
INTERNATIONAL STANDARD



2283

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Long shank machine taps with nominal diameters from 3 to 24 mm and 1/8 to 1 in

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Descriptors : tools, taps, dimensions.

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 2283 was drawn up by Technical Committee ISO/TC 29, *Small tools*.

It was approved in August 1971 by the Member Bodies of the following countries:

Belgium	Israel	South Africa, Rep. of
Czechoslovakia	Italy	Spain
Egypt, Arab Rep. of	Japan	Switzerland
France	Korea, Rep. of	Thailand
Hungary	Netherlands	Turkey
India	Poland	U.S.A.
Ireland	Romania	U.S.S.R.

The Member Bodies of the following countries expressed disapproval of the document on technical grounds:

Australia
Austria
Sweden
United Kingdom

Long shank machine taps with nominal diameters from 3 to 24 mm and 1/8 to 1 in

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the general dimensions of long shank machine taps.

It covers taps with nominal diameters from 3 to 24 mm and 1/8 to 1 in and applies essentially to relieved shank taps.

The dimensions of these taps are in accordance with those given in ISO/R 529.

Shank lengths ($L - l$) are increased by 50 % with respect to those given in ISO/R 529; total lengths therefore vary accordingly.

This International Standard applies, as does ISO/R 529, to the following thread types :

ISO metric threads

- coarse pitches (See Table 1)
- fine pitches (See Table 2)

ISO inch threads

- Unified Coarse (UNC) (See Table 3)
- Unified Fine (UNF) (See Table 4)

Taps for non-recommended threads are given in an Appendix and apply to the following thread types :

- British Standard Whitworth (BSW) (See Table 5)
- British Standard Fine (BSF) (See Table 5)
- British Association (BA) (See Table 6)

For tolerances and for marking, refer to ISO/R 529.

Where taps with diameters larger than those covered by this International Standard are required, the threaded length shall be that given for the corresponding nominal diameter in ISO/R 529 and the length of shank ($L - l$) shall be increased by 50 %.

2 REFERENCE

ISO/R 529, *Short machine taps and hand taps*.

3 TAPS FOR ISO METRIC THREADS

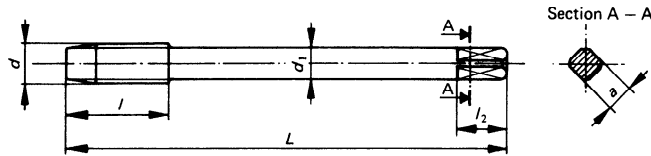


TABLE 1 — Coarse pitches

Dimensions in millimetres

Designation	d nominal	Pitch	d ₁ h ₉	l	L	Square	
						a h ₁₁	l ₂
M 3	3	0.5	2.24	11	66	1.80	4
M 3.5	3.5	0.6	2.50	13	68	2.00	
M 4	4	0.7	3.15		73	2.50	5
M 4.5	4.5	0.75	3.55			2.80	
M 5	5	0.8	4.00	16	79	3.15	6
M 6	6	1	4.50	19	89	3.55	
M 7	7		5.60			4.50	7
M 8	8	1.25	6.30	22	97	5.00	8
M 9	9		7.10			5.60	
M 10	10	1.5	8.00	24	108	6.30	9
M 11	11			25	115		
M 12	12	1.75	9.00	29	119	7.10	10
M 14	14	2	11.20	30	127	9.00	12
M 16	16		12.50	32	137	10.00	13
M 18	18	2.5	14.00	37	149	11.20	14
M 20	20						
M 22	22						
M 24	24	3	18.00	45	172	14.00	18

