75	1401482	110 (4.331)	14 (0.551)	–	9 (0.354)	7 (0.276)	3



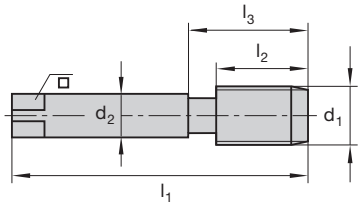


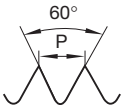
Style	Form - F.S.
Dimension Standards	DIN Length / ANSI Shank
Type of Application	Blind and through holes
Maximum Thread Depth	3 x D
Flute Style	Straight Oil Grooves
Chamfer Style	C (2–3 Threads)
Tolerance Class	2B / 3B *
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	"Full Speed" Geometry Polygonal cross-section Coolant through the center of the tool
Substrate	HSS-E-PM

d_1	P	EDP No.	Dimensions (mm/inches)					Oil Grooves
			l_1	l_2	l_3	d_2	Square	
1/4	20	1401465	80 (3.150)	16 (0.630)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
1/4	28	1401472	80 (3.150)	16 (0.630)	30 (1.181)	6.48 (0.255)	4.85 (0.191)	3
5/16	18	1401466	90 (3.543)	18 (0.709)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
5/16	24	1401473	90 (3.543)	18 (0.709)	35 (1.378)	8.08 (0.318)	6.05 (0.238)	3
3/8	16	1401467	100 (3.937)	20 (0.787)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
3/8	24	1401474	100 (3.937)	20 (0.787)	35 (1.378)	9.68 (0.381)	7.26 (0.286)	3
7/16	14	1401468	100 (3.937)	20 (0.787)	–	8.20 (0.323)	6.15 (0.242)	3
7/16	20	1401475	100 (3.937)	16 (0.630)	–	8.20 (0.323)	6.15 (0.242)	3
1/2	13	1401469	110 (4.331)	24 (0.945)	–	9.32 (0.367)	6.99 (0.275)	3
1/2	20	1401476	100 (3.937)	20 (0.787)	–	9.32 (0.367)	6.99 (0.275)	4
5/8	11	1401470	110 (4.331)	22 (0.866)	–	12.19 (0.480)	9.14 (0.360)	3
5/8	18	1401477	100 (3.937)	20 (0.787)	–	12.19 (0.480)	9.14 (0.360)	4
3/4	10	1401471	125 (4.921)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	4
3/4	16	1401478	110 (4.331)	22 (0.866)	–	14.99 (0.590)	11.23 (0.442)	4

*All taps are manufactured to Class 3B tolerance, however they can be used in Class 2B applications as well.

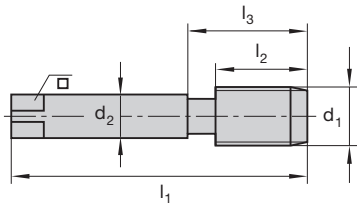
See page 56 for more details.

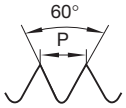




Style	Form - F.S.
Dimension Standards	DIN Length / DIN Shank
Type of Application	Blind and through holes
Maximum Thread Depth	3 x D
Flute Style	Straight Oil Grooves
Chamfer Style	C (2–3 Threads)
Tolerance Class	6HX
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	“Full Speed” geometry Polygonal cross-section Coolant through the center of the tool
Substrate	HSS-E-PM

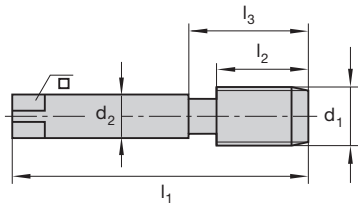
d_1	P	EDP No.	Dimensions (mm/inches)					Oil Grooves
			l_1	l_2	l_3	d_2	Square	
M6	1.00	1401458	80 (3.150)	8 (0.315)	30 (1.181)	6 (0.236)	4.9 (0.193)	3
M8	1.25	1401459	90 (3.543)	10 (0.394)	35 (1.378)	8 (0.315)	6.2 (0.244)	3
M10	1.00	1401460	90 (3.543)	15 (0.591)	35 (1.378)	7 (0.276)	5.5 (0.217)	3
M10	1.25	1401461	100 (3.937)	15 (0.591)	39 (1.535)	7 (0.276)	5.5 (0.217)	3
M10	1.50	1401462	100 (3.937)	12 (0.472)	39 (1.535)	10 (0.394)	8 (0.315)	3
M12	1.00	1401463	100 (3.937)	14 (0.551)	–	9 (0.354)	7 (0.276)	4
M12	1.75	1401464	110 (4.331)	14 (0.551)	–	9 (0.354)	7 (0.276)	3

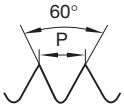




Style	Form - VHM-IK
Dimension Standards	ANSI Length / ANSI Shank
Type of Application	Blind or through holes
Maximum Thread Depth	2 x D
Flute Style	Straight Oil Grooves
Chamfer Style	C (2–3 Threads)
Tolerance Class	2B
Surface Treatment	–
Special Features	Polygonal cross-section
Substrate	Carbide

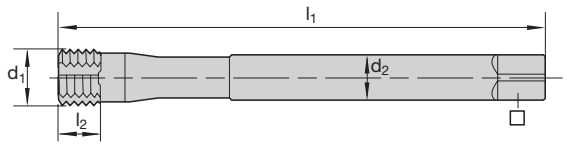
d_1	P	EDP No.	Dimensions (mm/inches)					Oil Grooves
			l_1	l_2	l_3	d_2	Square	
#8	32	2423946	53.98 (2.125)	9.50 (0.374)	19.05 (0.750)	4.27 (0.168)	3.33 (0.131)	3
#10	24	2423948	60.33 (2.375)	12.70 (0.500)	22.23 (0.875)	4.93 (0.194)	3.86 (0.152)	3
#10	32	2423947	60.33 (2.375)	12.70 (0.500)	22.23 (0.875)	4.93 (0.194)	3.86 (0.152)	3
1/4	20	2423949	63.50 (2.500)	15.19 (0.598)	25.40 (1.000)	6.48 (0.255)	4.85 (0.191)	4
1/4	28	2423952	63.50 (2.500)	15.19 (0.598)	25.40 (1.000)	6.48 (0.255)	4.85 (0.191)	4
5/16	18	2423950	69.05 (2.719)	16.89 (0.665)	28.58 (1.125)	8.08 (0.318)	6.05 (0.238)	4
5/16	24	2423951	69.05 (2.719)	16.89 (0.665)	28.58 (1.125)	8.08 (0.318)	6.05 (0.238)	4





Style	Form - VHM-IK
Dimension Standards	DIN Length / DIN Shank
Type of Application	Blind or through holes
Maximum Thread Depth	2 x D
Flute Style	Straight Oil Grooves
Chamfer Style	C (2–3 Threads)
Tolerance Class	6HX
Surface Treatment	–
Special Features	Polygonal cross-section M6 and larger has coolant through the center of the tool
Substrate	Carbide

d_1	P	EDP No.	Dimensions (mm/inches)					Oil Grooves
			l_1	l_2	l_3	d_2	Square	
M4	0.70	1365300	63 (2.480)	13 (0.512)	21 (0.827)	4.5 (0.177)	3.4 (0.134)	3
M5	0.80	1365301	70 (2.756)	15 (0.591)	25 (0.984)	6 (0.236)	4.9 (0.193)	3
M6	1.00	1365302	80 (3.150)	16 (0.630)	30 (1.181)	6 (0.236)	4.9 (0.193)	4
M8	1.25	1365303	90 (3.543)	18 (0.709)	35 (1.378)	8 (0.315)	6.2 (0.244)	4
M10	1.50	1365304	100 (3.937)	20 (0.787)	39 (1.535)	10 (0.394)	8 (0.315)	4



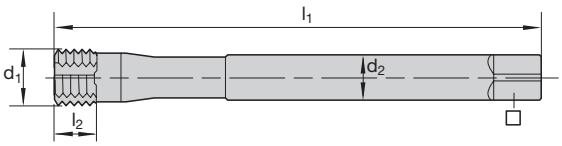
Style	HPF (High Performance Forming)
Dimension Standards	DIN Length / ANSI Shank
Type of Application	Blind and Through Holes
Maximum Thread Depth	3 x D
Flute Style	Straight Oil Grooves (S-Type Only)
Chamfer Style	E (1.5–2 Threads)
Tolerance Class	2B / 3B *
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	Available with and without oil grooves
Substrate	Solid Carbide Insert, HSS Shank

d_1	P	EDP No. Type S With Oil Grooves	EDP No. Type N Without Grooves	HPF Body EDP No.	Dimensions (mm/inches)			
					l_1	l_2	d_2	Square
3/8	24	1402658	1402662	1403150	100 (3.937)	8 (0.315)	9.68 (0.381)	7.26 (0.286)
7/16	20	1402795	1402685	1403158	100 (3.937)	8 (0.315)	8.21 (0.323)	6.15 (0.242)
1/2	20	1402659	1402663	1403151	100 (3.937)	8 (0.315)	9.32 (0.367)	6.99 (0.275)
9/16	18	1402666	1402667	1403155	100 (3.937)	8 (0.315)	10.90 (0.429)	8.18 (0.322)
5/8	18	1402660	1402664	1403153	100 (3.937)	8 (0.315)	12.19 (0.480)	9.14 (0.360)
3/4	16	1402661	1402665	1403154	110 (4.331)	10 (0.394)	14.99 (0.590)	11.23 (0.442)

*All taps are manufactured to Class 3B tolerance, however they can be used in Class 2B applications as well.
See page 56 for more details.

Spare Parts

Main Body EDP No.	Insert Screw EDP No.	Torx Driver EDP No.	Torque
1403150	1405832	1048326	44" in/lbs.
1403158	2422203	1048335	44" in/lbs.
1403151	2422203	1048335	80" in/lbs.
1403155	2422202	1048335	80" in/lbs.
1403153	2422202	1048335	80" in/lbs.
1403154	1045183	1048427	95" in/lbs.



Style	HPF (High Performance Forming)
Dimension Standards	DIN Length / DIN Shank
Type of Application	Blind and Through Holes
Maximum Thread Depth	3 x D
Flute Style	Straight Oil Grooves (S-Type Only)
Chamfer Style	E (1.5–2 Threads)
Tolerance Class	6HX
Surface Treatment	TiCN Plus (Multi-Layer PVD)
Special Features	Available with and without oil grooves
Substrate	Solid Carbide Insert, HSS Shank

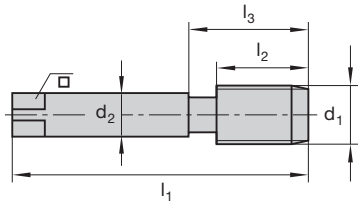
d_1	P	EDP No. Type S With Oil Grooves	EDP No. Type N Without Grooves	HPF Body EDP No.	Dimensions (mm/inches)			
					l_1	l_2	d_2	Square
M10	0.75	1403053	1403050	1403028	90 (3.543)	8 (0.315)	7 (0.276)	5.5 (0.217)
M10	1.00	1403054	1403051					
M10	1.25	1403055	1403052					
M12	1.00	1403080	1403060	1403032	100 (3.937)	8 (0.315)	9 (0.354)	7 (0.276)
M12	1.25	1403082	1403062					
M12	1.50	1403083	1403064					
M14	1.00	1403085	1403069	1403034	100 (3.937)	8 (0.315)	11 (0.433)	9 (0.354)
M14	1.50	1403086	1403070					
M16	1.00	1403090	1403071	1403036	100 (3.937)	8 (0.315)	12 (0.472)	9 (0.354)
M16	1.50	1403092	1403072					
M18	1.00	1403096	1403074	1403038	110 (4.331)	8.5 (0.335)	14 (0.551)	11 (0.433)
M18	1.50	1403098	1403078					

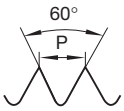
Spare Parts

Main Body EDP No.	Insert Screw EDP No.	Torx Driver EDP No.	Torque
1403028	1045832	1048326	44" in/lbs.
1403032	2422203	1048335	44" in/lbs.
1403034	2422202	1048344	80" in/lbs.
1403036	2422202	1048344	80" in/lbs.
1403038	1045183	1048427	95" in/lbs.

NPT/NPTF – Inch Straight Flute AL2 Plus
NPT/NPTF – Inch 15° Spiral TiCN Plus

NEW

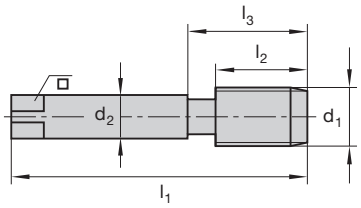


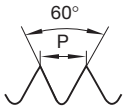


Style	NPT / NPTF
Dimension Standards	ANSI Length / ANSI Shank
Type of Application	Through holes
Flute Style	Straight flute / Taper 1:16
Chamfer Style	C (2–3 Threads)
Surface Treatment	AL2 Plus
Special Features	–
Substrate	HSS-E-PM

d_1	P	NPT EDP No.	NPTF EDP No.	Dimensions (mm/inches) l_1	l_2	d_2	Square	Z (Flutes)
1/16	27	1402774	1402781	54.102 (2.130)	13 (0.5118)	7.937 (0.3125)	5.943 (0.234)	4
1/8	27	1402775	1402782	54.102 (2.130)	13 (0.5118)	7.937 (0.3125)	5.943 (0.234)	4
1/4	18	1402776	1402783	61.976 (2.440)	20 (0.7874)	14.287 (0.5625)	10.693 (0.421)	5
3/8	18	1402777	1402784	65.024 (2.560)	20 (0.7874)	17.780 (0.7000)	13.487 (0.531)	5
1/2	14	1402778	1402785	79.502 (3.130)	25 (0.9843)	17.462 (0.6875)	13.081 (0.515)	6
3/4	14	1402779	1402786	82.550 (3.250)	26 (1.0240)	23.020 (0.9063)	17.246 (0.679)	6
1	11.5	1402780	1402787	95.250 (3.750)	44.45 (1.750)	28.580 (1.1250)	21.410 (0.843)	5

NEW



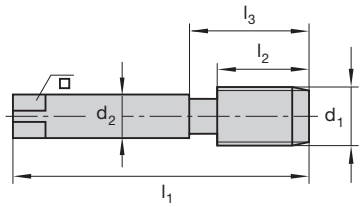


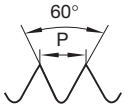
Style	NPT / NPTF
Dimension Standards	ANSI Length / ANSI Shank
Type of Application	Through holes
Flute Style	15° R.H. Spiral / Taper 1:16
Chamfer Style	C (2–3 Threads)
Surface Treatment	TiCN Plus
Special Features	–
Substrate	HSS-E-PM

d_1	P	NPT EDP No.	NPTF EDP No.	Dimensions (mm/inches) l_1	l_2	d_2	Square	Z (Flutes)
1/16	27	1402651	1402648	54.102 (2.130)	13 (0.5118)	7.937 (0.3125)	5.943 (0.234)	4
1/8	27	1402589	1402633	54.102 (2.130)	13 (0.5118)	7.937 (0.3125)	5.943 (0.234)	4
1/4	18	1402590	1402635	61.976 (2.440)	20 (0.7874)	14.287 (0.5625)	10.693 (0.421)	5
3/8	18	1402653	1402650	65.024 (2.560)	20 (0.7874)	17.780 (0.7000)	13.487 (0.531)	5
1/2	14	1402591	1402636	79.502 (3.130)	25 (0.9843)	17.462 (0.6875)	13.081 (0.515)	6
3/4	14	1402592	1402637	82.550 (3.250)	26 (1.0240)	23.020 (0.9063)	17.246 (0.679)	6
1	11.5	1402594	1402638	95.250 (3.750)	44.45 (1.750)	28.580 (1.1250)	21.410 (0.843)	5

For Technical Information see pages 62–63.

NEW





Style	NPS / NPSF
Dimension Standards	ANSI Length / ANSI Shank
Type of Application	Through holes
Flute Style	Straight flute
Chamfer Style	C (2–3 Threads)
Surface Treatment	TiCN - Plus
Special Features	–
Substrate	HSS-E

d_1	P	NPS EDP No.	NPSF EDP No.	Dimensions (mm/inches)				Z (Flutes)
				l_1	l_2	d_2	Square	
1/8	27	9096522	9100451	53.98 (2.125)	19.05 (0.750)	7.94 (0.3125)	5.94 (0.234)	4
1/4	18	9096524	9100453	61.90 (2.437)	26.97 (1.062)	14.29 (0.5625)	10.69 (0.421)	4
3/8	18	9096525	9100454	65.07 (2.562)	26.97 (1.062)	17.78 (0.7000)	13.49 (0.531)	4
1/2	14	9096526	9100455	79.38 (3.125)	34.93 (1.375)	17.46 (0.6875)	13.08 (0.515)	4
3/4	14	9096527	9100456	82.55 (3.250)	34.93 (1.375)	23.02 (0.9063)	17.25 (0.679)	5
1	11.5	9096528	9100458	95.25 (3.750)	44.45 (1.750)	28.58 (1.1250)	21.41 (0.843)	5

For Technical Information see pages 62–63.

Technical Data

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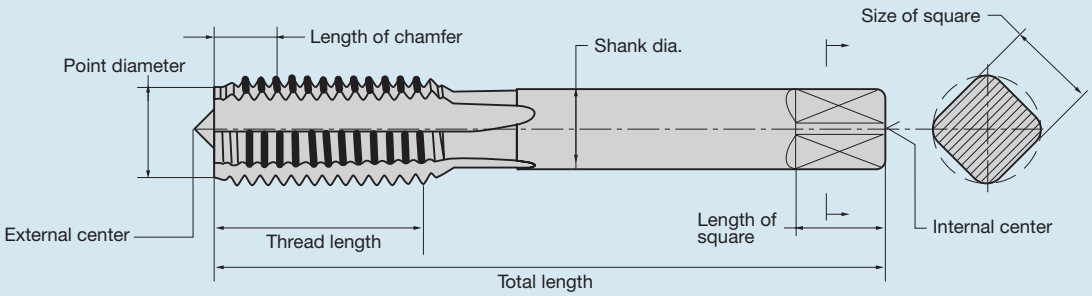
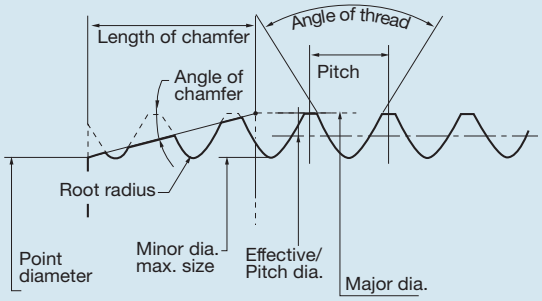
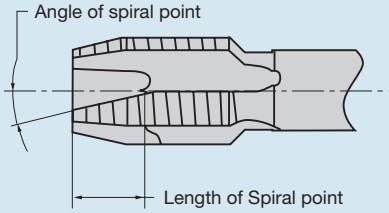
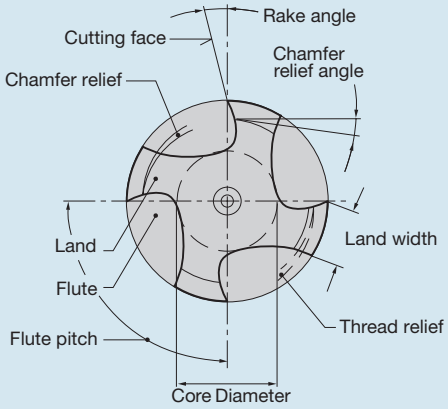
Tap Terms



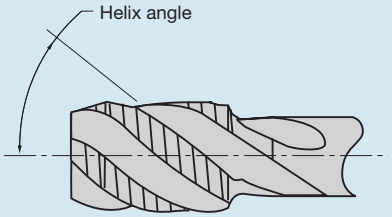


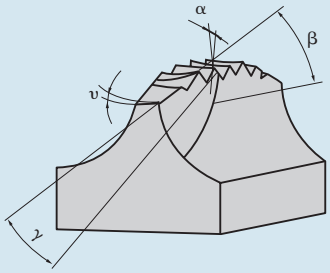
Design with spiral point for through-holes





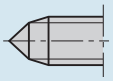
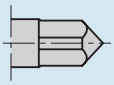
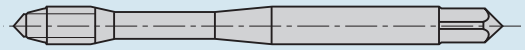
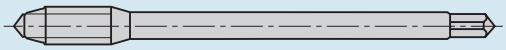
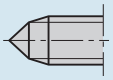
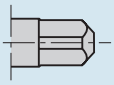
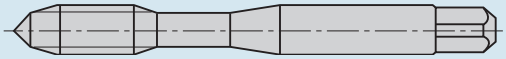
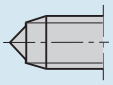
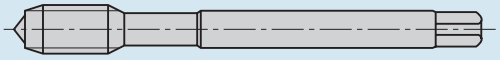
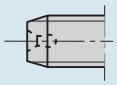
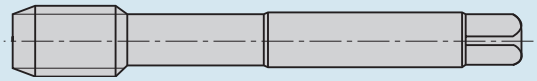
Design with helical flutes for blind holes

