

GROUND THREAD TAPS

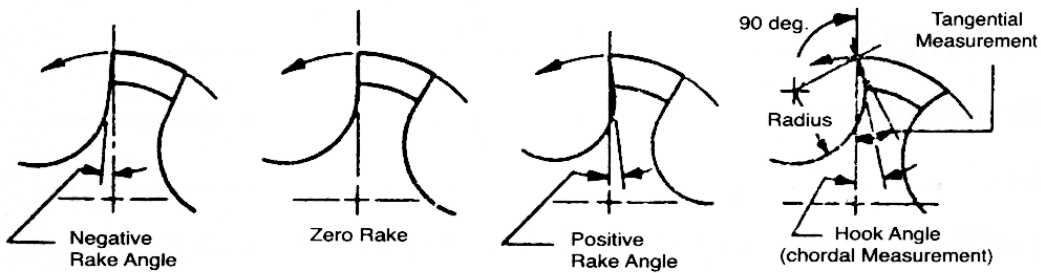
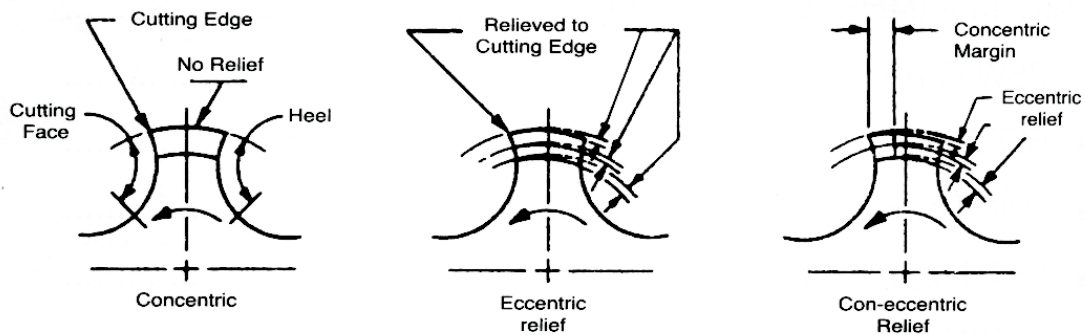
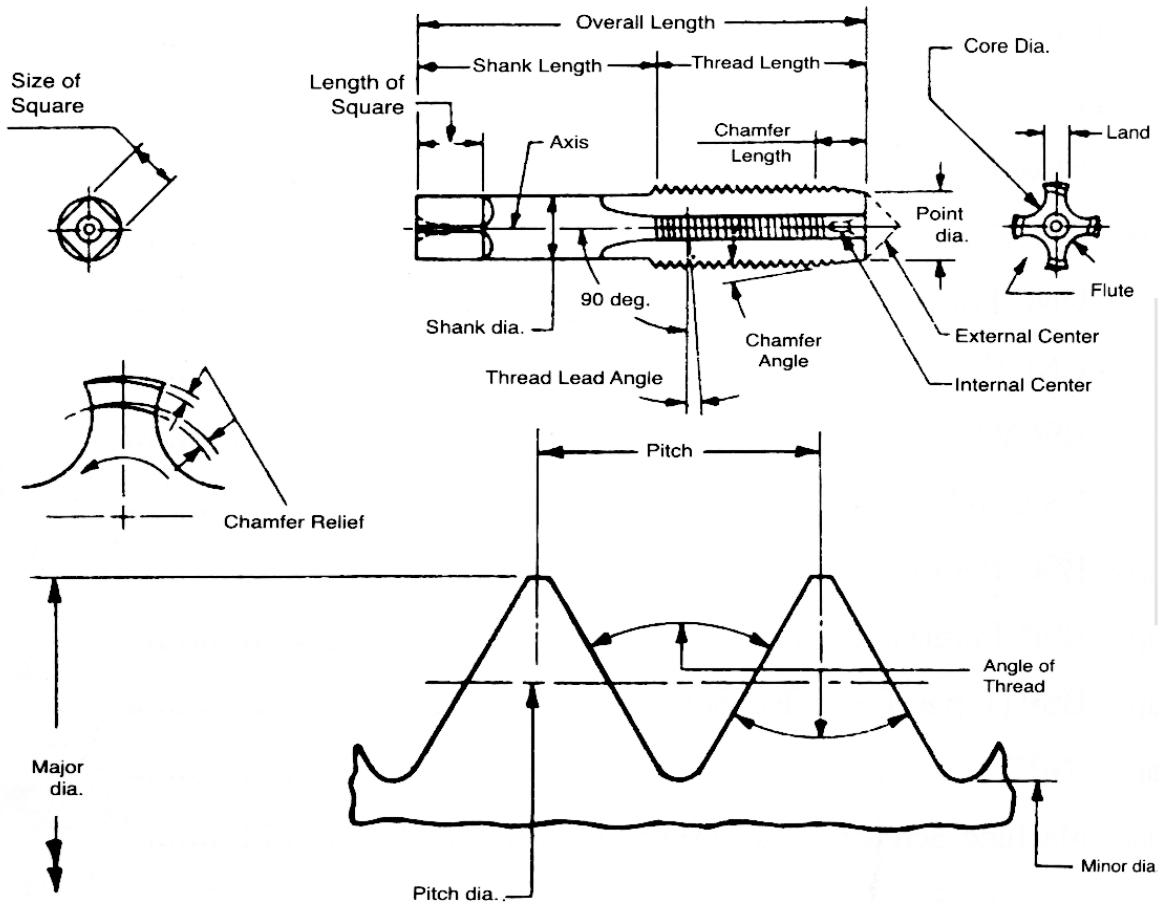


CONTENTS

Screwing Taps - Nomenclature	192
Hand and Short Machine Screwing Taps (Metric Coarse & Fine Pitch) sizes up to & inclu 10 mm	193
Hand and Short Machine Screwing Taps (Metric Coarse Pitch)	194
Hand and Short Machine Screwing Taps (Metric Fine Pitch)	195
Hand Taps - BSW Form	198
Hand Taps - BSF Form	199
Hand Taps - UNC Form	200
Hand Taps - UNF Form	201
Hand Taps - BSCY Form	202
Hand Taps - BS Conduit Form	203
Hand Taps - BSP (Parallel)	204
Hand Taps - BSP (Parallel) 'G' Series.	205
Hand Taps - BSP (Taper) Form (RC Series)	206
Hand Taps -NPT	207
Long Shank Machine Screwing Tap (Metric Coarse Pitch)	208
Long Shank Machine Screwing Tap (Metric Fine Pitch)	209
Nut Screwing Taps (Metric Coarse Pitch)	211
Nut Taps - BSW Form	212
Nut Taps - BSF Form	213
Nut Taps - UNC Form	214
Nut Taps - UNF Form	215
Hand Taps to DIN 352	216
Hand Taps DIN 2181	217
Technical Informations	219
Tap Drill Sizes	220
Calculation of thread Dimensions of Serial Screwing Taps	225
Chamfer Dimensions	225
Cutting Parameters in Tapping and Recommended Cutting Fluids	226
Tool & Cutter Grinder -	
TC 810 & Drill Measuring Instrument - AGM 90	227



SCREWING TAPS - NOMENCLATURE





High Speed Steel GROUND THREAD HAND AND SHORT MACHINE SCREWING TAPS For ISO Metric Screw Threads

Specifications Conform to :
IS 6175 : Part 2 : 1992
Dimensions in mm



TABLE I : ISO Metric Screw Threads Coarse Pitch

Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
3.0	0.50	11	48	3.15	2.50
4.0	0.70	13	53	4.00	3.15
4.5	0.75	13	53	4.50	3.55
5.0	0.80	16	58	5.00	4.00
6.0	1.00	19	66	6.30	5.00
7.0	1.00	19	66	7.10	5.60
8.0	1.25	22	72	8.00	6.30
9.0	1.25	22	72	9.00	7.10
10.0	1.50	24	80	10.00	8.00

TABLE II : ISO Metric Screw Threads Fine Pitch

Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
4.0	0.50	13	53	4.00	3.15
4.5	0.50	13	53	4.50	3.55
5.0	0.50	16	58	5.00	4.00
5.5	0.50	17	62	5.60	4.50
6.0	0.75	19	66	6.30	5.00
7.0	0.75	19	66	7.10	5.60
8.0	0.75	16	66	8.0	6.30
8.0	1.00	19	69	8.0	6.30
9.0	0.75	16	66	9.0	7.10
9.0	1.00	19	69	9.0	7.10
10.0	0.75	17	73	10.0	8.00
10.0	1.00	20	76	10.0	8.00
10.0	1.25	20	76	10.0	8.00

Manufactured with straight flutes and a shank with square for driving.

