# INTERNATIONAL STANDARD

**ISO 68-1**

First edition
1998-12-15

# ISO general purpose screw threads — Basic profile —

## Part 1:
## Metric screw threads

*Filetages ISO pour usages généraux — Profil de base —*

*Partie 1: Filetages métriques*


Reference numbe
ISO 68-1:1998(E

# 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.

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.

International Standard ISO 68-1 was prepared by Technical Committee ISO/TC 1, *Screw threads*, Subcommittee SC 1, *Basic data.*

This first edition, together with ISO 68-2, cancels and replaces ISO 68:1973 which has been technically revised by separating the metric dimensions from the imperial dimensions.

ISO 68 consists of the following parts under the general title *ISO general purpose screw threads – Basic profile*

— *Part 1: Metric screw threads*

— *Part 2: Inch screw threads*



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# ISO general purpose screw threads — Basic profile —

# Part 1:
Metric screw threads

## 1 Scope

This part of ISO 68 specifies the basic profile for ISO general purpose metric screw threads (M).

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 68. At the time of publication the editions indicated were valid. All standards are subject to revision and parties to agreements based on this part of ISO 68 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 965-1:1998, *ISO general purpose metric screw threads — Tolerances — Part 1: Principles and basic data.*

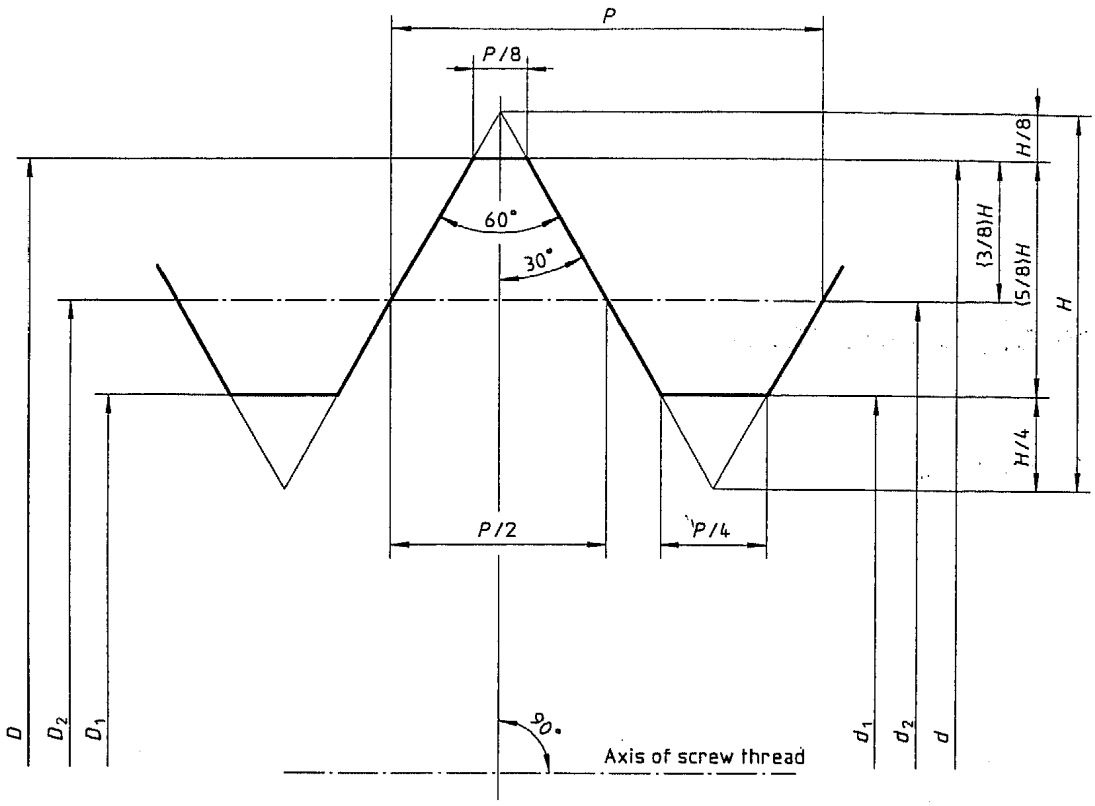
ISO 5408:1983, *Cylindrical screw threads – Vocabulary.*

## 3 Definitions

For the purpose of this part of ISO 68 the definitions given in ISO 5408 apply. Only the term "basic profile" which might be usefully restated is defined below.

