INTERNATIONAL STANDARD

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Fourth edition
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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*



Reference number
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# Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 9, *Tools with defined cutting edges, cutting items.*



This fourth edition cancels and replaces the third edition (ISO 2284:1987), of which it constitutes a minor revision with the following changes:

— added Annex B giving the relationship between the symbols of this document and the symbols according to the ISO 13399 series.

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

## 1 Scope

This document 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 Figure 1 and Table 1),

— taps for taper threads (see Figure 2 and Table 2),

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

Furthermore, it gives in Annex A the bases used for calculation of the dimensions, and in Annex B the relationship between designations in this document and the ISO 13399 series.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.



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



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

## 3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

## 4 General dimensions

The general dimensions are given in Table 1 and Table 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).

## 5 Marking

Taps in accordance with this document 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.

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**

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.

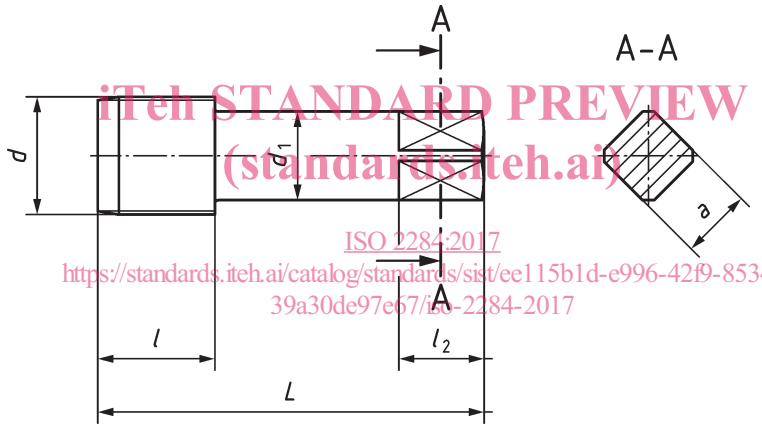




**Figure 1 — Tap for parallel threads — G series and Rp series**

**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 | 2,309 | 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 | | 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.

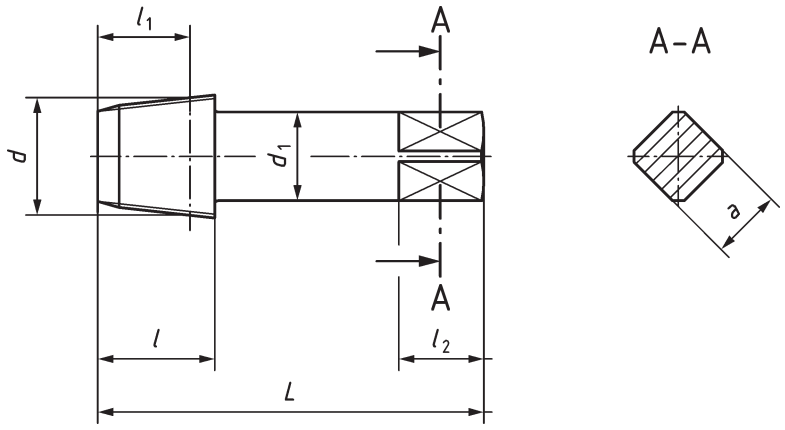


**Figure 2 — Tap for taper threads — Rc series**

**Table 2 — Taps for taper threads — Rc series**

Dimensions in millimetres

| Thread designation | Number of threads in 25,4 mm | $d$ nom. | Pitch ≈ | $d_1$ h9 | $l$ +2 −1 | $L$ | $l_1$ max. | Square $a$ h11 | Square $l_2$ |
|---|---|---|---|---|---|---|---|---|---|
| **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 | 2,309 | 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 | | 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 A
(informative)

# Bases for calculation of the dimensions

## A.1 General

This document 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.2 Threaded length

The threaded length consists of the entering length and the full thread length. We therefore have Formula (A.1):

$$5\,p + 3{,}08\,d^{0{,}55} \tag{A.1}$$

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



## A.3 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 Formula (A.2):



$$(6{,}3\,d^{0{,}45}) + (10\,{d_1}^{0{,}25}) + l_2 \tag{A.2}$$

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.