- 1) Unless otherwise specified, the Screwing taps shall be supplied with tolerance class '6H', non - serial and with Straight flutes.
- 2) Usually supplied in sets consisting of three taps, viz. Taper , Second , Bottoming , for Coarse Pitch and Taper and Bottoming for Fine Pitch.



High Speed Steel
GROUND THREAD HAND AND
SHORT MACHINE SCREWING TAPS
For ISO Metric Coarse Pitch Threads

Specifications Conform to :
 IS 6175 : Part 3 : 1992
 Dimensions in mm



Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
11	1.50	25	85	8.0	6.30
12	1.75	29	89	9.0	7.10
14	2.00	30	95	11.20	9.00
16	2.00	32	102	12.50	10.00
18	2.50	37	112	14.00	11.20
20	2.50	37	112	14.00	11.20
22	2.50	38	118	16.00	12.50
24	3.00	45	130	18.00	14.00
27	3.00	45	135	20.00	16.00
30	3.50	48	138	20.00	16.00
33	3.50	51	151	22.40	18.00

Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
36	4.00	57	162	25.00	20.00
39	4.00	60	170	28.00	22.40
42	4.50	60	170	28.00	22.40
45	4.50	67	187	31.50	25.00
48	5.00	67	187	31.50	25.00
52	5.00	70	200	35.50	28.00
56	5.50	70	200	35.50	28.00
60	5.50	76	221	40.00	31.50
64	6.00	79	224	40.00	31.50
68	6.00	79	234	45.00	35.50

- 1) Unless otherwise specified, the Screwing taps shall be supplied with tolerance class '6H', non - serial and with Straight flutes.
- 2) Usually supplied in sets consisting of three taps, viz. Taper , Second , Bottoming.



**High Speed Steel
GROUND THREAD HAND AND
SHORT MACHINE SCREWING TAPS**
For ISO Metric Fine Pitch Threads

Specifications Conform to :
IS 6175 : Part 3 : 1992
Dimensions in mm



Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
11	0.75	20	80	8.00	6.30
11	1.00	20	80	8.00	6.30
12	1.00	20	80	9.00	7.10
12	1.25	24	84	9.00	7.10
12	1.50	29	89	9.00	7.10
14	1.00	22	87	11.20	9.00
14	1.25	25	90	11.20	9.00
14	1.50	30	95	11.20	9.00
15	1.00	22	87	11.20	9.00
15	1.50	30	95	11.20	9.00
16	1.00	22	92	12.50	10.00
16	1.50	32	102	12.50	10.00
17	1.00	22	92	12.50	10.00
17	1.50	32	102	12.50	10.00
18	1.00	22	97	14.00	11.20
18	1.50	29	104	14.00	11.20
18	2.00	37	112	14.00	11.20
20	1.00	27	102	14.00	11.20
20	1.50	29	104	14.00	11.20
20	2.00	37	112	14.00	11.20
22	1.00	29	109	16.00	12.50
22	1.50	33	113	16.00	12.50

Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
22	2.00	38	118	16.00	12.50
24	1.00	29	114	18.00	14.00
24	1.50	35	120	18.00	14.00
24	2.00	35	120	18.00	14.00
25	1.00	29	114	18.00	14.00
25	1.50	35	120	18.00	14.00
25	2.00	35	120	18.00	14.00
26	1.50	35	120	18.00	14.00
27	1.00	30	120	20.00	16.00
27	1.50	37	127	20.00	16.00
27	2.00	37	127	20.00	16.00
28	1.00	30	120	20.00	16.00
28	1.50	37	127	20.00	16.00
28	2.00	37	127	20.00	16.00
30	1.00	30	120	20.00	16.00
30	1.50	37	127	20.00	16.00
30	2.00	37	127	20.00	16.00
30	3.00	48	138	20.00	16.00
32	1.50	37	137	22.40	18.00
32	2.00	37	137	22.40	18.00
33	1.50	37	137	22.40	18.00
33	2.00	37	137	22.40	18.00

Manufactured with straight flutes and a shank with square for driving.



**High Speed Steel
GROUND THREAD HAND AND
SHORT MACHINE SCREWING TAPS**
For ISO Metric Fine Pitch Threads

Specifications Conform to :
IS 6175 : Part 3 : 1992
Dimensions in mm



Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
33	3.0	51	151	22.4	18.0
35	1.5	39	144	25.0	20.0
36	1.5	39	144	25.0	20.0
36	2.0	39	144	25.0	20.0
36	3.0	57	162	25.0	20.0
38	1.5	39	149	28.0	22.4
39	1.5	39	149	28.0	22.4
39	2.0	39	149	28.0	22.4
39	3.0	60	170	28.0	22.4
40	1.5	39	149	28.0	22.4
40	2.0	39	149	28.0	22.4
40	3.0	60	170	28.0	22.4
42	1.5	39	149	28.0	22.4
42	2.0	39	149	28.0	22.4
42	3.0	60	170	28.0	22.4
42	4.0	60	170	28.0	22.4
45	1.5	45	165	31.5	25.0
45	2.0	45	165	31.5	25.0
45	3.0	67	187	31.5	25.0
45	4.0	67	187	31.5	25.0
48	1.5	45	165	31.5	25.0
48	2.0	45	165	31.5	25.0
48	3.0	67	187	31.5	25.0
48	4.0	67	187	31.5	25.0
50	1.5	45	165	31.5	25.0
50	2.0	45	165	31.5	25.0
50	3.0	67	187	31.5	25.0
52	1.5	45	175	35.5	28.0
52	2.0	45	175	35.5	28.0
52	3.0	70	200	35.5	28.0
52	4.0	70	200	35.5	28.0
55	1.5	45	175	35.5	28.0

Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
55	2.0	45	175	35.5	28.0
55	3.0	70	200	35.5	28.0
55	4.0	70	200	35.5	28.0
56	1.5	45	175	35.5	28.0
56	2.0	45	175	35.5	28.0
56	3.0	70	200	35.5	28.0
56	4.0	70	200	35.5	28.0
58	1.5	48	193	40.0	31.5
58	2.0	48	193	40.0	31.5
58	3.0	64	209	40.0	31.5
58	4.0	64	209	40.0	31.5
60	1.5	48	193	40.0	31.5
60	2.0	48	193	40.0	31.5
60	3.0	64	209	40.0	31.5
60	4.0	64	209	40.0	31.5
62	1.5	48	193	40.0	31.5
62	2.0	48	193	40.0	31.5
62	3.0	64	209	40.0	31.5
62	4.0	64	209	40.0	31.5
64	1.5	48	193	40.0	31.5
64	2.0	48	193	40.0	31.5
64	3.0	64	209	40.0	31.5
64	4.0	64	209	40.0	31.5
65	1.5	48	193	40.0	31.5
65	2.0	48	193	40.0	31.5
65	3.0	64	209	40.0	31.5
65	4.0	64	209	40.0	31.5
68	1.5	48	203	45.0	35.5
68	2.0	48	203	45.0	35.5
68	3.0	64	219	45.0	35.5
68	4.0	64	219	45.0	35.5
70	1.5	48	203	45.0	35.5



High Speed Steel GROUND THREAD HAND AND SHORT MACHINE SCREWING TAPS For ISO Metric Fine Pitch Threads

Specifications Conform to :
IS 6175 : Part 3 : 1992
Dimensions in mm



Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
70	2.0	48	203	45	35.5
70	3.0	64	219	45	35.5
70	4.0	64	219	45	35.5
70	6.0	79	234	45	35.5
72	1.5	48	203	45	35.5
72	2.0	48	203	45	35.5
72	3.0	64	219	45	35.5
72	4.0	64	219	45	35.5
72	6.0	79	234	45	35.5
75	1.5	48	203	45	35.5
75	2.0	48	203	45	35.5
75	3.0	64	219	45	35.5
75	4.0	64	219	45	35.5
76	1.5	51	226	50	40.0
76	2.0	51	226	50	40.0
76	3.0	67	242	50	40.0
76	4.0	67	242	50	40.0
76	6.0	83	258	50	40.0
78	2.0	51	226	50	40.0
80	1.5	51	226	50	40.0
80	2.0	51	226	50	40.0

Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
80	3.0	67	242	50	40.0
80	4.0	67	242	50	40.0
80	6.0	83	258	50	40.0
82	2.0	51	226	50	40.0
85	2.0	51	226	50	40.0
85	3.0	67	242	50	40.0
85	4.0	67	242	50	40.0
85	6.0	86	261	50	40.0
90	2.0	51	226	50	40.0
90	3.0	67	242	50	40.0
90	4.0	67	242	50	40.0
90	6.0	86	261	50	40.0
95	2.0	54	244	56	45.0
95	3.0	70	260	56	45.0
95	4.0	70	260	56	45.0
95	6.0	89	279	56	45.0
100	2.0	54	244	56	45.0
100	3.0	70	260	56	45.0
100	4.0	70	260	56	45.0
100	6.0	89	279	56	45.0

- 1) Unless otherwise specified, the Screwing taps shall be supplied with tolerance class '6H'. non - serial and with Straight flutes.
- 2) Usually supplied in sets consisting of two taps viz. Taper and Bottoming.