**3.1**
**basic profile**
The theoretical profile of a screw thread in an axial plane defined by theoretical dimensions and angles common to internal and external threads

NOTE The basic profile is shown as a thick line in figure 1.




where

$D$ is the basic major diameter of internal thread (nominal diameter)

$d$ is the basic major diameter of external thread (nominal diameter)

$D_2$ is the basic pitch diameter of internal thread

$d_2$ is the basic pitch diameter of external thread

$D_1$ is the basic minor diameter of internal thread

$d_1$ is the basic minor diameter of external thread

$H$ is the height of fundamental triangle

$P$ is the pitch

**Figure 1**

## 4 Dimensions

The fundamental deviations and tolerances specified in ISO 965-1 are applied to the dimensions of the basic profile shown in figure 1 and derived from table 1.

$$H = \frac{\sqrt{3}}{2} P = 0{,}866\,025\,404\,P$$

$$\frac{5}{8} H = 0{,}541\,265\,877\,P$$

$$\frac{3}{8} H = 0{,}324\,759\,526\,P$$

$$\frac{H}{4} = 0{,}216\,506\,351\,P$$

$$\frac{H}{8} = 0{,}108\,253\,175\,P$$

**Table 1**

Dimensions in millimetres

| Pitch<br>$P$ | $H$ | $\frac{5}{8}H$ | $\frac{3}{8}H$ | $\frac{H}{4}$ | $\frac{H}{8}$ |
|---|---|---|---|---|---|
| 0,2 | 0,173 205 | 0,108 253 | 0,064 952 | 0,043 301 | 0,021 651 |
| 0,25 | 0,216 506 | 0,135 316 | 0,081 190 | 0,054 127 | 0,027 063 |
| 0,3 | 0,259 808 | 0,162 380 | 0,097 428 | 0,064 952 | 0,032 476 |
| 0,35 | 0,303 109 | 0,189 443 | 0,113 666 | 0,075 777 | 0,037 889 |
| 0,4 | 0,346 410 | 0,216 506 | 0,129 904 | 0,086 603 | 0,043 301 |
| 0,45 | 0,389 711 | 0,243 570 | 0,146 142 | 0,097 428 | 0,048 714 |
| 0,5 | 0,433 013 | 0,270 633 | 0,162 380 | 0,108 253 | 0,054 127 |
| 0,6 | 0,519 615 | 0,324 760 | 0,194 856 | 0,129 904 | 0,064 952 |
| 0,7 | 0,606 218 | 0,378 886 | 0,227 332 | 0,151 554 | 0,075 777 |
| 0,75 | 0,649 519 | 0,405 949 | 0,243 570 | 0,162 380 | 0,081 190 |
| 0,8 | 0,692 820 | 0,433 013 | 0,259 808 | 0,173 205 | 0,086 603 |
| 1 | 0,866 025 | 0,541 266 | 0,324 760 | 0,216 506 | 0,108 253 |
| 1,25 | 1,082 532 | 0,676 582 | 0,405 949 | 0,270 633 | 0,135 316 |
| 1,5 | 1,299 038 | 0,811 899 | 0,487 139 | 0,324 760 | 0,162 380 |
| 1,75 | 1,515 544 | 0,947 215 | 0,568 329 | 0,378 886 | 0,189 443 |
| 2 | 1,732 051 | 1,082 532 | 0,649 519 | 0,433 013 | 0,216 506 |
| 2,5 | 2,165 063 | 1,353 165 | 0,811 899 | 0,541 266 | 0,270 633 |
| 3 | 2,598 076 | 1,623 798 | 0,974 279 | 0,649 519 | 0,324 760 |
| 3,5 | 3,031 089 | 1,894 431 | 1,136 658 | 0,757 772 | 0,378 886 |
| 4 | 3,464 102 | 2,165 063 | 1,299 038 | 0,866 025 | 0,433 013 |
| 4,5 | 3,897 114 | 2,435 696 | 1,461 418 | 0,974 279 | 0,487 139 |
| 5 | 4,330 127 | 2,706 329 | 1,623 798 | 1,082 532 | 0,541 266 |
| 5,5 | 4,763 140 | 2,976 962 | 1,786 177 | 1,190 785 | 0,595 392 |
| 6 | 5,196 152 | 3,247 595 | 1,948 557 | 1,299 038 | 0,649 519 |
| 8 | 6,928 203 | 4,330 127 | 2,598 076 | 1,732 051 | 0,866 025 |