TABLE 2 — Fine pitches

Dimensions in millimetres

Designation	d nominal	Pitch	d ₁ h ₉	l	L	Square	
						a h ₁₁	l ₂
M 3 X 0.35	3	0.35	2.24	11	66	1.80	4
M 3.5 X 0.35	3.5		2.50	13	68	2.00	
M 4 X 0.5	4	0.5	3.15		13	73	2.50
M 4.5 X 0.5	4.5		3.55	2.80			
M 5 X 0.5	5		0.75	4.00	16	79	3.15
M 5.5 X 0.5	5.5	19		17	84	3.55	
M 6 X 0.75	6		1	4.50	89	4.50	7
M 7 X 0.75	7	5.60		5.00		8	
M 8 X 1	8	1.25	6.30	97	5.60		
M 9 X 1	9		7.10		5.60		
M 10 X 1	10	1.25	8.00	20	108	6.30	9
M 10 X 1.25			9.00	119	7.10	10	
M 12 X 1.25	12	1.25	11.20	24	127	9.00	12
M 12 X 1.5		1.5		29			
M 14 X 1.25	14	1.25	12.50	25	137	10.00	13
M 14 X 1.5		1.5		30			
M 15 X 1.5	15	1.5	14.00	32	149	11.20	14
M 16 X 1.5	16	1.5					
M 17 X 1.5	17	1.5	16.00	33	158	12.50	16
M 18 X 1.5	18	1.5					
M 18 X 2		2	18.00	37	172	14.00	18
M 20 X 1.5	20	1.5		29			
M 20 X 2		2	20.00	37	227	16.00	20
M 22 X 1.5	22	1.5		33			
M 22 X 2		2	22.00	38	270	18.00	22
M 24 X 1.5	24	1.5		45			
M 24 X 2		2	24.00	54	324	20.00	24

NOTE — For taps M3 to M10, a recess, optional at the wish of the manufacturer, having the dimension equal to d_2 of ISO/R 529, may be provided.

4 TAPS FOR ISO INCH THREADS

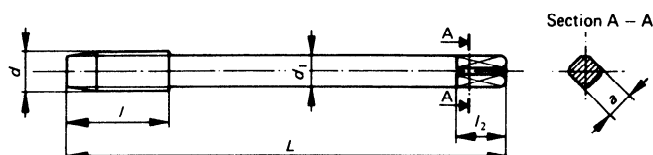


TABLE 3 – Unified Coarse (UNC)

Dimensions in millimetres

Designation	d nominal	Approximate pitch	d_1 h9	l	L	Square	
						a h11	l_2
No. 5-40-UNC	3.175	0.635	2.24	11	66	1.80	4
No. 6-32-UNC	3.505	0.794	2.50	13	68	2.00	
No. 8-32-UNC	4.166		3.15		73	2.50	5
No. 10-24-UNC	4.826	1.058	3.55	16	79	2.80	5
No. 12-24-UNC	5.486		4.00	17	84		
$\frac{1}{4}$ -20-UNC	6.350	1.270	4.50	19	89	3.55	8
$\frac{5}{16}$ -18-UNC	7.938	1.411	6.30	22	97	5.00	
$\frac{3}{8}$ -16-UNC	9.525	1.588	7.10	24	108	5.60	8
$\frac{7}{16}$ -14-UNC	11.112	1.814	8.00	25	115	6.30	9
$\frac{1}{2}$ -13-UNC	12.700	1.954	9.00	29	119	7.10	10
$\frac{9}{16}$ -12-UNC	14.288	2.117	11.20	30	127	9.00	12
$\frac{5}{8}$ -11-UNC	15.875	2.309	12.50	32	137	10.00	13
$\frac{3}{4}$ -10-UNC	19.050	2.540	14.00	37	149	11.20	14
$\frac{7}{8}$ - 9-UNC	22.225	2.822	16.00	38	158	12.50	16
1 - 8-UNC	25.400	3.175	18.00	45	172	14.00	18

TABLE 4 – Unified Fine (UNF)

