

Taps ISO, Dies & Tooling

Metric ISO Coarse Thread M

Metric ISO Fine Thread MF

Unified-Thread UNC

Unified-Thread UNF

Whitworth Thread BSW

Whitworth Thread BSF

Whitworth Pipe Thread G(BSPF)

BA-Thread

American Pipe Thread NPT, NPTF

Dies

Tooling



Drilling

Countersinks

Reaming

Threading

Milling

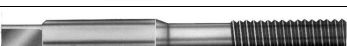
Miscellaneous

Taps HSS

ISO 529 M / MF / UNC / UNF / BSW / BSF / BA

	Standard	Type	Material	List-No.	Size	Surface	Page
	ISO 529 M ISO 529 MF	STF	HSS	60000 60080	M1 - M60 MF3 - MF40	P0	96 98
		STF	HSS	60005 60085	M3 - M16 MF3 - MF16	P5	96 98
		SpPt	HSS	60010 62810	M1 - M30 MF4 - MF22	P1	97 98
		SpPt	HSS	60015	M3 - M16	P5	97
		SpFl	HSS	60020 62820	M2 - M30 MF4 - MF22	P0	97 98
		SpFl	HSS	60027	M2 - M30	P1	97
		SpFl	HSS	60025	M3 - M16	P5	97
	ISO 529 UNC ISO 529 UNF	STF	HSS	60100 60200	UNC No.1 - 2 UNF No.0 - 1 1/2	P0	100 101
		SpPt	HSS	60110 60210	UNC No.1 - 1 UNF No.4 - 1	P1	100 101
		SpFl	HSS	60120 60220	UNC No.4 - 1 UNF No.10 - 1	P0	100 101
	ISO 529 BSW ISO 529 BSF	STF	HSS	60300 60400	BSW 1/16 - 2 1/2 BSF 3/16 - 2 1/2	P0	102 103
		SpPt	HSS	60310	BSW 1/8 - 1	P1	102
		SpFl	HSS	60320 60420	BSW 1/8 - 1 BSF 3/16 - 1	P0	102 103
	ISO 529 BA	STF	HSS	60500	BA 14-0	P0	104
	ISO 2283 M	STF	HSS	61000	M3 - M24	P0	105

Pipe / Fluteless Taps HSS

	Standard	Type	Material	List-No.	Size	Surface	Page
	ISO 2284 G(BSPF)	STF	HSS	60600	G 1/8 - 2 1/2	P0	106
		SpPt	HSS	60610	G 1/8 - 3/4	P1	106
		SpPt	HSS	60620	G 1/8 - 3/4	P0	106
	ISO 2284 Rc(BSPT)	TP	HSS	60680	Rc 1/8 - 2	P0	107
	ANSI 94.9 NPT ANSI 94.9 NPTF	TP	HSS	60750 60760	NPT 1/16 - 2 NPTF 1/8 - 1 1/4	P0	108 109
	ISO 529 M	Form	HSS	69000	M2 - M12	P0	109
	ISO 529 UNC	Form	HSS	69010	UNC No.2 - 1/2	P0	110
	ISO 529 BSW	Form	HSS	69030	BSW 1/4 - 3/8	P0	110

Dies HSS

M / MF / UNC / UNF / BSW / BSF / G(BSPF) / BA

	Standard	Type	Material	List-No.	Size	Surface	Page
	Circular Solid Dies/Gun Nose DIN 223	M	HSS	64000	M3 - M24	P0	111
		MF		64010	MF5 - MF30		
	Circular Split Dies, Adjustable BS 1127	M	HSS	64100	M1 - M39	P0	112
		MF		64110	MF3 - MF32		113
		UNC	HSS	64120	UNC No.1 - 1 1/2	P0	114
		UNF		64130	UNF No.0 - 1 1/2		
		BSW	HSS	64140	BSW 1/16 - 1 1/2	P0	115
		BSF		64150	BSF 3/16 - 1 1/2		
		G(BSPF)	HSS	64160	G 1/8 - 2	P0	116
		BA	HSS	64170	BA 16 - 0	P0	116

Hexagon Dies HSS

M / MF / UNC / UNF / BSW / BSF / G(BSPF) / NPT

	Standard	Type	Material	List-No.	Size	Surface	Page
	BS 1127	M	HSS	64400	M3 - M42	P0	117
		MF		64410	MF3 - MF42		
		UNC	HSS	64420	UNC No.8 - 2	P0	118
		UNF		64430	UNF No.8 - 1 1/2		
		BSW	HSS	64440	BSW 1/8 - 2	P0	119
		BSF		64450	BSF 3/16 - 1 3/4		
		G(BSPF)	HSS	64460	G 1/8 - 1 1/2	P0	120
		NPT	HSS	64490	NPT 1/8 - 2	P0	120

Tooling

	Standard	Type	Material	List-No.	Size	Surface	Page
	Tapwrench Ratchet	T-Type		69833	M 3 - M 12		121
		Small		69823	M 3 - M 12		121
	Diastock	Large		69843	M 3 - M 60		121
		Split		69403	13/16 - 4		121
		Solid		69413	20 - 55		121

Combination Sets Taps and Dies

	No. of Tools	Range	Unit	List-No	Page
	12	M2 - M6	1	6960037	122
	31	M6 - M24	1	6960042	122
	23	UNC 1/4 - UNC 1	1	6960023	122
	23	UNF 1/4 - UNF 1	1	6960026	122

Application Recommendations for Taps ISO

ISO Tap Selection Chart

Application

- Excellent
- ☉ Suitable

COATINGS AVAILABLE

- P0 Bright Finish
- P1 Steam Tempered Blue
- P4 Nitrided + Blue
- P5 TiN Titanium Nitride
- P6 TiCN

Main		Material			
Group	Material Group	ISO, DIN, BS EN	BS and ANSI	N/mm ²	HB
1 Steel	1.1 Magnetic soft	95MnPb28;St33;St37: RFe80	BS590 230M07Pb;En1A leaded	<400	120
	1.2 structural	35S20 St37-2 St50	BS4360-50C 55C En3A En8 En32	<750	220
	1.3 Plain Carbon Steel	C10;14NiCr14;18CrNi8;16MnCr5	080M46;080A62;En9En43	<850	250
	1.4 Low Alloy Engineering	C35; C45; C60	708M40; En16; 534A99;En31; 4140	<850	250
	1.5 Alloy Steel	110WCrV5; S6-5-2 GS-34CrMo4	EN24T;En25T M2; M42; 4340;D2	<1000	300
	1.6 Alloy Steel Heat treated	X210Cr12; 55NiCrMoV6, 32CrMo12	826M40; 830M31; S95; En25w	<1200	350
2 Stainless Steel	2.1 Austenitic	X5CrNi18.10;X6CrNiMoTi17.12.2	316; 304; 321 En58J	<850	250
	2.2 Ferritic	XcrCrAl13; X6CrTi;X1CrMoNb18.2	303; S33; En56 303	<1000	300
	2.3 Duplex	X8CrNiMo2.7.5		<1000	300
	2.4 Martensitic	X20Cr13; G-X10crmo13: X105CrMo17	420S29		
3 Cast Iron	3.1 Soft Grey Iron	GG10...GG40 Meehanite GF-20	Bs1452 Grade 350 / 400	<500	140
	3.2 Grey and heat treated Irons	GG20 ...GG40 GTS GTW	Black/Whiteheart Malleable iron	<850	250
	3.3 Spheroidal Graphite	GGG-25...GGG-70	Bs2789Grade699;Bs6681 GradeP70	<750	220
4 Titanium	4.1 Pure Titanium	Ti99.5:Ti99.2		<700	200
	4.2 Titanium Alloy	TiCu2; TiAl6V4; TiAl6Zr5		<1000	300
5 Nickel	5.1 Pure Nickel	Ni99CSi; Monel400; Hastelloy; Inconell600		<850	250
	5.2 Nickel Alloys	Nimonic 80/90; Inconell780; NimocastPk24		<1200	350
6 Copper & Brasses	6.1 Pure Copper	E-Cu57; Se-Cu; CuMn3	Bs2874-C101,c103, c106	<350	100
	6.2 Short chip Brass	CuZn40; CuZn39Pb2(Ms58) CuZn40Mn1Pb	Bs2874 -Cz122;CZ128	<700	200
	6.3 Long Chipping Brass	CuZn20; CuZn37; CuSn6	Bs2874 CZ108, CZ106	<700	200
	6.4 High strength bronze	Ampco18; Ampco20...26	AB1 type	<1350	400
7 Aluminium	7.1 Aluminium	Al99.9;9Mg05	1050A; 6082; LM0; LM1B	<350	100
	7.2 Aluminium Cast Si<0.5	AlMg3	LM5; LM10; LM12;LM16;	<500	140
	7.3 Aluminium Cast Si =0.5 -10%	G-AISI8Cu4	LM2; LM4; LM18; LM21;	>400	120
	7.4 Aluminium Cast Si>10%	G-AISI10NMg	LM6; LM13; LM20; LM28...30	>400	120
8 Plastics	Thermo Plastics	Ultramit; Merkalo; Polystrol; Degola			
	Thermo setting Plastics	akalite, Pertiax; Ferrozell; Alkbanit			
	Reinforced Plastics	FK; GFK; AFK	Kevlar Printed circuit board		

Application Recommendations for Taps ISO

60000				60010		60020					
60080				62810		62820					
60100				60110		60120					
60200				60210		60220					
60300	60005			60310		60320			69000	60600	
60400	60015			60410		60420			69010	60680	
60500	60085	60030	61000	60610	60015	60620	60027	60025	69030	60750	60760
											
N P0	N+ P5	Left N P0	N Long P0	BN P1	BN P5	R40N P0	R40N P1	R40N P5	Fluteless P0	Taper Pipe	
Hand Taps	Straight Flute			Spiral Flute / Gun nose		Spiral Flute			Fluteless	Taper Pipe	
●	●	●	●	●	●	●	●	●	●	●	
●	●	●	●	●	●	●	●	●	●	●	
●	●	●	●	●	●	●	●	●	●	●	
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P0-Bright • P1-Steam Tempered • P2-Bronze • P3-Moc • P4-Nitrided • P5-TiN • P6-TiCN • P7 / P8 TiAlN • P9 TiB

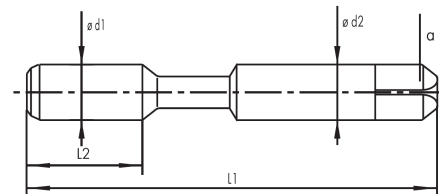
Through & Blind Hole Tapping - Types

Type		Description
STF		Straight flute full size taps used as machine taps or sets of 3 as hand taps sets for tapping in free cutting Steel up to 800N/mm ² . The perfect form thread is generated by a combination of effective pitch diameter, major diameter and chamfer length.
Type		Description
SpPt		Spiral point Machine tap with straight flutes for working in steel up to 750 N/mm ² . Swarf is forced forward in the direction of the cut.
Type		Description
SpFI		Machine tap with 40°-spiral flute. Short chamfer permits work on steel up to 750 N/mm ² . And Aluminum alloys with more than 0.5% Si.
Type		Description
TP		Tapered 1:16 Straight Flute Machine Tap with short chamfer (2-3 threads) for through and blind holes in free cutting materials up to 850 N/mm ² .
Type		Description
Form		Fluteless tap with a 2-4 thread lead. For roll tapping in materials with an elasticity of over 10% up to 900 N/mm ² . Special attention is required to obtain the correct core hole size.

Short Machine Taps ISO 529, HSS

Metric ISO-Coarse Thread, ISO 965

METRIC

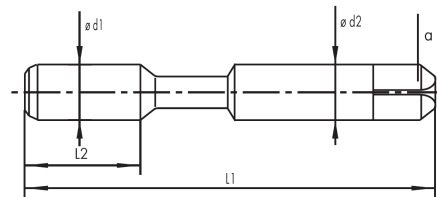


List-No.	60000	60000	60000	60000	60005	60005	
TH = Through Hole BH = Blind Hole							
	10	10	10	10	10	10	
Product Group	10	10	10	10	10	10	
Type	SET	STF Taper	STF Second	STF Bottom	STF Second	STF Bottom	
Type of Hole		TH	TH	TH / BH	TH / BH	TH	
Length of Chamfer Lead (Thread)		8 - 10	4 - 5	1.5 - 2.5	1.5 - 2.5	4 - 5	
Tolerance	ISO2/6H	ISO2/6H	ISO2/6H	ISO2/6H	ISO2/6H	ISO2/6H	
Surface	P0	P0	P0	P0	P5	P5	
Metric Size	P mm	l1 mm	l2*max mm	d2 mm	a mm	Availability	Availability
M 1	0.25	38.5	5.5	2.5	2.0	*	*
M 1.2	0.25	38.5	5.5	2.5	2.0	*	*
M 1.4	0.3	40	7	2.5	2.0	*	*
M 1.6	0.35	41	8	2.5	2.0	*	*
M 2	0.4	41	8	2.5	2.0	*	*
M 2.5	0.45	44.5	9.5	2.8	2.24	*	*
M 3	0.5	48	16	3.15	2.5	*	*
M 3.5	0.6	50	19	3.55	2.8	*	*
M 4	0.7	53	13	4.0	3.15	*	*
M 4.5	0.75	53	13	4.5	3.55	*	*
M 5	0.8	58	16	5.0	4.0	*	*
M 6	1	66	19	6.3	5.0	*	*
M 7	1	66	19	7.1	5.6	*	*
M 8	1.25	72	22	8.0	6.3	*	*
M 9	1.25	72	22	9.0	7.1	*	*
M 10	1.5	80	24	10.0	8.0	*	*
M 11	1.5	85	25	8.0	6.3	*	*
M 12	1.75	89	29	9.0	7.1	*	*
M 14	2	95	30	11.2	9.0	*	*
M 16	2	102	32	12.5	10.0	*	*
M 18	2.5	112	37	14.0	11.2	*	*
M 20	2.5	112	37	14.0	11.2	*	*
M 22	2.5	118	38	16.0	12.5	*	*
M 24	3	130	45	18.0	14.0	*	*
M 27	3	135	45	20.0	16.0	*	*
M 30	3.5	138	48	20.0	16.0	*	*
M 33	3.5	151	51	22.4	18.0	*	*
M 36	4	162	57	25.0	20.0	*	*
M 39	4	170	60	28.0	22.4	*	*
M 42	4.5	170	60	28.0	22.4	*	*
M 45	4.5	187	67	31.5	25.0	*	*
M 48	5	187	67	31.5	25.0	*	*
M 52	5	200	70	35.5	28.0	*	*
M 56	5.5	200	70	35.5	28.0	*	*
M 60	5.5	221	76	40.0	31.5	*	*
* - available on request							