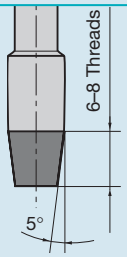
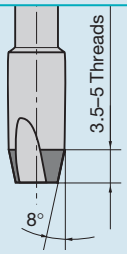
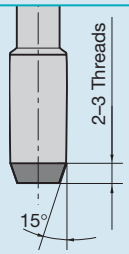
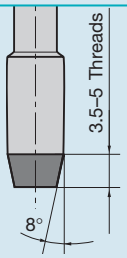
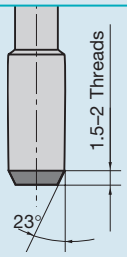
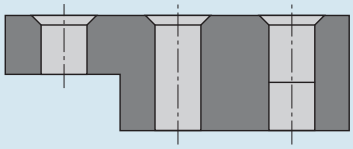
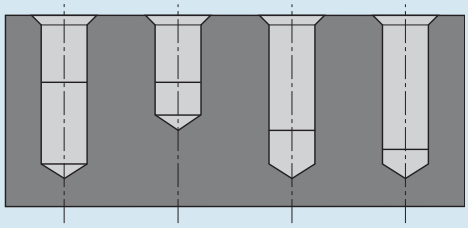




Geometry

- α Hook angle
- β Angle of chamfer, half countersinking angle
- γ Spiral point angle
- υ Chamfer relief

Front	Rear	Ø	DIN similar		Design
Full point 	Full point 	1–6 (#2–#12)	371	352 2181	
		2–6	374	376	
Full point 	Centering chamfer 	6 – 10 (1/4"–3/8")	371		
Recessed point 	Centering hole	8 – 10	374	376	
Centering hole 	Centering hole	> 10 (7/16"–2") ≤ 7	374 352	376 2181	

Chamfer Forms	
	**Form A (Taper)** Long taper 6- to 8-threads for through holes
	**Form B (Plug)** Medium taper 3.5- to 5-threads with spiral point for through holes
	**Form C (Modified Bottom)** Short taper 2- to 3-threads for blind holes
	**Form D (Plug)** Medium taper 3.5- to 5-threads for through and blind holes with long runout
	**Form E (Full Bottom)** Short taper 1.5- to 2-threads for through and blind holes with short runout
Through Holes 	**Blind Holes** 

ISO	Germany		U.S.A.	France	Italy	Great Britain	
	Material No.	DIN	AISI/SAE	AFNOR	UNI	BS	EN
	Construction steels						
	1.0050	St50	A570Gr50	A50-2	Fe490	Fe490-2FN	–
	1.0501	C35	1035	CC35	C35	060A35	–
	1.0503	C45	1045	CC45	C45	080M46	–
	1.0601	C60	1060	CC55	C60	080A62	43D
	1.0715	9SMn28	1213	S250	CF9SMn28	230M07	–
	1.0718	9SMnPb28	12L13	S250Pb	CF9SMnPb28	–	–
	1.0722	10SPb20	–	10PbF2	CF10SPb20	–	–
	1.1141	Ck15	1015	XC12	C16	080M15	32C
	1.1157	40Mn4	1039	35M5	–	150M36	15
	1.1158	Ck25	1025	–	–	–	–
	1.1167	36Mn5	1335	40M5	–	–	–
	1.1191	Ck45	1045	XC42	C45	080M46	–
	1.1203	Ck55	1055	XC55	C50	070M55	–
	1.1221	Ck60	1060	XC60	C60	080A62	43D
	1.1274	Ck101	1095	–	–	060A96	–
	1.3401	X120Mn12	–	Z120M12	G-X120Mn12	Z120M12	–
	1.3505	100Cr6	52100	100C6	100Cr6	534A99	31
	1.5026	100Cr6	9255	55S7	55Si8	250A53	45
	1.5415	15Mo3	ASTM A204Gr.A	15D3	16Mo3KW	1501-240	–
	1.5622	14Ni6	ASTM A350LF5	16N6	14Ni6	–	–
	1.5662	X8Ni9	ASTM A353	–	X10Ni9	1501-509;510	–
	1.5680	12Ni19	2515	Z18N5	–	–	–
	1.5710	36NiCr6	3135	35NC6	–	640A35	111A
	1.5752	14NiCr14	3415; 3310	12NC15	–	655M13 655A12	36A
	1.6511	36CrNiMo4	9840	40NCD3	38NiCrMo4(KB)	816M40	110
	1.6546	40NiCrMo22	8740	–	40NiCrMo2(KB)	311-Type 7	–
	1.6580	30CrNiMo8	–	30CrNiMo8	30CrNiMo8	–	–
	1.6587	17CrNiMo6	–	18NCD6	–	820A16	–
	1.6657	14NiCrMo134	–	–	15NiCrMo13	832M13	36C
	1.7015	15Cr3	5015	12C3	–	523M15	–
	1.7033	34Cr4	5132	32C4	34Cr4(KB)	530A32	18B
	1.7131	16MnCr5	5115	16MC5	16MnCr5	(527M20)	–
	1.7176	55Cr3	5155	55C3	–	527A60	48
	1.7218	25CrMo4	4130	25CD4	25CrMo4(KU)	1717CDS110	–
	1.7220	34CrMo4	4137; 4135	35CD4	35CrMo4	708A37	19B
	1.7225	42CrMo4	4140	42CD4	42CrMo4	708M40	19A
	1.7335	13CrMo4 4	ASTM A182 F11 F12	15CD3.5 15CD4.5	14CrMo4 5	1501-620Gr27	–
	1.7361	32CrMo12	–	30CD12	32CrMo12	722M24	40B
	1.7380	10CrMo9 10	ASTM A182 F.22	12CD9, 10	12CrMo9, 10	1501-622 Gr.31;45	–
	1.7715	14MoV6 3	–	–	–	1503-660-440	–
	1.8159	50CrV4	6150	50CV4	50CrV4	735A50	47
	1.8504	34CrAl6	–	–	–	–	–
	1.8509	41CrAlMo7	–	40CAD6, 12	41CrAlMo7	905M39	41B
	1.8523	39CrMoV13 9	–	–	36CrMoV12	897M39	40C

ISO	Germany		U.S.A.	France	Italy	Great Britain	
	Material No.	DIN	AISI/SAE	AFNOR	UNI	BS	EN
	Tool steels						
	1.1545	C105W1	–	Y1105	C98KU	–	–
				C100KU			
	1.2067	100Cr6	L3	Y100C6	–	BL3	–
	1.2080	X210Cr12	D3	Z200C12	X210Cr13KU	BD3	–
				X250Cr12KU			
	1.2343	X38CrMoV5 1	H11	Z38CDV5	X37CrMoV51(KU)	BH11	–
	1.2344	X40CrMoV5 1	H13	Z40CDV5	X35CrMoV05KU	BH13	–
				X40CrMoV511KU			
	1.2363	X100CrMoV 5 1	A2	Z100CDV5	X100CrMoV51KU	BA2	–
	1.2379	X155CrVMo12 1	D2	Z160CDV12	X155CrVMo121(KU)	BD2	–
	1.2419	105WCr6	–	105WC13 107WCr5KU	10WCr6	–	–
	1.2436	X210CrW12	–	–	X215CrW12 1KU	–	–
	1.2542	45WCrV7	S1	–	45WCrV8KU	BS1	–
	1.2581	X30WCrV9 3	H21	Z30WCV9 X30WCrV9 3KU	X28W09KU	BH21	–
	1.2601	X165CrMoV12	–	–	X165CrMoW12KU	–	–
	1.2713	55NiCrMoV6	L6	55NCDV7	–	–	–
	1.2833	100V1	W210	Y1105V	–	BW2	–
	1.3243	S 6-5-2-5	– 06-05-05-04-02	Z85WDKCV	HS 6-5-2-5	– –	–
	Stainless steels						
	1.4016	X8Cr17	430	Z8C17	X8Cr17	430S15	60
	1.4027	G-X20Cr14	–	Z20C13M	–	420C29	56B
	1.4034	X46Cr13	– Z38C13M	Z40CM	X40Cr14	420S45	56D
	1.4057	X22CrNi17	431	Z15CNi6.02	X16CrNi16	431S29	57
	1.4104	X12CrMoS17	430F	Z10CF17	X10CrS17	–	–
	1.4113	X6CrMo17	434	Z8CD17.01	X8CrMo17	434S17	–
	1.4122	X35CrMo17	–	–	–	–	–
	1.4313	X5CrNi13 4	–	Z4CND13.4M	–	425C11	–
	1.4718	X45CrSi9 3	HW3	Z45CS 9	X45CrSi8	401S45	52
	1.4724	X10CrAl13	405	Z10C13	X10CrAl12	403S17	–
	1.4742	X10CrAl18	430	Z10CAS18	X8Cr17	430S15	60
	1.4747	X80CrNiSi20	HNV6	Z80CSN20.02	X80CrSiNi20	443S65	59
	1.4762	X10CrAl24	446	Z10CAS24	X16Cr26	–	–
	1.4871	X53CrMnNiN 219	EV8	Z52CMN21.09	X53CrMnNiN21 9	349S54	–

ISO	Germany		U.S.A.	France	Italy	Great Britain	
	Material No.	DIN	AISI/SAE	AFNOR	UNI	BS	EN
	1.4301	X5CrNi189	304	Z6CN18.09	X5CrNi18 10	304S15	58E
	1.4305	X12CrNiS18 8	303	Z10CNF18.09	X10CrNiS 18.09	303S21	58M
	1.4308	G-X6CrNi18 9	–	Z6CN18.10M	–	304C15	–
	1.4311	X2CrNiN 18 10	304LN	Z2CN18.10	–	304S62	–
	1.4362	X2CrNiN 23 4	S32304	–	–	–	–
	1.4401	X5CrNiMo 18 10	316	Z6CND17.11	X5CrNiMo17 12	316S16	–
	1.4408	G-X6CrNiMo 18 10	–	–	–	316C16	–
	1.4417	X2CrNiMoSi 19 5	S31500	–	–	–	–
	1.4429	X2CrNiMoN 18 13	316LN	Z2CND17.13	–	–	–
	1.4438	X2CrNiMo18 16	317L	Z2CND19.15	X2CrNiMo18 16	317S12	–
	1.4460	X8CrNiMo27 5	S32900	–	–	–	–
	1.4462	X2CrNiMoN 22 53	S31803	–	–	–	–
	1.4541	X10CrNiTi 18 9	321	Z6CNT18.10	X6CrNiTi18 11	2337	321S12
	1.4542	X5CrNiCuNb174	J467	–	–	–	–
	1.4550	X10CrNiNb 18 9	347	Z6CNNb18.10	X6CrNiNb18 11	347S17	58F
	1.4571	X10CrNiMo18 10	316Ti	Z6NDT17.12	X6CrNiMoTi1712	320S17	58J
	1.4581	G-X5CrNi	–	Z4CNDNb	XG8CrNiMo	318C17	–
		MoNb 18 10		18 12M	18 11		–
	1.4583	X10CrNi	318	Z6CNDNb	X6CrNiMoNb	–	–
		MoNb 18 12		17 13B	17 13		–
	1.4828	X15CrNiSi20 12	309	Z15CNS20.12	–	309S24	–
	1.4845	X12CrNi25 21	310S	Z12CN25 20	X6CrNi25 20	310S24	–
	1.4864	X12NiCrSi36 16	330	Z12NCS35.16	–	–	–
	1.4865	G-X40NiCrSi38 18	–	–	XG50NiCr39 19	330C11	–
	1.4878	X12CrNiTi18 9	321	Z6CNT18.12B	X6CrNiTi1811	32S12	58B
				189		321S20	58C
	Grey cast iron (plain carbon)						
	0.6015	GG15	No 25B	Ft 15 D	–	Grade 150	–
	0.6025	GG25	No 35B	Ft 25 D	–	Grade 260	–
	0.6035	GG35	No 50B	Ft 35 D	–	Grade 350	–
	0.6040	GG40	No 55B	Ft 40 D	–	Grade 400	–
	Grey cast iron (alloy)						
	0.6660	GGL-NiCr 20 2	A436-72	L-NC 20 2	–	L-NiCr 20 2	–
	0.6678	GGL-NiCr 35 2	–	–	–	–	–
	Spheroidal graphite cast iron (plain carbon)						
	0.7040	GGG 40	60-40-18	FCS 400-12	–	SNG 420/12	–
	0.7060	GGG 60	–	FGS 600-3		SNG 600/3	
	0.7070	GGG 70	100-70-03	FGS 700-2	–	SNG 700/2	–
	Spheroidal graphite cast iron (alloy)						
	0.7652	GGG NiMn 137	–	L-NM 137	–	L-NiMn 13 7	–
	0.7660	GGG NiCr 20 2	–	L-NC 20 2	–	L-NiMn 20 2	–
	Malleable cast iron						
	0.8135	GTS-35	32510	MN 35-10	–	B 340/12	–
	0.8155	GTS-55	50005	MP 50-5	–	P 510/4	–
	0.8170	GTS-70	–	IP 70-2	–	P 690	–

ISO	Germany		U.S.A.	France	Italy	Great Britain	
	Material No.	DIN	AISI/SAE	AFNOR	UNI	BS	EN
	Non-ferrous heavy metal alloys						
	2.0321	CuZn37(Ms63)					
	2.0402	CuZn40Pb2(Ms58)					
	2.0550	CuZn40Al2					
	2.0780	CuNi12Zn30Pb					
	2.0882	CuNi30Fe					
	2.0975	CuAl10Ni					
	2.1080	CuSn6Zn					
	2.1498	CuSP					
	2.3205	PbSb5					
	2.3290	PbSb9					
	Light metal alloys						
	3.1355	AlCuMg2					
	3.1645	AlCuMgPb					
	3.2581.01	G-AlSi12					
	3.3527	AlMg2Mn0,8					
	3.3535	AlMg3					
	3.4365	AlZnMgCu1,5					
	3.5161	MgZn6ZrF30					
	3.5312	MgAl3ZnF25					
	3.5912	G-MgAl9Zn1					
	3.7115	TiAl5Sn2,5					
	3.7165	TiAl6V4					
	3.7174	TiAl6V6Sn2					
	High-temperature alloys						
	Trade name						
	HS-27	NiCo32Cr26Mo					
	Hastelloy-C	NiCr17Ho17FeW					
	Inconel 718	NiCr19Fe19-NbMo					
	Lescalloy X 750	NiCr16FeTi					
	Nimonil PK 33	NiCr20Co16MoTi					
	Unitemp AF 1753	NiCr16Co8WAlTi					
	Vakumell ATS 240	NiCr20TiAl					
	Vakumelt ATS 393	NiCo10Cr9WAlTi					

Recommended Cutting Speeds (sfm) – Cut Taps

	Material	Materials	HRC	(N/mm²)	TiCN Plus	Magic	Full Speed	IQ Plus	HPT	NPT/ NPS	Cast Iron	Lubri-cation
	Low Carbon Steels	A36, 1005-1029	< 16	-700	100-130	50-65	115-145	100-130	90-120	120-160	45-60	Oil, Dry
	Free Steel	1213, 12L14	< 16	-700	100-130	50-65	145-195	100-130	135-165	120-160	45-60	Oil, Dry
	Medium Carbon	1030-1055, 4130	< 30	500-950	65-100	40-60	80-130	65-100	75-105	60-90	35-55	Oil, Dry
	Heat Treatable Steel, Medium Strength	4140, 6150	< 30	500-950	65-100	40-60	80-115	65-100	60-90	60-90	35-55	Oil, Dry
	Cast Steel		< 30	950	65-100	40-60	65-100	65-100	45-75	60-90	35-55	Oil, Dry
	Case Hardening Steel	5115, 8620	< 30	950	65-100	40-60	115-165	65-100	105-135	60-90	35-55	Oil, Dry
	Stainless Steel (Ferritic, Martensitic)	400 Series 17-4PH, 15-5PH	< 30	500-950	50-65	25-40	50-65	50-65	45-55	45-60	30-45	Oil
	Heat Treatable Steel	4140, 4340	30-44	950-1400	40-52	20-30	50-65	40-52	30-45	35-50	25-35	Oil
	Nitriding Steel		30-44	950-1400	40-52	20-30	50-65	40-52	30-45	35-50	25-35	Oil
	Tool Steel	A2, D2, H13, P20	30-44	950-1400	40-52	20-30	50-65	40-52	30-45	35-50	25-35	Oil
	Stainless (Austenitic)	303, 304, 316, Nitronic	< 30	500-950	40-50	20-25	50-65	40-50	30-55	50-65	25-30	Oil
	Grey Cast Ductile Iron	A159, J431, G3500	–	100-400	65-100	–	130-165	65-100	90-135	60-90	45-60	Oil, Dry
	Alloyed Grey Cast Iron	A436-725	–	150-250	65-100	–	115-150	65-100	90-120	60-90	45-60	Oil, Dry
	Nodular Cast Iron		< 23	400-800	80-130	–	100-165	80-130	105-135	75-120	60-90	Oil, Dry
	Malleable Cast Iron	A220, F2000, 5005	< 16	350-700	80-130	–	100-165	80-130	105-135	75-120	60-90	Oil, Dry
	Pure Metals, soft		–	-500	100-130	–	–	100-130	–	120-160	60-90	Oil
	Aluminum Alloys (Long Chips), Brass	6061T6, 6063, 7075	–	-550	65-100	–	130-165	65-100	105-135	60-90	45-60	Oil
	Aluminum Alloys (Short Chips), Brass	High Silicon AL	–	-400	80-115	–	100-130	80-115	75-105	75-105	45-60	Oil
	Copper Alloys (Long Chips)		< 16	300-700	65-100	–	115-150	65-100	75-105	60-90	45-60	Oil
	Copper Alloys (Short Chips)		–	-500	65-100	–	–	65-100	75-105	60-90	45-60	Oil
	Magnesium Alloys			160-300	100-130	–	–	100-130	–	120-160	60-90	Oil, Dry
	Thermoplastics		–	40-70	100-130	–	–	100-130	–	120-160	60-90	Oil, Dry
	Duroplastics			20-40	65-100	–	–	65-100	–	60-90	30-45	Dry
	Graphite											
	Titanium Alloys (Medium Strength)	6AL4V	< 30	-950	20-30	–	–	20-30	–	18-30	12-24	Oil
	Titanium Alloys (High Strength)		28-44	900-1400	20-30	–	–	20-30	–	18-30	6-18	Oil
	Nickel Alloys (Medium Strength)	A286	< 30	-950	20-30	–	–	20-30	–	18-30	12-24	Oil
	Nickel Alloys (High Strength)	Inconel 718, Hastelloy, Monel	28-44	900-1400	20-30	–	–	20-30	–	18-30	6-18	Oil
	Chilled Cast Iron		30-60	300-600 HB	20-25	–	–	20-25	–	18-24	6-12	Oil

Cutting speeds in this table should be used only as a guide.

Proper SFM may need to be adjusted based on the material hardness.

Recommended Cutting Speeds (sfm) – Form Taps

	Material	Materials	HRC	(N/mm²)	TiCN Plus	Full Speed	Carbide	HPF	Lubrication
	Low Carbon Steels	A36, 1005-1029	< 16	-700	100-130	115-145	115-165	65-265	Oil, Dry
	Free Steel	1213, 12L14	< 16	-700	100-130	145-195	115-165	65-265	Oil, Dry
	Medium Carbon	1030-1055, 4130	< 30	500-950	65-100	80-130	100-130	65-265	Oil, Dry
	Heat Treatable Steel, Medium Strength	4140, 6150	< 30	500-950	65-100	80-115	80-115	65-265	Oil, Dry
	Cast Steel		< 30	950	65-100	65-100	80-115	65-265	Oil, Dry
	Case Hardening Steel	5115, 8620	< 30	950	–	–	–	65-265	Oil, Dry
	Stainless Steel (Ferritic, Martensitic)	400 Series 17-4PH, 15-5PH	< 30	500-950	65-100	65-115	80-115	30-165	Oil
	Heat Treatable Steel	4140, 4340	30-44	950-1400	–	–	–	–	Oil
	Nitriding Steel		30-44	950-1400	–	–	–	–	Oil
	Tool Steel	A2, D2, H13, P20	30-44	950-1400	–	–	–	–	Oil
	Stainless (Austenitic)	303, 304, 316, Nitronic	< 30	500-950	33-65	50-65	–	30-150	Oil
	Grey Cast Ductile Iron	A159, J431, G3500	–	100-400	–	–	–	–	Oil, Dry
	Alloyed Grey Cast Iron	A436-725	–	150-250	–	–	–	–	Oil, Dry
	Nodular Cast Iron		< 23	400-800	100-165	100-165	–	–	Oil, Dry
	Malleable Cast Iron	A220, F2000, 5005	< 16	350-700	100-165	100-165	–	–	Oil, Dry
	Pure Metals, soft		–	-500	100-130	115 -150	130-200	100-265	Oil
	Aluminum Alloys (Long Chips), Brass	6061T6, 6063, 7075	–	-550	65-100	130-165	115-165	100-265	Oil
	Aluminum Alloys (Short Chips), Brass	High Silicon AL	–	-400	–	–	–	–	Oil
	Copper Alloys (Long Chips)		< 16	300-700	65-100	115 -150	100-150	65-265	Oil
	Copper Alloys (Short Chips)		–	-500	–	–	–	–	Oil
	Magnesium Alloys			160-300	100-130	115-165	130-165	80-265	Oil, Dry
	Thermoplastics		–	40-70	100-130	115 -150	130-200	130-265	Oil, Dry
	Duroplastics			20-40	–	–	–	30-130	Dry
	Graphite						–	–	
	Titanium Alloys (Medium Strength)	6AL4V	< 30	-950	20-30	20-30	–	30-130	Oil
	Titanium Alloys (High Strength)		28-44	900-1400	–	–	–	–	Oil
	Nickel Alloys (Medium Strength)	A286	< 30	-950	20-30	20-30	–	30-130	Oil
	Nickel Alloys (High Strength)	Inconel 718, Hastelloy, Monel	28-44	900-1400	–	–	–	–	Oil
	Chilled Cast Iron		30-60	300-600 HB	–	–	–	–	Oil

Cutting speeds in this table should be used only as a guide.
Proper SFM may need to be adjusted based on the material hardness.