Dimensions in millimetres

Designation	d nominal	Approximate pitch	d_1 h9	l	L	Square	
						a h11	l_2
No. 5-44-UNF	3.175	0.577	2.24	11	66	1.80	4
No. 6-40-UNF	3.505	0.635	2.50	13	68	2.00	
No. 8-36-UNF	4.166	0.706	3.15		73	2.50	5
No. 10-32-UNF	4.826	0.794	3.55	16	79	2.80	5
No. 12-28-UNF	5.486	0.907	4.00	17	84		
$\frac{1}{4}$ -28-UNF	6.350		4.50		89	3.55	8
$\frac{5}{16}$ -24-UNF	7.938	1.058	6.30	19	97	5.00	
$\frac{3}{8}$ -24-UNF	9.525		7.10	20	108	5.60	8
$\frac{7}{16}$ -20-UNF	11.112	1.270	8.00	22	115	6.30	9
$\frac{1}{2}$ -20-UNF	12.700		9.00	24	119	7.10	10
$\frac{9}{16}$ -18-UNF	14.288	1.411	11.20	25	127	9.00	12
$\frac{5}{8}$ -18-UNF	15.875		12.50		137	10.00	13
$\frac{3}{4}$ -16-UNF	19.050	1.588	14.00	29	149	11.20	14
$\frac{7}{8}$ -14-UNF	22.225	1.814	16.00	33	158	12.50	16
1 -12-UNF	25.400	2.117	18.00	35	172	14.00	18

APPENDIX

NON-RECOMMENDED THREADS

TABLE 5 — British Standard Whitworth (BSW) and British Standard Fine (BSF)

Dimensions in millimetres

Designation		d nominal	Approximate		d_1 h9	l	L	Square	
BSW	BSF		BSW	BSF				a h11	l_2
$\frac{1}{8}$ -40-BSW	—	3.175	0.635	—	2.24	11	66	1.80	4
$\frac{3}{16}$ -24-BSW	$\frac{3}{16}$ -32-BSF	4.762	1.058	0.794	3.55	16	79	2.80	5
—	$\frac{7}{32}$ -28-BSF	5.556	—	0.907	4.00	17	84		6
$\frac{1}{4}$ -20-BSW	$\frac{1}{4}$ -26-BSF	6.350	1.270	0.977	4.50	19	89	3.55	6
—	$\frac{9}{32}$ -26-BSF	7.144	—		5.60			4.50	7
$\frac{5}{16}$ -18-BSW	$\frac{5}{16}$ -22-BSF	7.938	1.411	1.154	6.30	22	97	5.00	8
$\frac{3}{8}$ -16-BSW	$\frac{3}{8}$ -20-BSF	9.525	1.588	1.270	7.10	24	108	5.60	8
$\frac{7}{16}$ -14-BSW	$\frac{7}{16}$ -18-BSF	11.112	1.814	1.411	8.00	25	115		
$\frac{1}{2}$ -12-BSW	$\frac{1}{2}$ -16-BSF	12.700	2.117	1.588	9.00	29	119	7.10	10
$\frac{9}{16}$ -12-BSW	$\frac{9}{16}$ -16-BSF	14.288			11.20	30	127	9.00	12
$\frac{5}{8}$ -11-BSW	$\frac{5}{8}$ -14-BSF	15.875	2.309	1.814	12.50	32	137	10.00	13
$\frac{11}{16}$ -11-BSW	$\frac{11}{16}$ -14-BSF	17.462			14.00	37	149	11.20	14
$\frac{3}{4}$ -10-BSW	$\frac{3}{4}$ -12-BSF	19.050	2.540	2.117					
$\frac{7}{8}$ -9-BSW	$\frac{7}{8}$ -11-BSF	22.225	2.822	2.309	16.00	38	158	12.50	16
1 - 8-BSW	1 -10-BSF	25.400	3.175	2.540	18.00	45	172	14.00	18

TABLE 6 — British Association (BA)

Dimensions in millimetres

Designation	d nominal	Pitch	d_1 h9	l	L	Square	
						a h11	l_2
BA No. 5	3.2	0.59	2.24	11	66	1.80	4
BA No. 4	3.6	0.66	2.50	13	68	2.00	
BA No. 3	4.1	0.73	3.15		73	2.50	5
BA No. 2	4.7	0.81	3.55	16	79	2.80	5
BA No. 1	5.3	0.90	4.00	17	84		
BA No. 0	6	1	4.50	19	89	3.55	