**High Speed Steel
GROUND THREAD HAND TAPS
BSW Form**

Specifications Conform to:
BS 949: Part 2 : 1979
(Class 2, Corresponds to Zone 3)
Dimensions in Inch / mm



Nominal Diameter Inch	Thread per Inch	Thread Length mm	Overall Length mm	Shank Dia mm	Square Size mm
3/16	24	16	58	5.00	4.00
1/4	20	19	66	6.30	5.00
5/16	18	22	72	8.00	6.30
3/8	16	24	80	10.00	8.00
7/16	14	25	85	8.00	6.30
1/2	12	29	89	9.00	7.10
9/16	12	30	95	11.20	9.00
5/8	11	32	102	12.50	10.00
11/16	11	37	112	14.00	11.20
3/4	10	37	112	14.00	11.20
7/8	9	38	118	16.00	12.50

Nominal Diameter Inch	Thread per Inch	Thread Length mm	Overall Length mm	Shank Dia mm	Square Size mm
1	8	45	130	18.0	14.0
1.1/8	7	48	138	20.0	16.0
1.1/4	7	51	151	22.4	18.0
1.3/8	6	57	162	25.0	20.0
1.1/2	6	60	170	28.0	22.4
1.3/4	5	67	187	31.5	25.0
2	4.1/2	70	200	35.5	28.0
2.1/4	4	76	221	40.0	31.5
2.1/2	4	79	224	40.0	31.5
2.3/4	3.1/2	79	234	45.0	35.5
3	3.1/2	83	258	50.0	40.0

Taps upto and including 3/8" dia, are supplied with full diameter shank and a neck between threaded portion and shank.

Manufactured with Straight flutes and a shank with square for driving.

Usually supplied in sets consisting of three taps , viz. Taper, Second and Bottoming.



High Speed Steel GROUND THREAD HAND TAPS BSF Form

Specifications Conform to
BS 949: Part 2 : 1979
(Class 2, Corresponds to Zone 3)
Dimensions in Inch / mm



Nominal Diameter Inch	Thread per Inch	Thread Length mm	Overall Length mm	Shank Dia mm	Square Size mm
3/16	32	16	58	5.00	4.00
1/4	26	19	66	6.30	5.00
5/16	22	22	72	8.00	6.30
3/8	20	24	80	10.00	8.00
7/16	18	25	85	8.00	6.30
1/2	16	29	89	9.00	7.10
9/16	16	30	95	11.20	9.00
5/8	14	32	102	12.50	10.00
11/16	14	37	112	14.00	11.20
3/4	12	37	112	14.00	11.20
7/8	11	38	118	16.00	12.50
1	10	45	130	18.00	14.00

Nominal Diameter Inch	Thread per Inch	Thread Length mm	Overall Length mm	Shank Dia mm	Square Size mm
1.1/8	9	48	138	20.0	16.0
1.1/4	9	51	151	22.4	18.0
1.3/8	8	57	162	25.0	20.0
1.1/2	8	60	170	28.0	22.4
1.5/8	8	60	170	28.0	22.4
1.3/4	7	67	187	31.5	25.0
2	7	70	200	35.5	28.0
2.1/4	6	76	221	40.0	31.5
2.1/2	6	79	224	40.0	31.5
2.3/4	6	79	234	45.0	35.5
3	5	83	258	50.0	40.0

Taps upto and including 3/8" dia, are supplied with full diameter shank and a neck between threaded portion and shank.

Manufactured with Straight flutes and a shank with square for driving.

Usually supplied in sets consisting of three taps , viz. Taper, Second and Bottoming.



High Speed Steel GROUND THREAD HAND TAPS UNC Form

Specifications Conform to:
BS 949:Part 2 : 1979
(Class 2, Corresponds to Zone 3)
Dimensions in Inch / mm



Nominal Diameter Inch	Thread per Inch	Thread Length mm	Overall Length mm	Shank Dia mm	Square Size mm
1/4	20	19	66	6.30	5.00
5/16	18	22	72	8.00	6.30
3/8	16	24	80	10.00	8.00
7/16	14	25	85	8.00	6.30
1/2	13	29	89	9.00	7.10
9/16	12	30	95	11.20	9.00
5/8	11	32	102	12.50	10.00
3/4	10	37	112	14.00	11.20
7/8	9	38	118	16.00	12.50
1	8	45	130	18.00	14.00

Nominal Diameter Inch	Thread per Inch	Thread Length mm	Overall Length mm	Shank Dia mm	Square Size mm
1.1/8	7	48	138	20.0	16.0
1.1/4	7	51	151	22.4	18.0
1.3/8	6	57	162	25.0	20.0
1.1/2	6	60	170	28.0	22.4
1.3/4	5	67	187	31.5	25.0
2	4.1/2	70	200	35.5	28.0
2.1/4	4.1/2	76	221	40.0	31.5
2.1/2	4	79	224	40.0	31.5
2.3/4	4	79	234	45.0	35.5
3	4	83	258	50.0	40.0

Taps upto and including 3/8" dia, are supplied with full diameter shank and a neck between threaded portion and shank.

Manufactured with Straight flutes and a shank with square for driving.

Usually supplied in sets consisting of three taps , viz. Taper, Second and Bottoming.



High Speed Steel
GROUND THREAD HAND TAPS
 UNF Form

Specifications Conform to :
 BS 949: Part 2 : 1979
 (Class 2, Corresponds to Zone 3)
 Dimensions in Inch / mm



Nominal Diameter Inch	Thread per Inch	Thread Length mm	Overall Length mm	Shank Dia mm	Square Size mm
1/4	28	19	66	6.30	5.00
5/16	24	19	69	8.0	6.30
3/8	24	20	76	10.00	8.00
7/16	20	22	82	8.00	6.30
1/2	20	24	84	9.00	7.10
9/16	18	25	90	11.20	9.00
5/8	18	25	95	12.50	10.00

Nominal Diameter Inch	Thread per Inch	Thread Length mm	Overall Length mm	Shank Dia mm	Square Size mm
3/4	16	29	104	14	11.2
7/8	14	33	113	16	12.50
1	12	35	120	18	14.0
1.1/8	12	37	127	20.0	16.0
1.1/4	12	37	137	22.4	18.0
1.3/8	12	39	144	25.0	20.0
1.1/2	12	39	149	28.0	22.4

Taps upto and including 3/8" dia, are supplied with full diameter shank and a neck between threaded portion and shank.

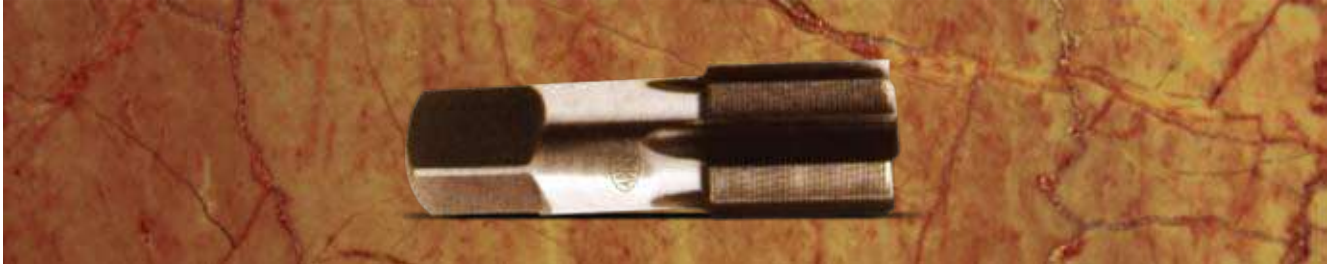
Manufactured with Straight flutes and a shank with square for driving.

Usually supplied in sets consisting of three taps , viz. Taper, Second and Bottoming.



