




























Special Action

GP General Purpose									
SP	SP-BLF OX	SP-BLF V	SP V	PO	PO OX	PO V	R-D	R-D V	
							Forming	Forming	
TCTR (tolerance)	ISO2(6H)	ISO2(6H)	ISO2(6H)	ISO2(6H)	ISO2(6H)	ISO2(6H)	ISO2(6H)	ISO2X(6HX)	ISO2X(6HX)
THCHT (chamfer)	C(2.5P)	C(2.5P)	C(2.5P)	C(2.5P)	B(5P)	B(5P)	B(5P)	2P	2P
	94	106	112	114	212	218	220	352	354
M	DIN371	DIN371	DIN371		DIN371	DIN371	DIN371	DIN371	DIN371
3x0.5	€ 7,51 SD3.0GANEB	€ 8,24 SD3.0GANEXJ	€ 11,25 96473.0TI		€ 7,29 PD3.0GANEB	€ 7,88 PD3.0GANEX	€ 10,17 96303.0TI	€ 11,62 RD3.0GBNEBB	€ 15,07 93533.0BTI
4x0.7	€ 7,51 SD4.0IANEB	€ 8,24 SD4.0IANEXJ	€ 11,46 96474.0TI		€ 7,29 PD4.0IANEB	€ 7,88 PD4.0IANEX	€ 10,38 96304.0TI	€ 11,62 RD4.0IBNEBB	€ 15,28 93534.0BTI
5x0.8	€ 7,73 SD5.0KANEB	€ 8,49 SD5.0KANEXJ	€ 11,74 96475.0TI		€ 7,54 PD5.0KANEB	€ 8,20 PD5.0KANEX	€ 10,66 96305.0TI	€ 12,08 RD5.0KBNEBB	€ 15,80 93535.0BTI
6x1	€ 7,73 SD6.0MANEB	€ 8,49 SD6.0MANEXJ	€ 11,74 96476.0TI		€ 7,54 PD6.0MANEB	€ 8,20 PD6.0MANEX	€ 10,66 96306.0TI	€ 12,08 RD6.0MBNEBB	€ 15,80 93536.0BTI
8x1.25	€ 9,09 SD8.0NANEB	€ 10,20 SD8.0NANEXJ	€ 13,95 96478.0TI		€ 8,86 PD8.0NANEB	€ 9,73 PD8.0NANEX	€ 12,73 96308.0TI	€ 14,02 RD8.0NBNEBB	€ 18,34 93538.0BTI
10x1.5	€ 10,94 SD010OANEB	€ 12,30 SD010OANEXJ	€ 17,00 9647010TI		€ 10,64 PD010OANEB	€ 11,64 PD010OANEX	€ 15,49 9630010TI	€ 16,87 RD010OBNEBB	€ 20,36 9353010BTI
M	DIN376	DIN376	DIN376		DIN376	DIN376	DIN376	DIN376	DIN376
12x1.75	€ 14,49 SG012PANEB	€ 15,98 SG012PANEXJ	€ 21,23 9747012TI		€ 14,14 PG012PANEB	€ 15,02 PG012PANEX	€ 19,80 9730012TI	€ 22,60 RG012PBNEBB	€ 27,58 9353012BTI
14x2	€ 17,45 SG014QANEB	€ 20,13 SG014QANEXJ	€ 26,36 9747014TI		€ 17,08 PG014QANEB	€ 18,08 PG014QANEX	€ 23,80 9730014TI		€ 31,76 9353014BTI
16x2	€ 22,12 SG016QANEB	€ 24,31 SG016QANEXJ	€ 31,89 9747016TI		€ 21,56 PG016QANEB	€ 22,77 PG016QANEX	€ 29,76 9730016TI		€ 40,16 9353016BTI
18x2.5	€ 29,02 SG018RANEB	€ 31,96 SG018RANEXJ	€ 41,48 9747018TI		€ 27,02 PG018RANEB	€ 28,48 PG018RANEX	€ 37,31 9730018TI		€ 48,88 9353018BTI
20x2.5	€ 32,78 SG020RANEB	€ 36,04 SG020RANEXJ	€ 47,90 9747020TI		€ 32,03 PG020RANEB	€ 33,64 PG020RANEX	€ 44,82 9730020TI		€ 58,37 9353020BTI
22x2.5	€ 41,78 SG022RANEB		€ 59,21 9747022TI		€ 38,91 PG022RANEB		€ 53,25 9730022TI		€ 64,88 9353022BTI
24x3	€ 44,96 SG024SANEB		€ 69,10 9747024TI		€ 43,88 PG024SANEB		€ 64,88 9730024TI		
27x3	€ 59,79 SG027SANEB				€ 58,37 PG027SANEB				
30x3.5	€ 73,58 SG030TANEB				€ 71,81 PG030TANEB				
	Vc (m/min)								
ISO P	5 ÷ 10	4 ÷ 10	6 ÷ 20	6 ÷ 20	5 ÷ 10	4 ÷ 10	6 ÷ 20	5 ÷ 15	10 ÷ 20
ISO M		4 ÷ 8	6 ÷ 12	6 ÷ 12		4 ÷ 8	6 ÷ 12		8 ÷ 12
ISO K									
ISO N	5 ÷ 10		10 ÷ 20	10 ÷ 20	5 ÷ 10		10 ÷ 20	10 ÷ 15	10 ÷ 20
ISO S									
ISO H									