Short Machine Taps ISO 529, HSS

Metric ISO-Fine Thread, ISO 965

Mf



List-No.							60080	60080	60080	60080	60085	62810	62820
TH = Through Hole BH = Blind Hole													
Product Group							10	10	10	10	10	10	10
Type							SET	STF Taper	STF Second	STF Bottom	STF Bottom	StPt	SpFI
Type of Hole								TH	TH	TH / BH	TH / BH	TH	BH
Length of Chamfer Lead (Thread)								8 - 10	4 - 5	1.5 - 2.5	1.5 - 2.5	4 - 5	1.5 - 2.5
Tolerance							ISO2/6H	ISO2/6H	ISO2/6H	ISO2/6H	ISO2/6H	ISO2/6H	ISO2/6H
Surface							P0	P0	P0	P0	P5	P1	P0
Metric Size	P mm	l1 mm	l2*max mm	d2 mm	a mm		Availability	Availability	Availability	Availability	Availability	Availability	Availability
M 3	0.35	48	16	3.15	2.5		*	*	*	*	*		
M 3.5	0.35	50	19	3.55	2.8		*	*	*	*			
M 4	0.5	53	13	4.0	3.15		*	*	*	*	*	*	*
M 4.5	0.5	53	13	4.5	3.55		*	*	*	*	*		
M 5	0.5	58	16	5.0	4.0		*	*	*	*	*	*	*
M 5	0.75	58	16	5.0	4.0		*	*	*	*	*	*	*
M 6	0.75	66	19	6.3	5.0		*	*	*	*	*	*	*
M 7	0.75	66	19	7.1	5.6		*	*	*	*	*		
M 8	0.75	72	22	8.0	6.3		*	*	*	*	*		
M 8	1.0	72	22	8.0	6.3		*	*	*	*	*	*	*
M 9	1.0	72	22	9.0	7.1		*	*	*	*	*		
M 10	0.75	80	24	10.0	8.0		*	*	*	*	*		
M 10	1.0	80	24	10.0	8.0		*	*	*	*	*	*	*
M 10	1.25	80	24	10.0	8.0		*	*	*	*	*	*	*
M 12	1.0	89	29	9.0	7.1		*	*	*	*	*		
M 12	1.25	89	29	9.0	7.1		*	*	*	*	*	*	*
M 12	1.5	89	29	9.0	7.1		*	*	*	*	*	*	*
M 14	1.0	95	30	11.2	9.0		*	*	*	*	*		
M 14	1.25	95	30	11.2	9.0		*	*	*	*	*	*	*
M 14	1.5	95	30	11.2	9.0		*	*	*	*	*	*	*
M 16	1.0	102	32	12.5	10.0		*	*	*	*	*		
M 16	1.5	102	32	12.5	10.0		*	*	*	*	*	*	*
M 18	1.0	112	37	14.0	11.2		*	*	*	*	*		
M 18	1.5	112	37	14.0	11.2		*	*	*	*	*	*	*
M 18	2.0	112	37	14.0	11.2		*	*	*	*	*	*	*
M 20	1.0	112	37	14.0	11.2		*	*	*	*	*		
M 20	1.5	112	37	14.0	11.2		*	*	*	*	*	*	*
M 20	2.0	112	37	14.0	11.2		*	*	*	*	*	*	*
M 22	1.5	118	38	16.0	12.5		*	*	*	*	*	*	*
M 22	2.0	118	38	16.0	12.5		*	*	*	*	*	*	*
M 24	1.5	130	45	18.0	14.0		*	*	*	*	*		
M 24	2.0	130	45	18.0	14.0		*	*	*	*	*	*	*
M 25	1.5	130	45	18.0	14.0		*	*	*	*	*		
M 27	1.5	127	37	20.0	16.0		*	*	*	*	*		
M 27	2.0	127	37	20.0	16.0		*	*	*	*	*	*	*
M 30	1.5	127	37	20.0	16.0		*	*	*	*	*		
M 30	2.0	127	37	20.0	16.0		*	*	*	*	*	*	*
M 32	1.5	137	37	22.4	18.0		*	*	*	*	*		

P0-Bright • P1-Steam Tempered • P2-Bronze • P3-Moc • P4-Nitrided • P5-TiN • P6-TiCN • P7 / P8 TiAlN• P9 TiB

Drilling

Countersinks

Reaming

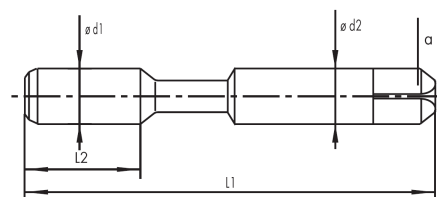
Threading

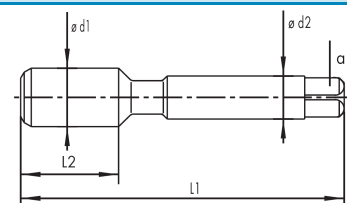
Milling

Miscellaneous

The diagram shows a horizontal shaft with two distinct sections. The left section has a diameter labeled $\varnothing d_1$ and a length labeled L_2 . The right section has a diameter labeled $\varnothing d_2$ and a length labeled L_1 . The total length of the shaft is indicated by a dimension line at the bottom. The shaft is shown in a perspective view with a dashed centerline.

P0-Bright • P1-Steam Tempered • P2-Bronze • P3-Moc • P4-Nitrided • P5-TiN • P6-TiCN • P7 / P8 TiAlN • P9 TiB

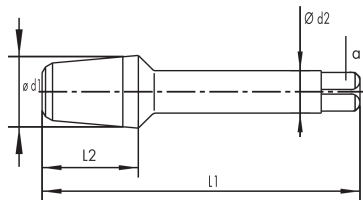
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Technical drawing of a shaft assembly. The shaft has a total length L_1 . A conical part at the left end has a length L_2 and a diameter $\varnothing d$. The main shaft has a diameter $\varnothing d_2$. A threaded section at the right end has a length C .

Short Machine Taps ANSI 94.9, HSS
Tapered Dryseal Pipe Thread NPTF ANSI-B1.20.3

NPTF



List-No.

60760

TH = Through Hole
BH = Blind Hole



Product Group

11

Type

TP Bottom

Type of Hole

BH / TH

Length of Chamfer Lead (Thread)

1.5 - 2.5

Tolerance

Normal

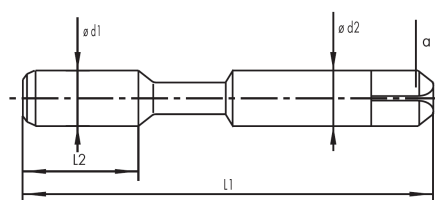
Surface

P0

Size	TPI	l1 mm	l2*max mm	d2 mm	a mm	Availability
1/8	27	2 1/8	3/4	0.437	0.328	•
1/4	18	2 7/16	1 1/16	0.562	0.421	•
3/8	18	2 9/16	1 1/16	0.700	0.531	•
1/2	14	3 1/8	1 3/8	0.687	0.515	•
3/4	14	3 1/4	1 3/8	0.906	0.679	•
1	11.5	3 3/4	1 3/4	1.125	0.843	•
1 1/4	11.5	4	1 3/4	1.312	0.984	•

Short Machine Taps ISO 529, HSS
Metric ISO Coarse Thread ISO 965

M



List-No.

69000

TH = Through Hole
BH = Blind Hole



List-No.

11

Type

Form

Type of Hole

TH / BH

Length of Chamfer Lead (Thread)

3

Tolerance

Normal

Surface

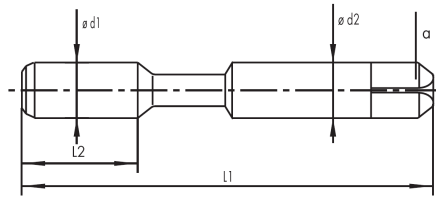
6HX

Size	P mm	l1 mm	l2*max mm	d2 mm	a mm	Availability
M2	0.4	41	8	2.5	2.0	•
M2.5	0.45	44.5	9.5	2.8	2.24	•
M 3	0.5	48	16	3.15	2.5	•
M 3.5	0.6	50	19	3.55	2.8	•
M 4	0.7	53	13	4.0	3.15	•
M 5	0.8	58	16	5.0	4.0	•
M 6	1.0	66	19	6.3	5.0	•
M 8	1.25	72	22	8.0	6.3	•
M 10	1.5	80	24	10.0	8.0	•
M 12	1.75	89	29	9.0	7.1	•

Short Fluteless Taps ISO 529, HSS

Unified Coarse Thread UNC ASME-B1.1, ISO 263

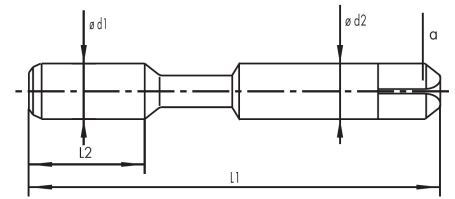
UNC



Short Fluteless Taps ISO 529, HSS

Whitworth Thread BSW, BS84

BSW



List-No.

69010

TH = Through Hole
BH = Blind Hole



Product Group

11

Type

Form

Type of Hole

TH / BH

Length of Chamfer Lead (Thread)

3

Tolerance

2BX

Surface

P0

Size	TPI	l1 mm	l2*max mm	d2 mm	a mm	Availability
No.2	56	44.5	9.5	2.8	2.24	•
No.4	40	48	16	3.15	2.5	•
No.5	40	48	16	3.15	2.5	•
No.6	32	50	19	3.55	2.8	•
No.8	32	53	13	4.5	3.55	•
No.10	24	58	16	5.0	4.0	•
1/4	20	66	19	6.3	5.0	•
5/16	18	72	22	8.0	6.3	•
3/8	16	80	24	10.0	8.0	•
1/2	13	89	29	9.0	7.1	•

List-No.

69030

TH = Through Hole
BH = Blind Hole



List-No.

11

Type

Form

Type of Hole

TH / BH

Length of Chamfer Lead (Thread)

3

Tolerance

CL2X

Surface

P0

Size	TPI	l1 mm	l2*max mm	d2 mm	a mm	Availability
1/4	20	66	19	6.3	5.0	•
5/16	18	72	22	8.0	6.3	•
3/8	16	80	24	10.0	8.0	•

Drilling

Countersinks

Reaming

Threading

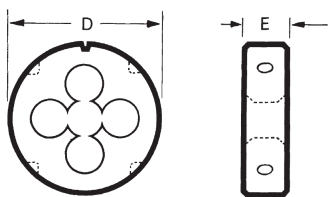
Milling

Miscellaneous

Circular Solid Dies with Gun Nose EN 22568 (DIN223), HSS

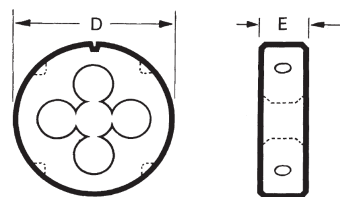
Metric ISO Coarse Thread, ISO 965

M



Metric ISO Fine Thread, ISO 965

Mf



List-No.

64000



Product Group

13

Type

Gun Nose

Length of Chamfer Lead (Thread)

1.5

Tolerance

6g

Surface

P0

Metric Size	P mm	D mm	E mm	Availability
M 3	0.5	20	5	•
M 3.5	0.6	20	5	•
M 4	0.7	20	7	•
M 5	0.8	20	7	•
M 6	1	20	7	•
M 7	1	25	9	•
M 8	1.25	25	9	•
M 9	1.25	25	11	•
M 10	1.5	30	11	•
M 11	1.5	30	14	•
M 12	1.75	38	14	•
M 14	2	38	18	•
M 16	2	45	18	•
M 18	2.5	45	18	•
M 20	2.5	45	22	•
M 22	2.5	55	22	•
M 24	3	55	22	•

List-No.