Comparison Chart for Material Hardness (Approximate)

Rockwell C HRC	Rockwell B HRB	Rockwell D HRD	Brinell (10mm Carbide Ball) BHN	Diamond Pyramid (Vickers) (HV)	Tensile Strength N/mm²
68	–	76.9	–	940	–
67	–	76.1	–	900	–
66	–	75.4	–	865	–
65	–	74.5	739	832	–
64	–	73.8	722	800	–
63	–	73.0	705	772	–
62	–	72.2	688	746	–
61	–	71.5	670	720	–
60	–	70.7	654	697	–
59	–	69.9	634	674	–
58	–	69.2	615	653	–
57	–	68.5	595	633	–
56	–	67.7	577	613	–
55	–	66.9	560	595	2079
54	–	66.1	543	577	2010
53	–	65.4	525	560	1952
52	–	64.6	512	544	1883
51	–	63.8	496	528	1824
50	–	63.1	481	513	1755
49	–	62.1	469	498	1687
48	–	61.4	455	484	1638
47	–	60.8	443	471	1579
46	–	60.0	432	458	1530
45	–	59.2	421	446	1481
44	–	58.5	409	434	1432
43	–	57.7	400	423	1383
42	–	56.9	390	412	1334
41	–	56.2	381	402	1294
40	–	55.4	371	392	1245
39	–	54.6	362	382	1216
38	–	53.8	353	372	1177
37	–	53.1	344	363	1157
36	109.0	52.3	336	354	1118
35	108.5	51.5	327	345	1079
34	108.0	50.8	319	336	1059
33	107.5	50.0	311	327	1030
32	107.0	49.2	301	318	1000
31	106.0	48.4	294	310	981
30	105.5	47.7	286	302	951
29	104.5	47.0	279	294	932
28	104.0	46.1	271	286	912
27	103.0	45.2	264	279	883
26	102.5	44.6	258	272	863
25	101.5	43.8	253	266	843
24	101.0	43.1	247	260	824
23	100.0	42.1	243	254	804
22	99.0	41.6	237	248	785
21	98.5	40.9	231	243	775
20	97.8	40.1	226	238	755
18	96.7	–	219	230	736
16	95.5	–	212	222	706
14	93.9	–	203	213	677
12	92.3	–	194	204	647
10	90.7	–	187	196	618
8	89.5	–	179	188	598
6	87.1	–	171	180	579
4	85.5	–	165	173	549
2	83.5	–	158	166	530
0	81.7	–	152	160	520

Cutting Speed Chart (SFM to RPM)

Tap Sizes			Surface Feet per Minute												
UNC, UNF	Metric	Deci-mal	30	40	50	60	70	80	90	100	110	120	130	140	150
# 0	M1.6	0.0600	1,910	2,547	3,183	3,820	4,457	5,093	5,730	6,367	7,003	7,640	8,277	8,913	9,550
# 1		0.0730	1,570	2,093	2,616	3,140	3,663	4,186	4,710	5,233	5,756	6,279	6,803	7,326	7,849
# 2	M2	0.0860	1,333	1,777	2,221	2,665	3,109	3,553	3,998	4,442	4,886	5,330	5,774	6,219	6,663
# 3	M2.6	0.0990	1,158	1,543	1,929	2,315	2,701	3,087	3,473	3,859	4,244	4,630	5,016	5,402	5,788
# 4		0.1120	1,023	1,364	1,705	2,046	2,388	2,729	3,070	3,411	3,752	4,093	4,434	4,775	5,116
# 5	M3	0.1250	917	1,222	1,528	1,834	2,139	2,445	2,750	3,056	3,362	3,667	3,973	4,278	4,584
# 6	M3.5	0.1380	830	1,107	1,384	1,661	1,938	2,214	2,491	2,768	3,045	3,322	3,599	3,875	4,152
# 8	M4	0.1640	699	932	1,165	1,398	1,630	1,863	2,096	2,329	2,562	2,795	3,028	3,261	3,494
# 10	M5	0.1900	603	804	1,005	1,206	1,407	1,608	1,809	2,011	2,212	2,413	2,614	2,815	3,016
# 12	M5.5	0.2160	531	707	884	1,061	1,238	1,415	1,592	1,769	1,945	2,122	2,299	2,476	2,653
1/4"	M6	0.2500	458	611	764	917	1,070	1,222	1,375	1,528	1,681	1,834	1,986	2,139	2,292
5/16"	M8	0.3125	367	489	611	733	856	978	1,100	1,222	1,345	1,467	1,589	1,711	1,834
3/8"	M10	0.3750	306	407	509	611	713	815	917	1,019	1,121	1,222	1,324	1,426	1,528
7/16"	M11	0.4375	262	349	437	524	611	699	786	873	960	1,048	1,135	1,222	1,310
1/2"	M12	0.5000	229	306	382	458	535	611	688	764	840	917	993	1,070	1,146
9/16"	M14	0.5625	204	272	340	407	475	543	611	679	747	815	883	951	1,019
5/8"	M16	0.6250	183	244	306	367	428	489	550	611	672	733	795	856	917
3/4"	M18	0.7500	153	204	255	306	357	407	458	509	560	611	662	713	764
7/8"	M22	0.8750	131	175	218	262	306	349	393	437	480	524	568	611	655
1"	M25	1.0000	115	153	191	229	267	306	344	382	420	458	497	535	573
1/16" NPT		0.3058	375	500	625	750	874	999	1,124	1,249	1,374	1,499	1,624	1,749	1,874
1/8" NPT		0.3983	288	384	480	575	671	767	863	959	1,055	1,151	1,247	1,343	1,439
1/4" NPT		0.5286	217	289	361	434	506	578	650	723	795	867	939	1,012	1,084
3/8" NPT		0.6640	173	230	288	345	403	460	518	575	633	690	748	805	863
1/2" NPT		0.8260	139	185	231	277	324	370	416	462	509	555	601	647	694
3/4" NPT		1.0364	111	147	184	221	258	295	332	369	405	442	479	516	553
1" NPT		1.2965	88	118	147	177	206	236	265	295	324	354	383	412	442
1-1/4" NPT		1.6412	70	93	116	140	163	186	209	233	256	279	303	326	349
1-1/2" NPT		1.8803	61	81	102	122	142	163	183	203	223	244	264	284	305
2" NPT		2.3542	49	65	81	97	114	130	146	162	178	195	211	227	243

Other Formulas

RPM = (3.82 × SFM) / Diameter

SFM = (RPM × Diameter) / 3.82

Feedrate (Inch Sizes) = RPM / Threads Per Inch

Feedrate (Metric Sizes) = (Pitch / 25.4) × RPM

Chamfer Length (Inch Sizes) = (1 / Pitch) × Chamfer (Example: 1.5 – 2)

Chamfer Length (Metric Sizes) = Pitch × Chamfer / 25.4

Tap Recommendations for Class 2B and 3B
Unified Inch Screw Threads – Cut Taps

Tap Sizes UNC / UNF	Classes of Fit		Internal Pitch Diameter Limits		
	Class 2B	Class 3B	Basic P.D.	Max. 2B	Max. 3B
4-40	H2	H2	0.0958	0.0991	0.0982
4-48	H2	H1	0.0985	0.1016	0.1008
5-40	H2	H2	0.1088	0.1121	0.1113
5-44	H2	H1	0.1102	0.1134	0.1126
6-32	H3	H2	0.1177	0.1214	0.1204
6-40	H2	H2	0.1218	0.1252	0.1243
8-32	H3	H2	0.1437	0.1475	0.1465
8-36	H2	H2	0.1460	0.1496	0.1487
10-24	H3	H3	0.1629	0.1672	0.1661
10-32	H3	H2	0.1697	0.1736	0.1726
12-24	H3	H3	0.1889	0.1933	0.1922
12-28	H3	H3	0.1928	0.1970	0.1959
1/4-20	H5	H3	0.2175	0.2224	0.2211
1/4-28	H4	H3	0.2268	0.2311	0.2300
5/16-18	H5	H3	0.2764	0.2817	0.2803
5/16-24	H4	H3	0.2854	0.2902	0.2890
3/8-16	H5	H3	0.3344	0.3401	0.3387
3/8-24	H4	H3	0.3479	0.3528	0.3516
7/16-14	H5	H3	0.3911	0.3972	0.3957
7/16-20	H5	H3	0.4050	0.4104	0.4091
1/2-13	H5	H3	0.4500	0.4565	0.4548
1/2-20	H5	H3	0.4675	0.4731	0.4717
9/16-12	H5	H3	0.5084	0.5152	0.5135
916-18	H5	H3	0.5264	0.5323	0.5308
5/8-11	H5	H3	0.5660	0.5732	0.5714
5/8-18	H5	H3	0.5889	0.5949	0.5934
3/4-10	H5	H5	0.6850	0.6927	0.6907
3/4-16	H5	H3	0.7094	0.7159	0.7143
7/8-9	H6	H4	0.8028	0.8110	0.8089
7/8-14	H6	H4	0.8286	0.8356	0.8339
1-8	H6	H4	0.9188	0.9276	0.9254
1-12	H6	H4	0.9459	0.9535	0.9516

LMT Fette manufactures all UNC and UNF taps to a 3B tolerance.

Although the Pitch Diameter Limits for Class 2B are slightly higher than Class 3B in some cases, the “GO” gage limits for 2B and 3B are equal to the Basic Pitch Diameter and therefore the same. Because of this, Class 3B taps can be used in both 2B and 3B applications.

Formula to calculate pitch diameter based on the H Limit (For sizes 1" and under):

H1 = Basic P.D. to Basic P.D. Plus .0005"
H2 = Basic P.D. Plus .0005" to Basic P.D. Plus .001"
H3 = Basic P.D. Plus .001" to Basic P.D. Plus .0015"
H4 = Basic P.D. Plus .0015" to Basic P.D. Plus .002"
H5 = Basic P.D. Plus .002" to Basic P.D. Plus .0025"
H11 = Basic P.D. Plus .005" to Basic P.D. Plus .0055"

For tap sizes larger than 1" up to 1-1/2"

H4 = Basic P.D. Plus .001" to Basic P.D. plus .002"

Unified Thread Limits and Tolerances (Ref. Table 331)

The following tables and formulas are used to determine the limits and tolerances of ground unified taps. They apply only to taps that have no more than a 5° lead angle.

Lead Tolerance

A maximum lead deviation of ±0.0005" within any two threads not farther than 1" apart is permitted.

Angle Tolerance

Threads Per Inch	Deviation (Half Angles)
10 to 80	30' plus or minus
6 to 9	25' plus or minus
4 to 5-1/2	20' plus or minus

Formulas

Min. Major Dia. = Max. Minus B
Max. Major Dia. = Basic plus A

Max. Pitch Dia. = Min. plus D
Min. Pitch Dia. = Basic plus C

A = Constant to add = 0.130 times P for all Pitches
B = Major diameter tolerance: 0.087P for 48 through 80 TPI
0.076P for 36 through 47 TPI
0.065P for 4 through 35 TPI
C = Amount over basic for minimum pitch diameter
D = Pitch diameter tolerance

Threads Per Inch	A	B	C			D			
			Up To 5/8"	Over 5/8" to 2-1/2"	Over 2-1/2"	Up To 1"	Over 1" to 1-1/2"	Over 1-1/2" to 2-1/2"	Over 2-1/2"
80	0.0016	0.0011	0.0005	0.0010	0.0015	0.0005	0.0010	0.0010	0.0015
72	0.0018	0.0012	0.0005	0.0010	0.0015	0.0005	0.0010	0.0010	0.0015
64	0.0020	0.0014	0.0005	0.0010	0.0015	0.0005	0.0010	0.0010	0.0015
56	0.0023	0.0016	0.0005	0.0010	0.0015	0.0005	0.0010	0.0010	0.0015
48	0.0027	0.0018	0.0005	0.0010	0.0015	0.0005	0.0010	0.0010	0.0015
44	0.0030	0.0017	0.0005	0.0010	0.0015	0.0005	0.0010	0.0010	0.0015
40	0.0032	0.0019	0.0005	0.0010	0.0015	0.0005	0.0010	0.0010	0.0015
36	0.0036	0.0021	0.0005	0.0010	0.0015	0.0005	0.0010	0.0010	0.0015
32	0.0041	0.0020	0.0010	0.0010	0.0015	0.0005	0.0010	0.0010	0.0015
28	0.0046	0.0023	0.0010	0.0010	0.0015	0.0005	0.0010	0.0010	0.0015
24	0.0054	0.0027	0.0010	0.0010	0.0015	0.0005	0.0010	0.0015	0.0015
20	0.0065	0.0032	0.0010	0.0010	0.0015	0.0005	0.0010	0.0015	0.0015
18	0.0072	0.0036	0.0010	0.0010	0.0015	0.0005	0.0010	0.0015	0.0015
16	0.0081	0.0041	0.0010	0.0010	0.0015	0.0005	0.0010	0.0015	0.0020
14	0.0093	0.0046	0.0010	0.0015	0.0015	0.0005	0.0010	0.0015	0.0020
13	0.0100	0.0050	0.0010	0.0015	0.0015	0.0005	0.0010	0.0015	0.0020
12	0.0108	0.0054	0.0010	0.0015	0.0015	0.0005	0.0010	0.0015	0.0020
11	0.0118	0.0059	0.0010	0.0015	0.0020	0.0005	0.0010	0.0015	0.0020
10	0.0130	0.0065	–	0.0015	0.0020	0.0005	0.0010	0.0015	0.0020
9	0.0144	0.0072	–	0.0015	0.0020	0.0005	0.0010	0.0015	0.0020
8	0.0162	0.0081	–	0.0015	0.0020	0.0005	0.0010	0.0015	0.0020
7	0.0186	0.0093	–	0.0015	0.0020	0.0010	0.0010	0.0020	0.0025
6	0.0217	0.0108	–	0.0015	0.0020	0.0010	0.0010	0.0020	0.0025

For intermediate pitches, use value for next coarser pitch for C & D, but use the formulas for A & B.

Tap Recommendations for Class 6H and 4H Metric Screw Threads – Cut Taps

Tap Sizes M / MF	Classes of Fit		Internal Pitch Diameter Limits		
	Class 6H	Class 4H	Basic P.D.	Max. 6H	Max. 4H
M3 x 0.5	D3	D1	2.675	2.775	2.738
M4 x 0.7	D4	D2	3.545	3.663	3.620
M5 x 0.8	D4	D2	4.480	4.605	4.560
M6 x 1.0	D5	D3	5.350	5.500	5.445
M8 x 1.0	D5	D3	7.350	7.500	7.445
M8 x 1.25	D5	D3	7.188	7.348	7.288
M10 x 1.0	D5	D3	9.350	9.500	9.445
M10 x 1.25	D5	D3	9.188	9.348	9.288
M10 x 1.5	D6	D3	9.026	9.206	9.138
M12 x 1.25	D5	D3	11.188	11.368	11.300
M12 x 1.5	D5	D3	11.026	11.216	11.144
M12 x 1.75	D6	D3	10.863	11.063	10.988
M14 x 1.25	D5	D3	13.188	13.368	13.300
M14 x 1.5	D6	D3	13.026	13.216	13.144
M14 x 2.0	D7	D3	12.701	12.913	12.833
M16 x 1.5	D6	D3	15.026	15.216	15.144
M16 x 2.0	D7	D4	14.701	14.913	14.833
M18 x 1.5	D6	D3	17.026	17.216	17.144
M18 x 2.0	D6	D4	16.701	16.913	16.833
M18 x 2.5	D7	D4	16.376	16.600	16.516
M20 x 1.5	D6	D3	19.026	19.216	19.144
M20 x 2.0	D6	D4	18.701	18.913	18.833
M20 x 2.5	D7	D4	18.376	18.600	18.516
M24 x 1.5	D5	D3	23.026	23.226	23.151
M24 x 2.0	D7	D4	22.701	22.925	22.841
M24 x 3.0	D8	D4	22.051	22.316	22.221
M27 x 2.0	D7	D5	25.701	25.925	25.841
M27 x 3.0	D8	D5	25.051	25.316	25.221
M30 x 3.0	D8	D5	28.051	28.316	28.221
M30 x 3.5	D9	D5	27.727	28.007	27.907
M36 x 3.0	D8	D5	34.051	34.316	34.221

"D Limits" are based on increments of 0.013mm. For example, taps with a D5 limit will be 0.065mm (0.013 × 5) oversized from the basic pitch diameter.

Maximum P.D. limit for D1 = Basic P.D. + (0.013 × 1)
Maximum P.D. limit for D2 = Basic P.D. + (0.013 × 2)
Maximum P.D. limit for D3 = Basic P.D. + (0.013 × 3)
Maximum P.D. limit for D4 = Basic P.D. + (0.013 × 4)
Maximum P.D. limit for D5 = Basic P.D. + (0.013 × 5)

For the full pitch diameter tolerance range, please refer to Table 341.

Metric Thread Limits and Tolerances (Ref. Table 341)

The following tables and formulas are used to determine the limits and tolerances of ground metric taps. They apply only to metric threads which have a 60° thread form with a P/8 flat at the major diameter of the basic thread form. All calculations are to be done in millimeters. If inch values are needed, they are to be translated from the 3 place millimeter tap diameters, only after the calculations are complete.

Lead Tolerance

A maximum lead deviation of ±0.013mm within any two threads not farther than 25mm apart is permitted.

Angle Tolerance

Pitch (mm)	Deviation (Half Angles)
over 0.25 to 2.50	30' plus or minus
over 2.50 to 4.00	25' plus or minus
over 4.00 to 6.00	20' plus or minus

Formulas

Min. Major Dia. = Basic plus W
Max. Major Dia. = Min. plus X
Max. Pitch Dia. = Basic plus Y
Min. Pitch Dia. = Max. minus Z

W = Constant to add to the Basic Major Diameter (0.080 times the pitch)
X = Tolerance of Major Diameter
Y = Amount over Basic for Maximum pitch diameter (multiples of 0.013mm)
Z = Pitch Diameter Tolerances

P Pitch (mm)	W (.08 x P)	X	Y				Z			
			M1.6 to M6.3	M6.3 to M25	M25 to M90	Over M90	M1.6 to M6.3	M6.3 to M25	M25 to M90	Over M90
0.3	0.024	0.025	0.039	0.039	0.052	0.052	0.015	0.015	0.020	0.020
0.35	0.028	0.025	0.039	0.039	0.052	0.052	0.015	0.015	0.020	0.020
0.4	0.032	0.025	0.039	0.052	0.052	0.052	0.015	0.015	0.020	0.025
0.45	0.036	0.025	0.039	0.052	0.052	0.052	0.015	0.020	0.020	0.025
0.5	0.040	0.025	0.039	0.052	0.052	0.065	0.015	0.020	0.025	0.025
0.6	0.048	0.025	0.052	0.052	0.065	0.065	0.020	0.020	0.025	0.025
0.7	0.056	0.041	0.052	0.052	0.065	0.065	0.020	0.020	0.025	0.025
0.75	0.060	0.041	0.052	0.065	0.065	0.078	0.020	0.025	0.025	0.031
0.8	0.064	0.041	0.052	0.065	0.065	0.078	0.020	0.025	0.025	0.031
0.9	0.072	0.041	0.052	0.065	0.065	0.078	0.020	0.025	0.025	0.031
1	0.080	0.041	0.065	0.065	0.078	0.078	0.025	0.025	0.031	0.031
1.25	0.100	0.064	0.065	0.065	0.078	0.091	0.025	0.031	0.031	0.041
1.5	0.120	0.064	0.065	0.078	0.078	0.091	0.025	0.031	0.031	0.041
1.75	0.140	0.064	–	0.078	0.091	0.104	–	0.031	0.041	0.041
2	0.160	0.064	–	0.091	0.091	0.104	–	0.041	0.041	0.041
2.5	0.200	0.064	–	0.091	0.104	0.117	–	0.041	0.041	0.052
3	0.240	0.100	–	0.104	0.104	0.130	–	0.041	0.052	0.052
3.5	0.280	0.100	–	0.104	0.117	0.130	–	0.041	0.052	0.052
4	0.320	0.100	–	0.104	0.117	0.143	–	0.052	0.052	0.064
4.5	0.360	0.100	–	–	0.130	0.143	–	0.052	0.052	0.064
5	0.400	0.100	–	–	0.130	0.156	–	–	0.064	0.064
5.5	0.440	0.100	–	–	0.143	0.156	–	–	0.064	0.064
6	0.480	0.100	–	–	0.143	0.156	–	–	0.064	0.064

For intermediate pitches, use value for next coarser pitch for Y & Z, but use the formulas for W & X.