High Speed Steel
GROUND THREAD HAND TAPS
 BSCY Form

Specifications Conform to :
 BS 949:1951 | (Zone 3)
 Dimensions in Inches



Nominal Diameter Inch	Thread per Inch	Thread Length	Overall Length	Shank Dia	Square Size
1/4	26	1	2.1/2	0.253	0.197
5/16	26	1.1/8	2.3/4	0.315	0.242
3/8	26	1.1/4	2.15/16	0.377	0.294
7/16	26	1.1/4	3	0.323	0.242
1/2	26	1.1/4	3	0.367	0.275
9/16	26	1.1/4	3	0.429	0.322
5/8	26	1.1/4	3	0.480	0.360
11/16	26	1.1/4	3	0.542	0.406
3/4	26	1.1/2	3.1/4	0.590	0.442

Nominal Diameter Inch	Thread per Inch	Thread Length	Overall Length	Shank Dia	Square Size
7/8	24	1.1/2	3.1/4	0.697	0.523
1	24	1.1/2	3.1/4	0.800	0.600
1.1/8	26	1.1/2	4	0.896	0.672
1.290	24	1.1/2	4	1.021	0.766
1.370	24	1.1/2	4	1.108	0.831
1.450	26	1.1/2	4	1.233	0.925
1.9/16	24	2	5	1.305	0.979
1.5/8	24	2	5	1.305	0.979

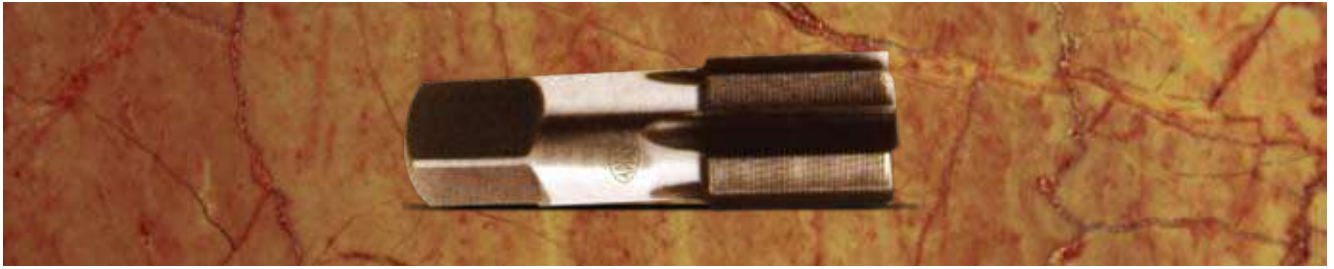
Manufactured with Straight flutes and a shank with square for driving.

Usually supplied in sets consisting of three taps , viz. Taper, Second and Bottoming.



High Speed Steel
GROUND THREAD HAND TAPS
BS Conduit Form

Specifications Conform to :
 BS 949: 1951 | (Zone 3)
 Dimensions in Inches



Nominal Diameter Inch	Thread per Inch	Thread Length	Overall Length	Shank Dia	Square Size
1/2	18	1.1/4	3	0.367	0.275
5/8	18	1.1/4	3	0.480	0.360
3/4	16	1.1/2	3.1/4	0.590	0.442
1	16	1.1/2	3.1/4	0.800	0.600

Nominal Diameter Inch	Thread per Inch	Thread Length	Overall Length	Shank Dia	Square Size
1.1/4	16	1.1/2	4	1.021	0.766
1.1/2	14	1.1/2	4	1.233	0.925
2	14	2	5	1.644	1.233
2.1/2	14	2	5.1/4	2.100	1.575

Manufactured with whitworth thread form with Straight flutes and a shank with square for driving.

Usually supplied in sets consisting of three taps , viz. Taper, Second and Bottoming.



High Speed Steel GROUND THREAD HAND TAPS BSP (Parallel)

Specifications Conform to :
BS 949:1951 | (Zone 3)
Dimensions in Inches



Nominal Diameter Inch	Thread per Inch	Thread Length	Overall Length	Shank Dia	Square Size
1/8	28	3/4	2.1/8	0.318	0.238
1/4	19	1.1/16	2.7/16	0.429	0.322
3/8	19	1.1/16	2.9/16	0.542	0.406
1/2	14	1.3/8	3.1/8	0.687	0.515
5/8	14	1.3/8	3.3/16	0.800	0.600
3/4	14	1.3/8	3.1/4	0.906	0.679
7/8	14	1.9/16	3.1/2	1.093	0.812
1	11	1.3/4	3.3/4	1.125	0.843
1.1/4	11	1.3/4	4	1.312	0.984

Nominal Diameter Inch	Thread per Inch	Thread Length	Overall Length	Shank Dia	Square Size
1.1/2	11	1.3/4	4.1/4	1.500	1.125
1.3/4	11	1.3/4	4.3/8	1.625	1.218
2	11	1.3/4	4.1/2	1.875	1.406
2.1/4	11	2.1/8	5	2.000	1.500
2.1/2	11	2.9/16	5.1/2	2.250	1.687
2.3/4	11	2.9/16	5.3/4	2.375	1.781
3	11	2.5/8	6	2.625	1.968
3.1/2	11	2.11/16	6.1/2	2.812	2.108
4	11	2.3/4	6.3/4	3.000	2.250

Manufactured with whitworth thread form with Straight flutes and a shank with square for driving.

Usually supplied in sets consisting of two taps , viz. Taper and Bottoming.



High Speed Steel GROUND THREAD HAND TAPS BSP (Parallel) 'G' Series

Specifications Conform to :
BS 949: Part 3 : 1982
Dimensions in Inch / mm



Nominal Diameter Inch	Thread per Inch	Thread Length mm	Overall Length mm	Shank Dia mm	Square Size mm
1/8	28	15	59	8.0	6.3
1/4	19	19	67	10.0	8.0
3/8	19	21	75	12.5	10.0
1/2	14	26	87	16.0	12.5
5/8	14	26	91	18.0	14.0
3/4	14	28	96	20.0	16.0
7/8	14	29	102	22.4	18.0
1	11	33	109	25.0	20.0
1.1/8	11	34	115	28.0	22.40
1.1/4	11	36	119	31.5	25.0

Nominal Diameter Inch	Thread per Inch	Thread Length mm	Overall Length mm	Shank Dia mm	Square Size mm
1.1/2	11	37	125	35.5	28.0
1.3/4	11	39	132	35.5	28.0
2	11	41	140	40.0	31.5
2.1/4	11	42	142	40.0	31.5
2.1/2	11	45	153	45.0	35.5
2.3/4	11	46	160	50.0	40.0
3	11	48	164	50.0	40.0
3.1/2	11	50	173	63.0	50.0
4	11	53	185	71.0	56.0

Manufactured with whitworth thread form with Straight flutes and a shank with square for driving.

Usually supplied in sets consisting of two taps , viz. Taper and Bottoming.



**High Speed Steel
GROUND THREAD HAND TAPS**
BSP (Taper) 'Rc' Series

Specifications Conform to :
BS 949: Part 3 : 1982
Dimensions in Inch / mm



Nominal Diameter Inch	Thread per Inch	Thread Length mm	Overall Length mm	Shank Dia mm	Square Size mm
1/8	28	15	59	8.0	6.3
1/4	19	19	67	10.0	8.0
3/8	19	21	75	12.5	10.0
1/2	14	26	87	16.0	12.5
3/4	14	28	96	20.0	16.0
1	11	33	109	25.0	20.0

Nominal Diameter Inch	Thread per Inch	Thread Length mm	Overall Length mm	Shank Dia mm	Square Size mm
1.1/4	11	36	119	31.5	25.0
1.1/2	11	37	125	35.5	28.0
2	11	41	140	40.0	31.5
2.1/2	11	45	153	45.0	35.5
3	11	48	164	50.0	40.0
4	11	53	185	71.0	56.0

Manufactured with Straight flutes and a shank with square for driving.

Usually supplied in sets consisting of two taps , viz. Taper and Bottoming.