64010



Product Group

13

Type

Gun Nose

Length of Chamfer Lead (Thread)

1.5

Tolerance

6g

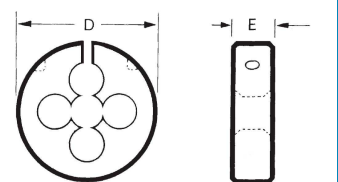
Surface

P0

Metric Size	P mm	D mm	E mm	Availability
M 5	0.5	20	5	•
M 6	0.75	20	7	•
M 8	1.0	25	11	•
M 10	1.0	30	11	•
M 10	1.25	30	11	•
M 12	1.0	38	10	•
M 12	1.25	38	10	•
M 12	1.5	38	10	•
M 14	1.0	38	10	•
M 14	1.25	38	10	•
M 14	1.5	38	10	•
M 16	1.0	45	14	•
M 16	1.5	45	14	•
M 18	1.0	45	14	•
M 18	1.5	45	14	•
M 18	2.0	45	14	•
M 20	1.0	45	14	•
M 20	1.5	45	14	•
M 20	2.0	45	14	•
M 22	1.5	55	16	•
M 24	1	55	16	•
M 24	1.5	55	16	•
M 24	2.0	55	16	•
M 27	1	65	18	•
M 27	1.5	65	18	•
M 27	2.0	65	18	•
M 30	1	65	18	•
M 30	1.5	65	18	•
M 30	2	65	18	•

Circular Split Dies BS 1127(1950), HSS

M



List-No.					64100
					
Product Group					13
Type					Adjustable
Length of Chamfer Lead (Thread)					1.5
Tolerance					6g
Surface					P0
Metric Size	P mm	D ins	E ins		Availability
M 1	0.25	13/16	1/4		•
M 1.2	0.25	13/16	1/4		•
M 1.4	0.3	13/16	1/4		•
M 1.6	0.35	13/16	1/4		•
M 2	0.4	13/16	1/4		•
M 2.2	0.45	13/16	1/4		•
M 2.5	0.45	13/16	1/4		•
M 3	0.5	13/16	1/4		•
M 3.5	0.6	13/16	1/4		•
M 4	0.7	13/16	1/4		•
M 4.5	0.75	13/16	1/4		•
M 5	0.8	13/16	1/4		•
M 6	1	13/16	1/4		•
M 7	1	13/16	1/4		•
M 6	1	1	3/8		•
M 7	1	1	3/8		•
M 8	1.25	1	3/8		•
M 9	1.25	1	3/8		•
M 10	1.5	1	3/8		•
M 6	1	1 5/16	7/16		•
M 7	1	1 5/16	7/16		•
M 8	1.25	1 5/16	7/16		•
M 9	1.25	1 5/16	7/16		•
M 10	1.5	1 5/16	7/16		•
M 11	1.5	1 5/16	7/16		•
M 12	1.75	1 5/16	7/16		•
M 14	2	1 5/16	7/16		•
M 10	1.5	1 1/2	1/2		•
M 11	1.5	1 1/2	1/2		•
M 12	1.75	1 1/2	1/2		•
M 14	2	1 1/2	1/2		•
M 16	2	1 1/2	1/2		•
M 18	2.5	1 1/2	1/2		•
M 20	2.5	1 1/2	1/2		•
M 12	1.75	2	5/8		•
M 14	2	2	5/8		•
M 16	2	2	5/8		•
M 18	2.5	2	5/8		•

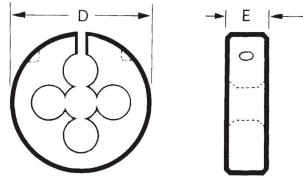
[illegible]

P0-Bright • P1-Steam Tempered • P2-Bronze • P3-Moc • P4-Nitrided • P5-TiN • P6-TiCN • P7 / P8 TiAlN • P9 TiB

Circular Split Dies BS 1127(1950), HSS

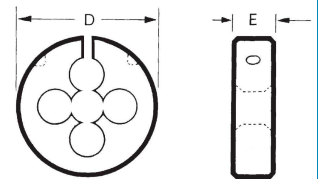
Unified Coarse Thread UNC, ASME-B1.1, ISO263

UNC



Unified Fine Thread UNF, ASME-B1.1, ISO 263

UNF



List-No.

64120



List-No.

64130



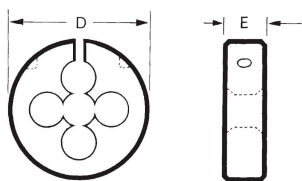
Product Group					13
Type					Adjustable
Length of Chamfer Lead (Thread)					1.5
Tolerance					2A
Surface					P0
Size	TPI	D ins	E ins		Availability
No.1	64	13/16	1/4		•
No.2	56	13/16	1/4		•
No.3	48	13/16	1/4		•
No.4	40	13/16	1/4		•
No.5	40	13/16	1/4		•
No.6	32	13/16	1/4		•
No.8	32	13/16	1/4		•
No.10	24	13/16	1/4		•
No.12	24	13/16	1/4		•
1/4	20	13/16	1/4		•
1/4	20	1	3/8		•
5/16	18	1	3/8		•
3/8	16	1	3/8		•
1/4	20	1 5/16	7/16		•
5/16	18	1 5/16	7/16		•
3/8	16	1 5/16	7/16		•
7/16	14	1 5/16	7/16		•
1/2	13	1 5/16	7/16		•
9/16	12	1 5/16	7/16		•
3/8	16	1 1/2	1/2		•
7/16	14	1 1/2	1/2		•
1/2	13	1 1/2	1/2		•
9/16	12	1 1/2	1/2		•
5/8	11	1 1/2	1/2		•
3/4	10	1 1/2	1/2		•
1/2	13	2	5/8		•
9/16	12	2	5/8		•
5/8	11	2	5/8		•
3/4	10	2	5/8		•
7/8	9	2	5/8		•
1	8	2	5/8		•
1	8	3	7/8		•
1 1/8	7	3	7/8		•
1 1/4	7	3	7/8		•
1 3/8	6	3	7/8		•
1 1/2	6	3	7/8		•

Product Group					13
Type					Adjustable
Length of Chamfer Lead (Thread)					1.5
Tolerance					2A
Surface					P0
Size	TPI	D ins	E ins		Availability
No.0	80	13/16	1/4		•
No.1	72	13/16	1/4		•
No.2	64	13/16	1/4		•
No.3	56	13/16	1/4		•
No.4	48	13/16	1/4		•
No.5	44	13/16	1/4		•
No.6	40	13/16	1/4		•
No.8	36	13/16	1/4		•
No.10	32	13/16	1/4		•
No.12	28	13/16	1/4		•
1/4	28	13/16	1/4		•
1/4	28	1	3/8		•
5/16	24	1	3/8		•
3/8	24	1	3/8		•
1/4	28	1 5/16	7/16		•
5/16	24	1 5/16	7/16		•
3/8	24	1 5/16	7/16		•
7/16	20	1 5/16	7/16		•
1/2	20	1 5/16	7/16		•
9/16	18	1 5/16	7/16		•
3/8	24	1 1/2	1/2		•
7/16	20	1 1/2	1/2		•
1/2	20	1 1/2	1/2		•
9/16	18	1 1/2	1/2		•
5/8	18	1 1/2	1/2		•
3/4	16	1 1/2	1/2		•
1/2	20	2	5/8		•
9/16	18	2	5/8		•
5/8	18	2	5/8		•
3/4	16	2	5/8		•
7/8	14	2	5/8		•
1	12	2	5/8		•
1	12	3	7/8		•
1 1/8	12	3	7/8		•
1 1/4	12	3	7/8		•
1 3/8	12	3	7/8		•
1 1/2	12	3	7/8		•

Circular Split Dies BS 1127(1950), HSS

Whitworth-Thread BSW, BS84

BSW



List-No.

64140



Product Group

13

Type

Adjustable

Length of Chamfer Lead (Thread)

1.5

Tolerance

Normal

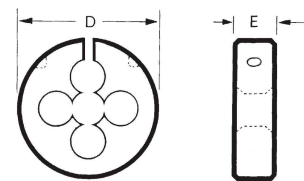
Surface

P0

Size	TPI	D ins	E ins	Availability
1/16	60	13/16	1/4	•
3/32	48	13/16	1/4	•
1/8	40	13/16	1/4	•
5/32	32	13/16	1/4	•
3/16	24	13/16	1/4	•
7/32	24	13/16	1/4	•
1/4	20	13/16	1/4	•
3/16	24	1	3/8	•
1/4	20	1	3/8	•
5/16	18	1	3/8	•
3/8	16	1	3/8	•
1/4	20	1 5/16	7/16	•
5/16	18	1 5/16	7/16	•
3/8	16	1 5/16	7/16	•
7/16	14	1 5/16	7/16	•
1/2	12	1 5/16	7/16	•
9/16	12	1 5/16	7/16	•
1/4	20	1 1/2	1/2	•
5/16	18	1 1/2	1/2	•
3/8	16	1 1/2	1/2	•
7/16	14	1 1/2	1/2	•
1/2	12	1 1/2	1/2	•
9/16	12	1 1/2	1/2	•
5/8	11	1 1/2	1/2	•
3/4	10	1 1/2	1/2	•
1/2	12	2	5/8	•
9/16	12	2	5/8	•
5/8	11	2	5/8	•
11/16	11	2	5/8	•
3/4	10	2	5/8	•
7/8	9	2	5/8	•
1	8	2	5/8	•
1	8	3	7/8	•
1 1/8	7	3	7/8	•
1 1/4	7	3	7/8	•
1 3/8	6	3	7/8	•
1 1/2	6	3	7/8	•

Whitworth-Fine Thread BSF, BS84

BSF



List-No.

64150



Product Group

13

Type

Adjustable

Length of Chamfer Lead (Thread)

1.5

Tolerance

Normal

Surface

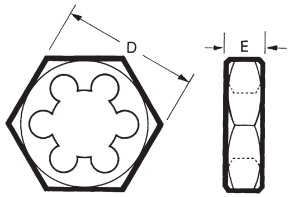
P0

Size	TPI	D ins	E ins	Availability
3/16	32	13/16	1/4	•
1/4	26	13/16	1/4	•
3/16	32	1	3/8	•
1/4	26	1	3/8	•
5/16	22	1	3/8	•
3/8	20	1	3/8	•
1/4	26	1 5/16	7/16	•
5/16	22	1 5/16	7/16	•
3/8	20	1 5/16	7/16	•
7/16	18	1 5/16	7/16	•
1/2	16	1 5/16	7/16	•
9/16	16	1 5/16	7/16	•
5/16	22	1 1/2	1/2	•
3/8	20	1 1/2	1/2	•
7/16	18	1 1/2	1/2	•
1/2	16	1 1/2	1/2	•
9/16	16	1 1/2	1/2	•
5/8	14	1 1/2	1/2	•
3/4	12	1 1/2	1/2	•
1/2	16	2	5/8	•
9/16	16	2	5/8	•
5/8	14	2	5/8	•
3/4	12	2	5/8	•
7/8	11	2	5/8	•
1	10	2	5/8	•
1	10	3	7/8	•
1 1/8	9	3	7/8	•
1 1/4	9	3	7/8	•
1 3/8	8	3	7/8	•
1 1/2	8	3	7/8	•

Hexagon Dienuts BS 1127(1950), HSS

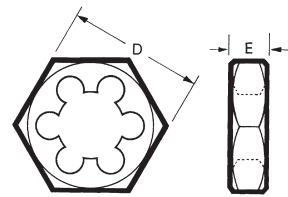
Metric ISO Coarse Thread, ISO 965

M



Metric ISO Fine Thread, ISO 965

Mf



List-No.

64400



Product Group

13

Type

Length of Chamfer Lead (Thread)

1.5

Tolerance

6g

Surface

P0

Metric Size	P mm	D ins	E ins	Availability
M 3	0.5	19	5	•
M 4	0.7	19	5	•
M 5	0.8	19	5	•
M 6	1	19	7	•
M 7	1	22	9	•
M 8	1.25	22	9	•
M 9	1.25	22	9	•
M 10	1.5	27	11	•
M 11	1.5	27	11	•
M 12	1.75	36	14	•
M 14	2	36	14	•
M 16	2	41	18	•
M 18	2.5	41	18	•
M 20	2.5	41	18	•
M 22	2.5	50	22	•
M 24	3	50	22	•
M 27	3	60	25	•
M 30	3.5	60	25	•
M 33	3.5	60	25	•
M 36	4	60	25	•
M 42	4.5	70	30	•

List-No.

64410



Product Group

13

Type

Length of Chamfer Lead (Thread)

1.5

Tolerance

6g

Surface

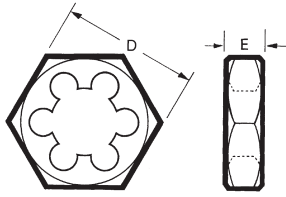
P0

Metric Size	P mm	D ins	E ins	Availability
M 3	0.35	19	5	•
M 4	0.5	19	5	•
M 5	0.5	19	5	•
M 6	0.75	19	7	•
M 7	0.75	22	9	•
M 8	1.0	22	9	•
M 10	1.0	27	11	•
M 10	1.25	27	11	•
M 12	1.25	36	10	•
M 12	1.5	36	10	•
M 14	1.25	36	10	•
M 14	1.5	36	10	•
M 16	1.5	41	14	•
M 18	1.5	41	14	•
M 20	1.5	41	14	•
M 22	1.5	50	16	•
M 24	1.5	50	16	•
M 24	2.0	50	16	•
M 25	1.5	50	16	•
M 30	2.0	60	18	•
M 32	1.5	60	18	•
M 40	1.5	70	20	•
M 42	1.5	70	20	•

Hexagon Dienuts BS 1127(1950), HSS

Unified Coarse Thread UNC, ASME-B1.1, ISO 263

UNC



List-No.

64420



Product Group

13

Type

Length of Chamfer Lead (Thread)

1.5

Tolerance

2A

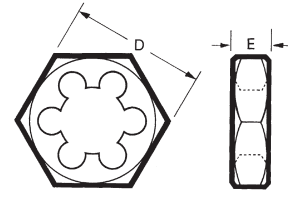
Surface

P0

Size	TPI	D ins	E ins	Availability
No.8	32	19	7	•
No.10	24	19	7	•
No.12	24	19	7	•
1/4	20	19	7	•
5/16	18	22	9	•
3/8	16	27	11	•
7/16	14	27	11	•
1/2	13	36	14	•
9/16	12	36	14	•
5/8	11	41	18	•
3/4	10	41	18	•
7/8	9	50	22	•
1	8	50	22	•
1 1/8	7	60	25	•
1 1/4	7	60	25	•
1 3/8	6	60	25	•
1 1/2	6	70	30	•
1 3/4	5	80	30	•
2	4.5	85	36	•

Unified Fine Thread UNF, ASME-B1.1, ISO 263

UNF



List-No.

64430



Product Group

13

Type

Length of Chamfer Lead (Thread)

1.5

Tolerance

2A

Surface

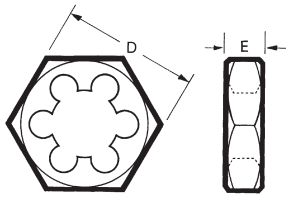
P0

Size	TPI	D ins	E ins	Availability
No.8	36	19	7	•
No.10	32	19	7	•
No.12	28	19	7	•
1/4	28	19	7	•
5/16	24	22	9	•
3/8	24	27	11	•
7/16	20	27	11	•
1/2	20	36	10	•
9/16	18	36	10	•
5/8	18	41	14	•
3/4	16	41	14	•
7/8	14	50	16	•
1	12	50	16	•
1 1/8	12	60	18	•
1 1/4	12	60	18	•
1 3/8	12	60	18	•
1 1/2	12	70	20	•

Hexagon Dienuts BS 1127(1950), HSS

Whitworth-Thread BSW, BS84

BSW



List-No.