Decimal Equivalents – Wire, Letter, Fractional and Metric Sizes

Decimal	W/L/F	mm
0.0059	97	0.150
0.0063	96	0.160
0.0067	95	0.170
0.0071	94	0.180
0.0075	93	0.191
0.0079	92	0.201
0.0083	91	0.211
0.0087	90	0.221
0.0091	89	0.231
0.0095	88	0.241
0.0098		0.249
0.0100	87	0.254
0.0105	86	0.267
0.0110	85	0.279
0.0115	84	0.292
0.0118		0.300
0.0120	83	0.305
0.0125	82	0.318
0.0126		0.320
0.0130	81	0.330
0.0135	80	0.343
0.0138		0.351
0.0145	79	0.368
0.0156	1/64"	0.396
0.0157		0.399
0.0160	78	0.406
0.0177		0.450
0.0180	77	0.457
0.0197		0.500
0.0200	76	0.508
0.0210	75	0.533
0.0217		0.551
0.0225	74	0.572
0.0236		0.599
0.0240	73	0.610
0.0250	72	0.635
0.0256		0.650
0.0260	71	0.660
0.0276		0.701
0.0280	70	0.711
0.0292	69	0.742
0.0295		0.749
0.0310	68	0.787
0.0312	1/32"	0.792
0.0315		0.800
0.0320	67	0.813
0.0330	66	0.838
0.0335		0.851
0.0350	65	0.889
0.0354		0.899
0.0360	64	0.914
0.0370	63	0.940
0.0374		0.950
0.0380	62	0.965
0.0390	61	0.991
0.0394		1.001
0.0400	60	1.016
0.0410	59	1.041
0.0413		1.049
0.0420	58	1.067
0.0430	57	1.092
0.0433		1.100
0.0453		1.151
0.0465	56	1.181
0.0469	3/64"	1.191
0.0472		1.199
0.0492		1.250
0.0512		1.300
0.0520	55	1.321
0.0531		1.349
0.0550	54	1.397
0.0551		1.400
0.0571		1.450

Decimal	W/L/F	mm
0.0591		1.501
0.0595	53	1.511
0.0610		1.549
0.0625	1/16"	1.588
0.0630		1.600
0.0635	52	1.613
0.0650		1.651
0.0669		1.699
0.0670	51	1.702
0.0689		1.750
0.0700	50	1.778
0.0709		1.801
0.0728		1.849
0.0730	49	1.854
0.0748		1.900
0.0760	48	1.930
0.0768		1.951
0.0781	5/64"	1.984
0.0785	47	1.994
0.0787		1.999
0.0807		2.050
0.0810	46	2.057
0.0820	45	2.083
0.0827		2.101
0.0846		2.149
0.0860	44	2.184
0.0866		2.200
0.0886		2.250
0.0890	43	2.261
0.0906		2.301
0.0925		2.350
0.0935	42	2.375
0.0938	3/32"	2.383
0.0945		2.400
0.0960	41	2.438
0.0965		2.451
0.0980	40	2.489
0.0984		2.499
0.0995	39	2.527
0.1015	38	2.578
0.1024		2.601
0.1040	37	2.642
0.1063		2.700
0.1065	36	2.705
0.1083		2.751
0.1094	7/64"	2.779
0.1100	35	2.794
0.1102		2.799
0.1110	34	2.819
0.1130	33	2.870
0.1142		2.901
0.1160	32	2.946
0.1181		3.000
0.1200	31	3.048
0.1220		3.099
0.1250	1/8"	3.175
0.1260		3.200
0.1280		3.251
0.1285	30	3.264
0.1299		3.299
0.1339		3.401
0.1360	29	3.454
0.1378		3.500
0.1405	28	3.569
0.1406	9/64"	3.571
0.1417		3.599
0.1440	27	3.658
0.1457		3.701
0.1470	26	3.734
0.1476		3.749
0.1495	25	3.797
0.1496		3.800
0.1520	24	3.861
0.1535		3.899

Decimal	W/L/F	mm
0.1540	23	3.912
0.1562	5/32"	3.967
0.1570	22	3.988
0.1575		4.001
0.1590	21	4.039
0.1610	20	4.089
0.1614		4.100
0.1654		4.201
0.1660	19	4.216
0.1673		4.249
0.1693		4.300
0.1695	18	4.305
0.1719	11/64"	4.366
0.1730	17	4.394
0.1732		4.399
0.1770	16	4.496
0.1772		4.501
0.1800	15	4.572
0.1811		4.600
0.1820	14	4.623
0.1850	13	4.699
0.1870		4.750
0.1875	3/16"	4.763
0.1890	12	4.801
0.1910	11	4.851
0.1929		4.900
0.1935	10	4.915
0.1960	9	4.978
0.1969		5.001
0.1990	8	5.055
0.2008		5.100
0.2010	7	5.105
0.2031	13/64"	5.159
0.2040	6	5.182
0.2047		5.199
0.2055	5	5.220
0.2067		5.250
0.2087		5.301
0.2090	4	5.309
0.2126		5.400
0.2130	.	5.410
0.2165		5.499
0.2188	7/32"	5.558
0.2205		5.601
0.2210	2	5.613
0.2244		5.700
0.2264		5.751
0.2280	1	5.791
0.2283		5.799
0.2323		5.900
0.2340	A	5.944
0.2344	15/64"	5.954
0.2362		5.999
0.2380	B	6.045
0.2402		6.101
0.2420	C	6.147
0.2441		6.200
0.2460	D	6.248
0.2461		6.251
0.2480		6.299
0.2500	1/4" (E)	6.350
0.2520		6.401
0.2559		6.500
0.2570	F	6.528
0.2598		6.599
0.2610	G	6.629
0.2638		6.701
0.2656	17/64"	6.746
0.2657		6.749
0.2660	H	6.756
0.2677		6.800
0.2717		6.901
0.2720	I	6.909

Decimal	W/L/F	mm
0.2756		7.000
0.2770	J	7.036
0.2795		7.099
0.2810	K	7.137
0.2812	9/32"	7.142
0.2835		7.201
0.2854		7.249
0.2874		7.300
0.2900	L	7.366
0.2913		7.399
0.2950	M	7.493
0.2953		7.501
0.2969	19/64"	7.541
0.2992		7.600
0.3020	N	7.671
0.3031		7.699
0.3051		7.750
0.3071		7.800
0.3110		7.899
0.3125	5/16"	7.938
0.3150		8.001
0.3160	O	8.026
0.3189		8.100
0.3228		8.199
0.3230	P	8.204
0.3248		8.250
0.3268		8.301
0.3281	21/64"	8.334
0.3307		8.400
0.3320	Q	8.433
0.3346		8.499
0.3386		8.600
0.3390	R	8.611
0.3425		8.700
0.3438	11/32"	8.733
0.3445		8.750
0.3465		8.801
0.3480	S	8.839
0.3504		8.900
0.3543		8.999
0.3580	T	9.093
0.3583		9.101
0.3594	23/64"	9.129
0.3622		9.200
0.3642		9.251
0.3661		9.299
0.3680	U	9.347
0.3701		9.401
0.3740		9.500
0.3750	3/8	9.525
0.3770	V	9.576
0.3780		9.601
0.3819		9.700
0.3839		9.751
0.3858		9.799
0.3860	W	9.804
0.3898		9.901
0.3906	25/64"	9.921
0.3937		10.000
0.3970	X	10.084
0.4016		10.201
0.4040	Y	10.262
0.4062	13/32"	10.317
0.4129	27/64"	10.488
0.4130	Z	10.490
0.4134		10.500
0.4252		10.800
0.4331		11.001
0.4375	7/16"	11.113
0.4409		11.199
0.4528		11.501
0.4531	29/64"	11.509
0.4646		11.801
0.4688	15/32"	11.908

Decimal	W/L/F	mm
0.4724		11.999
0.4803		12.200
0.4844	31/64"	12.304
0.4921		12.499
0.5000	1/2"	12.700
0.5039		12.799
0.5118		13.000
0.5156	33/64"	13.096
0.5197		13.200
0.5312	17/32"	13.492
0.5315		13.500
0.5433		13.800
0.5469	35/64"	13.891
0.5512		14.000
0.5610		14.249
0.5625	9/16"	14.288
0.5709		14.501
0.5781	37/64"	14.684
0.5807		14.750
0.5906		15.001
0.5938	19/32"	15.083
0.6004		15.250
0.6094	39/64"	15.479
0.6102		15.499
0.6201		15.751
0.6250	5/8"	15.875
0.6299		15.999
0.6398		16.251
0.6406	41/64"	16.271
0.6496		16.500
0.6562	21/32"	16.667
0.6598		16.759
0.6693		17.000
0.6719	43/64"	17.066
0.6791		17.249
0.6875	11/16"	17.463
0.6890		17.501
0.7031	45/64"	17.859
0.7087		18.001
0.7188	23/32"	18.258
0.7283		18.499
0.7344	47/64"	18.654
0.7480		18.999
0.7500	3/4"	19.050
0.7656	49/64"	19.446
0.7677		19.500
0.7812	25/32"	19.842
0.7874		20.000
0.7969	51/64"	20.241
0.8071		20.500
0.8125	13/16"	20.638
0.8268		21.001
0.8281	53/64"	21.034
0.8438	27/32"	21.433
0.8465		21.501
0.8594	55/64"	21.829
0.8661		21.999
0.8750	7/8"	22.225
0.8858		22.499
0.8906	57/64"	22.621
0.9055		23.000
0.9062	29/32"	23.017
0.9219	59/64"	23.416
0.9252		23.500
0.9375	15/16"	23.813
0.9449		24.000
0.9531	61/64"	24.209
0.9646		24.501
0.9688	31/32"	24.608
0.9843		25.001
0.9844	63/64"	25.004
1.0000	1"	25.400

Drilled Holes for Tapping

Frictional wear reduces tap life and increases the amount of torque required to thread the material, so it is always a good idea to use the largest possible drill size. It is recommended to use a drill size that will produce a minor diameter resulting in the lowest possible percentage of full thread which will provide adequate strength (65% of thread is sufficient for most applications).

Material	General Purpose	Deep Hole Tapping	Sheet Metal
Carbon Steels	65%–70%	60%–70%	75%–80%
Cast Iron			
Tool Steels			
Non Ferrous Alloys			
High Strength Steels	60%–70%	55%–65%	N/A
Nickel Alloys			
Stainless Steels			
High Temp. Alloys			

Formula for Obtaining Drill Sizes for Cutting Taps

$$\text{Drilled Hole (Inch Sizes)} = \text{Basic Major Diameter of Thread (Decimal)} - 0.013 \times \frac{\text{\% of Full Thread}}{\text{Threads Per Inch}}$$

$$\text{Drilled Hole (Metric Sizes)} = \text{Basic Major Diameter of Thread (Millimeters)} - \frac{\text{\% of Full Thread} \times \text{mm Pitch}}{76.98}$$

Formula for Obtaining Drill Sizes for Forming Taps

$$\text{Drilled Hole (Inch Sizes)} = \text{Basic Major Diameter of Thread (Decimal)} - 0.0068 \times \frac{\text{\% of Full Thread}}{\text{Threads Per Inch}}$$

$$\text{Drilled Hole (Metric Sizes)} = \text{Basic Major Diameter of Thread (Millimeters)} - \frac{\text{\% of Full Thread x mm Pitch}}{147.06}$$

Formula for Obtaining Percentage of Full Thread Based on a Drill Size for Cutting Taps

$$\text{Percentage of Full Thread (Inch Sizes)} = \text{No. of Threads Per Inch} \times \left(\frac{\text{Basic Major Dia. (Inch)} - \text{Drilled Hole Dia.}}{0.013}\right)$$

$$\text{Percentage of Full Thread (Metric Sizes)} = \text{76.98 Pitch (mm)} \times \left(\text{Basic Major Dia. (mm)}\right) - \left(\text{Drilled Hole (mm)}\right)$$

Formula for Obtaining Percentage of Full Thread Based on a Drill Size for Forming Taps

$$\text{Percentage of Full Thread (Inch Sizes)} = \text{No. of Threads Per Inch} \times \left(\frac{\text{Basic Major Dia. (Inch)} - \text{Drilled Hole Dia.}}{0.0068}\right)$$

$$\text{Percentage of Full Thread (Metric Sizes)} = \text{147.06 Pitch (mm)} \times \left(\text{Basic Major Dia. (mm)}\right) - \left(\text{Drilled Hole (mm)}\right)$$

National Pipe Thread is a U.S. standard for tapered (NPT) or Straight (NPS) threads used to join pipes and fittings. ANSI/ASME standard B1.20.1 covers threads of 60-degree form with flat crests and roots in sizes from 1/16-inch to 24-inch Nominal Pipe Size. The taper angle for all NPT threads is 3/4 inches per foot. The 1/8-, 1/4-, 3/8-, 1/2-, 3/4-, 1-, 1-1/4-, 1-1/2-, and 2-inch sizes are commonly used, appearing on pipe and fittings by most U.S. suppliers. Smaller sizes than those listed are occasionally used for compressed air. Larger sizes are used less frequently because other methods of joining are more practical at 3 inches and above in most applications.

Nominal Pipe Size is loosely related to the inside diameter of schedule 40 pipe. Because of the pipe wall thickness, the actual diameter of the threads is larger than the NPS, considerably so for small NPS. Other schedules of pipe have different wall thickness but the OD (outer diameter) and thread profile remain the same, so the inside diameter of the pipe is therefore different from the nominal diameter.

The taper on NPT threads allows them to form a seal, when torqued, as the flanks of the threads compress against each other, as opposed to straight thread fittings or compression fittings in which the threads merely hold the pieces together and do not provide the seal. However, a clearance remains between the crests and roots of the threads, resulting in a leakage around this spiral. This means that NPT Fittings must be made leak free with the aid of thread seal tape or a thread sealant compound.

The NPTF or Dryseal variant, is designed to provide a more leak-free seal without the use of teflon tape or other sealant compound. NPTF threads are the same basic shape but with crest and root heights adjusted for an interference fit, eliminating the spiral leakage path.

General Dimensions for NPT/NPTF/NPS/NPSF Tapered and Straight Pipe Taps

Nominal Size	Length Overall A	Length of Thread B	Length of Square C	Diameter of Shank D	Size of Square E
1/16	2-1/8	11/16	3/8	0.3125	0.234
1/8	2-1/8	3/4	3/8	0.3125	0.234
1/8	2-1/8	3/4	3/8	0.4375	0.328
1/4	2 -7/16	1-1/16	7/16	0.5625	0.421
3/8	2-9/16	1-1/16	1/2	0.7000	0.531
1/2	3-1/8	1-3/8	5/8	0.6875	0.515
3/4	3-1/4	1-3/8	11/16	0.9063	0.679
1	3.3/4	1-3/4	13/16	1.1250	0.843
1-1/4	4	1-3/4	15/16	1.3125	0.984
1-1/2	4-1/4	1-3/4	1	1.5000	1.125
2	4-1/2	1-3/4	1-1/8	1.8750	1.406

Thread Limits for NPT/NPTF Tapered Pipe Threads

Nominal Size	Threads per inch NPT	*Gage Measurement			Taper per Foot			
			Tolerance Plus or Minus		Cut Thread		Ground Thread	
		Projection	Cut Thread	Ground Thread	Min.	Max.	Min.	Max.
1/16	27	0.312	1/16	1/16	23/32	27/32	23/32	25/32
1/8	27	0.312	1/16	1/16	23/32	27/32	23/32	25/32
1/4	18	0.459	1/16	1/16	23/32	27/32	23/32	25/32
3/8	18	0.454	1/16	1/16	23/32	27/32	23/32	25/32
1/2	14	0.579	1/16	1/16	23/32	13/16	23/32	25/32
3/4	14	0.565	1/16	1/16	23/32	13/16	23/32	25/32
1	11-1/2	0.678	3/32	3/32	23/32	13/16	23/32	25/32
1-1/4	11-1/2	0.686	3/32	3/32	23/32	13/16	23/32	25/32
1-1/2	11-1/2	0.699	3/32	3/32	23/32	13/16	23/32	25/32
2	11-1/2	0.667	3/32	3/32	23/32	13/16	23/32	25/32

*Distance small end of tap projects through American Standard Pipe Thread Ring Gage.

Thread Limits for NPS/NPSF Straight Pipe Threads

Nominal Size	Threads per inch	Major Diameter			Pitch Diameter		
		Min. G	Max. H	Plug at Gaging Notch E	Min. K	Max. L	Minor Dia. Flat Max.
1/16	27	0.3008	0.3018	0.2812	0.2772	0.2777	0.004
1/8	27	0.3932	0.3942	0.3736	0.3696	0.3701	0.004
1/4	18	0.5239	0.5249	0.4916	0.4859	0.4864	0.005
3/8	18	0.6593	0.6603	0.6270	0.6213	0.6218	0.005
1/2	14	0.8230	0.8240	0.7784	0.7712	0.7717	0.005
3/4	14	1.0335	1.0345	0.9889	0.9817	0.9822	0.005

Recommended Tap Drill Sizes for NPT/NPTF/NPS/NPSF Tapered and Straight Pipe Threads

Pipe			Tapping Drills								
			Taper NPT w/Reamer			Taper NPT w/o Reamer			Straight NPS		
				Equivalents			Equivalents			Equivalents	
Size (inch)	Thread / inch	Nom. OD (in)	Drill Size	(in)	(mm)	Drill Size	(in)	(mm)	Drill Size	(in)	(mm)
1/16	27	0.313	15/64	0.2344	5.9531	C	0.2420	6.1468	1/4	0.2500	6.3500
1/8	27	0.405	21/64	0.3281	8.3344	Q	0.3320	8.4328	11/32	0.3438	8.7313
1/4	18	0.540	27/64	0.4219	10.7156	7/16	0.4375	11.1125	7/16	0.4375	11.1125
3/8	18	0.675	9/16	0.5625	14.2875	37/64	0.5781	14.6844	19/32	0.5938	15.0813
1/2	14	0.840	11/16	0.6875	17.4625	45/64	0.7031	17.8594	23/32	0.7188	18.2563
3/4	14	1.050	57/64	0.8906	22.6219	29/32	0.9063	23.0188	15/16	0.9375	23.8125
1	11-1/2	1.315	1-1/8	1.125	28.5750	1-9/32	1.2813	32.5438	1-5/32	1.1563	29.3688
1-1/4	11-1/2	1.660	1-15/32	1.4688	37.3063	1-31/64	1.4844	37.7031	1-1/2	1.5000	38.1000
1-1/2	11-1/2	1.900	1-23/32	1.7188	43.6563	1-23/32	1.7188	43.6563	1-3/4	1.7500	44.4500
2	11-1/2	2.375	2-5/32	2.1563	54.7688	2-3/16	2.1875	55.5625	2-3/16	2.1875	55.5625

Tap Drill Sizes (60%–70%) – Machine Screw & Fractional Size Cut Taps

UNC / UNF Tap Sizes	Theor. Thread %	Drill Sizes		Standard Drill Equiv.
		Decimal	mm	
4-40	70	0.0893	2.267	43
4-40	69	0.0896	2.275	
4-40	68	0.0899	2.283	
4-40	67	0.0902	2.292	
4-40	66	0.0906	2.300	2.3mm
4-40	65	0.0909	2.308	
4-40	64	0.0912	2.316	
4-40	63	0.0915	2.325	
4-40	62	0.0919	2.333	
4-40	61	0.0922	2.341	
4-40	60	0.0925	2.350	
4-48	70	0.0930	2.363	
4-48	69	0.0933	2.370	
4-48	68	0.0936	2.377	42
4-48	67	0.0939	2.384	3/32"
4-48	66	0.0941	2.391	
4-48	65	0.0944	2.398	
4-48	64	0.0947	2.405	2.4mm
4-48	63	0.0949	2.411	
4-48	62	0.0952	2.418	
4-48	61	0.0955	2.425	
4-48	60	0.0958	2.432	41
5-40	70	0.1023	2.597	
5-40	69	0.1026	2.605	2.6mm
5-40	68	0.1029	2.614	
5-40	67	0.1032	2.622	
5-40	66	0.1036	2.630	
5-40	65	0.1039	2.638	37
5-40	64	0.1042	2.647	
5-40	63	0.1045	2.655	
5-40	62	0.1049	2.663	
5-40	61	0.1052	2.671	
5-40	60	0.1055	2.680	
5-44	70	0.1043	2.650	37
5-44	69	0.1046	2.657	
5-44	68	0.1049	2.665	
5-44	67	0.1052	2.672	
5-44	66	0.1055	2.680	
5-44	65	0.1058	2.687	
5-44	64	0.1061	2.695	
5-44	63	0.1064	2.702	36 (2.7mm)
5-44	62	0.1067	2.710	
5-44	61	0.1070	2.717	
5-44	60	0.1073	2.725	
6-32	70	0.1096	2.783	7/64"
6-32	69	0.1100	2.793	35
6-32	68	0.1104	2.804	2.8mm
6-32	67	0.1108	2.814	34
6-32	66	0.1112	2.824	33
6-32	65	0.1116	2.834	
6-32	64	0.1120	2.845	
6-32	63	0.1124	2.855	
6-32	62	0.1128	2.865	
6-32	61	0.1132	2.876	
6-32	60	0.1136	2.886	
6-40	70	0.1153	2.927	
6-40	69	0.1156	2.936	
6-40	68	0.1159	2.944	32
6-40	67	0.1162	2.952	

UNC / UNF Tap Sizes	Theor. Thread %	Drill Sizes		Standard Drill Equiv.
		Decimal	mm	
6-40	66	0.1166	2.960	
6-40	65	0.1169	2.969	
6-40	64	0.1172	2.977	
6-40	63	0.1175	2.985	
6-40	62	0.1179	2.993	
6-40	61	0.1182	3.002	3mm
6-40	60	0.1185	3.010	
8-32	70	0.1356	3.443	
8-32	69	0.1360	3.454	29
8-32	68	0.1364	3.464	
8-32	67	0.1368	3.474	
8-32	66	0.1372	3.485	
8-32	65	0.1376	3.495	
8-32	64	0.1380	3.505	3.5mm
8-32	63	0.1384	3.516	
8-32	62	0.1388	3.526	
8-32	61	0.1392	3.536	
8-32	60	0.1396	3.546	
8-36	70	0.1387	3.524	
8-36	69	0.1391	3.533	
8-36	68	0.1394	3.542	
8-36	67	0.1398	3.551	
8-36	66	0.1402	3.560	
8-36	65	0.1405	3.569	28 (9/64")
8-36	64	0.1409	3.579	
8-36	63	0.1413	3.588	
8-36	62	0.1416	3.597	
8-36	61	0.1420	3.606	3.6mm
8-36	60	0.1423	3.615	
10-24	70	0.1521	3.863	
10-24	69	0.1526	3.877	
10-24	68	0.1532	3.890	
10-24	67	0.1537	3.904	3.9mm
10-24	66	0.1543	3.918	
10-24	65	0.1548	3.932	
10-24	64	0.1553	3.945	
10-24	63	0.1559	3.959	
10-24	62	0.1564	3.973	
10-24	61	0.1570	3.987	
10-24	60	0.1575	4.001	4mm
10-32	70	0.1616	4.104	4.1mm
10-32	69	0.1620	4.114	
10-32	68	0.1624	4.124	
10-32	67	0.1628	4.135	
10-32	66	0.1632	4.145	
10-32	65	0.1636	4.155	
10-32	64	0.1640	4.166	
10-32	63	0.1644	4.176	
10-32	62	0.1648	4.186	
10-32	61	0.1652	4.197	
10-32	60	0.1656	4.207	4.2mm
12-24	70	0.1781	4.523	
12-24	69	0.1786	4.537	
12-24	68	0.1792	4.551	
12-24	67	0.1797	4.565	
12-24	66	0.1803	4.578	15
12-24	65	0.1808	4.592	
12-24	64	0.1813	4.606	4.6mm
12-24	63	0.1819	4.620	14 (HPF)*