HT Hand Taps						Dies	Center Drills		
6110	6412	ISP	IPO	IHT	IHT	DPO	CD-A	CD-R	
HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	
ISO2(6H)	ISO2(6H)	-	-	-	-	6g	Type	A	R
V + M + F	V + F	2.5P	5P	2P	5P	1.5P	Angle	60°	Radius
498	502	504	505	506	506	594		606	607
DIN371		JIS	JIS	JIS	JIS	DIN223	DC x DCON	DIN333	DIN333
€ 13,44 61103.05		€ 3,80 SI73.0G	€ 3,69 PI73.0G	€ 3,33 HI73.0G2	€ 3,33 HI73.0G5	€ 12,88 PDE3.0GLNEBC	0.5 x 3.15	€ 3,69 00210.5	
€ 13,44 61104.05		€ 3,91 SI74.0I	€ 3,80 PI74.0I	€ 3,12 HI74.0I2	€ 3,12 HI74.0I5	€ 13,65 PDE4.0ILNEBC	1 x 3.15	€ 3,69 00211.0	
€ 13,56 61105.05		€ 4,03 SI75.0K	€ 3,91 PI75.0K	€ 3,33 HI75.0K2	€ 3,33 HI75.0K5	€ 13,65 PDE5.0KLNEBC	1.6 x 4	€ 3,81 00211.6	
€ 13,90 61106.05		€ 4,28 SI76.0M	€ 4,03 PI76.0M	€ 3,57 HI76.0M2	€ 3,57 HI76.0M5	€ 13,65 PDE6.0MLNEBC	2 x 5	€ 3,94 00212.0	€ 3,94 00232.0
€ 16,87 61108.05		€ 6,56 SI78.0N	€ 6,33 PI78.0N	€ 5,53 HI78.0N2	€ 5,53 HI78.0N5	€ 14,30 PDG8.0NLNEBC	2.5 x 6.3	€ 4,66 00212.5	€ 4,66 00232.5
€ 21,42 61100105		€ 8,30 SI70100	€ 7,94 PI70100	€ 7,03 HI701002	€ 7,03 HI701005	€ 17,99 PDH0100LNEBC	3.15 x 8	€ 6,14 00213.1	€ 6,14 00233.1
DIN376						DIN223	DC x DCON		
€ 27,23 61100125						€ 22,28 PDJ012PLNEBC	4 x 10	€ 9,29 00214.0	€ 9,29 00234.0
€ 34,67 61100145						€ 22,28 PDJ014QLNEBC	5 x 12.5	€ 12,57 00215.0	€ 12,57 00235.0
€ 43,10 61100165						€ 30,33 PDL016QLNEBC	6.3 x 16	€ 21,73 00216.3	€ 21,73 00236.3
€ 58,18 61100185						€ 30,33 PDL018RLNEBC	-		
€ 65,62 61100205						€ 30,33 PDL020RLNEBC	-		
€ 93,42 61100245						€ 44,26 PDP022RLNEBC	-		
						€ 44,26 PDP024SLNEBC	-		
						€ 76,36 PDS027SLNEBC	-		
						€ 76,36 PDS030TLNEBC	-		
Vc (m/min)								Vc (m/min)	
★	★	<5	<5	<5	<5	2 ÷ 5	ISO P	10 ÷ 30	10 ÷ 30
							ISO M	5 ÷ 12	5 ÷ 12
☆	☆						ISO K		
☆	☆					<5	ISO N		
							ISO S		
							ISO H		