64440



Product Group

13

Type

Length of Chamfer Lead (Thread)

1.5

Tolerance

Normal

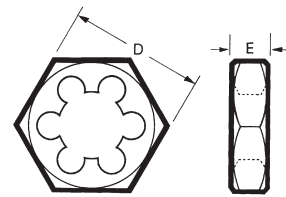
Surface

P0

Size	TPI	D ins	E ins	Availability
1/8	40	19	5	•
3/16	24	19	7	•
1/4	20	19	7	•
5/16	18	22	9	•
3/8	16	27	11	•
7/16	14	27	11	•
1/2	12	36	14	•
9/16	12	36	14	•
5/8	11	41	18	•
3/4	10	41	18	•
7/8	9	50	22	•
1	8	50	22	•
1 1/8	7	60	25	•
1 1/4	7	60	25	•
1 3/8	6	60	25	•
1 1/2	6	70	30	•
1 3/4	5	80	30	•
2	4.5	85	36	•

Whitworth-Fine Thread BSF, BS84

BSF



List-No.

64450



Product Group

13

Type

Length of Chamfer Lead (Thread)

1.5

Tolerance

Normal

Surface

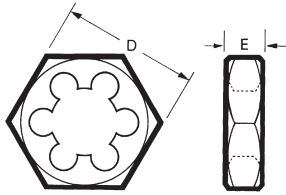
P0

Size	TPI	D ins	E ins	Availability
3/16	32	19	7	•
1/4	26	19	7	•
5/16	22	22	9	•
3/8	20	27	11	•
7/16	18	27	11	•
1/2	16	36	10	•
9/16	16	36	10	•
5/8	14	41	14	•
3/4	12	41	14	•
7/8	11	50	16	•
1	10	50	16	•
1 1/8	9	60	25	•
1 1/4	9	60	25	•
1 3/8	8	60	25	•
1 1/2	8	70	30	•
1 5/8	8	70	30	•
1 3/4	7	80	30	•

Hexagon Dienuts BS 1127(1950), HSS

Whitworth-Pipe Thread G(BSPF), DIN ISO 228

BSP



List-No.

64460



Product Group

13

Type

Length of Chamfer Lead (Thread)

1.5

Tolerance

B

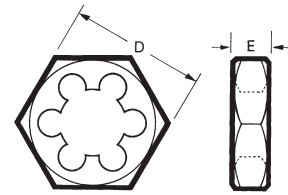
Surface

P0

Size	TPI	D ins	E ins	Availability
1/8	28	27	11	•
1/4	19	36	14	•
3/8	19	41	14	•
1/2	14	41	14	•
3/4	14	50	22	•
1	11	60	25	•
1 1/4	11	70	25	•
1 1/2	11	85	28	•

American Pipe Thread NPT

NPT



List-No.

64490



Product Group

13

Type

Length of Chamfer Lead (Thread)

1.5

Tolerance

Normal

Surface

P0

Size	TPI	D ins	E ins	Availability
1/8	27	27	11	•
1/4	18	36	14	•
3/8	18	41	15	•
1/2	14	50	19	•
3/4	14	60	20	•
1	11.5	60	25	•
1 1/4	11.5	85	26	•
1 1/2	11.5	85	26	•
2	11.5	100	31	•

Tooling

Tapwrench Rachet, T-Type

List-No.	69833			
Product Group	15			
No.	Capacity for Hand		Overall Length	Available
	Metric Size	Size	ins	
06 - 521	M 2 - M 6	1/8 - 1/4	3 1/4	•
06 - 522	M 6 - M 12	1/4 - 1/2	4 1/4	•



Tapwrench Rachet, Adjustable

List-No.	69823			
Product Group	15			
Symbol	Capacity for Hand		Overall Length	Available
	Metric Size	Size	ins	
X	M 2 - M 6	1/16 - 1/4	4 1/8	•
Y	M 3 - M 12	1/8 - 1/2	6 1/2	•



Tapwrench, Adjustable



List-No.	69843					
Product Group	15					
Size-No.	Capacity for Hand Taps		Capacity Hand Reamers		Overall Length	Available
	Metric Size	Size	mm	ins	ins	
101	M 3 - M 12	1/8 - 1/2	4.75 - 10.6	3/16 - 13/32	10 1/2	•
102	M 6 - M 20	1/4 - 3/4	4.75 - 15.0	3/16 - 9/16	15	•
103	M 12 - M 27	3/8 - 1	7.75 - 21.2	5/16 - 13/16	19 3/4	•
104	M 20 - M 42	3/4 - 1 1/2	15.0 - 33.5	5/8 - 1 3/16	31 1/2	•
105	M 27 - M 52	1 - 2	30.0 - 42.5	1 3/16 - 1 5/8	43	•
106	M 39 - M 60	1 1/2 - 2 1/2	26.5 - 53.0	1 1/16 - 2	52 1/2	•
107	M 27 - M 60	1 - 2 1/2	30.0 - 53.0	1 3/16 - 2	52 1/8	•

Circular Diestocks for Circular Split Dies BS 1127

List-No.	69403	
Product Group	15	
Nominal Dia.	Overall Length	Available
ins	ins	
13/16	6 1/2	•
1	8 7/8	•
1 5/16	11	•
1 1/2	14 1/4	•
2	19 1/8	•
2 1/4	23	•
3	30	•
4	56	•



Circular Diestocks for Circular Solid Dies DIN 223

List-No.	69413		
Product Group	15		
Nominal Dia.	Thickness	Length	Available
mm	mm	mm	
20	5	165	•
20	7	165	•
25	9	215	•
30	11	280	•
38	10	365	•
38	14	365	•
45	14	480	•
45	18	480	•
55	16	590	•
55	22	590	•



Combination Sets Taps and Dies HSS

List-No.	No. of Pcs	Range	Increments	Unit		Availability	Product Group
6960037	22	M2 - M6		1		•	49
6960042	44	M6 - M24		1		•	49
6960023	32	UNC 1/4 - UNC 1		1		•	49
6960026	32	UNF 1/4 - UNF 1		1		•	49

Taps DIN

Metric ISO Coarse Thread M

Metric ISO Fine Thread MF

Unified-Thread UNC / Coarse Thread

Unified-Thread UNF / Fine Thread

Whitworth-Pipe Thread G(BSPF)



Drilling

Countersinks

Reaming

Threading

Milling

Miscellaneous

Taps HSS-E / HSSE-PM, Metric ISO Coarse and Fine Thread

	Standard	Type	Material	List-No.	Size	Surface	Page
	DIN 352	Serial Form Sets	HSS-E	60702	M3 - M52	P0	130
	DIN 371 DIN 376 DIN 374	N	HSS-E	631305 631405 632505	M3 - M10 M6 - M36 MF5 - MF36	P0	131 131 141
	DIN 371 DIN 376 DIN 374	GG	HSS-E	631313 631413 632513	M3 - M10 M6 - M24 MF8 - MF24	P6	131 131 141
	DIN 371 DIN 376	R15H	HSS-E	631319 631419	M3 - M10 M8 - M24 MF8 - MF24	P6	132 132
	DIN 371 DIN 376 DIN 374	BN	HSS-E	631332 631432 632532	M3 - M10 M6 - M42 MF5 - MF36	P0/P1/P5	131 131 141
	DIN 371 DIN 376 DIN 374	BVA	HSS-E	631334 631434 632534	M3 - M10 M5 - M36 MF8 - MF36	P1	133 133 141
	DIN 371 DIN 376	BAI	HSS-E	631337 631437	M3 - M10 M6 - M16	P0	133 133
	DIN 371	R10DHX	HSS-E	631361	M8 - M12	P6	133
	DIN 371 DIN 374	BVAX	HSSE-PM	651346 652546	M3 - M10 MF8 - MF16	P0/P6/P7	134 142

Taps / Fluteless HSS-E / HSSE-PM, Metric ISO Coarse and Fine Thread

	Standard	Type	Material	List-No.	Size	Surface	Page
	DIN 371 DIN 376 DIN 374 DIN 371	R40N	HSS-E	631363 631463 632563	M3 - M10 M6 - M48 MF8 - MF36	P0/P1/P5	135 135 143
	DIN 371 DIN 376	R15N	HSS-E	631367 631467	M3 - M10 M5 - M24	P0	136 136
	DIN 371 DIN 376 DIN 374	R40VAT	HSS-E	631370 631470	M3 - M10 M6 - M24	P1	137 137
	DIN 371 DIN 376	R45AI	HSS-E	631371 631471	M3 - M10 M8 - M16 MF8 - MF16	P0	138 138
	DIN 371 DIN 376	R40VAX	HSSE-PM	651386 651486	M3 - M10 M6 - M24 MF8 - MF16	P6	139 139
	DIN 371	FCS	HSS-E	631377	M3 - M10 M8 - M12	P0/P5	140

Taps HSS-E, Whitworth Pipe Thread G(BSPF)

	Standard	Type	Material	List-No.	Size	Surface	Page
	DIN 5157	Serial Form Sets	HSS-E	62182	G 1/16 - G3	P0	144
	DIN 5156	N	HSS-E	635705	G 1/16 - G2	P0	145
	DIN 5156	BN	HSS-E	635732	G 1/16 - G1	P0	145
	DIN 5156	R40N	HSS-E	635763	G 1/16 - G1	P0	146
	DIN 5156	R40VA	HSS-E	635769	G 1/16 - G2	P1	146

Drilling

Countersinks

Reaming

Threading

Milling

Miscellaneous

Through & Blind Hole Tapping

Type		Description
Series Form Set		Sets of Hand Taps (2 or 3 taps per set) for tapping in free cutting Steel up to 800N/mm ² . The perfect form thread is generated by a combination of effective pitch diameter, major diameter and chamfer length.
Type		Description
N		Straight Flute Machine Tap with short chamfer (2-3 threads) for through and blind holes in free cutting materials up to 850 N/mm ² .
Type		Description
GG		Straight flute Machine tap with short chamfer. The unique geometry with TiCN surface treatment is especially suitable for vertical tapping in grey cast iron.
Type		Description
R15H		Machine tap with 15° slow right hand helix for use in high tensile Steel over 900 N/mm ² . Also use full for cast iron application when coated with TiCN.
Type		Description
BN		Spiral point Machine tap with straight flutes for working in steel up to 750 N/mm ² . Swarf is forced forward in the direction of the cut.
Type		Description
BVA		Spiral point Machine tap with a surface treatment for tough steels with elasticity >30%. The unique geometry helps to avoid pick up and resists work hardening tendencies in materials such as Stainless Steel.
Type		Description
BAI		Machine tap for use on long chipping material, especially in Aluminium and Aluminium wrought alloys. (Si<2%), copper and soft plastics. Available coated.
Type		Description
R10DHX		Machine tap, 10° spiral flute with special grinding and cutting geometry, coated, which can be used on very hard and tough materials over 1350 N/mm ² .

Blind Hole Tapping

Type		Description
R40N		Machine tap with 40° spiral flute. Short chamfer permits work on steel up to 750 N/mm ² and Aluminium alloys with more than 0.5% Si.

Type		Description
R15N		Machine tap with 15° spiral flute and a 2 to 4 thread chamfer. Special grinding for short blind holes or for Nut taps.

Type		Description
R40VAT		Similar to Type 69 but with a capability to thread up to 2.5 x diameter. Resists tearing of the finished thread on reversal.

Type		Description
R45AI		Machine tap with approx. 45° spiral flute and special flute geometry for use in softer materials up to 350 N/mm ² . When coated with TiB it is especially recommended threading in Aluminium.

Fluteless Taps for Through & Blind Hole Tapping

Type		Description
FCS		Fluteless tap with lubrication grooves for producing good, strong threads in soft materials with >10% elasticity.

Drilling

Countersinks

Reaming

Threading

Milling

Miscellaneous

Application Recommendations for Taps DIN

Application

- Excellent
- ⊙ Suitable

COATINGS AVAILABLE

- P0 Bright Finish
- P1 Steam Tempered Blue
- P2 Bronze Finish
- P3 MOC Molybdenum Disulphide
- P4 Nitrided + Blue
- P5 TiN Titanium Nitride
- P6 TiCN
- P7 TiAlN Futura Top or Lub Coat
- P8 TiAlN
- P9 TiB Find New

	631305	631313	631332	631332
60702	631405	631413	631432	631342
61032	631505	631532	631532	631532
DIN352				
Serial Form	N P0	GG P6	BN P0	BN P1