UNC / UNF Tap Sizes	Theor. Thread %	Drill Sizes		Standard Drill Equiv.
		Decimal	mm	
12-24	62	0.1824	4.633	
12-24	61	0.1830	4.647	
12-24	60	0.1835	4.661	
12-28	70	0.1835	4.661	
12-28	69	0.1840	4.673	
12-28	68	0.1844	4.684	
12-28	67	0.1849	4.696	13
12-28	66	0.1854	4.708	4.7mm
12-28	65	0.1858	4.720	
12-28	64	0.1863	4.732	
12-28	63	0.1868	4.743	
12-28	62	0.1872	4.755	
12-28	61	0.1877	4.767	3/16"
12-28	60	0.1881	4.779	
1/4-20	70	0.2045	5.194	
1/4-20	69	0.2052	5.211	
1/4-20	68	0.2058	5.227	5
1/4-20	67	0.2065	5.244	
1/4-20	66	0.2071	5.260	
1/4-20	65	0.2078	5.277	
1/4-20	64	0.2084	5.293	
1/4-20	63	0.2091	5.310	4
1/4-20	62	0.2097	5.326	
1/4-20	61	0.2104	5.343	
1/4-20	60	0.2110	5.359	
1/4-28	70	0.2175	5.525	(HPF)*
1/4-28	69	0.2180	5.536	
1/4-28	68	0.2184	5.548	
1/4-28	67	0.2189	5.560	7/32"
1/4-28	66	0.2194	5.572	
1/4-28	65	0.2198	5.583	
1/4-28	64	0.2203	5.595	
1/4-28	63	0.2208	5.607	5.6mm
1/4-28	62	0.2212	5.619	2
1/4-28	61	0.2217	5.631	
1/4-28	60	0.2221	5.642	
5/16-18	70	0.2619	6.653	
5/16-18	69	0.2627	6.672	
5/16-18	68	0.2634	6.690	
5/16-18	67	0.2641	6.708	6.7mm
5/16-18	66	0.2648	6.727	
5/16-18	65	0.2656	6.745	17/64"
5/16-18	64	0.2663	6.763	H
5/16-18	63	0.2670	6.782	
5/16-18	62	0.2677	6.800	6.8mm
5/16-18	61	0.2684	6.818	
5/16-18	60	0.2692	6.837	
5/16-24	70	0.2746	6.974	
5/16-24	69	0.2751	6.988	
5/16-24	68	0.2757	7.002	7mm
5/16-24	67	0.2762	7.016	
5/16-24	66	0.2768	7.029	
5/16-24	65	0.2773	7.043	J
5/16-24	64	0.2778	7.057	
5/16-24	63	0.2784	7.071	
5/16-24	62	0.2789	7.084	
5/16-24	61	0.2795	7.098	
5/16-24	60	0.2800	7.112	K
3/8-16	70	0.3181	8.080	
3/8-16	69	0.3189	8.101	8.1mm

Tap Drill Sizes (60%–70%) – Machine Screw & Fractional Size Cut Taps

UNC / UNF Tap Sizes	Theor. Thread %	Drill Sizes		Standard Drill Equiv.
		Decimal	mm	
3/8-16	68	0.3198	8.122	
3/8-16	67	0.3206	8.142	
3/8-16	66	0.3214	8.163	
3/8-16	65	0.3222	8.184	
3/8-16	64	0.3230	8.204	P (8.2mm)
3/8-16	63	0.3238	8.225	
3/8-16	62	0.3246	8.245	
3/8-16	61	0.3254	8.266	
3/8-16	60	0.3263	8.287	
3/8-24	70	0.3371	8.562	
3/8-24	69	0.3376	8.576	
3/8-24	68	0.3382	8.589	
3/8-24	67	0.3387	8.603	8.6mm
3/8-24	66	0.3393	8.617	R
3/8-24	65	0.3398	8.631	
3/8-24	64	0.3403	8.644	
3/8-24	63	0.3409	8.658	
3/8-24	62	0.3414	8.672	
3/8-24	61	0.3420	8.686	
3/8-24	60	0.3425	8.700	8.7mm
7/16-14	70	0.3725	9.462	
7/16-14	69	0.3734	9.485	
7/16-14	68	0.3744	9.509	9.5mm
7/16-14	67	0.3753	9.532	3/8" (HPF)*
7/16-14	66	0.3762	9.556	
7/16-14	65	0.3771	9.579	V
7/16-14	64	0.3781	9.603	9.6mm
7/16-14	63	0.3790	9.627	
7/16-14	62	0.3799	9.650	
7/16-14	61	0.3809	9.674	
7/16-14	60	0.3818	9.697	
7/16-20	70	0.3920	9.957	
7/16-20	69	0.3927	9.973	
7/16-20	68	0.3933	9.990	
7/16-20	67	0.3940	10.006	10mm
7/16-20	66	0.3946	10.023	
7/16-20	65	0.3953	10.039	
7/16-20	64	0.3959	10.056	
7/16-20	63	0.3966	10.072	
7/16-20	62	0.3972	10.089	X
7/16-20	61	0.3979	10.105	10.1mm
7/16-20	60	0.3985	10.122	
1/2-13	70	0.4300	10.922	
1/2-13	69	0.4310	10.947	
1/2-13	68	0.4320	10.973	
1/2-13	67	0.4330	10.998	11mm
1/2-13	66	0.4340	11.024	
1/2-13	65	0.4350	11.049	
1/2-13	64	0.4360	11.074	
1/2-13	63	0.4370	11.100	7/16"
1/2-13	62	0.4380	11.125	
1/2-13	61	0.4390	11.151	
1/2-13	60	0.4400	11.176	
1/2-20	70	0.4545	11.544	
1/2-20	69	0.4552	11.561	
1/2-20	68	0.4558	11.577	
1/2-20	67	0.4565	11.594	
1/2-20	66	0.4571	11.610	
1/2-20	65	0.4578	11.627	

UNC / UNF Tap Sizes	Theor. Thread %	Drill Sizes		Standard Drill Equiv.
		Decimal	mm	
1/2-20	64	0.4584	11.643	
1/2-20	63	0.4591	11.660	
1/2-20	62	0.4597	11.676	
1/2-20	61	0.4604	11.693	
1/2-20	60	0.4610	11.709	11.7mm
9/16-12	70	0.4867	12.361	
9/16-12	69	0.4878	12.389	
9/16-12	68	0.4888	12.416	
9/16-12	67	0.4899	12.444	
9/16-12	66	0.4910	12.471	
9/16-12	65	0.4921	12.499	12.5mm
9/16-12	64	0.4932	12.526	
9/16-12	63	0.4943	12.554	
9/16-12	62	0.4953	12.581	
9/16-12	61	0.4964	12.609	12.6mm
9/16-12	60	0.4975	12.637	
9/16-18	70	0.5119	13.003	13mm
9/16-18	69	0.5127	13.022	
9/16-18	68	0.5134	13.040	
9/16-18	67	0.5141	13.058	
9/16-18	66	0.5148	13.077	(HPF)*
9/16-18	65	0.5156	13.095	33/64"
9/16-18	64	0.5163	13.113	
9/16-18	63	0.5170	13.132	
9/16-18	62	0.5177	13.150	
9/16-18	61	0.5184	13.168	
9/16-18	60	0.5192	13.187	
5/8-11	70	0.5423	13.774	
5/8-11	69	0.5435	13.804	13.8mm
5/8-11	68	0.5446	13.834	
5/8-11	67	0.5458	13.864	35/64"
5/8-11	66	0.5470	13.894	
5/8-11	65	0.5482	13.924	
5/8-11	64	0.5494	13.954	
5/8-11	63	0.5505	13.984	
5/8-11	62	0.5517	14.014	14mm
5/8-11	61	0.5529	14.044	
5/8-11	60	0.5541	14.074	
5/8-18	70	0.5744	14.591	
5/8-18	69	0.5752	14.609	14.6mm
5/8-18	68	0.5759	14.628	
5/8-18	67	0.5766	14.646	
5/8-18	66	0.5773	14.664	
5/8-18	65	0.5781	14.683	37/64"
5/8-18	64	0.5788	14.701	14.7mm
5/8-18	63	0.5795	14.719	
5/8-18	62	0.5802	14.738	
5/8-18	61	0.5809	14.756	
5/8-18	60	0.5817	14.774	
3/4-10	70	0.6590	16.739	
3/4-10	69	0.6603	16.772	(HPF)*
3/4-10	68	0.6616	16.805	
3/4-10	67	0.6629	16.838	
3/4-10	66	0.6642	16.871	
3/4-10	65	0.6655	16.904	16.9mm
3/4-10	64	0.6668	16.937	
3/4-10	63	0.6681	16.970	
3/4-10	62	0.6694	17.003	17mm
3/4-10	61	0.6707	17.036	
3/4-10	60	0.6720	17.069	43/64"

UNC / UNF Tap Sizes	Theor. Thread %	Drill Sizes		Standard Drill Equiv.
		Decimal	mm	
3/4-16	70	0.6931	17.605	17.6mm
3/4-16	69	0.6939	17.626	
3/4-16	68	0.6948	17.647	
3/4-16	67	0.6956	17.667	
3/4-16	66	0.6964	17.688	
3/4-16	65	0.6972	17.709	17.7mm
3/4-16	64	0.6980	17.729	
3/4-16	63	0.6988	17.750	
3/4-16	62	0.6996	17.770	
3/4-16	61	0.7004	17.791	
3/4-16	60	0.7013	17.812	17.8mm
7/8-9	70	0.7739	19.657	
7/8-9	69	0.7753	19.693	19.7mm
7/8-9	68	0.7768	19.730	
7/8-9	67	0.7782	19.767	
7/8-9	66	0.7797	19.804	19.8mm
7/8-9	65	0.7811	19.840	25/32"
7/8-9	64	0.7826	19.877	
7/8-9	63	0.7840	19.914	19.9mm
7/8-9	62	0.7854	19.950	
7/8-9	61	0.7869	19.987	
7/8-9	60	0.7883	20.024	20mm
7/8-14	70	0.8100	20.574	
7/8-14	69	0.8109	20.598	20.6mm
7/8-14	68	0.8119	20.621	
7/8-14	67	0.8128	20.645	13/16"
7/8-14	66	0.8137	20.668	
7/8-14	65	0.8146	20.692	20.7mm
7/8-14	64	0.8156	20.716	
7/8-14	63	0.8165	20.739	
7/8-14	62	0.8174	20.763	
7/8-14	61	0.8184	20.786	
7/8-14	60	0.8193	20.810	20.8mm
1-8	70	0.8863	22.511	
1-8	69	0.8879	22.552	
1-8	68	0.8895	22.593	57/64"
1-8	67	0.8911	22.635	
1-8	66	0.8928	22.676	
1-8	65	0.8944	22.717	
1-8	64	0.8960	22.758	
1-8	63	0.8976	22.800	22.8mm
1-8	62	0.8993	22.841	
1-8	61	0.9009	22.882	22.9mm
1-8	60	0.9025	22.924	
1-12	70	0.9242	23.474	
1-12	69	0.9253	23.501	23.5mm
1-12	68	0.9263	23.529	
1-12	67	0.9274	23.556	
1-12	66	0.9285	23.584	
1-12	65	0.9296	23.611	23.6mm
1-12	64	0.9307	23.639	
1-12	63	0.9318	23.666	
1-12	62	0.9328	23.694	23.7mm
1-12	61	0.9339	23.721	
1-12	60	0.9350	23.749	

*HPF – (High Performance Forming) – These drill sizes were designed for the HPF tap. Call customer service for price and availability.

Tap Drill Sizes (60%–70%) – Machine Screw & Fractional Size Forming Taps

UNC / UNF Tap Sizes	Theor. Thread %	Drill Sizes		Standard Drill Equiv.
		Decimal	mm	
4-40	70	0.1001	2.543	
4-40	69	0.1003	2.547	
4-40	68	0.1004	2.551	
4-40	67	0.1006	2.555	
4-40	66	0.1008	2.560	
4-40	65	0.1010	2.564	
4-40	64	0.1011	2.568	
4-40	63	0.1013	2.573	
4-40	62	0.1015	2.577	
4-40	61	0.1016	2.581	
4-40	60	0.1018	2.586	
4-48	70	0.1021	2.593	
4-48	69	0.1022	2.597	
4-48	68	0.1024	2.600	2.6mm
4-48	67	0.1025	2.604	
4-48	66	0.1027	2.607	
4-48	65	0.1028	2.611	
4-48	64	0.1029	2.615	
4-48	63	0.1031	2.618	
4-48	62	0.1032	2.622	
4-48	61	0.1034	2.625	
4-48	60	0.1035	2.629	
5-40	70	0.1131	2.873	33
5-40	69	0.1133	2.877	
5-40	68	0.1134	2.881	
5-40	67	0.1136	2.886	
5-40	66	0.1138	2.890	
5-40	65	0.1140	2.894	
5-40	64	0.1141	2.899	
5-40	63	0.1143	2.903	2.9mm
5-40	62	0.1145	2.907	
5-40	61	0.1146	2.912	
5-40	60	0.1148	2.916	
5-44	70	0.1142	2.900	2.9mm
5-44	69	0.1143	2.904	
5-44	68	0.1145	2.908	
5-44	67	0.1146	2.912	
5-44	66	0.1148	2.916	
5-44	65	0.1150	2.920	
5-44	64	0.1151	2.924	
5-44	63	0.1153	2.928	
5-44	62	0.1154	2.932	
5-44	61	0.1156	2.936	
5-44	60	0.1157	2.939	
6-32	70	0.1231	3.127	
6-32	69	0.1233	3.133	
6-32	68	0.1236	3.138	
6-32	67	0.1238	3.144	
6-32	66	0.1240	3.149	
6-32	65	0.1242	3.154	
6-32	64	0.1244	3.160	
6-32	63	0.1246	3.165	
6-32	62	0.1248	3.171	
6-32	61	0.1250	3.176	1/8"
6-32	60	0.1253	3.181	
6-40	70	0.1261	3.203	3.2mm
6-40	69	0.1263	3.207	
6-40	68	0.1264	3.212	
6-40	67	0.1266	3.216	
6-40	66	0.1268	3.220	

UNC / UNF Tap Sizes	Theor. Thread %	Drill Sizes		Standard Drill Equiv.
		Decimal	mm	
6-40	65	0.1270	3.225	
6-40	64	0.1271	3.229	
6-40	63	0.1273	3.233	
6-40	62	0.1275	3.237	
6-40	61	0.1276	3.242	
6-40	60	0.1278	3.246	
8-32	70	0.1491	3.788	
8-32	69	0.1493	3.793	
8-32	68	0.1496	3.799	25
8-32	67	0.1498	3.804	3.8mm
8-32	66	0.1500	3.809	
8-32	65	0.1502	3.815	
8-32	64	0.1504	3.820	
8-32	63	0.1506	3.826	
8-32	62	0.1508	3.831	
8-32	61	0.1510	3.836	
8-32	60	0.1513	3.842	
8-36	70	0.1508	3.830	
8-36	69	0.1510	3.835	
8-36	68	0.1512	3.839	
8-36	67	0.1513	3.844	
8-36	66	0.1515	3.849	
8-36	65	0.1517	3.854	
8-36	64	0.1519	3.859	
8-36	63	0.1521	3.863	24
8-36	62	0.1523	3.868	
8-36	61	0.1525	3.873	
8-36	60	0.1527	3.878	
10-24	70	0.1702	4.322	
10-24	69	0.1705	4.329	
10-24	68	0.1707	4.337	
10-24	67	0.1710	4.344	
10-24	66	0.1713	4.351	
10-24	65	0.1716	4.358	
10-24	64	0.1719	4.365	11/64"
10-24	63	0.1722	4.373	
10-24	62	0.1724	4.380	
10-24	61	0.1727	4.387	
10-24	60	0.1730	4.394	17
10-32	70	0.1751	4.448	
10-32	69	0.1753	4.454	
10-32	68	0.1756	4.459	
10-32	67	0.1758	4.464	
10-32	66	0.1760	4.470	
10-32	65	0.1762	4.475	
10-32	64	0.1764	4.481	
10-32	63	0.1766	4.486	
10-32	62	0.1768	4.491	
10-32	61	0.1770	4.497	16
10-32	60	0.1773	4.502	4.5mm
12-24	70	0.1962	4.983	
12-24	69	0.1965	4.990	
12-24	68	0.1967	4.997	
12-24	67	0.1970	5.004	5mm
12-24	66	0.1973	5.011	
12-24	65	0.1976	5.019	
12-24	64	0.1979	5.026	
12-24	63	0.1982	5.033	
12-24	62	0.1984	5.040	
12-24	61	0.1987	5.047	

UNC / UNF Tap Sizes	Theor. Thread %	Drill Sizes		Standard Drill Equiv.
		Decimal	mm	
12-24	60	0.1990	5.055	8
12-28	70	0.1990	5.055	8
12-28	69	0.1992	5.061	
12-28	68	0.1995	5.067	
12-28	67	0.1997	5.073	
12-28	66	0.2000	5.079	
12-28	65	0.2002	5.085	
12-28	64	0.2005	5.092	
12-28	63	0.2007	5.098	
12-28	62	0.2009	5.104	5.1mm
12-28	61	0.2012	5.110	7
12-28	60	0.2014	5.116	
1/4-20	70	0.2262	5.745	
1/4-20	69	0.2265	5.754	
1/4-20	68	0.2269	5.763	
1/4-20	67	0.2272	5.771	
1/4-20	66	0.2276	5.780	
1/4-20	65	0.2279	5.789	1
1/4-20	64	0.2282	5.797	
1/4-20	63	0.2286	5.806	5.8mm
1/4-20	62	0.2289	5.815	
1/4-20	61	0.2293	5.823	
1/4-20	60	0.2296	5.832	
1/4-28	70	0.2330	5.918	
1/4-28	69	0.2332	5.924	
1/4-28	68	0.2335	5.931	
1/4-28	67	0.2337	5.937	
1/4-28	66	0.2340	5.943	A
1/4-28	65	0.2342	5.949	
1/4-28	64	0.2345	5.955	15/64"
1/4-28	63	0.2347	5.961	
1/4-28	62	0.2349	5.968	
1/4-28	61	0.2352	5.974	
1/4-28	60	0.2354	5.980	6mm
5/16-18	70	0.2861	7.266	
5/16-18	69	0.2864	7.275	
5/16-18	68	0.2868	7.285	
5/16-18	67	0.2872	7.295	
5/16-18	66	0.2876	7.304	7.3mm
5/16-18	65	0.2879	7.314	
5/16-18	64	0.2883	7.323	
5/16-18	63	0.2887	7.333	
5/16-18	62	0.2891	7.343	
5/16-18	61	0.2895	7.352	
5/16-18	60	0.2898	7.362	L
5/16-24	70	0.2927	7.434	(HPF)*
5/16-24	69	0.2930	7.441	
5/16-24	68	0.2932	7.448	
5/16-24	67	0.2935	7.455	
5/16-24	66	0.2938	7.463	
5/16-24	65	0.2941	7.470	
5/16-24	64	0.2944	7.477	
5/16-24	63	0.2947	7.484	
5/16-24	62	0.2949	7.491	
5/16-24	61	0.2952	7.499	M
5/16-24	60	0.2955	7.506	7.5mm
3/8-16	70	0.3453	8.769	
3/8-16	69	0.3457	8.780	
3/8-16	68	0.3461	8.791	
3/8-16	67	0.3465	8.802	8.8mm

