INTERNATIONAL STANDARD

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Hand taps for parallel and taper pipe threads — General dimensions and marking

Tarauds à main pour filetages cylindrique et conique de tuyauterie — Dimensions générales et marquage

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.

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. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 2284 was prepared by Technical Committee ISO/TC 29, *Small tools.*

This third edition cancels and replaces the second edition (ISO 2284 : 1976), of which it constitutes a minor revision.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Hand taps for parallel and taper pipe threads — General dimensions and marking

1 Scope and field of application

This International Standard specifies the general dimensions and marking of hand taps for pipe threads.

It is applicable to the two following types of tap :

- taps for parallel threads (see table 1),
- taps for taper threads (see table 2),

having threads in accordance with ISO 7-1 and ISO 228-1.

Furthermore, it gives in an annex the bases used for calculation of the dimensions.

2 References

ISO 7-1, *Pipe threads where pressure-tight joints are made on the threads — Part 1 : Designation, dimensions and tolerances.*

ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads — Part 1 : Designation, dimensions and tolerances.*

ISO 237, *Rotating tools with parallel shanks — Diameters of shanks and sizes of driving squares.*

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

ISO 5969, *Ground thread taps for pipe threads G series and Rp series — Tolerances on the threaded portion.*

3 General dimensions

The general dimensions are given in tables 1 and 2.

Shank diameters and driving squares shall conform to the specifications given in ISO 237, the tolerances being as follows :

- on diameter d_1 :

  h9 for precision shanks

  h11 for other shanks

- on width across flats a :

  h11

  h12 (including errors of form of the square and of its position in relation to the shank).

4 Marking

Taps in accordance with this International Standard and with the requirements of ISO 5969 shall be marked, on the shank, with the following indications :

a) the letter designating the thread series;

b) the designation of the thread.

Examples :

A G series parallel thread tap with designation 3/4 shall be marked as follows :

G 3/4

An Rp series parallel thread tap with designation 1/4 shall be marked as follows :

Rp 1/4

An Rc series taper thread tap with designation 1 shall be marked as follows :

Rc 1

NOTE — Where tools comply in all respects with the relevant International Standards, the symbol ISO may be appended to the mark at the discretion of the manufacturer.
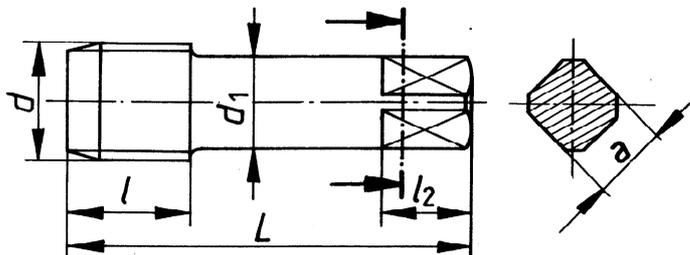
Table 1 — Taps for parallel threads — G series and Rp series

Dimensions in millimetres

Thread designation	Number of threads in 25,4 mm	d nom.	Pitch ≈	d_1 h9	l $^{+2}_{-1}$	L	Square	
							a h11	l_2
1/16	28	7,723	0,907	5,6	14	52	4,5	7
1/8	28	9,728		8	15	59	6,3	9
1/4	19	13,157	1,337	10	19	67	8	11
3/8	19	16,662		12,5	21	75	10	13
1/2	14	20,955	1,814	16	26	87	12,5	16
(5/8)	14	22,911		18		91	14	18
3/4	14	26,441		20	28	96	16	20
(7/8)	14	30,201		22,4	29	102	18	22
1	11	33,249		25	33	109	20	24
1 1/4	11	41,91		31,5	36	119	25	28
1 1/2	11	47,803		35,5	37	125	28	31
(1 3/4)	11	53,746			39	132		
2	11	59,614	2,309	40	41	140	31,5	34
(2 1/4)	11	65,71			42	142		
2 1/2	11	75,184		45	45	153	35,5	38
3	11	87,884		50	48	164	40	42
3 1/2	11	100,33		63	50	173	50	51
4	11	113,03		71	53	185	56	56

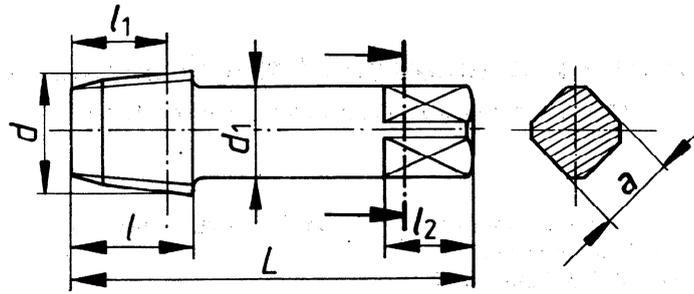NOTE — The sizes shown in parentheses are to be avoided whenever possible.

Table 2 — Taps for taper threads — Rc series

Dimensions in millimetres

Thread designation	Number of threads in 25,4 mm	d nom.	Pitch $\approx$	d_1 h9	l $^{+2}_{-1}$	L	l_1 max.	Square	
								a h11	l_2
1/16	28	7,723	0,907	5,6	14	52	10,1	4,5	7
1/8	28	9,728		8	15	59		6,3	9
1/4	19	13,157	1,337	10	19	67	15	8	11
3/8	19	16,662		12,5	21	75	15,4	10	13
1/2	14	20,955	1,814	16	26	87	20,5	12,5	16
3/4	14	26,441		20	28	96	21,8	16	20
1	11	33,249		25	33	109	26	20	24
1 1/4	11	41,91		31,5	36	119	28,3	25	28
1 1/2	11	47,803		35,5	37	125	28,3	28	31
2	11	59,614	2,309	40	41	140	32,7	31,5	34
2 1/2	11	75,184		45	45	153	37,1	35,5	38
3	11	87,884		50	48	164	40,2	40	42
3 1/2	11	100,33		63	50	173	41,9	50	51
4	11	113,03		71	53	185	46,2	56	56

Annex

Bases for calcuation of the dimensions

(This annex forms an integral part of the standard.)

This International Standard has been prepared on the basis of empirical formulae extracted from standards and existing practice in various countries, and by taking ISO 529 into consideration.

A.1 Threaded length

The threaded length consists of the entering length and the full thread length; we therefore have the formula

$$5\,p + 3{,}08\,d^{0,55}$$

The first term of this formula corresponds to the maximum entering length of threads.

A.2 Shank length

The shank length consists of the "free" length (outside the tap holder) of the shank, that length supposed to be absorbed by the clamp of the tapping machine and the length of the driving square; we therefore have the formula

$$(6{,}3\,d^{0,45}) + (10\,d_1^{0,25}) + l_2$$

The first term of this formula corresponds to the free length, the second to the length absorbed by the clamp and the third to the length of the square.