Main		Material			Straight Flute					Through Holes	
Group	Material Group	ISO, DIN, BS EN	BS and ANSI	N/mm ²							
1 Steel	1.1 Magnetic soft	95MnPb28;St33;St37: RFe80	BS590 230M07Pb;En1A leaded	<400	●	●		⊙	●		
	1.2 structural	35S20 St37-2 St50	BS4360-50C 55C En3A En8 En32	<750	●	●		⊙	●		
	1.3 Plain Carbon Steel	C10;14NiCr14;18CrNi8;16MnCr5	080M46;080A62;En9En43	<850	●	●		⊙	●		
	1.4Low Alloy Engineering	C35; C45; C60	708M40; En16; 534A99;En31; 4140	<850	●	⊙		⊙	●		
	1.5 Alloy Steel	110WCrV5; S6-5-2 GS-34CrMo4	EN24T;En25T M2; M42; 4340;D2	<1000	●						
	1.6 Alloy Steel Heat treated	X210Cr12; 55NiCrMoV6, 32CrMo12	826M40; 830M31; S95; En25w	<1200	●						
	1.7 Heat treated Steel	CrMo4V; 50Cr4;36CrNiMo4	Hardox 400	<1450	●						
	1.8 Wear resitant steel	Weldox 960, XAR500	Hardox 500	<1650	●						
2 Stainless Steel	2.1 Austenitic	X5CrNi18.10;X6CrNiMoTi17.12.2	316; 304; 321 En58J	<850	●						
	2.2 Ferritic	XcrCrAl13; X6CrTi;X1CrMoNb18.2	303; S33: En56 303	<1000	●						
	2.3 Duplex	X8CrNiMo2.7.5		<1000	●						
	2.4 Martensitic	X20Cr13; G-X10crmo13: X105CrMo17	420S29		●	⊙					
3 Cast Iron	3.1 Soft Grey Iron	GG10...GG40 Meehanite GF-20	Bs1452 Grade 350 / 400	<500	●	⊙	●	⊙+P4			
	3.2 Grey and heat treated Irons	GG20 ...GG40 GTS GTW	Black/Whiteheart Malleable iron	<850	●	⊙	●	⊙+P4			
	3.3 Spheroidal Graphite	GGG-25...GGG-70	Bs2789Grade699;Bs6681 GradeP70	<750	●		●	⊙+P4			
4 Titanium	4.1 Pure Titanium	TI99.5;TI99.2		<700	●						
	4.2 Titanium Alloy	TiCu2; TiAl6V4; TiAl6Zr5		<1000	●						
5 Nickel	5.1 Pure Nickel	Ni99Csi; Monel400; Hastelloy; Inconell600		<850	●						
	5.2 Nickel Alloys	Nimonic 80/90; Inconell780; NimocastPk24		<1200	●						
6 Copper & Brasses	6.1 Pure Copper	E-Cu57; Se-Cu; CuMn3	Bs2874-C101,c103, c106	<350	●						
	6.2 Short chip Brass	CuZn40; CuZn39Pb2(Ms58) CuZn40Mn1Pb	Bs2874 -Cz122;CZ128	<700	●	●	●P0	⊙			
	6.3 Long Chipping Brass	CuZn20; CuZn37; CuSn6	Bs2874 CZ108, CZ106	<700	●						
	6.4 High strength bronze	Ampco18; Ampco20...26	AB1 type	<1350	●		●P0				
7 Aluminium	7.1 Aluminium	Al99.9;9Mg05	1050A; 6082; LM0; LM1B	<350	●						
	7.2 Aluminium Cast Si<0.5	AlMg3	LM5; LM10; LM12;LM16;	<500	●						
	7.3 Aluminium Cast Si =0.5 -10%	G-AISI8Cu4	LM2; LM4; LM18; LM21;	>400	●			●			
	7.4 Aluminium Cast Si>10%	G-AISI10NMg	LM6; LM13; LM20; LM28...30	>400	●	⊙	⊙	●			
8 Plastics	Thermo Plastics	Ultramit; Merkalo; Polystrol; Degola									
	Thermo setting Plastics	akalite, Pertlax; Ferrozell; Alkbanit			⊙	⊙	●				
	Reinforced Plastics	FK; GFK; AFK	Kevlar Printed circuit board		⊙			P5 ⊙+P4			

Application Recommendations for Taps DIN

631332		631334					631363	631363					
631432	631337	631434	651346		631367	631363	631463	631463	631370	651386	631371		
631532	634137	631534	652546	631361	631467	631463	631563	631563	631470	651456	631471	631377	631377
													
BN	BAi	BVA	BVAX	R10DHX	R15N	R40N	R40N	R40N	R40VAT	R40VAX	R45Al	FCS	FCS
P5	P0	P1	PMC	P6		P0	P1	P5 TiN	P1	PMC-TiCN	P0	P0	P5 TiN
Through Holes				Blind Holes								Fluteless	
☺	☺	☺	☺		☺	☺	☺	☺	☺	☺	☺	☺	☺
☺		☺	☺		☺	☺	☺	☺	☺	☺		☺	☺
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										☺			
					☺+P4								
					☺+P4						☺		
☺			☺		☺+P4						☺		
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			☺						☺				☺
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	☺+P9									☺	☺+P9	☺	☺
	☺+P9					☺				☺	☺	☺	☺
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					☺								

Drilling

Countersinks

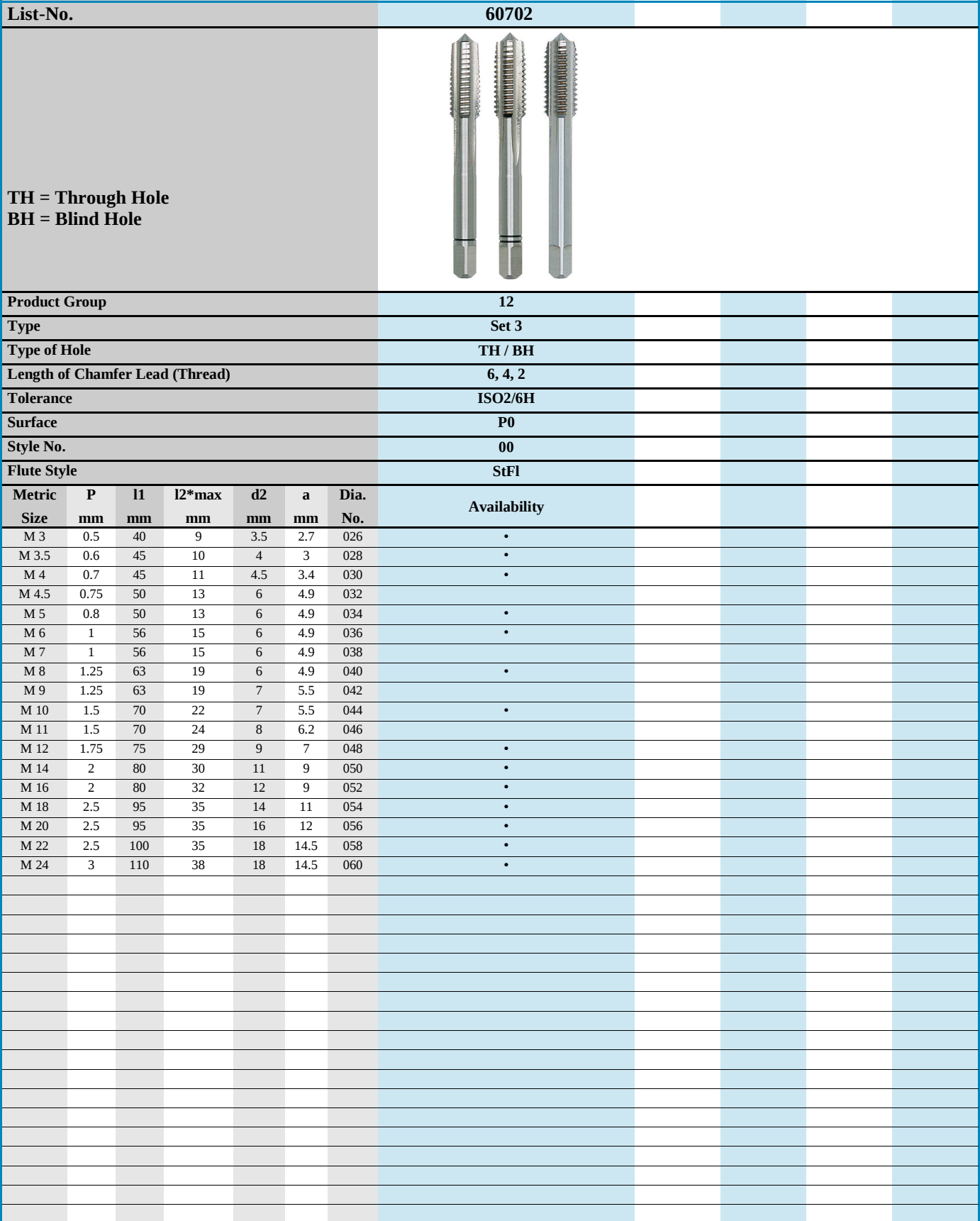
Reaming

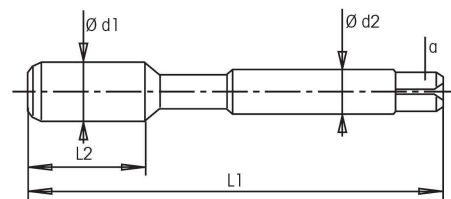
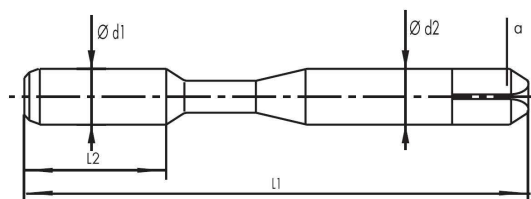
Threading

Milling

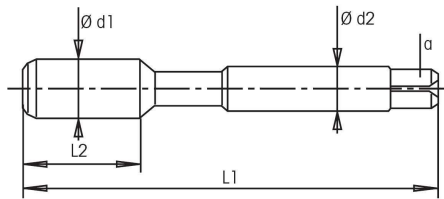
Miscellaneous

M



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M

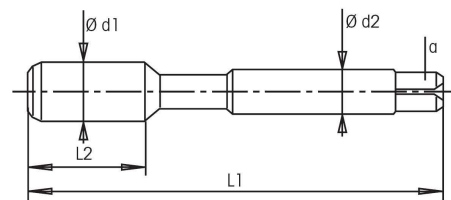
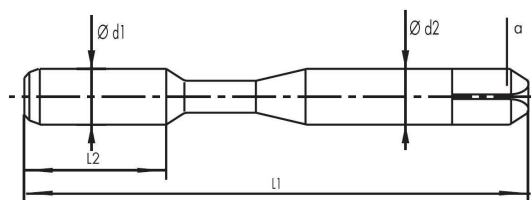
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P0-Bright • P1-Steam Tempered • P2-Bronze • P3-Moc • P4-Nitrided • P5-TiN • P6-TiCN • P7 / P8 TiAlN • P9 TiB

Machine Taps DIN 371 / DIN 376, HSS-E

Metric ISO-Coarse Thread DIN 13, ISO965

M



List-No.

631334

631337

631361

TH = Through Hole
BH = Blind Hole



Product Group

12

12

12

Type

BVA

BAI

R10DHX

Type of Hole

TH

TH

BH

Length of Chamfer Lead (Thread)

4 - 5

4 - 5

4 - 5

Tolerance

ISO2/6H

ISO2/6H

ISO2/6H

Surface

P1

P0

P6

Style No.

21

20

20

Flute Style

SpPt

SpPt

SpFl

Metric
Size

P
mm

l1
mm

l2*max
mm

d2
mm

a
mm

Dia.
No.

Availability

Availability

Availability

DIN 371

M 3	0.5	56	11	3.5	2.7	026	•	•					
M 3.5	0.6	56	11	4	3	028							
M 4	0.7	63	11	4.5	3.4	030	•	•					
M 4.5	0.75	70	13	6	4.9	032							
M 5	0.8	70	13	6	4.9	034	•	•					
M 6	1	80	16	6	4.9	036	•	•					
M 7	1	80	16	7	5.5	038							
M 8	1.25	90	19	8	6.2	040	•	•	•				
M 10	1.5	100	22	10	8	044	•	•	•				
M 12	1.75	110	29	12	9	048			•				

DIN 376

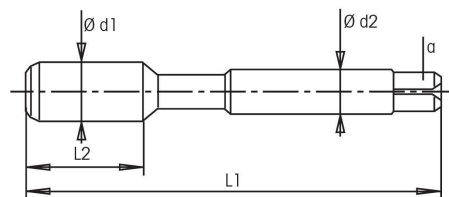
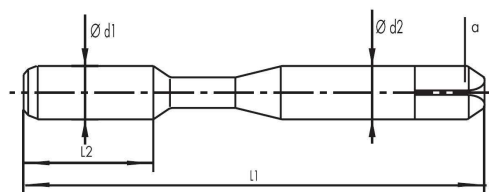
631434
BVA

631437
BAI

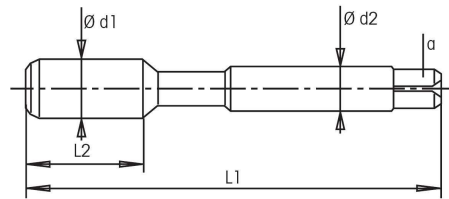
M 5	0.8	70	15	3.5	2.7	034		•					
M 6	1	80	17	4.5	3.4	036			•				
M 7	1	80	17	5.5	4.3	038							
M 8	1.25	90	20	6	4.9	040	•	•					
M 9	1.25	90	20	7	5.5	042							
M 10	1.5	100	22	7	5.5	044	•	•					
M 11	1.5	100	24	8	6.2	046							
M 12	1.75	110	29	9	7	048	•	•					
M 14	2	110	30	11	9	050	•	•					
M 16	2	110	32	12	9	052	•	•					
M 18	2.5	125	34	14	11	054	•						
M 20	2.5	140	34	16	12	056	•						
M 22	2.5	140	34	18	14.5	058	•						
M 24	3	160	38	18	14.5	060	•						

P0-Bright • P1-Steam Tempered • P2-Bronze • P3-Moc • P4-Nitrided • P5-TiN • P6-TiCN • P7 / P8 TiAlN • P9 TiB

M

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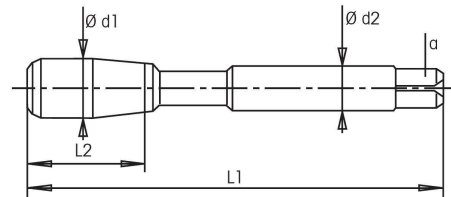
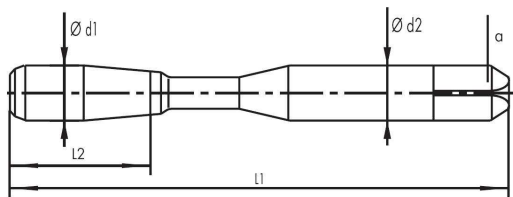
M



P0-Bright • P1-Steam Tempered • P2-Bronze • P3-Moc • P4-Nitrided • P5-TiN • P6-TiCN • P7 / P8 TiAlN • P9 TiB

Machine Taps DIN 371 / DIN 376, HSS-E

Metric ISO-Coarse Thread DIN 13, ISO965, BS3643

M

List-No.
631370

TH = Through Hole
BH = Blind Hole


Product Group
12
Type
R40VAT
Type of Hole
BH
Length of Chamfer Lead (Thread)
2 - 3
Tolerance
ISO2/6H
Surface
P1
Style No.
21
Flute Style
SpFl