Tap Drill Sizes (60%–70%) – Machine Screw & Fractional Size Forming Taps

UNC / UNF Tap Sizes	Theor. Thread %	Drill Sizes		Standard Drill Equiv.
		Decimal	mm	
3/8-16	66	0.3470	8.813	
3/8-16	65	0.3474	8.823	
3/8-16	64	0.3478	8.834	
3/8-16	63	0.3482	8.845	S
3/8-16	62	0.3487	8.856	
3/8-16	61	0.3491	8.867	
3/8-16	60	0.3495	8.877	
3/8-24	70	0.3552	9.021	9mm
3/8-24	69	0.3555	9.028	
3/8-24	68	0.3557	9.036	
3/8-24	67	0.3560	9.043	
3/8-24	66	0.3563	9.050	
3/8-24	65	0.3566	9.057	
3/8-24	64	0.3569	9.064	
3/8-24	63	0.3572	9.072	
3/8-24	62	0.3574	9.079	
3/8-24	61	0.3577	9.086	
3/8-24	60	0.3580	9.093	T
7/16-14	70	0.4035	10.249	Y
7/16-14	69	0.4040	10.261	
7/16-14	68	0.4045	10.274	
7/16-14	67	0.4050	10.286	
7/16-14	66	0.4054	10.298	
7/16-14	65	0.4059	10.311	
7/16-14	64	0.4064	10.323	13/32"
7/16-14	63	0.4069	10.335	
7/16-14	62	0.4074	10.348	
7/16-14	61	0.4079	10.360	
7/16-14	60	0.4084	10.372	
7/16-20	70	0.4137	10.508	10.5mm
7/16-20	69	0.4140	10.517	
7/16-20	68	0.4144	10.525	
7/16-20	67	0.4147	10.534	
7/16-20	66	0.4151	10.543	
7/16-20	65	0.4154	10.551	
7/16-20	64	0.4157	10.560	
7/16-20	63	0.4161	10.568	
7/16-20	62	0.4164	10.577	
7/16-20	61	0.4168	10.586	
7/16-20	60	0.4171	10.594	10.6mm
1/2-13	70	0.4634	11.770	
1/2-13	69	0.4639	11.783	
1/2-13	68	0.4644	11.797	
1/2-13	67	0.4650	11.810	11.8mm
1/2-13	66	0.4655	11.823	
1/2-13	65	0.4660	11.836	
1/2-13	64	0.4665	11.850	
1/2-13	63	0.4670	11.863	
1/2-13	62	0.4676	11.876	
1/2-13	61	0.4681	11.890	
1/2-13	60	0.4686	11.903	15/32"
1/2-20	70	0.4762	12.095	12mm
1/2-20	69	0.4765	12.104	
1/2-20	68	0.4769	12.113	
1/2-20	67	0.4772	12.121	
1/2-20	66	0.4776	12.130	
1/2-20	65	0.4779	12.139	
1/2-20	64	0.4782	12.147	
1/2-20	63	0.4786	12.156	
1/2-20	62	0.4789	12.165	

UNC / UNF Tap Sizes	Theor. Thread %	Drill Sizes		Standard Drill Equiv.
		Decimal	mm	
1/2-20	61	0.4793	12.173	
1/2-20	60	0.4796	12.182	
9/16-12	70	0.5228	13.280	
9/16-12	69	0.5234	13.294	13.3mm
9/16-12	68	0.5240	13.309	
9/16-12	67	0.5245	13.323	(HPF)*
9/16-12	66	0.5251	13.338	
9/16-12	65	0.5257	13.352	
9/16-12	64	0.5262	13.366	
9/16-12	63	0.5268	13.381	
9/16-12	62	0.5274	13.395	13.4mm
9/16-12	61	0.5279	13.410	
9/16-12	60	0.5285	13.424	(HPF)*
9/16-18	70	0.5361	13.616	
9/16-18	69	0.5364	13.625	
9/16-18	68	0.5368	13.635	
9/16-18	67	0.5372	13.645	
9/16-18	66	0.5376	13.654	
9/16-18	65	0.5379	13.664	
9/16-18	64	0.5383	13.673	
9/16-18	63	0.5387	13.683	
9/16-18	62	0.5391	13.693	
9/16-18	61	0.5395	13.702	13.7mm
9/16-18	60	0.5398	13.712	
5/8-11	70	0.5817	14.776	
5/8-11	69	0.5823	14.792	
5/8-11	68	0.5830	14.807	14.8mm
5/8-11	67	0.5836	14.823	
5/8-11	66	0.5842	14.839	
5/8-11	65	0.5848	14.854	
5/8-11	64	0.5854	14.870	
5/8-11	63	0.5861	14.886	
5/8-11	62	0.5867	14.901	14.9mm
5/8-11	61	0.5873	14.917	
5/8-11	60	0.5879	14.933	
5/8-18	70	0.5986	15.203	15.2mm
5/8-18	69	0.5989	15.213	
5/8-18	68	0.5993	15.223	
5/8-18	67	0.5997	15.232	
5/8-18	66	0.6001	15.242	
5/8-18	65	0.6004	15.251	
5/8-18	64	0.6008	15.261	
5/8-18	63	0.6012	15.270	
5/8-18	62	0.6016	15.280	
5/8-18	61	0.6020	15.290	
5/8-18	60	0.6023	15.299	15.3mm
3/4-10	70	0.7024	17.841	
3/4-10	69	0.7031	17.858	45/64"
3/4-10	68	0.7038	17.876	
3/4-10	67	0.7044	17.893	17.9mm
3/4-10	66	0.7051	17.910	
3/4-10	65	0.7058	17.927	
3/4-10	64	0.7065	17.945	
3/4-10	63	0.7072	17.962	
3/4-10	62	0.7078	17.979	
3/4-10	61	0.7085	17.996	18mm
3/4-10	60	0.7092	18.014	
3/4-16	70	0.7203	18.294	
3/4-16	69	0.7207	18.305	18.3mm
3/4-16	68	0.7211	18.316	

UNC / UNF Tap Sizes	Theor. Thread %	Drill Sizes		Standard Drill Equiv.
		Decimal	mm	
3/4-16	67	0.7215	18.327	
3/4-16	66	0.7220	18.338	
3/4-16	65	0.7224	18.348	
3/4-16	64	0.7228	18.359	
3/4-16	63	0.7232	18.370	
3/4-16	62	0.7237	18.381	
3/4-16	61	0.7241	18.392	
3/4-16	60	0.7245	18.402	18.4mm
7/8-9	70	0.8221	20.882	
7/8-9	69	0.8229	20.901	
7/8-9	68	0.8236	20.920	
7/8-9	67	0.8244	20.939	
7/8-9	66	0.8251	20.958	
7/8-9	65	0.8259	20.978	
7/8-9	64	0.8266	20.997	21mm
7/8-9	63	0.8274	21.016	
7/8-9	62	0.8282	21.035	53/64"
7/8-9	61	0.8289	21.054	
7/8-9	60	0.8297	21.074	
7/8-14	70	0.8410	21.361	
7/8-14	69	0.8415	21.374	
7/8-14	68	0.8420	21.386	
7/8-14	67	0.8425	21.398	21.4mm
7/8-14	66	0.8429	21.411	
7/8-14	65	0.8434	21.423	
7/8-14	64	0.8439	21.435	27/32"
7/8-14	63	0.8444	21.448	
7/8-14	62	0.8449	21.460	
7/8-14	61	0.8454	21.472	
7/8-14	60	0.8459	21.485	
1-8	70	0.9405	23.889	
1-8	69	0.9414	23.910	
1-8	68	0.9422	23.932	
1-8	67	0.9431	23.953	
1-8	66	0.9439	23.975	
1-8	65	0.9448	23.997	24mm
1-8	64	0.9456	24.018	
1-8	63	0.9465	24.040	
1-8	62	0.9473	24.061	
1-8	61	0.9482	24.083	
1-8	60	0.9490	24.105	
1-12	70	0.9603	24.392	
1-12	69	0.9609	24.407	24.4mm
1-12	68	0.9615	24.421	
1-12	67	0.9620	24.436	
1-12	66	0.9626	24.450	
1-12	65	0.9632	24.464	
1-12	64	0.9637	24.479	
1-12	63	0.9643	24.493	
1-12	62	0.9649	24.508	24.5mm
1-12	61	0.9654	24.522	
1-12	60	0.9660	24.536	

*HPF – (High Performance Forming) – These drill sizes were designed for the HPF tap. Call customer service for price and availability.

Tap Drill Sizes (60%–70%) – Metric Cut Taps

M / MF Tap Sizes	Theor. Thread %	Drill Sizes		Stand. Drill Equiv.
		Decimal	mm	
M3 x 0.5	70	0.1002	2.545	
M3 x 0.5	69	0.1005	2.552	
M3 x 0.5	68	0.1007	2.558	
M3 x 0.5	67	0.1010	2.565	
M3 x 0.5	66	0.1012	2.571	
M3 x 0.5	65	0.1015	2.578	38
M3 x 0.5	64	0.1017	2.584	
M3 x 0.5	63	0.1020	2.591	
M3 x 0.5	62	0.1023	2.597	
M3 x 0.5	61	0.1025	2.604	2.6mm
M3 x 0.5	60	0.1028	2.610	
M3.5 x 0.6	70	0.1163	2.954	32
M3.5 x 0.6	69	0.1166	2.962	
M3.5 x 0.6	68	0.1169	2.970	
M3.5 x 0.6	67	0.1172	2.978	
M3.5 x 0.6	66	0.1175	2.986	
M3.5 x 0.6	65	0.1178	2.993	
M3.5 x 0.6	64	0.1182	3.001	3mm
M3.5 x 0.6	63	0.1185	3.009	
M3.5 x 0.6	62	0.1188	3.017	
M3.5 x 0.6	61	0.1191	3.025	
M3.5 x 0.6	60	0.1194	3.032	
M4 x 0.5	70	0.1396	3.545	
M4 x 0.5	69	0.1398	3.552	
M4 x 0.5	68	0.1401	3.558	
M4 x 0.5	67	0.1403	3.565	28
M4 x 0.5	66	0.1406	3.571	9/64"
M4 x 0.5	65	0.1409	3.578	
M4 x 0.5	64	0.1411	3.584	
M4 x 0.5	63	0.1414	3.591	
M4 x 0.5	62	0.1416	3.597	
M4 x 0.5	61	0.1419	3.604	3.6mm
M4 x 0.5	60	0.1421	3.610	
M4 x 0.7	70	0.1324	3.363	
M4 x 0.7	69	0.1328	3.373	
M4 x 0.7	68	0.1331	3.382	
M4 x 0.7	67	0.1335	3.391	
M4 x 0.7	66	0.1339	3.400	3.4mm
M4 x 0.7	65	0.1342	3.409	
M4 x 0.7	64	0.1346	3.418	
M4 x 0.7	63	0.1349	3.427	
M4 x 0.7	62	0.1353	3.436	
M4 x 0.7	61	0.1356	3.445	
M4 x 0.7	60	0.1360	3.454	29
M5 x 0.5	70	0.1790	4.545	
M5 x 0.5	69	0.1792	4.552	
M5 x 0.5	68	0.1795	4.558	
M5 x 0.5	67	0.1797	4.565	
M5 x 0.5	66	0.1800	4.571	15
M5 x 0.5	65	0.1802	4.578	
M5 x 0.5	64	0.1805	4.584	
M5 x 0.5	63	0.1807	4.591	
M5 x 0.5	62	0.1810	4.597	
M5 x 0.5	61	0.1813	4.604	4.6mm
M5 x 0.5	60	0.1815	4.610	
M5 x 0.8	70	0.1682	4.273	
M5 x 0.8	69	0.1686	4.283	
M5 x 0.8	68	0.1690	4.293	
M5 x 0.8	67	0.1694	4.304	18 (4.3mm)

M / MF Tap Sizes	Theor. Thread %	Drill Sizes		Stand. Drill Equiv.
		Decimal	mm	
M5 x 0.8	66	0.1698	4.314	
M5 x 0.8	65	0.1703	4.324	
M5 x 0.8	64	0.1707	4.335	
M5 x 0.8	63	0.1711	4.345	
M5 x 0.8	62	0.1715	4.356	
M5 x 0.8	61	0.1719	4.366	11/64"
M5 x 0.8	60	0.1723	4.376	
M6 x 0.75	70	0.2094	5.318	4
M6 x 0.75	69	0.2098	5.328	
M6 x 0.75	68	0.2101	5.337	
M6 x 0.75	67	0.2105	5.347	
M6 x 0.75	66	0.2109	5.357	
M6 x 0.75	65	0.2113	5.367	
M6 x 0.75	64	0.2117	5.376	
M6 x 0.75	63	0.2121	5.386	
M6 x 0.75	62	0.2124	5.396	
M6 x 0.75	61	0.2128	5.406	5.4mm
M6 x 0.75	60	0.2132	5.415	
M6 x 1.0	70	0.2004	5.091	
M6 x 1.0	69	0.2009	5.104	7
M6 x 1.0	68	0.2014	5.117	5.1mm
M6 x 1.0	67	0.2020	5.130	
M6 x 1.0	66	0.2025	5.143	
M6 x 1.0	65	0.2030	5.156	13/64"
M6 x 1.0	64	0.2035	5.169	
M6 x 1.0	63	0.2040	5.182	6
M6 x 1.0	62	0.2045	5.195	
M6 x 1.0	61	0.2050	5.208	5.2mm
M6 x 1.0	60	0.2055	5.221	5
M8 x 1.0	70	0.2792	7.091	
M8 x 1.0	69	0.2797	7.104	7.1mm
M8 x 1.0	68	0.2802	7.117	
M8 x 1.0	67	0.2807	7.130	
M8 x 1.0	66	0.2812	7.143	9/32" (K)
M8 x 1.0	65	0.2817	7.156	
M8 x 1.0	64	0.2822	7.169	
M8 x 1.0	63	0.2827	7.182	
M8 x 1.0	62	0.2833	7.195	
M8 x 1.0	61	0.2838	7.208	7.2mm
M8 x 1.0	60	0.2843	7.221	
M8 x 1.25	70	0.2702	6.863	
M8 x 1.25	69	0.2708	6.880	
M8 x 1.25	68	0.2715	6.896	
M8 x 1.25	67	0.2721	6.912	I
M8 x 1.25	66	0.2728	6.928	
M8 x 1.25	65	0.2734	6.945	
M8 x 1.25	64	0.2740	6.961	
M8 x 1.25	63	0.2747	6.977	
M8 x 1.25	62	0.2753	6.993	
M8 x 1.25	61	0.2760	7.009	7mm
M8 x 1.25	60	0.2766	7.026	
M10 x 1.0	70	0.3579	9.091	
M10 x 1.0	69	0.3584	9.104	9.1mm
M10 x 1.0	68	0.3589	9.117	
M10 x 1.0	67	0.3594	9.130	23/64"
M10 x 1.0	66	0.3599	9.143	
M10 x 1.0	65	0.3605	9.156	
M10 x 1.0	64	0.3610	9.169	
M10 x 1.0	63	0.3615	9.182	
M10 x 1.0	62	0.3620	9.195	

M / MF Tap Sizes	Theor. Thread %	Drill Sizes		Stand. Drill Equiv.
		Decimal	mm	
M10 x 1.0	61	0.3625	9.208	9.2mm
M10 x 1.0	60	0.3630	9.221	
M10 x 1.25	70	0.3490	8.863	
M10 x 1.25	69	0.3496	8.880	
M10 x 1.25	68	0.3502	8.896	8.9mm
M10 x 1.25	67	0.3509	8.912	
M10 x 1.25	66	0.3515	8.928	
M10 x 1.25	65	0.3521	8.945	
M10 x 1.25	64	0.3528	8.961	
M10 x 1.25	63	0.3534	8.977	
M10 x 1.25	62	0.3541	8.993	
M10 x 1.25	61	0.3547	9.009	9mm
M10 x 1.25	60	0.3553	9.026	
M10 x 1.5	70	0.3400	8.636	
M10 x 1.5	69	0.3408	8.655	
M10 x 1.5	68	0.3415	8.675	
M10 x 1.5	67	0.3423	8.694	8.7mm
M10 x 1.5	66	0.3431	8.714	
M10 x 1.5	65	0.3438	8.733	11/32"
M10 x 1.5	64	0.3446	8.753	
M10 x 1.5	63	0.3454	8.772	
M10 x 1.5	62	0.3461	8.792	
M10 x 1.5	61	0.3469	8.811	8.8mm
M10 x 1.5	60	0.3477	8.831	
M12 x 1.25	70	0.4277	10.863	
M12 x 1.25	69	0.4283	10.880	
M12 x 1.25	68	0.4290	10.896	10.9mm
M12 x 1.25	67	0.4296	10.912	
M12 x 1.25	66	0.4302	10.928	
M12 x 1.25	65	0.4309	10.945	
M12 x 1.25	64	0.4315	10.961	
M12 x 1.25	63	0.4322	10.977	
M12 x 1.25	62	0.4328	10.993	
M12 x 1.25	61	0.4334	11.009	11mm
M12 x 1.25	60	0.4341	11.026	
M12 x 1.5	70	0.4187	10.636	
M12 x 1.5	69	0.4195	10.655	
M12 x 1.5	68	0.4203	10.675	
M12 x 1.5	67	0.4210	10.694	10.7mm
M12 x 1.5	66	0.4218	10.714	
M12 x 1.5	65	0.4226	10.733	
M12 x 1.5	64	0.4233	10.753	
M12 x 1.5	63	0.4241	10.772	
M12 x 1.5	62	0.4249	10.792	
M12 x 1.5	61	0.4256	10.811	10.8mm
M12 x 1.5	60	0.4264	10.831	
M12 x 1.75	70	0.4098	10.409	
M12 x 1.75	69	0.4107	10.431	
M12 x 1.75	68	0.4116	10.454	
M12 x 1.75	67	0.4125	10.477	27/64"
M12 x 1.75	66	0.4134	10.500	Z (10.5mm)
M12 x 1.75	65	0.4143	10.522	
M12 x 1.75	64	0.4152	10.545	
M12 x 1.75	63	0.4161	10.568	
M12 x 1.75	62	0.4170	10.591	10.6mm
M12 x 1.75	61	0.4178	10.613	
M12 x 1.75	60	0.4187	10.636	
M14 x 1.5	70	0.4975	12.636	
M14 x 1.5	69	0.4982	12.655	

Tap Drill Sizes (60%–70%) – Metric Cut Taps

M / MF Tap Sizes	Theor. Thread %	Drill Sizes		Stand. Drill Equiv.
		Decimal	mm	
M14 x 1.5	68	0.4990	12.675	
M14 x 1.5	67	0.4998	12.694	1/2"
M14 x 1.5	66	0.5005	12.714	12.7mm
M14 x 1.5	65	0.5013	12.733	
M14 x 1.5	64	0.5021	12.753	
M14 x 1.5	63	0.5029	12.772	
M14 x 1.5	62	0.5036	12.792	12.8mm
M14 x 1.5	61	0.5044	12.811	
M14 x 1.5	60	0.5052	12.831	
M14 x 2.0	70	0.4796	12.181	
M14 x 2.0	69	0.4806	12.207	12.2mm
M14 x 2.0	68	0.4816	12.233	
M14 x 2.0	67	0.4826	12.259	
M14 x 2.0	66	0.4837	12.285	12.3mm
M14 x 2.0	65	0.4847	12.311	31/64"
M14 x 2.0	64	0.4857	12.337	
M14 x 2.0	63	0.4867	12.363	
M14 x 2.0	62	0.4878	12.389	12.4mm
M14 x 2.0	61	0.4888	12.415	
M14 x 2.0	60	0.4898	12.441	
M16 x 1.5	70	0.5762	14.636	
M16 x 1.5	69	0.5770	14.655	
M16 x 1.5	68	0.5778	14.675	
M16 x 1.5	67	0.5785	14.694	37/64"
M16 x 1.5	66	0.5793	14.714	14.7mm
M16 x 1.5	65	0.5801	14.733	
M16 x 1.5	64	0.5808	14.753	
M16 x 1.5	63	0.5816	14.772	
M16 x 1.5	62	0.5824	14.792	14.8mm
M16 x 1.5	61	0.5831	14.811	
M16 x 1.5	60	0.5839	14.831	
M16 x 2.0	70	0.5583	14.181	
M16 x 2.0	69	0.5593	14.207	14.2mm
M16 x 2.0	68	0.5604	14.233	
M16 x 2.0	67	0.5614	14.259	
M16 x 2.0	66	0.5624	14.285	9/16"
M16 x 2.0	65	0.5634	14.311	14.3mm
M16 x 2.0	64	0.5645	14.337	
M16 x 2.0	63	0.5655	14.363	
M16 x 2.0	62	0.5665	14.389	
M16 x 2.0	61	0.5675	14.415	14.4mm
M16 x 2.0	60	0.5685	14.441	
M18 x 1.5	70	0.6550	16.636	
M18 x 1.5	69	0.6557	16.655	
M18 x 1.5	68	0.6565	16.675	21/32"
M18 x 1.5	67	0.6573	16.694	16.7mm
M18 x 1.5	66	0.6580	16.714	
M18 x 1.5	65	0.6588	16.733	
M18 x 1.5	64	0.6596	16.753	
M18 x 1.5	63	0.6603	16.772	(HPF)*
M18 x 1.5	62	0.6611	16.792	16.8mm
M18 x 1.5	61	0.6619	16.811	
M18 x 1.5	60	0.6626	16.831	
M18 x 2.5	70	0.6192	15.727	
M18 x 2.5	69	0.6204	15.759	
M18 x 2.5	68	0.6217	15.792	15.8mm
M18 x 2.5	67	0.6230	15.824	5/8"
M18 x 2.5	66	0.6243	15.857	
M18 x 2.5	65	0.6256	15.889	15.9mm
M18 x 2.5	64	0.6268	15.922	

