
**ISO general purpose screw threads —
Basic and design profiles —**

**Part 1:
Metric screw threads**

*Filetages ISO pour usages généraux — Profil de base et profil
nominal —*

Partie 1: Filetages métriques

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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 document 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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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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 68-1:1998), which has been technically revised. It also incorporates the Amendment ISO 68-1:1998/Amd 1:2020.

The main changes are as follows:

- “design profiles” has been added in the document title and the first paragraph of the Scope, and [Clause 6](#) has been added;
- a second paragraph has been added in the Scope;
- subclause 3.1 has been deleted;
- [Clause 4](#) has been added.

A list of all parts in the ISO 68 series can be found on the ISO website.

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 general purpose screw threads — Basic and design profiles —

Part 1: Metric screw threads

1 Scope

This document specifies the basic and design profiles for ISO general purpose metric screw threads (M).

This document is applicable to the metric fastening screw 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 terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <https://www.electropedia.org/>

4 Symbols

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

D major diameter of internal thread (nominal diameter)

d major diameter of external thread (nominal diameter)

D_2 pitch diameter of internal thread

d_2 pitch diameter of external thread

D_1 minor diameter of internal thread

d_1 minor diameter of external thread on basic profile

d_3 minor diameter of external thread on design profile

P pitch

H fundamental triangle height

- H_1 thread height of internal thread, and thread height of external thread on basic profile
- h_3 thread height of external thread on design profile
- R full root radius of external thread on design profile
- R_1 radius on root corners of external thread on design profile

5 Basic profile

The basic profile is shown as a thick line in [Figure 1](#). It is common to internal and external threads.

The dimensions of the basic profile are given in [Table 1](#). They have been calculated by the following formulae, and rounded to the nearest sixth decimal place.

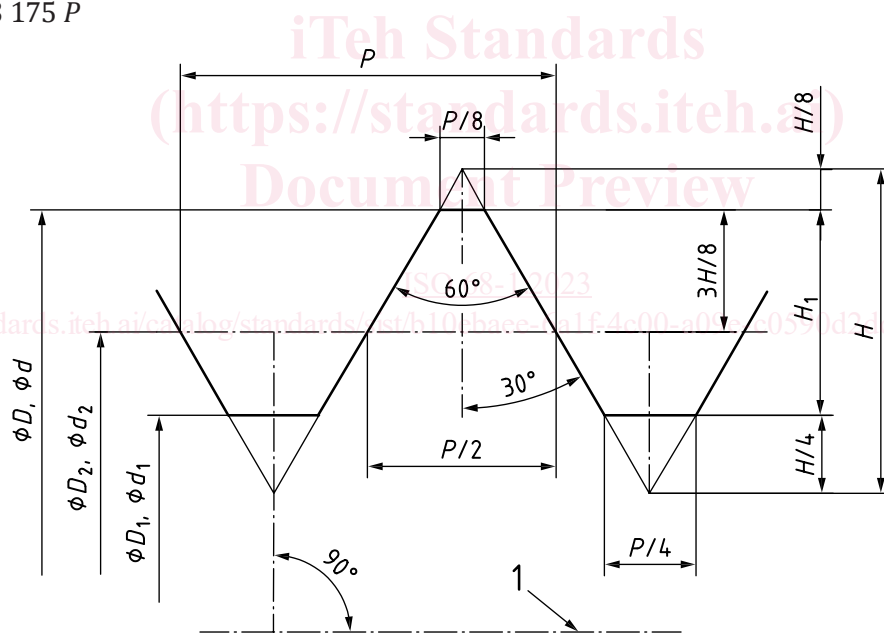
$$H = 3^{0,5} P / 2 = 0,866\ 025\ 404\ P$$

$$H_1 = 5H/8 = 0,541\ 265\ 877\ P$$

$$3H/8 = 0,324\ 759\ 526\ P$$

$$H/4 = 0,216\ 506\ 351\ P$$

$$H/8 = 0,108\ 253\ 175\ P$$



Key
 1 axis of screw thread

Figure 1 — Basic profile