Metric Size	P mm	l1 mm	l2*max mm	d2 mm	a mm	Dia. No.	Availability
-------------	------	-------	-----------	-------	------	----------	--------------

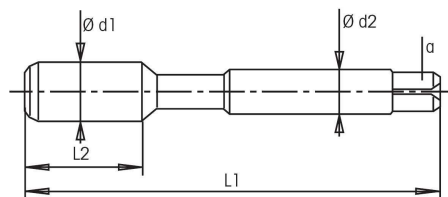
DIN 371

M 3	0.5	56	5	3.5	2.7	026	•
M 4	0.7	63	7	4.5	3.4	030	•
M 5	0.8	70	8	6	4.9	034	•
M 6	1	80	10	6	4.9	036	•
M 8	1.25	90	13	8	6.2	040	•
M 10	1.5	100	15	10	8	044	•

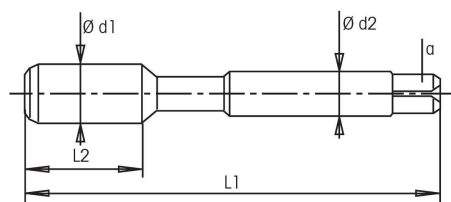
DIN 376
631470
R40VAT

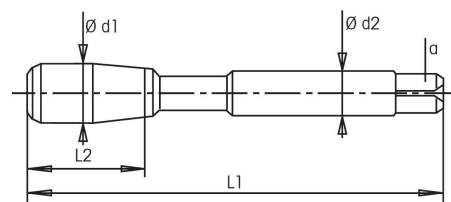
M 6	1	80	10	4.5	3.4	036	•
M 8	1.25	90	13	6	4.9	040	•
M 10	1.5	100	15	7	5.5	044	•
M 12	1.75	110	18	9	7	048	•
M 14	2	110	20	11	9	050	•
M 16	2	110	20	12	9	052	•
M 18	2.5	125	25	14	11	054	•
M 20	2.5	140	25	16	12	056	•
M 22	2.5	140	25	18	14.5	058	•
M 24	3	160	30	18	14.5	060	•

M

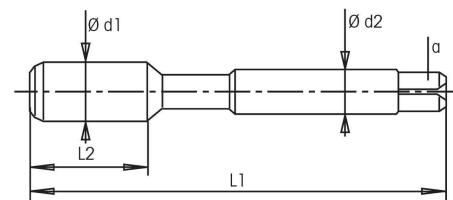


P0-Bright • P1-Steam Tempered • P2-Bronze • P3-Moc • P4-Nitrided • P5-TiN • P6-TiCN • P7 / P8 TiAlN • P9 TiB

[illegible]

[illegible]

G (BSPF)

[illegible]

Technical drawing of a stepped shaft. The shaft has two main sections with diameters $\varnothing d_1$ and $\varnothing d_2$. The length of the first section is L_2 , and the total length of the shaft is L_1 . A dimension a is indicated at the right end of the shaft.

P0-Bright • P1-Steam Tempered • P2-Bronze • P3-Moc • P4-Nitrided • P5-TiN • P6-TiCN • P7 / P8 TiAlN • P9 TiB

Technical Information

Taps - Selection & Technical Details

The entire cutting tool performance is based on the chamfer. The design of the chamfer form, the thread form and number of teeth are relevant for the cutting feed chip breakage and chip flow.

Basics:

- **Short chamfer, minimal number of flutes = high chamfer force, but minimal torque**
- **Long chamfer, many number of flutes = minimal chamfer force, but high performance**

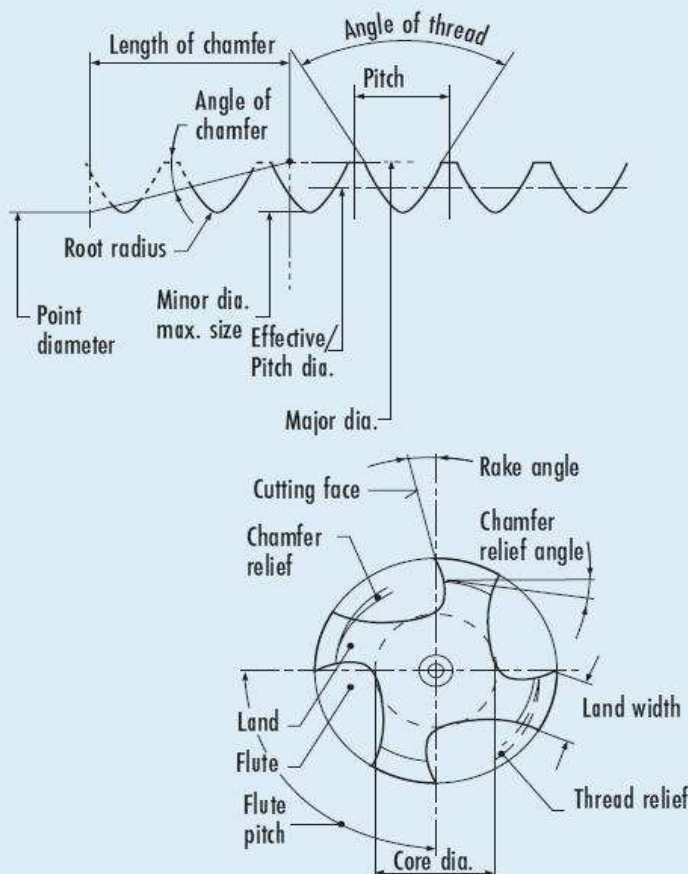
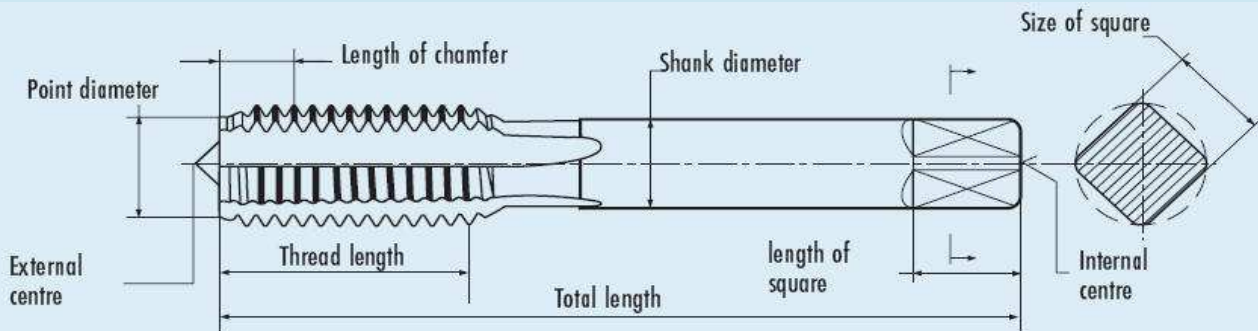
Wherever applicable use taps which push the chips in the cutting direction (chamfer form "B")

General:

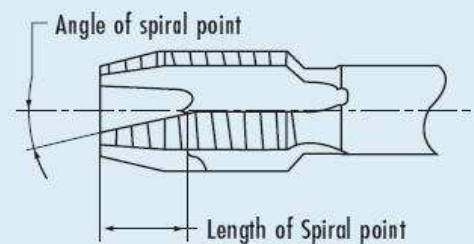
The main characteristic of taps over other threading products is the volume of metal removed on each incremental turn. Taps are defined by their diameter and type. The most important factors when choosing a tap are:

- **Lead**
- **Rake Angle**
- **Flute shape and thread form**
- **Material of tap and Surface Material**

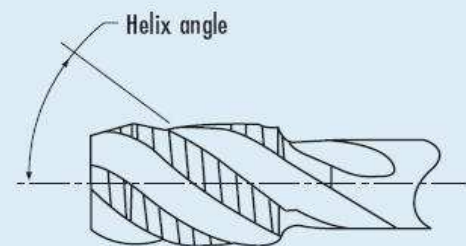
Tap Nomenclature



Design with spiral point for through-holes

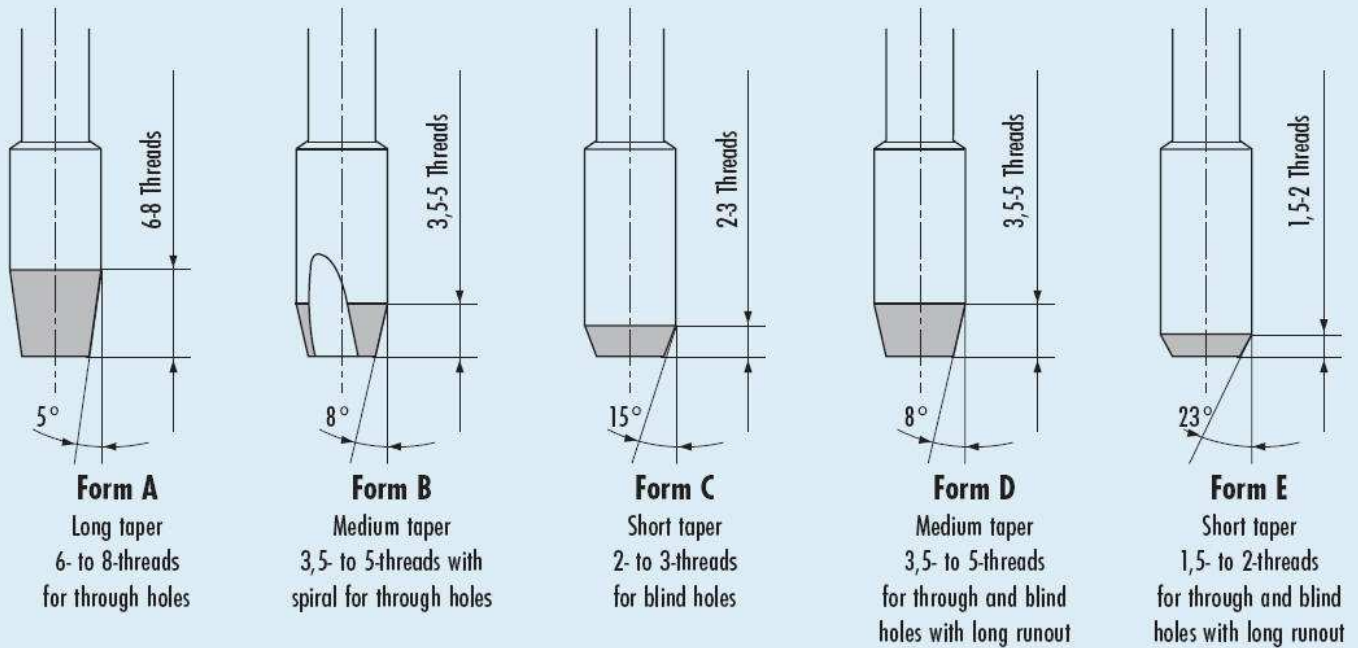


Design with helical flutes for blind holes

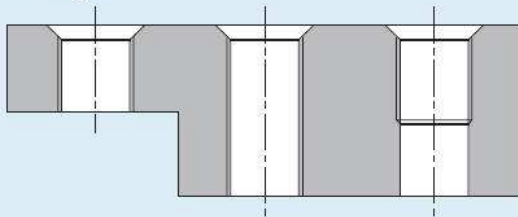


Technical Information

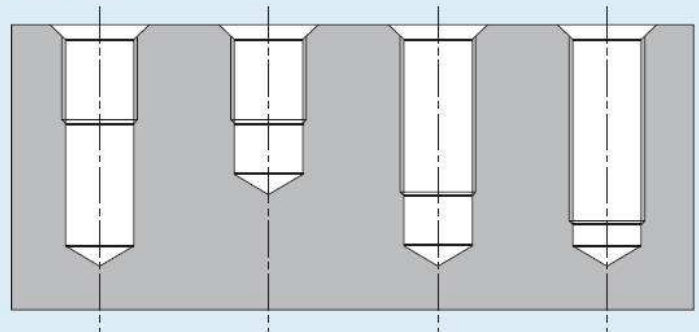
Taps of Lead DIN 2197



Through Holes



Blind Holes



Other Types of Lead ISO

Straight Flute Taps

HSS-Taps with straight flutes, supplied with Taper, Second or Bottom lead.

Taper (or First) Tap

The tap has a lead of 8/10 threads.

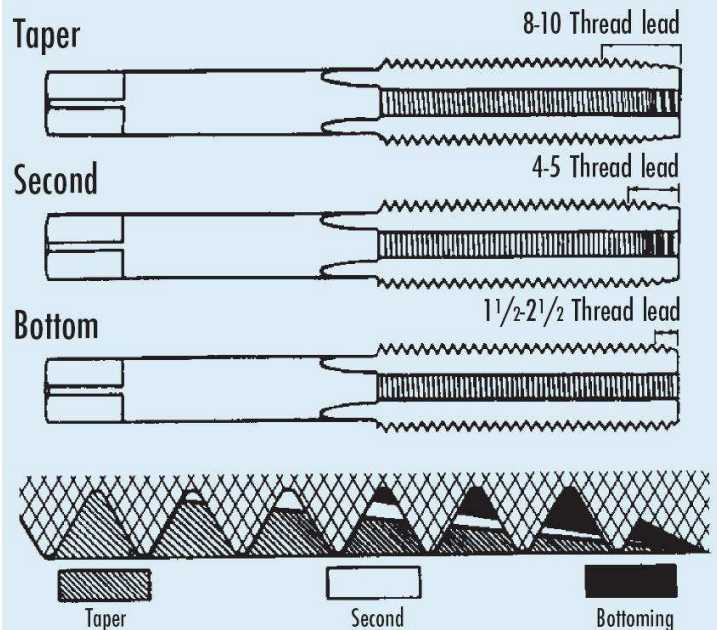
Second (or Intermediate) Tap

The tap has a lead of 4/5 threads. This tap can finish a through hole.

Bottom (or Plug) Tap

The tap has a lead of 1 1/2 - 2 1/2 threads. This is the finishing Tap.