High Speed Steel
GROUND THREAD HAND TAPS
 American National Taper Pipe Taps (NPT)

Specifications Conform to :
 BS 949: 1969
 Dimensions in Inches



Nominal Diameter Inch	Thread per Inch	Thread Length	Overall Length	Shank Dia	Square Size
1/8	27	3/4	2.1/8	0.318	0.238
1/4	18	1.1/16	2.7/16	0.429	0.322
3/8	18	1.1/16	2.9/16	0.542	0.406
1/2	14	1.3/8	3.1/8	0.687	0.515
3/4	14	1.3/8	3.1/4	0.906	0.679
1	11.1/2	1.3/4	3.3/4	1.125	0.843
1.1/4	11.1/2	1.3/4	4	1.312	0.984

Nominal Diameter Inch	Thread per Inch	Thread Length	Overall Length	Shank Dia	Square Size
1.1/2	11.1/2	1.3/4	4.1/4	1.500	1.125
2	11.1/2	1.3/4	4.1/2	1.875	1.406
2.1/2	8	2.9/16	5.1/2	2.250	1.687
3	8	2.5/8	6	2.625	1.968
3.1/2	8	2.11/16	6.1/2	2.812	2.108
4	8	2.3/4	6.3/4	3.000	2.250

Manufactured with Straight flutes and a shank with square for driving.

Usually supplied in sets consisting of two taps , viz. Taper and Bottoming.



High Speed Steel
GROUND THREAD LONG SHANK
MACHINE SCREWING TAPS
 For ISO Metric Coarse Pitch Threads

Specifications Conform to :
 IS 6175 : Part 4 : 1991
 Dimensions in mm



Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
6	1.00	19	89.0	4.5	3.55
7	1.00	19	89.0	5.6	4.50
8	1.25	22	97.0	6.3	5.00
9	1.25	22	97.0	7.1	5.60
10	1.50	24	108.0	8.0	6.30
11	1.50	25	115.0	8.0	6.30
12	1.75	29	119.0	9.0	7.10
14	2.00	30	127.0	11.2	9.00
16	2.00	32	137.0	12.5	10.00
18	2.50	37	149.0	14.0	11.20
20	2.50	37	149.0	14.0	11.20
22	2.50	38	158.0	16.0	12.50
24	3.00	45	172.0	18.0	14.00

Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
27	3.00	45	180.0	20.0	16.0
30	3.50	48	183.0	20.0	16.0
33	3.50	51	201.0	22.4	18.0
36	4.00	57	214.5	25.0	20.0
39	4.00	60	225.0	28.0	22.4
42	4.50	60	225.0	28.0	22.4
45	4.50	67	247.0	31.5	25.0
48	5.00	67	247.0	31.5	25.0
52	5.00	70	265.0	35.5	28.0
56	5.50	70	265.0	35.5	28.0
60	5.50	76	293.5	40.0	31.5
64	6.00	79	296.5	40.0	31.5
68	6.00	79	311.5	45.00	35.5

Manufactured with Straight flutes and a long shank with a driving square for machine tapping.

- Type 'A' - 5 Degree Taper Angle with Long Taper Lead.
 - Type 'B' - 10 Degree Taper Angle with Spiral Point.
 - Type 'C' - 20 Degree Taper Angle with Shorter Taper Lead.
 - Type 'D' - 10 Degree Taper Angle without Spiral Point.
- Unless otherwise specified the Screwing Taps shall be supplied with tolerance class 6H .



**High Speed Steel
GROUND THREAD LONG SHANK
MACHINE SCREWING TAPS**
For ISO Metric Fine Pitch Threads

Specifications Conform to :
IS 6175 : Part 4 : 1991
Dimensions in mm



Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
6	0.75	19	89	4.5	3.55
7	0.75	19	89	5.6	4.50
8	0.75	16	91	6.3	5.00
8	1.00	19	97	6.3	5.00
9	0.75	16	94	7.1	5.60
9	1.00	19	97	7.1	5.60
10	0.75	17	104	8.0	6.30
10	1.00	20	108	8.0	6.30
10	1.25	20	108	8.0	6.30
11	0.75	20	110	8.0	6.30
11	1.00	20	110	8.0	6.30
12	1.00	20	110	9.0	7.10
12	1.25	24	119	9.0	7.10
12	1.50	29	119	9.0	7.10
14	1.00	22	124	11.2	9.00
14	1.25	25	127	11.2	9.00
14	1.50	30	127	11.2	9.00
15	1.00	22	124	11.2	9.00
15	1.50	30	127	11.2	9.00
16	1.00	22	127	12.5	10.00
16	1.50	32	137	12.5	10.00
17	1.00	22	127	12.5	10.00

Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
17	1.50	32	137	12.5	10.0
18	1.00	22	135	14.0	11.2
18	1.50	29	142	14.0	11.2
18	2.00	37	149	14.0	11.2
20	1.00	27	140	14.0	11.2
20	1.50	29	142	14.0	11.2
20	2.00	37	149	14.0	11.2
22	1.00	29	149	16.0	12.5
22	1.50	33	153	16.0	12.5
22	2.00	38	158	16.0	12.5
24	1.00	29	157	18.0	14.0
24	1.50	35	172	18.0	14.0
24	2.00	35	172	18.0	14.0
25	1.00	29	157	18.0	14.0
25	1.50	35	163	18.0	14.0
25	2.00	35	163	18.0	14.0
26	1.50	35	163	18.0	14.0
26	2.00	35	163	18.0	14.0
27	1.00	30	165	20.0	16.0
27	1.50	37	172	20.0	16.0
27	2.00	37	172	20.0	16.0
28	1.00	30	165	20.0	16.0



High Speed Steel GROUND THREAD LONG SHANK MACHINE SCREWING TAPS

Specifications Conform to :
IS 6175 : Part 4 : 1991
Dimensions in mm

For ISO Metric Fine Pitch Threads



Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
28	1.5	37	172.0	20.0	16.0
28	2.0	37	172.0	20.0	16.0
30	1.0	30	165.0	20.0	16.0
30	1.5	37	172.0	20.0	16.0
30	2.0	37	172.0	20.0	16.0
30	3.0	48	183.0	20.0	16.0
32	1.5	37	187.0	22.4	18.0
32	2.0	37	187.0	22.4	18.0
33	1.5	37	187.0	22.4	18.0
33	2.0	37	187.0	22.4	18.0
33	3.0	51	201.0	22.4	18.0
35	1.5	39	196.5	25.0	20.0
36	1.5	39	196.5	25.0	20.0
36	2.0	39	196.5	25.0	20.0
36	3.0	57	214.5	25.0	20.0
38	1.5	39	204.0	28.0	22.4
39	1.5	39	204.0	28.0	22.4
39	2.0	39	204.0	28.0	22.4
39	3.0	60	225.0	28.0	22.4
40	1.5	39	204.0	28.0	22.4
40	2.0	39	204.0	28.0	22.4

Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
40	3.0	60	225.0	28.0	22.4
42	1.5	39	204.0	28.0	22.4
42	2.0	39	204.0	28.0	22.4
42	3.0	60	225.0	28.0	22.4
42	4.0	60	225.0	28.0	22.4
45	1.5	45	225.0	31.5	25.0
45	2.0	45	225.0	31.5	25.0
45	3.0	67	247.0	31.5	25.0
45	4.0	67	247.0	31.5	25.0
48	1.5	45	225.0	31.5	25.0
48	2.0	45	225.0	31.5	25.0
48	3.0	67	247.0	31.5	25.0
48	4.0	67	247.0	31.5	25.0
50	1.5	45	225.0	31.5	25.0
50	2.0	45	225.0	31.5	25.0
50	3.0	67	247.0	31.5	25.0
52	1.5	45	240.0	35.5	28.0
52	2.0	45	240.0	35.5	28.0
52	3.0	70	265.0	35.5	28.0
52	4.0	70	265.0	35.5	28.0

Type 'A' - 5 Degree Taper Angle with Long Taper Lead.

Type 'B' - 10 Degree Taper Angle with Spiral Point.

Type 'C' - 20 Degree Taper Angle with Shorter Taper Lead.

Type 'D' - 10 Degree Taper Angle without Spiral Point.

Unless otherwise specified the Screwing Taps shall be supplied with tolerance class 6H .



High Speed Steel
GROUND THREAD NUT SCREWING TAPS
 For ISO Metric Coarse Pitch Threads

Specifications Conform to :
 IS 6175 : Part 5 : 1991
 Dimensions in mm



Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
6	1.00	32	110	4.5	3.55
7	1.00	36	110	5.6	4.50
8	1.25	40	125	6.3	5.00
9	1.25	40	140	7.1	5.60
10	1.50	45	140	8.0	6.30
11	1.50	45	160	8.0	6.30
12	1.75	50	180	9.0	7.10
14	2.00	56	200	11.2	9.00
16	2.00	63	200	12.5	10.00
18	2.50	63	220	14.0	11.20
20	2.50	70	250	14.0	11.20

Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
22	2.50	80	280	16.0	12.50
24	3.00	80	280	18.0	14.00
27	3.00	90	315	20.0	16.0
30	3.50	100	315	20.0	16.0
33	3.50	110	355	22.4	18.0
36	4.00	110	400	25.0	20.0
39	4.00	125	400	28.0	22.4
42	4.50	125	450	28.0	22.4
45	4.50	140	500	31.5	25.0
48	5.00	140	500	31.5	25.0

Manufactured with Straight flutes and a long shank with a driving square for machine tapping of nuts.