★ 1st choice ☆ suitable

Special Action

GP General Purpose									
	SP	SP-BLF OX	SP-BLF V	SP V	PO	PO OX	PO V	R-D	R-D V
	HSS-E	HSS-E OX	HSS-E COATING	HSS-E COATING	HSS-E	HSS-E OX	HSS-E COATING	HSS-E	HSS-E COATING
									
									
TCTR (tolerance)	ISO2(6H)	ISO2(6H)	ISO2(6H)	ISO2(6H)	ISO2(6H)	ISO2(6H)	ISO2(6H)	ISO2X(6HX)	ISO2X(6HX)
THCHT (chamfer)	C(2.5P)	C(2.5P)	C(2.5P)	C(2.5P)	B(5P)	B(5P)	B(5P)	2P	2P
									
	94	106	112	114	212	218	220	352	354
MF	DIN374			DIN374	DIN374		DIN374		
8x1	€ 10,87 SM8.0MANEB			€ 13,41 98408.0MTI	€ 10,60 PM8.0MANEB		€ 13,28 98308.0MTI		
10x1.25	€ 13,08 SM010ANEB			€ 17,34 9840010NTI	€ 12,73 PM010ANEB		€ 18,11 9830010NTI		
10x1	€ 13,08 SM010MANEB			€ 17,34 9840010MTI	€ 12,73 PM010MANEB		€ 18,11 9830010MTI		
12x1.5	€ 16,95 SM012OANEB			€ 21,63 9840012OTI	€ 16,55 PM012OANEB		€ 20,25 9830012OTI		
12x1.25	€ 16,95 SM012NANEB			€ 21,63 9840012NTI	€ 16,55 PM012NANEB		€ 20,25 9830012NTI		
14x1.5	€ 20,42 SM014OANEB			€ 25,97 9840014OTI	€ 19,98 PM014OANEB		€ 24,33 9830014OTI		
16x1.5	€ 25,88 SM016OANEB			€ 32,59 9840016OTI	€ 25,22 PM016OANEB		€ 30,43 9830016OTI		
18x1.5	€ 33,95 SM018OANEB			€ 42,32 9840018OTI	€ 31,62 PM018OANEB		€ 38,17 9830018OTI		
20x1.5	€ 38,37 SM020OANEB			€ 46,56 9840020OTI	€ 37,48 PM020OANEB		€ 45,79 9830020OTI		
G(BSP)	DIN5156			DIN5156	DIN5156		DIN5156	DIN5156	DIN5156
1/8	€ 14,58 SVG0020NEB			€ 18,66 9940R02TI	€ 14,58 PVG0020NEB		€ 18,66 9930R02TI	€ 27,54 RVG0026NEBB	€ 31,12 9953R02TI
1/4	€ 19,50 SVG0040NEB			€ 26,28 9940R04TI	€ 19,50 PVG0040NEB		€ 26,28 9930R04TI	€ 35,12 RVG0047NEBB	€ 41,20 9953R04TI
3/8	€ 27,02 SVG0060NEB			€ 37,12 9940R06TI	€ 27,02 PVG0060NEB		€ 37,12 9930R06TI	€ 50,97 RVG0067NEBB	€ 60,07 9953R06TI
1/2	€ 39,19 SVG0080NEB			€ 53,54 9940R08TI	€ 39,19 PVG0080NEB		€ 53,54 9930R08TI		
3/4	€ 63,36 SVG0120NEB								
1	€ 110,28 SVG0160NEB								
Vc (m/min)									
ISO P	5 ÷ 10	4 ÷ 10	6 ÷ 20	6 ÷ 20	5 ÷ 10	4 ÷ 10	6 ÷ 20	5 ÷ 15	10 ÷ 20
ISO M		4 ÷ 8	6 ÷ 12	6 ÷ 12		4 ÷ 8	6 ÷ 12		8 ÷ 12
ISO K									
ISO N	5 ÷ 10		10 ÷ 20	10 ÷ 20	5 ÷ 10		10 ÷ 20	10 ÷ 15	10 ÷ 20
ISO S									
ISO H									