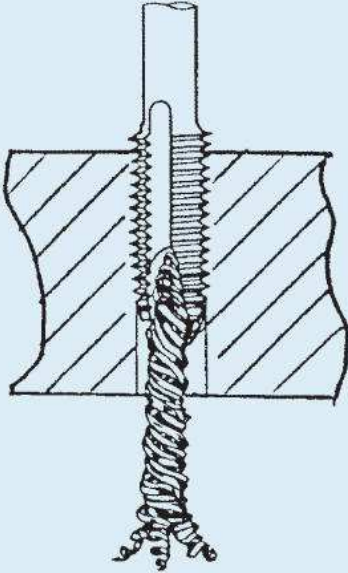
Please indicate your requirements on your order.



Technical Information

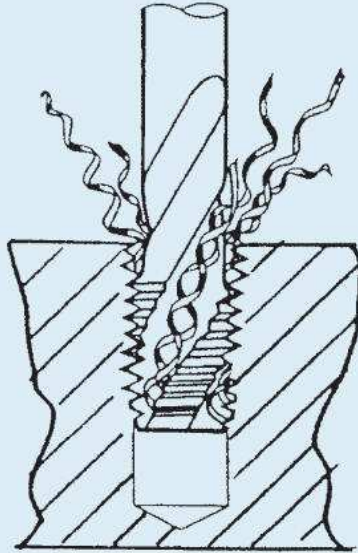
Chip Evacuation

Generally, the core hole diameter is the most important factor in tapping. Other aspects of geometry such as number and direction of flutes, cutting angle and others depend upon the material that is being tapped. The following examples may help in making decisions regarding tap choice.



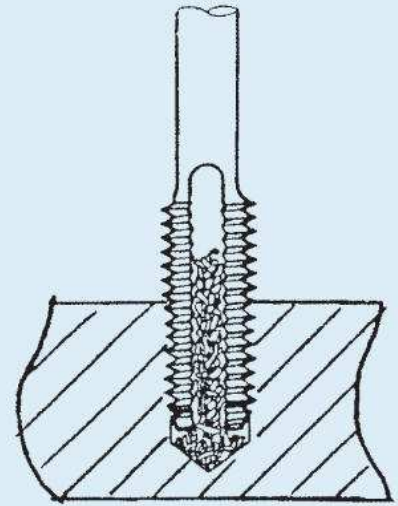
Through Holes

Taps with spiral point or left hand threads (right hand cutting) force the chips forward in the cutting direction and are particularly recommended for through hole tapping.



Blind Holes

Taps with spiral flutes $>15^\circ$ helix (right hand thread with right hand cutting) force the chips back out along the flutes and are recommended for blind holes.



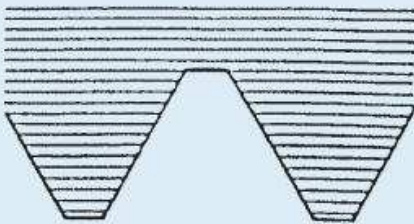
Blind Holes

Straight flute taps are all round tools, producing short chips in brittle materials. They produce excellent results in Cast Iron and Brass.

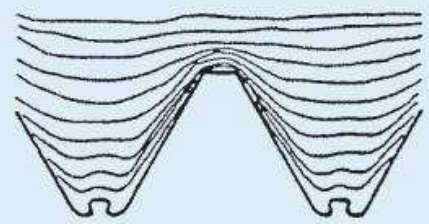
Fluteless Taps – Choices, For & Against

Fluteless taps do not produce chips. Material is displaced rather than cut and the resultant thread is of a better quality than standard tapping. They are particularly suitable for tapping blind holes in soft materials.

Material Deformation



Deformation with Cutting Tap



Deformation with Fluteless Tap

Applications:

- Minimum elongation coefficient $>10\%$
- Aluminium and Aluminium-alloys $\text{Si} < 12\%$
- Copper and Copper-alloys $\text{Cu} > 65\%$
- Steels up to 1.000 N/mm^2
- Stainless, austenitic steels up to 800 N/mm^2

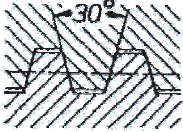
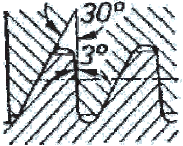
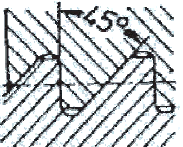
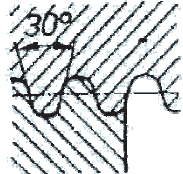
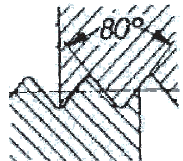
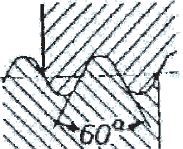
General:

- Higher accuracy of measurement
- Improvement in the engineering properties of the thread
- Higher productivity regarding tap-lifetime and cutting speed
- No chips produced (Reliability and Ecology)

Disadvantages:

- Higher machine power required
- Core hole has to be produced with accuracy (Tolerance $< \text{H}12$)

Technical Information: Thread Form

Thread Description	Profile (Sketch)	Short Form	Designation	Range	Standard	Application
Metric ISO Thread		Tr	Tr 40 × 7	8 - 300mm	DIN 103 Part 2	General
Buttress Thread		S	S 48 × 8	22 - 300mm	DIN 513 Part 2	General
			S 630 × 20 DIN 2781	100 - 1250mm	DIN 2781	For Hydraulic Presses
Round Thread			Rd 40 × 1/6	8 - 200mm	DIN 405	General
			Rd 40 × 5	10 - 300mm	DIN 20 400	For Round Thread With Heavy Loadbearing
			Rd 80 × 10 DIN 15 403	50 × 320mm	DIN 15 403	For Crane Hooks
Electrical Thread		E	E 27 DIN 40 400	5 - 400mm	DIN 40 400	For Lamp Bases and Lamp Sockets
Steel Pipe Conduit Thread		Pg	Pg 21 DIN 40 430	Pg 7 - Pg 48	DIN 40 430	In Electrical Engineering
Bicycle Thread Valve Thread		FG	FG 9.5	2 - 34.8mm	DIN 79 012	For Bicycles
		Vg	Vg 12	5.2 - 12mm	DIN DIN 7756	Valves for Pneumatic Applications
Tapered Whitworth Thread		W	W 2.8 × 1/4 Taper DIN 477	19.8mm 28.8mm 31.3mm	DIN 477 Page 1	In Gas Cylinder Valve

Technical Information: Thread Forms / Other Forms

Thread Description	Short Form	Designation	Standard	Country Of Origin
Unified screw thread	UNM	0.80 UNM	ASA B 1.10	USA
	UN, UNC, UNF, UNS	1/4 - 20 UNC	ASA B 1.1, B.S. 1580	USA
		1/4 - 20 UNC - 3A -LH	CSA B 1.1	Canada
	UNJF, UNJC	1/4 - 28 UNFJ	B.S. 4084	Great Britain
American screw thread (out of date)	NC, NF, NEF, NS, N	12 - 32 NF	ASA B 1.1	USA
Whitworth thread	BSW, BSF	1/4 in.-20 BSW	B.S.84	Great Britain
B.A. thread	B.A	11 B.A	B.S.93	Great Britain
Pipe thread, cylindrical	NPSC, NPSM	1/8 - 27 NPSC	ANSI B 2.1	USA
	NPSL, NPSH			
	Dryseal NPSF	1/8 - 27 Dryseal NPSF	ANSI B 2.2	
	Dryseal NPSJ			
	BSP.F	1 in.-BSP.F	B.S. 2779	Great Britain
	BSP.PI (Innengew.)	1 in.-BSP.PI	B.S. 21	
Pipe thread, tapered	NPT, NPTR	3/8 -18 NPT	ANSI B 2.1	USA
	Dryseal NPTF	1/8 - 27 Dryseal NPTF	ANSI B 2.2	
	BSP. Tr	1 in. BSP. Tr	B.S. 21	Great Britain
American oil thread (Thread for the mineral oil industry)	API	4 1/2 API TBG	API Std 5B	USA
Trapezoidal thread	Acme	1 3/4 - 4 Acme	ASA B 1.5 (in revision)	USA
			B.S 1104	Great Britain
	Stub-Acme	1/2 - 20 Stub-Acme	ASA B 1.8	USA
Buttress thread	Butt	1/8 - 20 Butt	ASA B 1.9 (in revision)	USA
			B.S 1657	Great Britain
Bicycle thread	BSC	1/4 - 26 BSC	B.S. 811	Great Britain

P0-Bright • P1-Steam Tempered • P2-Bronze • P3-Moc • P4-Nitrided • P5-TiN • P6-TiCN • P7 / P8 TiAlN• P9 TiB

Technical Information: Thread Forms / Lesser Used Forms

Thread Description	Standard	Application
Trapezoidal thread Tr two-start	DIN 263 Part 1	Railway Engineering
Trapezoidal thread Tr fine	DIN 378	Spindle Threads
Trapezoidal thread Tr coarse	DIN 379	Lead Screws, Worm Threads
Buttress thread	DIN 4933	Mining
Spectacles thread	DIN 5347	Optical Industry
Self-tapping thread	DIN 7075	For sheet metal screws
Round thread (pitch 7 mm)	DIN 262	Higher Flank, Railway Engineering
Gas cylinder thread	DIN 4668	For valve sockets, neck rings and valve caps
Refrigerator pipe thread	DIN 4930 Part 2	For refrigerator pipes and Down pipes in refrigerator shaft construction, for mining applications
Vacuum flask thread	DIN 5396	For vacuum flasks
Metric tapered fine thread, taper 1:20	DIN 8507	For soldering appliances
Pipe thread	DIN 8904	For solderless pipe joints with flanged pipe, in refrigeration engineering
Buttress thread	DIN 20401	With pitch 0,8 to 2 mm
Trapezoidal thread	DIN 30295	Rounded trapezoidal thread for locomotive construction
Round thread	DIN 70165	In vehicle construction
Sewing machine thread, Ng	DIN 5309	

Technical Information: Tapping Drill Sizes (mm)

To ensure maximum tool life and optimal results we recommend the use of the largest drill diameter. All the following recommendations are approximate and the drilling conditions (machine in use, point geometry, drilling speed) will influence the result.

M - Metric ISO Coarse Thread			MF - Metric ISO Fine Thread			UNC - Unified Coarse Thread			UNF - Unified Fine Thread		
Nom Size Dia. mm	Pitch mm	Tapping Drill Size mm	Nom Size Dia. mm	Pitch mm	Tapping Drill Size mm	Nom Size Dia. mm	T.P.I.	Tapping Drill Size mm	Nom Size Dia. mm	T.P.I.	Tapping Drill Size mm
M1	0.25	0.75	Mf3 *	0.35	2.65	No1	64	1.55	No0	80	1.25
M1.1	0.25	0.85	Mf3.5	0.35	3.15	No2	56	1.85	No1	72	1.55
M1.2	0.25	0.95	Mf4 *	0.50	3.50	N03	48	2.10	No2	64	1.90
M1.4	0.30	1.10	Mf4.5	0.50	4.00	No4	40	2.35	N03	56	2.15
M1.6	0.35	1.25	Mf5	0.50	4.50	No5	40	2.65	No4	48	2.40
M1.8	0.35	1.45	M5 (Special)	0.75	4.20	No6	32	2.85	No5	44	2.70
M2	0.40	1.60	Mf6	0.50	5.50	No8	32	3.50	No6	40	2.95
M2.2	0.45	1.75	Mf6 *	0.75	5.20	No10	24	3.90	No8	36	3.50
M2.5	0.45	2.05	Mf7	0.75	6.25	No12	24	4.50	No10	32	4.10
M3	0.50	2.50	Mf8	0.75	7.20	1/4	20	5.10	No12	28	4.70
M3.5	0.60	2.90	Mf8 *	1.00	7.00	5/16	18	6.60	1/4	28	5.50
M4	0.70	3.30	Mf9	1.00	8.00	3/8	16	8.00	5/16	24	6.90
M5	0.80	4.20	Mf10	0.75	9.20	7/16	14	9.40	3/8	24	8.50
M6	1.00	5.00	Mf10S/plug	1.00	9.00	1/2	13	10.80	7/16	20	9.90
M7	1.00	6.00	Mf10 *	1.25	8.80	9/16	12	12.20	1/2	20	11.50
M8	1.25	6.80	Mf11	1.00	10.00	5/8	11	13.50	9/16	18	12.90
M9	1.25	7.80	Mf12	1.00	11.00	3/4	10	16.50	5/8	18	14.50
M10	1.50	8.50	Mf12 * S/plug	1.25	10.80	7/8	9	19.50	3/4	16	17.50
M12	1.75	10.20	Mf12	1.50	10.50	1"	8	22.25	7/8	14	20.40
M14	2.00	12.00	Mf14	1.00	13.00	1-1/8	7	25.00	1"	12	23.25
M16	2.00	14.00	Mf14 S/plug	1.25	12.80	1-1/4	7	28.00	1-1/8	12	26.50
M18	2.50	15.50	Mf14 *	1.50	12.50	1-3/8	6	30.75	1-1/4	12	29.50
M20	2.50	17.50	Mf16	1.00	15.00	1-1/2	6	34.00	1-3/8	12	32.75
M22	2.50	19.50	Mf16 * Conduit	1.50	14.50	1-3/4	5	39.50	1-1/2	12	36.00
M24	3.00	21.00	Mf18	1.00	17.00	2"	4-1/2	45.00	G - Whitworth Pipe DIN ISO 228		
M27	3.00	24.00	Mf18 * S/plug	1.50	16.50	2-1/4	4-1/2	52.00			
M30	3.50	26.50	Mf18	2.00	16.00	2-1/2	4	57.00			
M33	3.50	29.50	Mf20	1.00	19.00	Rp - Whitworth Pipe Thread					
M36	4.00	32.00	Mf20 * Conduit	1.50	18.50						
M39	4.00	35.00	Mf20	2.00	18.00						
M42	4.50	37.50	Mf22 *	1.50	20.50						
M45	4.50	40.50	Mf22	2.00	20.00	Nom Size	T.P.I.	Tapping Drill Size mm	Nom Size	T.P.I.	Tapping Drill Size mm
M48	5.00	43.00	Mf24	1.50	22.50	1/8	28	8.60	1/16	28	6.80
M52	5.00	47.00	Mf24 *	2.00	22.00	1/4	19	11.50	1/8	28	8.80
M56	5.50	50.50	Mf25 Conduit	1.50	23.50	3/8	19	15.00	1/4	19	11.80
			Mf27	1.50	25.50	1/2	14	18.75	3/8	19	15.25
			Mf27 *	2.00	25.00	3/4	14	24.25	1/2	14	19.00
			Mf30	1.50	28.50	1"	11	30.40	5/8	14	21.00
			Mf30 *	2.00	28.00	1/2	14	18.75	3/4	14	24.50
			Mf32 Conduit	1.50	30.50	3/4	14	24.25	7/8	14	28.25
			Mf33	2.00	31.00	1"	11	30.40	1"	11	30.75
			Mf40 Conduit	1.50	38.50	1-1/4	11	39.00	1-1/4	11	39.50
						1-1/2	11	45.00	1-1/2	11	45.00
						2"	11	56.75	1-3/4	11	51.00
									2"	11	57.00
									2-1/4	11	62.75
									2-1/2	11	72.50

