INTERNATIONAL STANDARD

ISO 2283

Second edition
2000-03-15

Long shank taps with nominal diameters from M3 to M24 and 1/8 in to 1 in — Reduced shank taps

Tarauds à machine, à queue longue, de diamètre nominal M3 à M24 et 1/8 in à 1 in — Tarauds à queue dégagée

Reference number
ISO 2283:2000(E)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 2283 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 4, *Screwing taps and dies*.

This second edition cancels and replaces the first edition (ISO 2283:1972), which has been technically revised.

Annex A of this International Standard is for information only.

Long shank taps with nominal diameters from M3 to M24 and 1/8 in to 1 in — Reduced shank taps

1 Scope

This International Standard specifies the dimensions for reduced shank taps with nominal diameters from M3 to M24 and 1/8 in to 1 in and thus complements ISO 8051 which concerns full-diameter shank taps.

It applies to long shank machine taps.

Technical specifications for taps covered by this International Standard (including marking) are given in ISO 8830.

This International Standard is applicable to taps intended for cutting the following threads:

a) ISO metric threads

- coarse pitch;
- fine pitch.

b) ISO inch threads

- "Unified Coarse" series (UNC) and "Unified Fine" series (UNF).

The following non-recommended inch threads

- "British Standard Whitworth" (BSW) and "British Standard Fine" (BSF);
- "British Association" (BA)

are given in Annex A.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 529:1993, *Short machine taps and hand taps.*

ISO 8051:1999, *Long shank taps with nominal diameters from M3 to M10 — Full-diameter shank taps with recess.*

ISO 8830:1991, *High-speed steel machine taps with ground threads — Technical specifications.*

3 Dimensions

The dimensions are given in Figure 1 and Table 1 for ISO metric threads and in Table 2 for ISO inch threads.

The thread lengths of these taps are in accordance with those given in ISO 529.

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

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 529 and the length of shank ($L - l$) shall be increased by 50 %.

NOTE For taps with nominal diameter from M3 to M10, a recess, optional at the manufacturer's discretion, with dimensions equal to the dimensions of d_2 from Table 1 of ISO 8051:1999 may be provided.

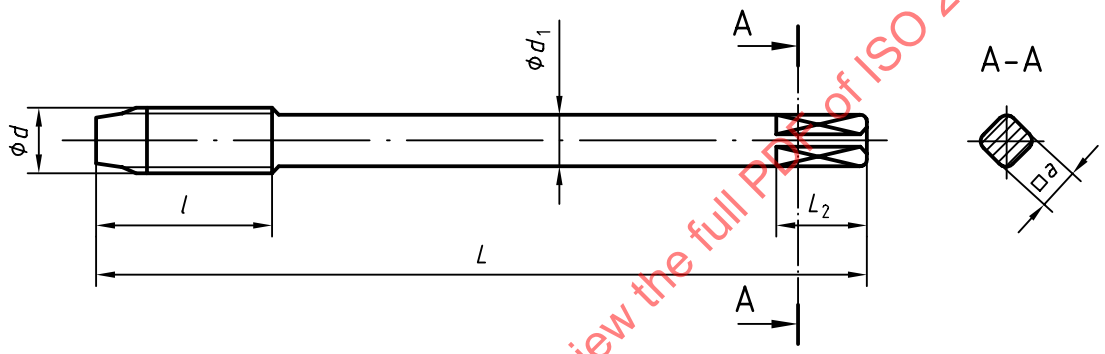

Figure 1

4 Marking

Marking shall be in accordance with ISO 8830.

Table 1 — Taps for ISO metric threads

Dimensions in millimetres

Designation		d nom.	Pitch		d_1	l	L	Square	
Coarse pitches	Fine pitches		coarse	fine	h9 [a]	max.	h16	a h11 [b]	l_2 ± 0,8
M3	**M3 × 0,35**	3	0,5	0,35	2,24	11	66	1,8	4
M3,5	**M3,5 × 0,35**	3,5	0,6		2,5	13	68	2	
M4	**M4 × 0,5**	4	0,7	0,5	3,15		73	2,5	5
M4,5	**M4,5 × 0,5**	4,5	0,75		3,55			2,8	
M5	**M5 × 0,5**	5	0,8		4	16	79	3,15	6
—	**M5,5 × 0,5**	5,5	—			17	84		
M6	**M6 × 0,75**	6	1	0,75	4,5	19	89	3,55	
M7	**M7 × 0,75**	7			5,6			4,5	7
M8	**M8 × 1**	8	1,25	1	6,3	22	97	5	8
M9	**M9 × 1**	9			7,1			5,6	
M10	**M10 × 1**	10	1,5		8	24	108	6,3	9
	M10 × 1,25			1,25					
M11	—	11		—		25	115		
M12	**M12 × 1,25**	12	1,75	1,25	9	29	119	7,1	10
	M12 × 1,5			1,5					
M14	**M14 × 1,25**	14	2	1,25	11,2	30	127	9	12
	M14 × 1,5			1,5					
—	**M15 × 1,5**	15	—						
M16	**M16 × 1,5**	16	2		12,5	32	137	10	13
—	**M17 × 1,5**	17	—						
M18	**M18 × 1,5**	18	2,5		14	37	149	11,2	14
	M18 × 2			2					
M20	**M20 × 1,5**	20		1,5					
	M20 × 2			2					
M22	**M22 × 1,5**	22		1,5	16	38	158	12,5	16
	M22 × 2			2					
M24	**M24 × 1,5**	24	3	1,5	18	45	172	14	18
	M24 × 2			2					

[a] In accordance with ISO 237[1], tolerance h9 applies to precision shanks; for non-precision shanks, the tolerance is h11.