Unless otherwise specified the Screwing Taps shall be supplied with tolerance class 6H .



High Speed Steel
GROUND THREAD NUT TAPS
 BSW FORM

Specifications Conform to:
 BS 949 - 1969
 (Zone 3)
 Dimensions in mm



Nominal Diameter Inch	Thread per Inch	Thread Length mm	Overall Length mm	Shank Dia mm	Square Size mm
1/4	20	38	110	4.5	3.55
5/16	18	42	120	6.00	4.50
3/8	16	48	140	7.00	5.60
7/16	14	55	160	8.00	6.30
1/2	12	64	180	9.50	7.50
9/16	12	64	200	11.20	9.00
5/8	11	70	200	12.50	10.00
3/4	10	76	250	14.00	11.20

Nominal Diameter Inch	Thread per Inch	Thread Length mm	Overall Length mm	Shank Dia mm	Square Size mm
7/8	9	85	280	16.0	12.5
1	8	95	280	18.0	14.0
1.1/8	7	109	315	20.0	16.0
1.1/4	7	109	355	22.4	18.0
1.1/2	6	127	400	28.0	22.4
1.3/4	5	153	500	31.5	25.0

Manufactured with Straight flutes and a long shank with a square for machine tapping of nuts.



**High Speed Steel
GROUND THREAD NUT SCREWING TAPS
BSF FORM**

Specifications Conform to:
BS 949 - 1969
(Zone 3)
Dimensions in mm



Nominal Diameter Inch	Thread per Inch	Thread Length mm	Overall Length mm	Shank Dia mm	Square Size mm
1/4	26	30	110	4.5	3.55
5/16	22	35	120	6.00	4.50
3/8	20	38	140	7.00	5.60
7/16	18	43	160	8.00	6.30
1/2	16	48	180	9.50	7.50
9/16	16	48	200	11.20	9.00
5/8	14	55	200	12.50	10.00
3/4	12	64	250	14.00	11.20
7/8	11	70	280	16.0	12.5

Nominal Diameter Inch	Thread per Inch	Thread Length mm	Overall Length mm	Shank Dia mm	Square Size mm
1	10	76	280	18.0	14.0
1.1/8	9	85	315	20.0	16.0
1.1/4	9	85	355	22.4	18.0
1.3/8	8	95	400	25.0	20.0
1.1/2	8	95	400	28.0	22.4
1.5/8	8	95	450	28.0	22.4
1.3/4	7	109	500	31.5	25.0
2	7	109	560	35.5	28.0

Manufactured with Straight flutes and a long shank with a driving square for machine tapping of nuts.



High Speed Steel
GROUND THREAD NUT TAPS
 UNC FORM

Specifications Conform to:
 BS 949 - 1969
 (Zone 3)
 Dimensions in mm



Nominal Diameter Inch	Thread per Inch	Thread Length mm	Overall Length mm	Shank Dia mm	Square Size mm
1/4	20	38	110	4.5	3.55
5/16	18	43	125	6.00	4.50
3/8	16	48	140	7.00	5.60
7/16	14	55	160	8.00	6.30
1/2	13	59	180	9.50	7.50
9/16	12	64	200	11.20	9.00
5/8	11	70	200	12.50	10.00
3/4	10	76	250	14.00	11.20
7/8	9	85	280	16.0	12.5

Nominal Diameter Inch	Thread per Inch	Thread Length mm	Overall Length mm	Shank Dia mm	Square Size mm
1	8	95	280	18.0	14.0
1.1/8	7	109	315	20.0	16.0
1.1/4	7	109	355	22.4	18.0
1.3/8	6	127	400	25	20
1.1/2	6	127	400	28.0	22.4
1.3/4	5	153	500	31.5	25.0
2	4.1/2	170	560	35.5	28.0

Manufactured with Straight flutes and a long shank with a square for machine tapping of nuts.



**High Speed Steel
GROUND THREAD NUT TAPS
UNF FORM**

Specifications Conform to :
BS 949 - 1969
(Zone 3)
Dimensions in mm



Nominal Diameter Inch	Thread per Inch	Thread Length mm	Overall Length mm	Shank Dia mm	Square Size mm
1/4	28	28	110	4.5	3.55
5/16	24	32	125	6.00	4.50
3/8	24	32	140	7.00	5.60
7/16	20	38	160	8.00	6.30
1/2	20	38	180	9.50	7.50
9/16	18	43	200	11.20	9.00
5/8	18	43	200	12.50	10.00

Nominal Diameter Inch	Thread per Inch	Thread Length mm	Overall Length mm	Shank Dia mm	Square Size mm
3/4	16	48	250	14.00	11.20
7/8	14	55	280	16.0	12.5
1	12	64	280	18.0	14.0
1.1/8	12	64	315	20.0	16.0
1.1/4	12	64	355	22.4	18.0
1.3/8	12	64	400	25.0	20.0
1.1/2	12	64	400	28.0	22.4

Manufactured with Straight flutes and a long shank with a square for machine tapping of nuts.



High Speed Steel
GROUND THREAD HAND TAPS
 For ISO Metric Coarse Pitch Threads

Specifications Conform to
 DIN 352 - 1981
 Dimensions in mm



Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
3.0	0.5	11	40	3.5	2.7
3.5	0.6	13	45	4.0	3.0
4.0	0.7	13	45	4.5	3.4
4.5	0.75	16	50	6.0	4.9
5.0	0.8	16	50	6.0	4.9
6.0	1.0	19	50	6.0	4.9
7.0	1.0	19	50	6.0	4.9
8.0	1.25	22	56	6.0	4.9
9.0	1.25	22	63	7.0	5.5
10.0	1.5	24	70	7.0	5.5
11.0	1.5	24	70	8.0	6.2
12.0	1.75	29	75	9.0	7.0
14.0	2.0	30	80	11.0	9.0
16.0	2.0	32	80	12.0	9.0
18.0	2.5	40	95	14.0	11.0
20.0	2.5	40	95	16.0	12.0

Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
22	2.5	40	100	18.0	14.5
24	3.0	50	110	18.0	14.5
27	3.0	50	110	20.0	16.0
30	3.5	56	125	22.0	18.0
33	3.5	56	125	25.0	20.0
36	4.0	63	150	28.0	22.0
39	4.0	63	150	32.0	24.0
42	4.5	63	150	32.0	24.0
45	4.5	70	160	36.0	29.0
48	5.0	75	180	36.0	29.0
52	5.0	75	180	40.0	32.0
56	5.5	85	200	45.0	35.0
60	5.5	85	200	45.0	35.0
64	6.0	90	220	50.0	39.0
68	6.0	90	220	50.0	39.0

Manufactured with Straight flutes and a shank with square for driving.

Usually supplied in sets consisting of Three serial Hand Taps viz., Rougher , Intermediate and Finisher tap. Unless otherwise Specified, the screwing taps shall be supplied with tolerance class '6H'.



High Speed Steel

GROUND THREAD HAND TAPS

For ISO Metric Fine Pitch Threads

Specifications Conform to
DIN 2181 - 1981
Dimensions in mm



Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
4.0	0.5	10	45	4.5	3.4
5.0	0.5	12	50	6.0	4.9
5.5	0.5	12	50	6.0	4.9
6.0	0.75	14	50	6.0	4.9
7.0	0.75	14	50	6.0	4.9
8.0	0.75	19	50	6.0	4.9
8.0	1.0	22	56	6.0	4.9
9.0	0.75	19	56	7.0	5.5
9.0	1.0	22	63	7.0	5.5
10.0	0.75	20	63	7.0	5.5
10.0	1.0	20	63	7.0	5.5
10.0	1.25	24	70	7.0	5.5
11.0	0.75	20	63	8.0	6.2
11.0	1.0	20	63	8.0	6.2
12.0	1.0	22	70	9.0	7.0
12.0	1.25	22	70	9.0	7.0

Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
12	1.5	22	70	9.0	7.0
14	1.0	22	70	11.0	9.0
14	1.25	22	70	11.0	9.0
14	1.5	22	70	11.0	9.0
15	1.0	22	70	12.0	9.0
15	1.5	22	70	12.0	9.0
16	1.0	22	70	12.0	9.0
16	1.5	22	70	12.0	9.0
18	1.0	22	80	14.0	11.0
18	1.5	22	80	14.0	11.0
20	1.0	22	80	16.0	12.0
20	1.5	22	80	16.0	12.0
22	1.0	22	80	18.0	14.5
22	1.5	22	80	18.0	14.5
24	1.0	22	90	18.0	14.5
24	1.5	22	90	18.0	14.5

Manufactured with Straight flutes and a shank with square for driving.