HT Hand Taps						Dies
6110	6412	ISP	IPO	IHT	IHT	DPO
HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
ISO2(6H) C(2.5P)	ISO2(6H) C(2.5P)	- 2.5P	- 5P	- 2P	- 5P	6g 1.5P
498	502	504	505	506	506	594
						DIN223
						€ 17,36
						PDG8.0MLNEBC
						€ 22,72
						PDH010NLNEBC
						€ 22,16
						PDH010MLNEBC
						€ 30,07
						PDJ0120LNEBC
						€ 27,53
						PDJ012NLNEBC
						€ 30,07
						PDJ0140LNEBC
						€ 33,92
						PDL0160LNEBC
						€ 35,30
						PDL0180LNEBC
						€ 35,83
						PDL0200LNEBC
	DIN5156					DIN5158
	€ 17,53					€ 20,79
	6412G02S					PVHG0020NEBC
	€ 22,54					€ 24,08
	6412G04S					PVJG0040NEBC
	€ 30,02					€ 33,10
	6412G06S					PVLG0060NEBC
	€ 49,77					€ 33,10
	6412G08S					PVLG0080NEBC
	€ 58,74					€ 45,56
	6412G12S					PVPG0120NEBC
	€ 122,87					€ 78,53
	6412G16S					PVSG0160NEBC
Vc (m/min)						
★	★	<5	<5	<5	<5	2 ÷ 5
☆	☆					
☆	☆					<5

★ 1st choice ☆ suitable

BORED HOLE AND DRILL SIZE

CUTTING TAPS

M	Drill Ø	Hole Ø*
M 1.4 × 0.3	1.10	1.13
M 1.6 × 0.35	1.25	1.30
M 2 × 0.4	1.60	1.65
M 2.5 × 0.45	2.10	2.11
M 2.6 × 0.45	2.20	2.21
M 3 × 0.5	2.50	2.56
M 3.5 × 0.6	2.90	2.97
M 4 × 0.7	3.30	3.38
M 5 × 0.8	4.20	4.28
M 6 × 1	5.00	5.09
M 7 × 1	6.00	6.09
M 8 × 1.25	6.80	6.85
M 9 × 1.25	7.80	7.85
M 10 × 1.5	8.50	8.60
M 11 × 1.5	9.50	9.60
M 12 × 1.75	10.30	10.36
M 14 × 2	12.00	12.12
M 16 × 2	14.00	14.12
M 18 × 2.5	15.50	15.63
M 20 × 2.5	17.50	17.63
M 22 × 2.5	19.50	19.63
M 24 × 3	21.00	21.13
M 27 × 3	24.00	24.13
M 30 × 3.5	26.50	26.63
M 33 × 3.5	29.50	29.63
M 36 × 4	32.00	32.12

MF	Drill Ø	Hole Ø*
MF 6 × 0.75	5.30	5.33
MF 8 × 1	7.00	7.09
MF 8 × 0.75	7.30	7.33
MF 10 × 1.25	8.80	8.85
MF 10 × 1	9.00	9.09
MF 12 × 1.5	10.50	10.60
MF 12 × 1.25	10.80	10.85
MF 12 × 1	11.00	11.09
MF 14 × 1.5	12.50	12.60
MF 14 × 1	13.00	13.09
MF 16 × 1.5	14.50	14.60
MF 16 × 1	15.00	15.09
MF 18 × 2	16.00	16.12
MF 18 × 1.5	16.50	16.60
MF 18 × 1	17.00	17.09
MF 20 × 2	18.00	18.12
MF 20 × 1.5	18.50	18.60
MF 20 × 1	19.00	19.09
MF 22 × 1.5	20.50	20.60
MF 24 × 2	22.00	22.12
MF 24 × 1.5	22.50	22.60

UNC	Drill Ø	Hole Ø*
No. 2 - 56 UNC	1.80	1.83
No. 4 - 40 UNC	2.30	2.33
No. 6 - 32 UNC	2.80	2.83
No. 8 - 32 UNC	3.40	3.47
No. 10 - 24 UNC	3.90	3.89
1/4 - 20 UNC	5.10	5.19
5/16 - 18 UNC	6.60	6.65
3/8 - 16 UNC	8.00	8.07
7/16 - 14 UNC	9.40	9.45
1/2 - 13 UNC	10.90	10.91
9/16 - 12 UNC	12.20	12.33
5/8 - 11 UNC	13.60	13.75
3/4 - 10 UNC	16.60	16.70
7/8 - 9 UNC	19.60	19.61
1 - 8 UNC	22.30	22.45