[b] In accordance with ISO 237[1], the tolerance is enlarged to h12 when including errors of form of the square and of its position in relation to the shank.

Table 2 — Taps for ISO Inch threads

Dimensions in millimetres

Designation		d nom.	Approximate pitch		d_1 h9 [a]	l max.	L h16	Square	
"Unified coarse" (UNC)	"Unified Fine" (UNF)		UNC	UNF				a h11[b]	l_2 ± 0,8
No. 5-40-UNC	No. 5-44-UNF	3,175	0,635	0,577	2,24	11	66	1,80	4
No. 6-32-UNC	No. 6-40-UNF	3,505	0,794	0,635	2,50	13	68	2,00	
No. 8-32-UNC	No. 8-36-UNF	4,166		0,706	3,15		73	2,50	5
No. 10-24-UNC	No. 10-32-UNF	4,826	1,058	0,794	3,55	16	79	2,8	5
No. 12-24-UNC	No. 12-28-UNF	5,486		0,907	4,00	17	84	3,15	6
1/4-20-UNC	1/4-28-UNF	6,350	1,270		4,50	19	89	3,55	
5/16-18-UNC	5/16-24-UNF	7,938	1,411	1,058	6,30	22	97	5,00	8
3/8-16-UNC	3/8-24-UNF	9,525	1,588		7,10	24	108	5,60	8
7/16-14-UNC	7/16-20-UNF	11,112	1,814	1,270	8,00	25	115	6,30	9
1/2-13-UNC	1/2-20-UNF	12,700	1,954		9,00	29	119	7,10	10
9/16-12-UNC	9/16-18-UNF	14,288	2,117	1,411	11,20	30	127	9,00	12
5/8-11-UNC	5/8-18-UNF	15,875	2,309		12,50	32	137	10,00	13
3/4-10-UNC	3/4-16-UNF	19,050	2,540	1,588	14	37	149	11,20	14
7/8-9-UNC	7/8-14-UNF	22,225	2,822	1,814	16	38	158	12,50	16
1-8-UNC	1-12-UNF	25,400	3,175	2,117	18	45	172	14	18

[a] In accordance with ISO 237[1], tolerance h9 applies to precision shanks; for non-precision shanks, the tolerance is h11.

[b] In accordance with ISO 237[1], the tolerance is enlarged to h12 when including errors of form of the square and of its position in relation to the shank.

Annex A
(informative)

Non-recommended threads

A.1 “British Standard Whitworth” (BSW) and “British Standard Fine” (BSF)

Table A.1

Dimensions in millimetres

Designation		d nom.	Approximate pitch		d_1 h9 [a]	l max.	L h16	Square		
BSW	BSF		BSW	BSF				a h11[b]	l_2 nom.	l_2 tol.
1/8-40-BSW	—	3,175	0,635	—	2,24	11	66	1,8	4	± 0,8
3/16-24-BSW	3/16-32-BSF	4,762	1,058	0,794	3,55	16	79	2,8	5	
—	7/32-28-BSF	5,556	—	0,907	4	17	84	3,15	6	
1/4-20-BSW	1/4-26-BSF	6,35	1,27	0,977	4,5	19	89	3,55		
—	9/32-26-BSF	7,144	—		5,6			4,5	7	
5/16-18-BSW	5/16-22-BSF	7,938	1,411	1,154	6,3	22	97	5	8	
3/8-16-BSW	3/8-20-BSF	9,525	1,588	1,27	7,1	24	108	5,6		
7/16-14-BSW	7/16-18-BSF	11,112	1,814	1,411	8	25	115	6,3	9	
1/2-12-BSW	1/2-16-BSF	12,7	2,117	1,588	9	29	119	7,1	10	
9/16-12-BSW	9/16-16-BSF	14,288			11,2	30	127	9	12	
5/8-11-BSW	5/8-14-BSF	15,875	2,309	1,814	12,5	32	137	10	13	
11/16-11-BSW	11/16-14-BSF	17,462			14	37	149	11,2	14	
3/4-10-BSW	3/4-12-BSF	19,05	2,54	2,117						
7/8-9-BSW	7/8-11-BSF	22,225	2,822	2,309	16	38	158	12,5	16	
1-8-BSW	1-10-BSF	25,4	3,175	2,54	18	45	172	14	18	

[a] In accordance with ISO 237[1], tolerance h9 applies to precision shanks; for non-precision shanks, the tolerance is h11.

[b] In accordance with ISO 237[1], the tolerance is enlarged to h12 when including errors of form of the square and of its position in relation to the shank.