M / MF Tap Sizes	Theor. Thread %	Drill Sizes		Stand. Drill Equiv.
		Decimal	mm	
M18 x 2.5	63	0.6281	15.954	
M18 x 2.5	62	0.6294	15.986	
M18 x 2.5	61	0.6307	16.019	16mm
M18 x 2.5	60	0.6319	16.051	
M20 x 1.5	70	0.7337	18.636	
M20 x 1.5	69	0.7345	18.655	47/64"
M20 x 1.5	68	0.7352	18.675	
M20 x 1.5	67	0.7360	18.694	18.7mm
M20 x 1.5	66	0.7368	18.714	
M20 x 1.5	65	0.7375	18.733	
M20 x 1.5	64	0.7383	18.753	
M20 x 1.5	63	0.7391	18.772	(HPF)*
M20 x 1.5	62	0.7398	18.792	18.8mm
M20 x 1.5	61	0.7406	18.811	
M20 x 1.5	60	0.7414	18.831	
M20 x 2.5	70	0.6979	17.727	
M20 x 2.5	69	0.6992	17.759	
M20 x 2.5	68	0.7005	17.792	17.8mm
M20 x 2.5	67	0.7017	17.824	
M20 x 2.5	66	0.7030	17.857	45/64"
M20 x 2.5	65	0.7043	17.889	17.9mm
M20 x 2.5	64	0.7056	17.922	
M20 x 2.5	63	0.7069	17.954	
M20 x 2.5	62	0.7081	17.986	
M20 x 2.5	61	0.7094	18.019	18mm
M20 x 2.5	60	0.7107	18.051	
M22 x 1.5	70	0.8124	20.636	13/16"
M22 x 1.5	69	0.8132	20.655	
M22 x 1.5	68	0.8140	20.675	
M22 x 1.5	67	0.8147	20.694	20.7mm
M22 x 1.5	66	0.8155	20.714	
M22 x 1.5	65	0.8163	20.733	
M22 x 1.5	64	0.8170	20.753	
M22 x 1.5	63	0.8178	20.772	
M22 x 1.5	62	0.8186	20.792	20.8mm
M22 x 1.5	61	0.8193	20.811	
M22 x 1.5	60	0.8201	20.831	
M22 x 2.5	70	0.7766	19.727	
M22 x 2.5	69	0.7779	19.759	
M22 x 2.5	68	0.7792	19.792	
M22 x 2.5	67	0.7805	19.824	
M22 x 2.5	66	0.7818	19.857	25/32"
M22 x 2.5	65	0.7830	19.889	19.9mm
M22 x 2.5	64	0.7843	19.922	
M22 x 2.5	63	0.7856	19.954	
M22 x 2.5	62	0.7869	19.986	
M22 x 2.5	61	0.7881	20.019	20mm
M22 x 2.5	60	0.7894	20.051	
M24 x 1.5	70	0.8912	22.636	
M24 x 1.5	69	0.8919	22.655	
M24 x 1.5	68	0.8927	22.675	
M24 x 1.5	67	0.8935	22.694	22.7mm
M24 x 1.5	66	0.8943	22.714	
M24 x 1.5	65	0.8950	22.733	
M24 x 1.5	64	0.8958	22.753	
M24 x 1.5	63	0.8966	22.772	
M24 x 1.5	62	0.8973	22.792	22.8mm
M24 x 1.5	61	0.8981	22.811	
M24 x 1.5	60	0.8989	22.831	
M24 x 3.0	70	0.8375	21.272	

M / MF Tap Sizes	Theor. Thread %	Drill Sizes		Stand. Drill Equiv.
		Decimal	mm	
M24 x 3.0	69	0.8390	21.311	21.3mm
M24 x 3.0	68	0.8405	21.350	
M24 x 3.0	67	0.8421	21.389	21.4mm
M24 x 3.0	66	0.8436	21.428	27/32"
M24 x 3.0	65	0.8452	21.467	
M24 x 3.0	64	0.8467	21.506	21.5mm
M24 x 3.0	63	0.8482	21.545	
M24 x 3.0	62	0.8498	21.584	21.6mm
M24 x 3.0	61	0.8513	21.623	
M24 x 3.0	60	0.8528	21.662	
M27 x 1.5	70	1.0093	25.636	
M27 x 1.5	69	1.0101	25.655	
M27 x 1.5	68	1.0108	25.675	
M27 x 1.5	67	1.0116	25.694	25.7mm
M27 x 1.5	66	1.0124	25.714	
M27 x 1.5	65	1.0131	25.733	
M27 x 1.5	64	1.0139	25.753	
M27 x 1.5	63	1.0147	25.772	
M27 x 1.5	62	1.0154	25.792	25.8mm
M27 x 1.5	61	1.0162	25.811	
M27 x 1.5	60	1.0170	25.831	
M27 x 3.0	70	0.9556	24.272	
M27 x 3.0	69	0.9571	24.311	
M27 x 3.0	68	0.9587	24.350	
M27 x 3.0	67	0.9602	24.389	24.4mm
M27 x 3.0	66	0.9617	24.428	
M27 x 3.0	65	0.9633	24.467	
M27 x 3.0	64	0.9648	24.506	24.5mm
M27 x 3.0	63	0.9663	24.545	
M27 x 3.0	62	0.9679	24.584	
M27 x 3.0	61	0.9694	24.623	31/32"
M27 x 3.0	60	0.9709	24.662	
M30 x 1.5	70	1.1274	28.636	
M30 x 1.5	69	1.1282	28.655	
M30 x 1.5	68	1.1289	28.675	
M30 x 1.5	67	1.1297	28.694	28.7mm
M30 x 1.5	66	1.1305	28.714	
M30 x 1.5	65	1.1312	28.733	
M30 x 1.5	64	1.1320	28.753	
M30 x 1.5	63	1.1328	28.772	
M30 x 1.5	62	1.1335	28.792	28.8mm
M30 x 1.5	61	1.1343	28.811	
M30 x 1.5	60	1.1351	28.831	
M30 x 3.5	70	1.0558	26.817	
M30 x 3.5	69	1.0576	26.863	
M30 x 3.5	68	1.0594	26.908	26.9mm
M30 x 3.5	67	1.0612	26.954	
M30 x 3.5	66	1.0630	26.999	27mm
M30 x 3.5	65	1.0648	27.045	
M30 x 3.5	64	1.0665	27.090	27.1mm
M30 x 3.5	63	1.0683	27.136	
M30 x 3.5	62	1.0701	27.181	
M30 x 3.5	61	1.0719	27.227	
M30 x 3.5	60	1.0737	27.272	

*HPF – (High Performance Forming) – These drill sizes were designed for the HPF tap. Call customer service for price and availability.

Tap Drill Sizes (60%–70%) – Metric Form Taps

M / MF Tap Sizes	Theor. Thread %	Drill Sizes		Stand. Drill Equiv.
		Decimal	mm	
M3 x 0.5	70	0.1087	2.762	
M3 x 0.5	69	0.1089	2.765	
M3 x 0.5	68	0.1090	2.769	
M3 x 0.5	67	0.1091	2.772	
M3 x 0.5	66	0.1093	2.776	
M3 x 0.5	65	0.1094	2.779	7/64"
M3 x 0.5	64	0.1095	2.782	
M3 x 0.5	63	0.1097	2.786	
M3 x 0.5	62	0.1098	2.789	
M3 x 0.5	61	0.1099	2.793	35
M3 x 0.5	60	0.1101	2.796	2.8mm
M3.5 x 0.6	70	0.1266	3.214	
M3.5 x 0.6	69	0.1267	3.218	
M3.5 x 0.6	68	0.1269	3.223	
M3.5 x 0.6	67	0.1270	3.227	
M3.5 x 0.6	66	0.1272	3.231	
M3.5 x 0.6	65	0.1274	3.235	
M3.5 x 0.6	64	0.1275	3.239	
M3.5 x 0.6	63	0.1277	3.243	
M3.5 x 0.6	62	0.1278	3.247	
M3.5 x 0.6	61	0.1280	3.251	
M3.5 x 0.6	60	0.1282	3.255	
M4 x 0.5	70	0.1481	3.762	
M4 x 0.5	69	0.1482	3.765	
M4 x 0.5	68	0.1484	3.769	
M4 x 0.5	67	0.1485	3.772	
M4 x 0.5	66	0.1486	3.776	
M4 x 0.5	65	0.1488	3.779	
M4 x 0.5	64	0.1489	3.782	
M4 x 0.5	63	0.1490	3.786	
M4 x 0.5	62	0.1492	3.789	
M4 x 0.5	61	0.1493	3.793	
M4 x 0.5	60	0.1494	3.796	25
M4 x 0.7	70	0.1444	3.667	
M4 x 0.7	69	0.1445	3.672	
M4 x 0.7	68	0.1447	3.676	
M4 x 0.7	67	0.1449	3.681	
M4 x 0.7	66	0.1451	3.686	
M4 x 0.7	65	0.1453	3.691	
M4 x 0.7	64	0.1455	3.695	
M4 x 0.7	63	0.1457	3.700	3.7mm
M4 x 0.7	62	0.1459	3.705	
M4 x 0.7	61	0.1460	3.710	
M4 x 0.7	60	0.1462	3.714	
M5 x 0.5	70	0.1875	4.762	3/16"
M5 x 0.5	69	0.1876	4.765	
M5 x 0.5	68	0.1877	4.769	
M5 x 0.5	67	0.1879	4.772	
M5 x 0.5	66	0.1880	4.776	
M5 x 0.5	65	0.1881	4.779	
M5 x 0.5	64	0.1883	4.782	
M5 x 0.5	63	0.1884	4.786	
M5 x 0.5	62	0.1886	4.789	
M5 x 0.5	61	0.1887	4.793	
M5 x 0.5	60	0.1888	4.796	12 (4.8mm)
M5 x 0.8	70	0.1819	4.619	
M5 x 0.8	69	0.1821	4.625	14 (HPF)*
M5 x 0.8	68	0.1823	4.630	

M / MF Tap Sizes	Theor. Thread %	Drill Sizes		Stand. Drill Equiv.
		Decimal	mm	
M5 x 0.8	67	0.1825	4.636	
M5 x 0.8	66	0.1827	4.641	
M5 x 0.8	65	0.1829	4.646	
M5 x 0.8	64	0.1831	4.652	
M5 x 0.8	63	0.1834	4.657	
M5 x 0.8	62	0.1836	4.663	
M5 x 0.8	61	0.1838	4.668	
M5 x 0.8	60	0.1840	4.674	
M6 x 0.75	70	0.2222	5.643	
M6 x 0.75	69	0.2224	5.648	
M6 x 0.75	68	0.2226	5.653	
M6 x 0.75	67	0.2228	5.658	
M6 x 0.75	66	0.2230	5.663	
M6 x 0.75	65	0.2232	5.669	
M6 x 0.75	64	0.2234	5.674	
M6 x 0.75	63	0.2236	5.679	
M6 x 0.75	62	0.2238	5.684	
M6 x 0.75	61	0.2240	5.689	
M6 x 0.75	60	0.2242	5.694	5.7mm
M6 x 1.0	70	0.2175	5.524	(HPF)*
M6 x 1.0	69	0.2177	5.531	
M6 x 1.0	68	0.2180	5.538	
M6 x 1.0	67	0.2183	5.544	
M6 x 1.0	66	0.2186	5.551	
M6 x 1.0	65	0.2188	5.558	7/32"
M6 x 1.0	64	0.2191	5.565	
M6 x 1.0	63	0.2194	5.572	
M6 x 1.0	62	0.2196	5.578	
M6 x 1.0	61	0.2199	5.585	
M6 x 1.0	60	0.2202	5.592	5.6mm
M8 x 1.0	70	0.2962	7.524	(HPF)*
M8 x 1.0	69	0.2965	7.531	
M8 x 1.0	68	0.2968	7.538	
M8 x 1.0	67	0.2970	7.544	
M8 x 1.0	66	0.2973	7.551	
M8 x 1.0	65	0.2976	7.558	
M8 x 1.0	64	0.2978	7.565	
M8 x 1.0	63	0.2981	7.572	
M8 x 1.0	62	0.2984	7.578	
M8 x 1.0	61	0.2986	7.585	
M8 x 1.0	60	0.2989	7.592	7.6mm
M8 x 1.25	70	0.2915	7.405	7.4mm
M8 x 1.25	69	0.2919	7.414	
M8 x 1.25	68	0.2922	7.422	(HPF)*
M8 x 1.25	67	0.2925	7.431	
M8 x 1.25	66	0.2929	7.439	
M8 x 1.25	65	0.2932	7.448	
M8 x 1.25	64	0.2935	7.456	
M8 x 1.25	63	0.2939	7.465	
M8 x 1.25	62	0.2942	7.473	
M8 x 1.25	61	0.2945	7.482	
M8 x 1.25	60	0.2949	7.490	7.5mm
M10 x 1.0	70	0.3750	9.524	3/8" (HPF)*
M10 x 1.0	69	0.3752	9.531	
M10 x 1.0	68	0.3755	9.538	
M10 x 1.0	67	0.3758	9.544	
M10 x 1.0	66	0.3760	9.551	
M10 x 1.0	65	0.3763	9.558	
M10 x 1.0	64	0.3766	9.565	

M / MF Tap Sizes	Theor. Thread %	Drill Sizes		Stand. Drill Equiv.
		Decimal	mm	
M10 x 1.0	63	0.3768	9.572	
M10 x 1.0	62	0.3771	9.578	V
M10 x 1.0	61	0.3774	9.585	
M10 x 1.0	60	0.3776	9.592	9.6mm
M10 x 1.25	70	0.3703	9.405	9.4mm
M10 x 1.25	69	0.3706	9.414	
M10 x 1.25	68	0.3709	9.422	(HPF)*
M10 x 1.25	67	0.3713	9.431	
M10 x 1.25	66	0.3716	9.439	
M10 x 1.25	65	0.3719	9.448	
M10 x 1.25	64	0.3723	9.456	
M10 x 1.25	63	0.3726	9.465	
M10 x 1.25	62	0.3730	9.473	
M10 x 1.25	61	0.3733	9.482	
M10 x 1.25	60	0.3736	9.490	9.5mm
M10 x 1.5	70	0.3656	9.286	
M10 x 1.5	69	0.3660	9.296	
M10 x 1.5	68	0.3664	9.306	9.3mm
M10 x 1.5	67	0.3668	9.317	
M10 x 1.5	66	0.3672	9.327	(HPF)*
M10 x 1.5	65	0.3676	9.337	
M10 x 1.5	64	0.3680	9.347	U
M10 x 1.5	63	0.3684	9.357	
M10 x 1.5	62	0.3688	9.368	
M10 x 1.5	61	0.3692	9.378	
M10 x 1.5	60	0.3696	9.388	
M12 x 1.25	70	0.4490	11.405	11.4mm
M12 x 1.25	69	0.4494	11.414	
M12 x 1.25	68	0.4497	11.422	(HPF)*
M12 x 1.25	67	0.4500	11.431	
M12 x 1.25	66	0.4504	11.439	
M12 x 1.25	65	0.4507	11.448	
M12 x 1.25	64	0.4510	11.456	
M12 x 1.25	63	0.4514	11.465	
M12 x 1.25	62	0.4517	11.473	
M12 x 1.25	61	0.4520	11.482	
M12 x 1.25	60	0.4524	11.490	11.5mm
M12 x 1.5	70	0.4443	11.286	
M12 x 1.5	69	0.4447	11.296	
M12 x 1.5	68	0.4451	11.306	11.3mm
M12 x 1.5	67	0.4455	11.317	
M12 x 1.5	66	0.4459	11.327	(HPF)*
M12 x 1.5	65	0.4463	11.337	
M12 x 1.5	64	0.4467	11.347	
M12 x 1.5	63	0.4471	11.357	
M12 x 1.5	62	0.4475	11.368	
M12 x 1.5	61	0.4479	11.378	
M12 x 1.5	60	0.4483	11.388	
M12 x 1.75	70	0.4396	11.167	
M12 x 1.75	69	0.4401	11.179	
M12 x 1.75	68	0.4406	11.191	
M12 x 1.75	67	0.4411	11.203	11.2mm
M12 x 1.75	66	0.4415	11.215	
M12 x 1.75	65	0.4420	11.227	(HPF)*
M12 x 1.75	64	0.4425	11.238	
M12 x 1.75	63	0.4429	11.250	
M12 x 1.75	62	0.4434	11.262	
M12 x 1.75	61	0.4439	11.274	
M12 x 1.75	60	0.4443	11.286	
M14 x 1.5	70	0.5231	13.286	

Tap Drill Sizes (60%–70%) – Metric Form Taps

M / MF Tap Sizes	Theor. Thread %	Drill Sizes		Stand. Drill Equiv.
		Decimal	mm	
M14 x 1.5	69	0.5235	13.296	13.3mm
M14 x 1.5	68	0.5239	13.306	
M14 x 1.5	67	0.5243	13.317	
M14 x 1.5	66	0.5247	13.327	(HPF)*
M14 x 1.5	65	0.5251	13.337	
M14 x 1.5	64	0.5255	13.347	
M14 x 1.5	63	0.5259	13.357	
M14 x 1.5	62	0.5263	13.368	
M14 x 1.5	61	0.5267	13.378	
M14 x 1.5	60	0.5271	13.388	
M14 x 2.0	70	0.5137	13.048	13mm
M14 x 2.0	69	0.5142	13.062	
M14 x 2.0	68	0.5148	13.075	(HPF)*
M14 x 2.0	67	0.5153	13.089	33/64"
M14 x 2.0	66	0.5158	13.102	13.1mm
M14 x 2.0	65	0.5164	13.116	
M14 x 2.0	64	0.5169	13.130	
M14 x 2.0	63	0.5174	13.143	
M14 x 2.0	62	0.5180	13.157	
M14 x 2.0	61	0.5185	13.170	
M14 x 2.0	60	0.5191	13.184	
M16 x 1.5	70	0.6018	15.286	
M16 x 1.5	69	0.6022	15.296	
M16 x 1.5	68	0.6026	15.306	15.3mm
M16 x 1.5	67	0.6030	15.317	
M16 x 1.5	66	0.6034	15.327	(HPF)*
M16 x 1.5	65	0.6038	15.337	
M16 x 1.5	64	0.6042	15.347	
M16 x 1.5	63	0.6046	15.357	
M16 x 1.5	62	0.6050	15.368	
M16 x 1.5	61	0.6054	15.378	
M16 x 1.5	60	0.6058	15.388	
M16 x 2.0	70	0.5924	15.048	
M16 x 2.0	69	0.5930	15.062	
M16 x 2.0	68	0.5935	15.075	(HPF)*
M16 x 2.0	67	0.5940	15.089	19/32"
M16 x 2.0	66	0.5946	15.102	15.1mm
M16 x 2.0	65	0.5951	15.116	
M16 x 2.0	64	0.5957	15.130	
M16 x 2.0	63	0.5962	15.143	
M16 x 2.0	62	0.5967	15.157	
M16 x 2.0	61	0.5973	15.170	
M16 x 2.0	60	0.5978	15.184	
M18 x 1.5	70	0.6806	17.286	
M18 x 1.5	69	0.6810	17.296	17.3mm
M18 x 1.5	68	0.6814	17.306	
M18 x 1.5	67	0.6818	17.317	
M18 x 1.5	66	0.6822	17.327	(HPF)*
M18 x 1.5	65	0.6826	17.337	
M18 x 1.5	64	0.6830	17.347	
M18 x 1.5	63	0.6834	17.357	
M18 x 1.5	62	0.6838	17.368	
M18 x 1.5	61	0.6842	17.378	
M18 x 1.5	60	0.6846	17.388	
M18 x 2.5	70	0.6618	16.810	16.8mm
M18 x 2.5	69	0.6625	16.827	
M18 x 2.5	68	0.6631	16.844	
M18 x 2.5	67	0.6638	16.861	
M18 x 2.5	66	0.6645	16.878	
M18 x 2.5	65	0.6652	16.895	

M / MF Tap Sizes	Theor. Thread %	Drill Sizes		Stand. Drill Equiv.
		Decimal	mm	
M18 x 2.5	64	0.6658	16.912	16.9mm
M18 x 2.5	63	0.6665	16.929	
M18 x 2.5	62	0.6672	16.946	
M18 x 2.5	61	0.6678	16.963	
M18 x 2.5	60	0.6685	16.980	17mm
M20 x 1.5	70	0.7593	19.286	
M20 x 1.5	69	0.7597	19.296	19.3mm
M20 x 1.5	68	0.7601	19.306	
M20 x 1.5	67	0.7605	19.317	
M20 x 1.5	66	0.7609	19.327	
M20 x 1.5	65	0.7613	19.337	
M20 x 1.5	64	0.7617	19.347	
M20 x 1.5	63	0.7621	19.357	
M20 x 1.5	62	0.7625	19.368	
M20 x 1.5	61	0.7629	19.378	
M20 x 1.5	60	0.7633	19.388	
M20 x 2.5	70	0.7406	18.810	18.8mm
M20 x 2.5	69	0.7412	18.827	
M20 x 2.5	68	0.7419	18.844	
M20 x 2.5	67	0.7426	18.861	
M20 x 2.5	66	0.7432	18.878	
M20 x 2.5	65	0.7439	18.895	18.9mm
M20 x 2.5	64	0.7446	18.912	
M20 x 2.5	63	0.7452	18.929	
M20 x 2.5	62	0.7459	18.946	
M20 x 2.5	61	0.7466	18.963	
M20 x 2.5	60	0.7472	18.980	
M22 x 1.5	70	0.8380	21.286	
M22 x 1.5	69	0.8384	21.296	
M22 x 1.5	68	0.8388	21.306	21.3mm
M22 x 1.5	67	0.8392	21.317	
M22 x 1.5	66	0.8396	21.327	
M22 x 1.5	65	0.8400	21.337	
M22 x 1.5	64	0.8404	21.347	
M22 x 1.5	63	0.8408	21.357	
M22 x 1.5	62	0.8412	21.368	
M22 x 1.5	61	0.8416	21.378	
M22 x 1.5	60	0.8420	21.388	
M22 x 2.5	70	0.8193	20.810	
M22 x 2.5	69	0.8200	20.827	
M22 x 2.5	68	0.8206	20.844	
M22 x 2.5	67	0.8213	20.861	
M22 x 2.5	66	0.8220	20.878	
M22 x 2.5	65	0.8226	20.895	20.9mm
M22 x 2.5	64	0.8233	20.912	
M22 x 2.5	63	0.8240	20.929	
M22 x 2.5	62	0.8246	20.946	
M22 x 2.5	61	0.8253	20.963	
M22 x 2.5	60	0.8260	20.980	21mm
M24 x 1.5	70	0.9168	23.286	
M24 x 1.5	69	0.9172	23.296	
M24 x 1.5	68	0.9176	23.306	23.3mm
M24 x 1.5	67	0.9180	23.317	
M24 x 1.5	66	0.9184	23.327	
M24 x 1.5	65	0.9188	23.337	
M24 x 1.5	64	0.9192	23.347	
M24 x 1.5	63	0.9196	23.357	
M24 x 1.5	62	0.9200	23.368	
M24 x 1.5	61	0.9204	23.378	
M24 x 1.5	60	0.9208	23.388	