UNF	Drill Ø	Hole Ø*
No. 6 - 40 UNF	2.90	2.97
No. 8 - 36 UNF	3.50	3.55
No. 10 - 32 UNF	4.10	4.12
1/4 - 28 UNF	5.50	5.53
5/16 - 24 UNF	6.90	6.97
3/8 - 24 UNF	8.50	8.57
7/16 - 20 UNF	9.90	9.96
1/2 - 20 UNF	11.50	11.54
9/16 - 18 UNF	12.90	13.00
5/8 - 18 UNF	14.50	14.60
3/4 - 16 UNF	17.50	17.59
7/8 - 14 UNF	20.50	20.57
1 - 12 UNF	23.30	23.46

G(BSP)	Drill Ø	Hole Ø*
G 1/8 - 28	8.75	8.78
G 1/4 - 19	11.75	11.78
G 3/8 - 19	15.25	15.28
G 1/2 - 14	19.00	19.04
G 3/4 - 14	24.50	24.50
G 1 - 11	30.75	30.77

Rp(BSPP)	Drill Ø	Hole Ø*
Rp 1/8 - 28	8.50	8.55
Rp 1/4 - 19	11.40	11.50
Rp 3/8 - 19	14.80	14.90
Rp 1/2 - 14	18.50	18.55
Rp 3/4 - 14	24.00	24.10
Rp 1 - 11	30.20	30.25

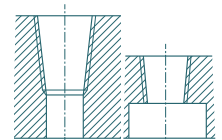
FORMING TAPS

M	Drill Ø	Hole Ø*	
		Max.	Min.
M 1.4 × 0.3	1.27	1.28	1.25
M 1.6 × 0.35	1.46	1.48	1.43
M 2 × 0.4	1.83	1.86	1.80
M 2.5 × 0.45	2.31	2.34	2.27
M 2.6 × 0.45	2.41	2.44	2.37
M 3 × 0.5	2.80	2.83	2.76
M 3.5 × 0.6	3.25	3.29	3.21
M 4 × 0.7	3.71	3.75	3.66
M 5 × 0.8	4.65	4.70	4.60
M 6 × 1	5.56	5.61	5.50
M 8 × 1.25	7.45	7.52	7.38
M 10 × 1.5	9.34	9.41	9.26
M 12 × 1.75	11.22	11.3	11.13
M 14 × 2	13.10	13.19	13.00
M 16 × 2	15.10	15.19	15.00

MF	Drill Ø	Hole Ø*	
		Max.	Min.
MF 10 × 1.25	9.45	9.51	9.38
MF 10 × 1	9.55	9.61	9.49
MF 12 × 1.5	11.32	11.39	11.24
MF 12 × 1.25	11.45	11.51	11.38
MF 14 × 1.5	13.32	13.39	13.24
MF 16 × 1.5	15.31	15.38	15.23

G(BSP)	Drill Ø	Hole Ø*	
		Max.	Min.
G 1/8 - 28	9.29	9.36	9.22
G 1/4 - 19	12.53	12.64	12.42
G 3/8 - 19	16.03	16.14	15.92
G 1/2 - 14	20.12	20.25	19.99

NPT	Drill Ø	Hole Ø*	
		Max.	Min.
NPT 1/16 - 27	6.00	6.05	
NPT 1/8 - 27	8.35	8.39	
NPT 1/4 - 18	10.80	10.85	
NPT 3/8 - 18	14.25	14.27	
NPT 1/2 - 14	17.50	17.60	
NPT 3/4 - 14	22.90	22.91	
NPT 1 - 11 1/2	28.75	28.78	



Rc(BSPT)	A	B	
		Max.	Min.
Rc 1/8 - 28	8.10	8.20	
Rc 1/4 - 19	10.70	10.90	
Rc 3/8 - 19	14.20	14.40	
Rc 1/2 - 14	17.60	17.90	
Rc 3/4 - 14	23.00	23.30	
Rc 1 - 11	29.00	29.30	

A: Thread have non-Full Threads
B: Thread do not have non-Full Threads

Unit: mm
* recommended hole Ø for 85%-90% thread engagement