
**ISO metric trapezoidal screw
threads — Basic dimensions**

Filetages métriques trapézoïdaux ISO — Dimensions de base

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Published in Switzerland

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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.

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 1, *Screw threads*.

This second edition cancels and replaces the first edition (ISO 2904:1977), which has been technically revised.

The main changes compared to the previous edition are as follows:

- In [Clause 1](#) (Scope) the phrase “basic profiles” has been replaced by “design profiles”.
- In [Clause 1](#) (Scope) the second paragraph has been added.
- [Clause 3](#) (Terms and definitions) has been added.
- “BASIC PROFILES (modified)”, the title of ISO 2904:1977, Clause 4, has been replaced by “Basic dimensions”, the title of ISO 2904:2019, Clause 5.
- Table 1 has been deleted.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

ISO metric trapezoidal screw threads — Basic dimensions

1 Scope

This document specifies the basic dimensions of ISO metric trapezoidal screw threads in accordance with ISO 2902. The values refer to the design profiles in accordance with ISO 2901.

This document is chiefly applicable to traversing threads for traversing motion on machines, tools, etc. It can also be used for fastening threads.

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 5408, *Screw threads — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5408 apply.

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

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 Symbols

For the purposes of this document, the following symbols apply.

D_1	basic minor diameter of internal thread
D_2	basic pitch diameter of internal thread
D_4	basic major diameter of internal thread
d	basic major diameter of external thread (nominal diameter)
d_2	basic pitch diameter of external thread
d_3	basic minor diameter of external thread
P	pitch
a_c	clearance at major and minor diameters
R_1	radius on crest corners of external thread on design profile
R_2	radius on root corners of internal and external threads on design profile

5 Basic dimensions

Basic dimensions shown in [Figure 1](#) are given in [Table 1](#).

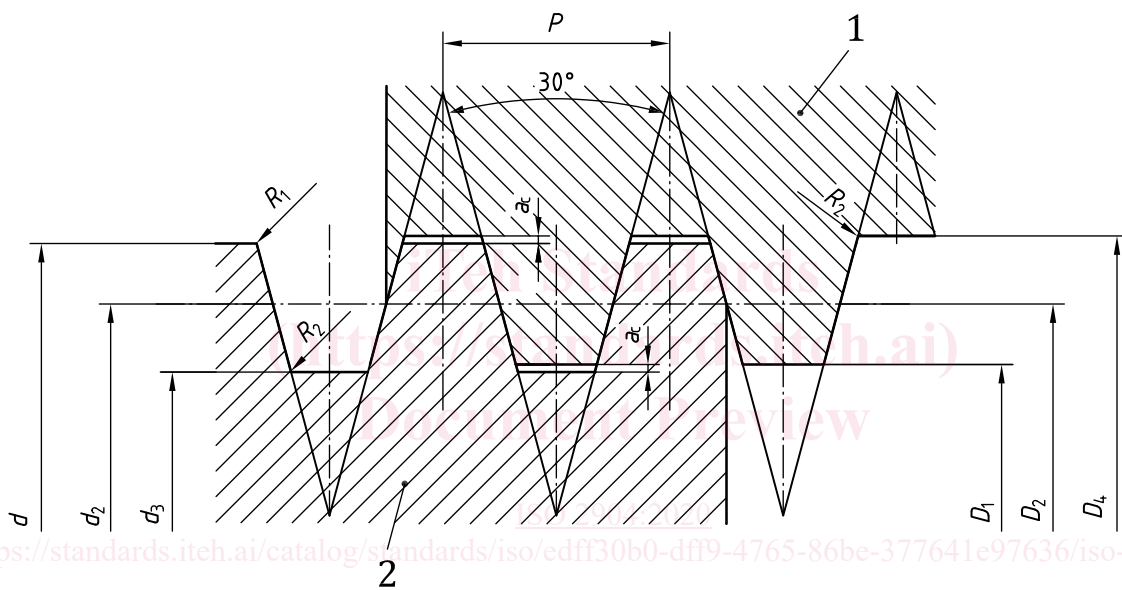
The values of D_1 , D_2 , D_4 , d_2 and d_3 , in [Table 1](#), have been calculated from the following formulae and rounded to the third decimal place.

$$D_1 = d - P$$

$$D_2 = d_2 = d - 0,5 P$$

$$D_4 = d + 2 a_c$$

$$d_3 = d - P - 2 a_c$$



Key

- 1 internal thread
- 2 external thread

Figure 1 — Basic dimensions

Table 1 — Basic dimensions

Dimensions in millimetres

Nominal diameters			Pitch P	Pitch diameter $d_2 = D_2$	Major diameter D_4	Minor diameter	
d	d	d				d_3	D_1
column 1	column 2	column 3					
8			1,5	7,250	8,300	6,200	6,500
	9		1,5	8,250	9,300	7,200	7,500
			2	8,000	9,500	6,500	7,000
10			1,5	9,250	10,300	8,200	8,500
			2	9,000	10,500	7,500	8,000
	11		2	10,000	11,500	8,500	9,000
			3	9,500	11,500	7,500	8,000