Technical Information: Tapping Drill Sizes (mm)

BSW - British Standard-Whitworth Thread

Nom Size Dia. mm	Pitch mm	Tapping Drill Size mm
1/16	60	1.15
3/32	48	1.85
1/8	40	2.55
5/32	32	3.10
3/16	24	3.70
7/32	24	4.40
1/4	20	5.10
5/16	18	6.50
3/8	16	7.90
7/16	14	9.30
1/2	12	10.50
9/16	12	12.10
5/8	11	13.50
11/16	11	15.00
3/4	10	16.25
7/8	9	19.25
1"	8	22.00
1-1/8	7	24.75
1-1/4	7	28.00
1-3/8	6	30.50
1-1/2	6	33.50
1-3/4	5	39.00
2"	4½	44.50
2-1/4	4	51.00
2-1/2	4	57.00

BSF - British Standard-Fine Thread

Nom Size Dia. mm	Pitch mm	Tapping Drill Size mm
3/16	32	4.00
7/32	28	4.60
1/4	26	5.30
5/16	22	6.80
3/8	20	8.30
7/16	18	9.70
1/2	16	11.10
9/16	16	12.70
5/8	14	14.00
11/16	14	15.50
3/4	12	16.75
7/8	11	19.75
1"	10	22.75
1-1/8	9	25.50
1-1/4	9	28.50
1-3/8	8	31.50
1-1/2	8	34.50
1-3/4	7	41.00
2"	7	47.00
2-1/4	6	53.00
2-1/2	6	58.00

BA - British Association Standard Thread

Nom Size Dia. mm	Pitch mm	Tapping Drill Size mm
14	0.23	0.80
13	0.25	0.98
12	0.28	1.05
11	0.31	1.20
10	0.35	1.40
9	0.39	1.55
8	0.43	1.80
7	0.48	2.05
6	0.53	2.30
5	0.59	2.65
4	0.66	3.00
3	0.73	3.40
2	0.81	4.00
1	0.90	4.50
0	1.00	5.10

Rc - British Standard Pipe Taper

Nom Size	T.P.I.	Position Dia. At Gauge P. mm	Ream Dia. (R) at "L" mm	Tapping Drill Size With Reamer mm	Tapping Drill Size Without Reamer mm
1/16	28	10.1	6.56		6.40
1/8	28	10.1	8.57	8.00	8.40
1/4	19	15.0	11.45	10.80	11.20
3/8	19	15.4	14.95	14.25	14.75
1/2	14	20.5	18.63	17.75	18.25
3/4	14	21.8	24.12	23.00	23.75
1"	11	26.0	30.29	29.00	30.00
1-1/4	11	28.3	38.95	37.50	38.50
1-1/2	11	28.3	44.85	43.50	44.50
2"	11	32.7	56.65	55.00	56.00
2-1/2	11	37.1	72.23	70.00	71.00

NPT- American Tapered Pipe Thread

Nom Size	T.P.I.	Position Dia. At Gauge P. mm	Ream Dia. (R) at "L" mm	Tapping Drill Size With Reamer mm	Tapping Drill Size Without Reamer mm
1/16	27	0.472	0.2515	6.00	6.30
1/8	27	0.474	0.3440	8.40	8.70
1/4	18	0.687	0.4472	10.70	11.10
3/8	18	0.694	0.5826	14.25	14.50
1/2	14	0.899	0.7213	17.50	18.00
3/4	14	0.904	0.9317	22.75	23.25
1"	11½	1.078	1.1691	28.50	29.00
1-1/4	11½	1.106	1.5138	37.50	38.00
1-1/2	11½	1.119	1.7528	43.50	44.00
2"	11½	1.103	2.2267	55.00	56.00

Technical Information: Tapping Drill Diameters for Fluteless Taps

The recommended drilling diameters are approximate.

Warning:

Hole Diameter too small: the thread will be compressed and the tap will strip

Hole diameter too large: the thread will not be correctly formed and will be of insufficient height

M - Metric ISO Coarse Thread		
Nom Size Dia. mm	Pitch mm	Fluteless Tapping Drill Size mm
M 1	0.25	0.88
M 1.2	0.25	1.08
M 1.4	0.30	1.25
M 1.6	0.35	1.45
M 1.7		1.55
M 1.8	0.35	1.65
M 2	0.40	1.8
M 2.2	0.45	2
M 2.3		2
M 2.5	0.45	2.3
M 2.6		2.4
M 3	0.50	2.8
M 3.5	0.60	3.2
M 4	0.70	3.7
M 5	0.80	4.6
M 6	1.00	5.6
M 8	1.25	7.4
M 10	1.50	9.3
M 12	1.75	11.2
M 14	2.00	13.1
M 16	2.00	15.1
M 18	2.50	16.9
M 20	2.50	18.9
M 22	2.50	20.9
M 24	3.00	22.65

MF - Metric ISO Fine Thread		
Nom Size Dia. mm	Pitch mm	Fluteless Tapping Drill Size mm
M4	0.5	3.75
M5	0.5	4.75
M6	0.5	5.75
M8	0.5	7.75
M6	0.75	5.65
M8	0.75	7.65
M10	0.75	9.65
M8	1	7.55
M10	1	9.55
M12	1	11.55
M14	1	13.55
M16	1	15.55
M18	1	17.55
M12	1.5	11.3
M14	1.5	13.3
M16	1.5	15.3
M18	1.5	17.3
M20	1.5	19.3
M22	1.5	21.3
M24	1.5	23.3
M20	2	19.1
M22	2	21.1
M24	2	23.1

UNC - Unified Coarse Thread		
Nom Size Dia.	T.P.I.	Fluteless Tapping Drill Size mm
No.2	56	1.95
No.3	48	2.25
No.4	40	2.55
No.5	40	2.85
No.6	32	3.10
No.8	32	3.8
No.10	24	4.3
No.12	24	4.90
1/4	20	5.80
5/16	18	7.3
3/8	16	8.8
7/16	14	10.3
1/2	13	11.90
9/16	12	13.3
5/8	11	14.8
3/4	10	17.9
7/8	9	20.95
1	8	24

UNF - Unified Fine Thread		
Nom Size Dia. mm	T.P.I.	Fluteless Tapping Drill Size mm
No.2	64	2
No.3	56	2.3
No.4	48	2.6
No.5	44	2.9
No.6	40	3.2
No.8	36	3.85
No.10	32	4.45
No.12	28	5.1
1/4	28	5.95
5/16	24	7.45
3/8	24	9
7/16	20	10.5
1/2	20	12.1
9/16	18	13.65
5/8	18	15.25
3/4	16	18.3
7/8	14	21.4
1	12	24.45

G - Whitworth Pipe Thread		
Nom Size Dia. mm	T.P.I.	Fluteless Tapping Drill Size mm
1/16	28	7.25
1/8	28	9.2
1/4	19	12.4
3/8	19	15.9
1/2	14	19.9
5/8	14	21.9
3/4	14	25.4

Relationship of Tap Classes of Taps & Fluteless Taps for ISO Metric Threads

The standard DIN EN 22857 sets out the limits of taps for the production of ISO threads from tolerance of 4H to 8H and 4G to 6G. The following is a comparison of DIN 802 (now obsolete) with the current DIN EN 22857 in respect of thread classification.

DIN EN 22857								DIN 802 Part 1 (Obsolete)
Application Class of Tap			Tap Tolerance					Thread Tolerance
Class Name		Designation						
Class 1		ISO 1	4H/5H					4H
Class 2		ISO 2	4G	5G	6H			6H
Class 3		ISO 3			6G	7H	8H	6G
× × ×		× × ×				7G	8G	7G

Presto taps follow DIN EN 22 857

Example

M12 for class 6H Thread

To **DIN 22857** M12 **ISO 2**

To DIN 802 M12-6H

Our taps are available on request with new or old designations.

Example

M12 x 1.5 – **ISO 2/6H**

This nomenclature is not according to DIN EN 22857 with the appropriate tolerance band such as 7G or 8G, and the X tolerance band remains unchanged following the obsolete DIN 802 Part 1 (A new standard is in preparation).

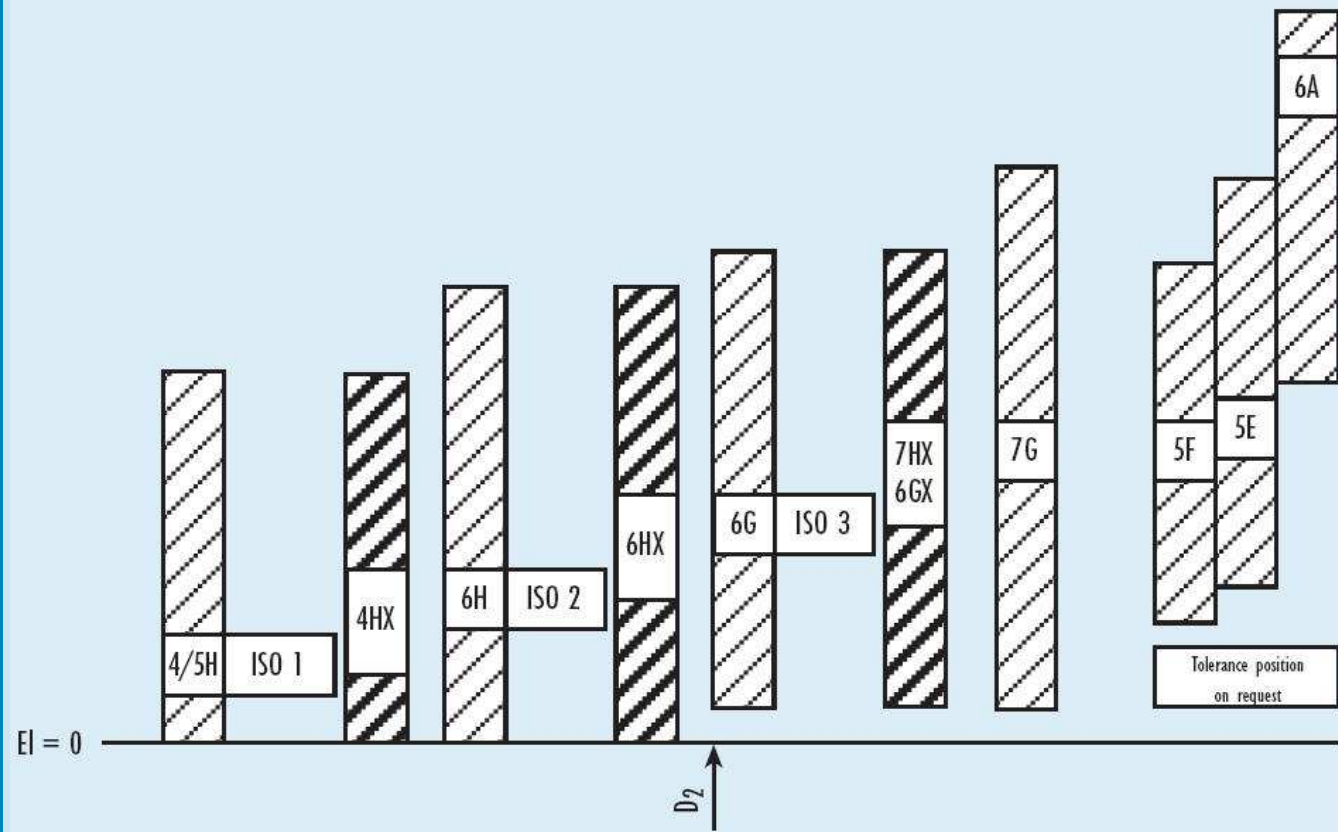
Example

M12 with tolerance of thread for example to 6H. (See following diagram) M12 **6HX**.

Position of Tolerance Limits in Taps and Fluteless Taps for Metric ISO Thread

Tolerance Limits for Pitch Diameter

The tolerance position X is applied to taps chiefly for materials which are in the Material Groups 2, 3, 4, 5, 8 as well as to forming taps. The indirect increase in dimension counteracts the deformation of the machined material and also wear and tear when abrasive materials are machined. The modified dimension does not affect the desired tolerance in the Internal Thread.



Recommended Tolerance Position for Taps / Fluteless Taps

Tolerance Position	Comment	Workpiece Tolerance	Technical Application
ISO 1 (4/5H)	Lower deviation	4H; 5H	Threads for interference fits, thread connection with clearance
ISO 2 (6H)	Normal	4G; 5G; 6H	Normal thread connection
ISO 3 (6G)	Higher deviation	6G; 7H; 8H	Thread connection with a lot of clearance (also when protective coatings are extremely thin)
7G	Higher deviation	7G; 8G	With subsequent heat-treatment process which cause warping and/or shrinkage
ISO 2+0.1*	Higher deviation	4G; 5G; 6H	Electroplating in layers up to 25 μm thickness
ISO 2+0.2*	Higher deviation	4G; 5G; 6H	Electroplating in layers up to 50 μm thickness

* The Higher Tolerance Should be determined by tests.