Usually supplied in sets consisting of Two serial Hand Taps viz., Rougher and Finisher tap.
Unless otherwise Specified, the screwing taps shall be supplied with tolerance class '6H'.



High Speed Steel
GROUND THREAD HAND TAPS
 For ISO Metric Fine Pitch Threads

Specifications Conform to :
 DIN 2181 - 1981
 Dimensions in mm



Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
24	2.0	22	90	18	14.5
25	1.5	22	90	18	14.5
25	2.0	22	90	18	14.5
27	1.5	22	90	20	16.0
27	2.0	22	90	20	16.0
28	1.5	22	90	20	16.0
28	2.0	22	90	20	16.0
30	1.5	22	90	22	18.0
30	2.0	22	90	22	18.0
32	1.5	22	90	22	18.0
32	2.0	22	90	22	18.0
33	1.5	25	100	25	20.0
33	2.0	25	100	25	20.0
36	1.5	25	100	28	22.0
36	2.0	40	125	28	22.0
36	3.0	40	125	28	22.0
39	1.5	25	110	32	24.0
39	2.0	40	125	32	24.0
39	3.0	40	125	32	24.0

Nominal Diameter	Pitch	Thread Length	Overall Length	Shank Dia	Square Size
40	1.5	25	110	32	24.0
40	2.0	40	125	32	24.0
40	3.0	40	125	32	24.0
42	1.5	25	110	32	24.0
42	2.0	40	125	32	24.0
42	3.0	40	125	32	24.0
45	1.5	25	110	36	29.0
45	2.0	40	125	36	29.0
45	3.0	40	125	36	29.0
48	1.5	40	140	36	29.0
48	2.0	40	140	36	29.0
48	3.0	40	140	36	29.0
50	1.5	40	140	36	29.0
50	2.0	40	140	36	29.0
50	3.0	40	140	36	29.0
52	1.5	40	140	40	32.0
52	2.0	40	140	40	32.0
52	3.0	40	140	40	32.0



TECHNICAL INFORMATION

1. Tap Drill Sizes
2. Calculation of Thread Dimensions of Serial Screwing Taps
3. Chamfer Dimensions
4. Cutting Parameters in Tapping & Recommended Cutting fluids



TAP DRILL SIZES

Recommendations for drills for use prior to tapping
Screw Threads - ISO metric thread
 (Nut Tolerance : 5H, 6H & 7H.)

Ref: IS 10952 - 1984

Nominal Diameter mm	Pitch mm	Drill Dia mm
1.0	0.25	0.75
1.1	0.25	0.85
1.2	0.25	0.95
1.4	0.30	1.10
1.6	0.35	1.25
1.8	0.35	1.45
2.0	0.40	1.60
2.2	0.45	1.75
2.5	0.35	2.15
2.5	0.45	2.05
3.0	0.35	2.65
3.0	0.50	2.50
3.5	0.35	3.15
3.5	0.60	2.90
4.0	0.50	3.50
4.0	0.70	3.30
4.5	0.50	4.00
4.5	0.75	3.70
5.0	0.50	4.50
5.0	0.80	4.20
5.5	0.50	5.00
6.0	0.75	5.20
6.0	1.0	5.00
7.0	0.75	6.20
7.0	1.0	6.00
8.0	0.75	7.20
8.0	1.00	7.00
8.0	1.25	6.80
9.0	0.75	8.20
9.0	1.00	8.00
9.0	1.25	7.80
10.0	0.75	9.20
10.0	1.00	9.00
10.0	1.25	8.80
10.0	1.50	8.50
11.0	0.75	10.20
11.0	1.00	10.00

Nominal Diameter mm	Pitch mm	Drill Dia mm
11.0	1.50	9.5
12.0	1.00	11.0
12.0	1.25	10.8
12.0	1.50	10.5
12.0	1.75	10.2
14.0	1.00	13.0
14.0	1.25	12.8
14.0	1.50	12.5
14.0	2.00	12.0
15.0	1.00	14.0
15.0	1.50	13.50
16.0	1.00	15.0
16.0	1.50	14.5
16.0	2.00	14.0
17.0	1.00	16.0
17.0	1.50	15.5
18.0	1.00	17.0
18.0	1.50	16.5
18.0	2.00	16.0
18.0	2.50	15.5
20.0	1.00	19.0
20.0	1.50	18.5
20.0	2.00	18.0
20.0	2.50	17.5
22.0	1.00	21.0
22.0	1.50	20.5
22.0	2.00	20.0
22.0	2.50	19.5
24.0	1.00	23.0
24.0	1.50	22.5
24.0	2.00	22.0
24.0	3.00	21.0
25.0	1.00	24.0
25.0	1.50	23.5
25.0	2.00	23.0
26.0	1.50	24.5
27.0	1.00	26.0



TAP DRILL SIZES
Recommendations for drills for use prior to tapping Ref: IS 10952 - 1984
Screw Threads - ISO metric thread
 (Nut Tolerance : 5H, 6H & 7H.)

Nominal Diameter mm	Pitch mm	Drill Dia mm
27	1.5	25.5
27	2.0	25.0
27	3.0	24.0
28	1.0	27.0
28	1.5	26.5
28	2.0	26.0
30	1.0	29.0
30	1.5	28.5
30	2.0	28.0
30	3.0	27.0
30	3.5	26.5
32	1.5	30.5
32	2.0	30.0
33	1.5	31.5
33	2.0	31.0
33	3.0	30.0
33	3.5	29.5
35	1.5	33.5
36	1.5	34.5
36	2.0	34.0
36	3.0	33.0
36	4.0	32.0
38	1.5	36.5
39	1.5	37.5
39	2.0	37.0
39	3.0	36.0
39	4.0	35.0

Nominal Diameter mm	Pitch mm	Drill Dia mm
40	1.5	38.5
40	2.0	38.0
40	3.0	37.0
42	1.5	40.5
42	2.0	40.0
42	3.0	39.0
42	4.0	38.0
42	4.5	37.5
45	1.5	43.5
45	2.0	43.0
45	3.0	42.0
45	4.0	41.0
45	4.5	40.5
48	1.5	46.5
48	2.0	46.0
48	3.0	45.0
48	4.0	44.0
48	5.0	43.0
50	1.5	48.5
50	2.0	48.0
50	3.0	47.0
52	1.5	50.5
52	2.0	50.0
52	3.0	49.0
52	4.0	48.0
52	5.0	47.0
56	5.5	50.5

NOTE:

- 1) Specified sizes of drills to be used prior to tapping parallel screw threads are for normal length of engagement (Ref: IS 4218 -Part IV).
- 2) The diameter of a hole produced by a drill depends to some extent upon the degree of accuracy to which the drill point is ground, the material being drilled, lubricant used, and the alignment feed and speed of operation.
- 3) When tapping relatively soft material there is a tendency for the material to be squeezed down towards the root and in such cases, the minor diameter of the tapped hole may become smaller than the diameter of the drill used. The tendency is very much less with harder materials, and in some cases, is entirely absent.



TAP DRILL SIZES
Recommendations for drills for use prior to tapping
Screw Threads - BSW and BSF Forms

BSW : BRITISH STD. WHITWORTH		
Nominal Dia Inch	TPI	Drill dia. mm
1/8	40.0	2.55
3/16	24.0	3.70
1/4	20.0	5.10
5/16	18.0	6.50
3/8	16.0	7.90
7/16	14.0	9.30
1/2	12.0	10.50
9/16	12.0	12.10
5/8	11.0	13.50
11/16	11.0	15.00
3/4	10.0	16.25
7/8	9.0	19.25
1	8.0	22.00
1 - 1/8	7.0	24.75
1 - 1/4	7.0	28.00
1 - 1/2	6.0	33.50
1 - 3/4	5.0	39.00
2	4.5	44.50

BSF : BRITISH STD. FINE		
Nominal Dia Inch	TPI	Drill dia. mm
3/16	32	4.00
7/32	28	4.60
1/4	26	5.30
9/32	26	6.10
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

NOTE :

1. The diameter of a hole produced by a drill depends to some extent upon the degree of accuracy to which the drill point is ground, the material being drilled, lubricant used, and the alignment, feed and speed of operation.
2. When tapping relatively soft material there is a tendency for the material to be squeezed down towards the root and in such cases, the minor diameter of the tapped hole may become smaller than the diameter of the drill used. The tendency is very much less with harder materials, and in some cases, is entirely absent.