M / MF Tap Sizes	Theor. Thread %	Drill Sizes		Stand. Drill Equiv.
		Decimal	mm	
M24 x 3.0	70	0.8887	22.572	
M24 x 3.0	69	0.8895	22.592	22.6mm
M24 x 3.0	68	0.8903	22.613	57/64"
M24 x 3.0	67	0.8911	22.633	
M24 x 3.0	66	0.8919	22.654	
M24 x 3.0	65	0.8927	22.674	
M24 x 3.0	64	0.8935	22.694	22.7mm
M24 x 3.0	63	0.8943	22.715	
M24 x 3.0	62	0.8951	22.735	
M24 x 3.0	61	0.8959	22.756	
M24 x 3.0	60	0.8967	22.776	
M27 x 1.5	70	1.0349	26.286	
M27 x 1.5	69	1.0353	26.296	
M27 x 1.5	68	1.0357	26.306	26.3mm
M27 x 1.5	67	1.0361	26.317	
M27 x 1.5	66	1.0365	26.327	
M27 x 1.5	65	1.0369	26.337	
M27 x 1.5	64	1.0373	26.347	
M27 x 1.5	63	1.0377	26.357	
M27 x 1.5	62	1.0381	26.368	
M27 x 1.5	61	1.0385	26.378	
M27 x 1.5	60	1.0389	26.388	
M27 x 3.0	70	1.0068	25.572	
M27 x 3.0	69	1.0076	25.592	25.6mm
M27 x 3.0	68	1.0084	25.613	
M27 x 3.0	67	1.0092	25.633	
M27 x 3.0	66	1.0100	25.654	
M27 x 3.0	65	1.0108	25.674	
M27 x 3.0	64	1.0116	25.694	25.7mm
M27 x 3.0	63	1.0124	25.715	
M27 x 3.0	62	1.0132	25.735	
M27 x 3.0	61	1.0140	25.756	
M27 x 3.0	60	1.0148	25.776	
M30 x 1.5	70	1.1530	29.286	
M30 x 1.5	69	1.1534	29.296	
M30 x 1.5	68	1.1538	29.306	29.3mm
M30 x 1.5	67	1.1542	29.317	
M30 x 1.5	66	1.1546	29.327	
M30 x 1.5	65	1.1550	29.337	
M30 x 1.5	64	1.1554	29.347	
M30 x 1.5	63	1.1558	29.357	
M30 x 1.5	62	1.1562	29.368	
M30 x 1.5	61	1.1566	29.378	
M30 x 1.5	60	1.1570	29.388	
M30 x 3.5	70	1.1155	28.334	
M30 x 3.5	69	1.1164	28.358	
M30 x 3.5	68	1.1174	28.382	
M30 x 3.5	67	1.1183	28.405	28.4mm
M30 x 3.5	66	1.1193	28.429	
M30 x 3.5	65	1.1202	28.453	
M30 x 3.5	64	1.1211	28.477	
M30 x 3.5	63	1.1221	28.501	28.5mm
M30 x 3.5	62	1.1230	28.524	
M30 x 3.5	61	1.1239	28.548	
M30 x 3.5	60	1.1249	28.572	1-1/8"

*HPF – (High Performance Forming) – These drill sizes were designed for the HPF tap. Call customer service for price and availability.

OLD EDP #	NEW EDP #	Pg.
11091	1387894	17
11369	1387845	17
11370	1387846	17
11371	1387890	17
11720	1387844	17
11740	1387891	17
11741	1387893	17
	1400128	15
	1400129	15
12140	1402774	42
12141	1402775	42
12142	1402776	42
12143	1402777	42
12144	1402778	42
12145	1402779	42
12146	1402781	42
12147	1402782	42
12148	1402783	42
12149	1402784	42
12150	1402785	42
12151	1402786	42
	1400133	13
	1400126	15
13669	9100557	22
14299	9116565	12
14300	9116566	12
14301	9116567	12
14302	9116568	12
14303	9116569	12
14304	9116570	12
14305	9116571	12
14306	9116572	12
14307	9116573	12
14308	9116574	12
14309	9116575	12
14310	9116576	12
14311	9116577	12
14312	9116578	12
14313	9116579	12
14314	9116580	12
14315	9116549	14
14316	9116550	14
14317	9116551	14
14318	9116552	14
14319	9116553	14
14320	9116554	14
14321	9116555	14
14322	9116556	14
14323	9116557	14
14324	9116558	14
14325	9116559	14
14334	9116560	14
14335	9116561	14
14336	9116562	14
14337	9116563	14
14338	9116564	14
18589	2422202	40
18589	2422202	41
41106	1393906	27
41107	1393915	27
41108	1393924	27
41109	1393933	27
41110	1393942	27
41111	1393951	27
41112	1393960	27
41113	1393785	27
41114	1393979	27
41115	1393809	27
41116	1393818	27
41139	1394433	27
41140	1394434	27

OLD EDP #	NEW EDP #	Pg.
41141	1394435	27
41142	1394427	27
41143	1394432	27
41144	1394436	27
41145	1394337	27
41146	1394439	27
41147	1394440	27
41148	1394441	27
41149	1394442	27
41181	1400953	26
41182	1400955	26
41183	1400957	26
41184	1400959	26
41185	1400961	26
41186	1400963	26
41187	1400965	26
41188	1400967	26
41189	1400969	26
41190	1400971	26
41191	1400973	26
41192	1400975	26
41193	1400977	26
41194	1400979	26
41195	1400981	26
41196	1400983	26
41197	1400985	26
41198	1400987	26
41199	1400989	26
41239	1401067	26
41240	1401069	26
41241	1401071	26
41242	1401073	26
41243	1401075	26
41244	1401077	26
41245	1401079	26
41246	1401081	26
41247	1401083	26
41248	1401085	26
41249	1401087	26
41250	1401089	26
41251	1401091	26
41252	1401093	26
41253	1401095	26
41254	1401097	26
41255	1401099	26
41256	1401101	26
41286	1400408	9
41287	1400417	9
41288	1400426	9
41289	1400435	9
41290	1400444	9
41291	1400453	9
41292	1400462	9
41293	1400464	9
41294	1400471	9
41295	1400473	9
41296	1400480	9
41319	1400908	9
41320	1401843	9
41321	1400917	9
41322	1400926	9
41323	1400839	9
41324	1400837	9
41325	1400841	9
41326	1400864	9
41327	1400873	9
41328	1400882	9
41329	1400891	9
41330	1400927	5
41331	1400928	5
41332	1400929	5

OLD EDP #	NEW EDP #	Pg.
41333	1400930	5
41334	1400931	5
41335	1400932	5
41336	1400933	5
41337	1400935	5
41338	1400936	5
41339	1400937	5
41340	1400938	5
41372	1400993	8
41373	1400995	8
41374	1400997	8
41375	1400999	8
41376	1401001	8
41377	1401003	8
41378	1401005	8
41379	1401007	8
41380	1401009	8
41381	1401011	8
41382	1401013	8
41383	1401015	8
41384	1401017	8
41385	1401019	8
41386	1401021	8
41387	1401023	8
41388	1401025	8
41389	1401027	8
41390	1401029	8
41391	1401031	8
41432	1401103	8
41433	1401105	8
41434	1401107	8
41435	1401109	8
41436	1401111	8
41437	1401113	8
41438	1401115	8
41439	1401117	8
41440	1401119	8
41441	1401121	8
41442	1401123	8
41443	1401125	8
41444	1401127	8
41445	1401129	8
41446	1401131	8
41447	1401133	8
41448	1401135	8
41449	1401137	8
41472	1402549	11
41473	1402539	11
41474	1402540	11
41475	1402541	11
41476	1402542	11
41477	1402543	11
41478	1402561	11
41479	1402544	11
41480	1402562	11
41481	1402545	11
41482	1402546	11
41483	1402547	11
41484	1402548	11
41486	1402551	11
41487	1400950	11
41488	1402552	11
41489	1402553	11
41490	1400951	11
41491	1402554	11
41492	1402555	11
41493	1402557	11
41494	1402558	11
41495	1402559	11
41496	1402560	11
41497	1401046	10

OLD EDP #	NEW EDP #	Pg.
41498	1401047	10
41499	1401048	10
41500	1401049	10
41501	1401050	10
41502	1401051	10
41503	1401052	10
41504	1401053	10
41505	1401054	10
41506	1401055	10
41507	1401056	10
41508	1401057	10
41509	1401058	10
41510	1401059	10
41511	1401060	10
41512	1401061	10
41513	1401062	10
41514	1401063	10
41515	1401064	10
41516	1401065	10
41517	1401152	10
41518	1401153	10
41519	1401154	10
41520	1401155	10
41521	1401156	10
41522	1401157	10
41523	1401158	10
41524	1401159	10
41525	1401160	10
41526	1401161	10
41527	1401162	10
41528	1401163	10
41529	1401164	10
41530	1401165	10
41531	1401166	10
41532	1401167	10
41533	1401168	10
41534	1401169	10
41537	1401395	29
41538	1401396	29
41539	1401397	29
41540	1401398	29
41541	1401399	29
41542	1401400	29
41543	1401401	29
41544	1401402	28
41545	1401403	28
41546	1401404	28
41547	1401405	28
41548	1401406	28
41549	1401407	28
41550	1401408	28
41551	1401409	28
41552	1401410	28
41553	1401411	28
41554	1401412	28
41555	1401413	28
41556	1401414	28
41557	1401415	28
41558	1401374	31
41559	1401375	31
41560	1401376	31
41561	1401377	31
41562	1401378	31
41563	1401379	31
41564	1401380	31
41565	1401381	30
41566	1401382	30
41567	1401383	30
41568	1401384	30
41569	1401385	30
41570	1401386	30

OLD EDP #	NEW EDP #	Pg.
41571	1401387	30
41572	1401388	30
41573	1401389	30
41574	1401390	30
41575	1401391	30
41576	1401392	30
41577	1401393	30
41578	1401394	30
41579	1401437	19
41580	1401438	19
41581	1401439	19
41582	1401440	19
41583	1401441	19
41584	1401442	19
41585	1401443	19
41586	1401444	18
41587	1401445	18
41588	1401446	18
41589	1401447	18
41590	1401448	18
41591	1401449	18
41592	1401450	18
41593	1401451	18
41594	1401452	18
41595	1401453	18
41596	1401454	18
41597	1401455	18
41598	1401456	18
41599	1401457	18
41600	1401416	21
41601	1401417	21
41602	1401418	21
41603	1401419	21
41604	1401420	21
41605	1401421	21
41606	1401422	21
41607	1401423	20
41608	1401424	20
41609	1401425	20
41610	1401426	20
41611	1401427	20
41612	1401428	20
41613	1401429	20
41614	1401430	20
41615	1401431	20
41616	1401432	20
41617	1401433	20
41618	1401434	20
41619	1401435	20
41620	1401436	20
41621	1401479	35
41622	1401480	35
41623	1401481	35
41624	1401482	35
41625	1401483	35
41626	1401484	35
41627	1401485	35
41628	1401486	34
41629	1401487	34
41630	1401488	34
41631	1401489	34
41632	1401490	34
41633	1401491	34
41634	1401492	34
41635	1401493	34
41636	1401494	34
41637	1401495	34
41638	1401496	34
41639	1401497	34
41640	1401498	34
41641	1401499	34

OLD EDP #	NEW EDP #	Pg.
41642	1401458	37
41643	1401459	37
41644	1401460	37
41645	1401461	37
41646	1401462	37
41647	1401463	37
41648	1401464	37
41649	1401465	36
41650	1401466	36
41651	1401467	36
41652	1401468	36
41653	1401469	36
41654	1401470	36
41655	1401471	36
41656	1401472	36
41657	1401473	36
41658	1401474	36
41659	1401475	36
41660	1401476	36
41661	1401477	36
41662	1401478	36
41663	1401171	33
41664	1401173	33
41665	1401175	33
41666	1410657	33
41667	1401179	33
41668	1401181	33
41669	1401183	33
41670	1401185	33
41671	1401187	33
41672	1401189	33
41673	1401191	33
41685	1401303	33
41686	1401305	33
41687	1401307	33
41688	1401309	33
41689	1401311	33
41690	1401313	33
41691	1401315	33
41692	1401317	33
41693	1401319	33
41694	1401321	33
41695	1401323	33
41697	1401325	33
41711	1401327	32
41712	1401329	32
41713	1401331	32
41714	1401333	32
41715	1401335	32
41716	1401337	32
41717	1401339	32
41718	1401341	32
41719	1401343	32
41720	1401345	32
41721	1401347	32
41722	1401349	32
41735	1401351	32
41736	1401353	32
41737	1401355	32
41738	1401357	32
41739	1401359	32
41740	1401361	32
41741	1401363	32
41742	1401365	32
41743	1401367	32
41744	1401369	32
41745	1401371	32
41746	1401373	32
50258	1048344	41
50259	1048335	40
50259	1048335	41

OLD EDP #	NEW EDP #	Pg.
50262	1048427	40
50262	1048427	41
51554	1401032	4
51555	1401033	4
51556	1401034	4
51557	1401035	4
51558	1401036	4
51559	1401037	4
51560	1401038	4
51561	1401039	4
51562	1401040	4
51563	1401041	4
51564	1401042	4
51565	1401043	4
51566	1401044	4
51567	1401045	4
51568	1400939	5
51569	1400940	5
51570	1400941	5
51571	1400942	5
51572	1400943	5
51573	1400944	5
51574	1401138	4
51575	1401139	4
51576	1401140	4
51577	1401141	4
51578	1401142	4
51579	1401143	4
51580	1401144	4
51581	1401145	4
51582	1401146	4
51583	1401147	4
51584	1401148	4
51585	1401149	4
51586	1401150	4
51587	1401151	4
51588	1400945	5
51589	1400946	5
51590	1400947	5
51591	1400948	5
51592	1400949	5
51803	1402556	11
52990	1045832	40
52990	1045832	41
52991	2422203	40
52991	2422203	41
53001	1403050	41
53002	1403051	41
53003	1403052	41
53004	1403060	41
53005	1403062	41
53006	1403064	41
53007	1403069	41
53008	1403070	41
53009	1403071	41
53010	1403072	41
53011	1403074	41
53012	1403078	41
53013	1403053	41
53014	1403054	41
53015	1403055	41
53016	1403080	41
53017	1403082	41
53018	1403083	41
53019	1403085	41
53020	1403086	41
53021	1403090	41
53022	1403092	41
53023	1403096	41
53024	1403098	41
53049	1403028	41

OLD EDP #	NEW EDP #	Pg.
53050	1403032	41
53051	1403034	41
53052	1403036	41
53053	1403038	41
53422	1402662	40
53423	1402658	40
53424	1402663	40
53425	1402659	40
53426	1402664	40
53427	1402660	40
53428	1402665	40
53429	1402661	40
53430	1403150	40
53431	1403151	40
53432	1403153	40
53433	1403154	40
53555	1365303	39
53969	1402667	40
53970	1402666	40
53971	1403155	40
54829	1365300	39
54830	1365301	39
54831	1365302	39
54832	1365304	39
54880	2423946	38
54881	2423947	38
54882	2423948	38
54883	2423949	38
54884	2423950	38
54885	2423951	38
54886	2423952	38
55685	1402685	40
55686	1402795	40
55687	1403158	40
56545	1387892	17
89977	1045183	40
89977	1045183	41
89978	1048326	40
89978	1048326	41
92217	1400127	15
92218	1400130	15
92219	1400131	15
92220	1400132	15
92221	1400134	13
92222	1400135	13
92223	1400136	13
92224	1400137	13
92225	1400138	13
92226	1400139	13
92227	1400151	15
92228	1400152	15
92229	1400153	15
92230	1400154	15
92231	1400155	15
92232	1400156	15
92233	1400157	15
92234	1400158	15
92235	1400159	15
92236	1400160	15
92237	1400161	15
92238	1400162	13
92239	1400163	13
92240	1400164	13
92241	1400165	13
92242	1400166	13
92243	1400167	13
92244	1400168	13
92245	1400169	13
92246	1400170	13
92247	1400171	13
92248	1400172	13

OLD EDP #	NEW EDP #	Pg.
92259	9100559	22
92260	9100560	22
92261	9100561	22
92262	9100562	22
92263	9100563	22
92264	9100564	22
92265	9100565	22
92266	9100584	22
92267	9100567	22
92268	9100568	22
92269	9100569	22
92270	9100570	22
92271	9100571	22
92272	9100572	22
92273	9100573	22
92274	9100574	22
92275	9100575	22
92276	9100576	22
92277	9100577	22
92278	9100578	22
92279	9100579	22
92280	9100585	22
92281	9100582	22
92287	1390185	7
92288	1390186	7
92289	1390187	7
92290	1390188	7
92291	1390189	7
92292	1390207	7
92293	1390208	7
92294	1390209	7
92295	1390210	7
92296	1390211	7
92297	9101599	16
92298	9101596	16
92299	9104890	16
92300	9104891	16
92301	9104892	16
92302	9104893	16
92303	9104894	16
92304	9104895	16
92305	9104896	16
92306	9104897	16
92307	9104898	16
92308	9104899	16
92309	9104900	16
92310	9104901	16
92311	9101597	16
92312	9101598	16
	1400126	15
	1400128	15
	1400129	15
	1400133	13
	9096522	43
	9096524	43
	9096525	43
	9096526	43
	9096527	43
	9096528	43
	9100451	43
	9100453	43
	9100454	43
	9100455	43
	9100456	43
	9100458	43
92417	9117733	6
92418	9117734	6
92419	9117735	6
92420	9117736	6
92421	9117737	6
92422	9117738	6

OLD EDP #	NEW EDP #	Pg.
92423	9117749	6
92424	9117750	6
92425	9117751	6
92426	9117752	6
92427	9117753	6
92428	9117754	6
92429	9117755	6
92430	9117756	6
92431	9117757	6
92432	9117759	6
92433	9117760	6
92434	9117761	6
92435	9117764	6
92436	9117765	6
92437	9117766	6
92438	9117767	24
92439	9117770	24
92440	9117771	24
92441	9117775	24
92442	9117778	24
92443	9117781	24
92444	9117793	24
92445	9117795	24
92446	9117796	24
92447	9117797	24
92448	9117798	24
92449	9117799	24
92450	9117801	24
92451	9117803	24
92452	9117804	24
92453	9117805	24
92454	9117806	24
92455	9117807	24
92456	9117808	24
92457	9117809	24
92458	9117810	24
92282	1390098	25
92283	1390099	25
92284	1390100	25
92285	1390101	25
92286	1390102	25
12152	1402651	42
12153	1402589	42
12154	1402590	42
12155	1402653	42
12156	1402591	42
12157	1402592	42
12158	1402648	42
12159	1402633	42
12160	1402635	42
12161	1402650	42
12162	1402636	42
12163	1402637	42
	1402594	42
	1402638	42
	1402780	42
	1402787	42
	9124600	6
	9124601	6
	9124602	6
	9124603	24
	9124604	24
	9124605	24

Notes

Notes

Notes

FREE TAP REQUEST FORM

Fill out and fax this test tap request form to your local Distributor or LMT USA Salesman to receive one FREE tap for you to test.

1997 Ohio Street, Lisle, Illinois 60532
Ph: (800) 225-0852 Fax: 630-969-5492

FREE TAP REQUEST FORM

CUSTOMER INFORMATION	
*LMT Salesman:	*Date:
*Distributor Name:	*End User Name:
*Contact:	*Contact:
Address:	Address:
City:	City:
State:	State:
Zip:	Zip:

TAP SPECIFICATIONS			
*Tap Size & EDP Number:	*Qty:	*Flute Style:	*Class of Fit:

APPLICATION DATA		
*Work Material:	*Material Hardness:	*Through or Blind Hole:
*Tapping Direction (Vert./Horiz.):	Drill Size:	Type of Holder:

Type of Lubricant:	Criteria for successful test:

TEST RESULTS	
Test Date:	Competition:
Tool Life:	Surface Treatment:
	Tool Life:
Comments:	Price:
	Comments:

NOTES

*REQUIRED INFORMATION

www.lmtusa.com

LMT – The Power of 6

Six companies with more than 3,000 employees: this is the Leitz Metalworking Technology Group (LMT). Each company develops and produces precision tools for specific segments of the metalworking and plastics processing industries. With its experience and its products, each company is a successful technological leader in its specific working area. Together, LMT's collective performance potential offers benefits in just about every area of machining and chip-removal processing.

BELIN Belin (France) is a technological leader for high-performance carbide reamers, PCD & CBN high-precision grooving mills and solid carbide milling cutters for plastics & aluminum alloys.

BILZ Bilz (Germany) operates in the field of tool clamping and is now the leading manufacturer of thread-tapping chucks and the Thermo-Grip® system.

BOEHLERIT Boehlerit (Austria) is a manufacturer of cutting tool materials for metal, composites, plastics, wood and of carbide for non-cutting applications. Boehlerit has a worldwide reputation for ultimate precision in the processing of carbide metals and tools for turning, milling, drilling, bar peeling and chipless forming.

FETTE Fette (Germany) has earned an outstanding position as a manufacture of precision milling & hobbing tools and supplies an extensive program of carbide-metal and high-speed steel tools for metal and plastics processing, thread rolling systems and thread tapping dies.

KIENINGER Kieninger (Germany) occupies a leading position on the market for special cutting systems used for more complex bore machining and precision machining work within the die and mold industry and for the machining of engine components for the automotive industry.

ONSRUD Onsrud (USA) specializes in the production of end-milling cutters for high-speed machining of aluminum, plastics and composite materials in the aerospace industry.

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BILZ
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