TAP DRILL SIZES
Recommendations for drills for use prior to tapping
 Screw Threads - UNC and UNF Forms

UNC: UNIFIED COARSE		
Nominal Dia. Inch	TPI	Drill dia. mm
No.1	64.0	1.55
No.2	56.0	1.85
No.3	48.0	2.10
No.4	40.0	2.35
No.5	40.0	2.65
No.6	32.0	2.85
No.8	32.0	3.50
No.10	24.0	3.90
No.12	24.0	4.50
1/4	20.0	5.10
5/16	18.0	6.60
3/8	16.0	8.00
7/16	14.0	9.40
1/2	13.0	10.80
9/16	12.0	12.20
5/8	11.0	13.50
3/4	10.0	16.50
7/8	9.0	19.50
1	8.0	22.25
1 - 1/8	7.0	25.00
1 - 1/4	7.0	28.00
1 - 3/8	6.0	30.75
1 - 1/2	6.0	34.00
1 - 3/4	5.0	39.50
2	4.5	45.00

UNF : UNIFIED FINE		
Nominal Dia. Inch	TPI	Drill dia. mm
No.0	80	1.25
No.1	72	1.55
No.2	64	1.90
No.3	56	2.15
No.4	48	2.40
No.5	44	2.70
No.6	40	2.95
No.8	36	3.50
No.10	32	4.10
No.12	28	4.70
1/4	28	5.50
5/16	24	6.90
3/8	24	8.50
7/16	20	9.90
1/2	20	11.50
9/16	18	12.90
5/8	18	14.50
3/4	16	17.50
7/8	14	20.40
1	12	23.25
1 - 1/8	12	26.50
1 - 1/4	12	29.50
1 - 3/8	12	32.75
1 - 1/2	12	36.00



TAP DRILL SIZES

Pipe Threads - Taper 'Rc' Series			
Nominal Dia Inch	Threads Per Inch	Hole Diameter Cylinder. mm	Hole Diameter Tapered. mm*
1/8	28	8.3	8.5
1/4	19	11.0	11.4
3/8	19	14.5	14.9
1/2	14	18.1	18.5
3/4	14	23.5	24.0
1	11	29.6	30.1
1 - 1/4	11	38.1	38.8
1 - 1/2	11	44.0	44.7
2	11	55.6	56.5

Pipe Threads - Parallel 'Rp' Series		
Nominal Dia Inch	Threads Per Inch	Hole Diameter Cylinder mm
1/8	28	8.60
1/4	19	11.50
3/8	19	15.00
1/2	14	18.50
3/4	14	24.00
1	11	30.25
1 - 1/4	11	39.00
1 - 1/2	11	45.00
2	11	56.50

* Large Dia

Pipe Threads - Parallel 'G' Series		
Nominal Dia Inch	Threads Per Inch	Drill dia mm
1/8	28	8.80
1/4	19	11.80
3/8	19	15.25
1/2	14	19.00
5/8	14	21.00
3/4	14	24.50
7/8	14	28.25
1	11	30.75
1 - 1/4	11	39.50
1 - 1/2	11	45.00
1.3/4	11	51.00
2	11	57.00

American National Taper Pipe Hand Taps (NPT)			
Nominal Dia Inch	Threads Per Inch	Hole Dia. Cylinder. mm	Hole Diameter Tapered. mm*
1/8	27	8.5	8.7
1/4	18	11.0	11.3
3/8	18	14.4	14.7
1/2	14	17.8	18.2
3/4	14	23.1	23.6
1	11.1/2	29.1	29.6
1 - 1/4	11.1/2	37.8	38.3
1 - 1/2	11.1/2	43.9	44.4
2	11.1/2	55.9	56.4

* Large Dia



CALCULATION OF THREAD DIMENSIONS OF SERIAL SCREWING TAPS

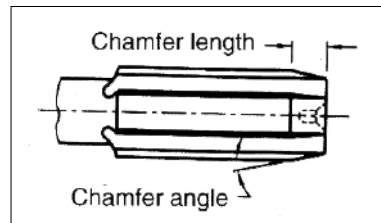
No. of Taps in a set.	Type	Major Diameter Min	Pitch Diameter	
			Min	Max
3	Rougher	$dB \text{ Min} - 0.75 P$	$d2B \text{ Min} - 0.25P$	$d2B \text{ Max} - 0.25P$
	Intermediate	$dB \text{ Min} - 0.35 P$	$d2B \text{ Min} - 0.08P$	$d2B \text{ Max} - 0.08P$
	Finisher	$dB \text{ Min}$	$d2B \text{ Min}$	$d2B \text{ Max}$
2	Rougher	$dB \text{ Min} - 0.45 P$	$d2B \text{ Min} - 0.12P$	$d2B \text{ Max} - 0.12P$
	Finisher	$dB \text{ Min}$	$d2B \text{ Min}$	$d2B \text{ Max}$

Where,

- $dB \text{ Min}$ = Minimum Major Diameter of finisher tap
- $d2B \text{ Min}$ = Minimum Pitch Diameter of finisher tap
- $d2B \text{ Max}$ = Maximum Pitch Diameter of finisher tap
- P = Pitch of the Tap Threads.



CHAMFER DIMENSIONS



Taps in set	Types of Taps		Chamfer angle in degrees	Chamfer length approx.
	Serial	Non - Serial		
3 (for Coarse Pitch)	Rougher	Taper	5	8 threads
	Intermediate	Second	10	4 threads
	Finisher	Bottoming	20	* 2 to 3 threads
2 (for fine Pitch)	Rougher	Taper	7	6 threads
	Finisher	Bottoming	20	* 2 to 3 threads
1	Nut		2	20 threads

* The approximate word indicated in the column heading is not applicable here as the range has been specified.



CUTTING PARAMETERS IN TAPPING & RECOMMENDED CUTTING FLUIDS

The Suggested peripheral speed shown in the following table is only starting points which must be varied considerably to suit service conditions.

Work Material	Speed ' Vc '		Fluids
	Metre / Min	Ft. / Min	
Aluminium	15 - 45	50 - 150	Kerosene & Lard Oil or Kerosene & Light Oil
Aluminum Bronze	6 - 24	20 - 80	Soluble Oil
Backelite	15 - 30	50 - 100	Dry
Brass	15 - 60	50 - 200	Soluble Oil or Light Base Oil
Cast Iron	15 - 30	50 - 100	Dry or Soluble Oil
Copper	9 - 18	30 - 60	Mineral Oil with Lard or Light Base Oil.
Fibre	24 - 27	80 - 90	Dry
Magnesium	22 - 60	75 - 200	Light Base Oil Diluted with 40% - 50 % Kerosene.
Malleable Iron	10 - 18	35 - 60	Soluble Oil or Sulphur Base Oil.
Manganese Bronze	9 - 18	30 - 60	Mineral Oil with lard or Light base oil.
Monel Metal.	6 - 12	20 - 40	Sulphur Base Oil.
Naval Brass	24 - 30	80 - 100	Mineral Oil with Lard or Light Base Oil.
Phosphor Bronze	9 - 18	30 - 60	Mineral Oil with Lard or Light Base Oil.
PLASTICS :			
Thermo - plastic	15 - 30	50 - 100	Dry or Air Jet
Thermo - Setting	15 - 30	50 - 100	Dry or Air Jet
STEELS :			
Free Machining AISI 1100 Series	18 - 30	60 - 100	Soluble or Sulphur Base Oil.
Low carbon (upto 0.25%)	12 - 24	60 - 80	Soluble or Sulphur Base Oil.
Medium Carbon Annealed (0.3 to 0.6%)	9 - 18	30 - 60	Sulphur Base Oil
Heat Treated (0.3 to 0.6 % Carbon) 224 - 283 Brinell	7 - 15	25 - 50	Chlorinated Sulphur Base Oil
Stainless Steel	1.5 - 10	5 - 35	Chlorinated Sulphur Base Oil
Titanium Alloys	3 - 12	10 - 40	Chlorinated Sulphur Base Oil
Zinc - Die Castings	18 - 45	60 - 150	Kerosene & Lard Oil.