International Standard

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Fourth edition
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ISO general purpose metric screw threads — Tolerances —

Part 2: Limits of sizes for internal and external threads (tolerance classes 6H and 6g for M1,6 to M100 and 5H and 6h for M1 to M1,4)

Filetages métriques ISO pour usages généraux — Tolérances —

Partie 2: Dimensions limites pour filetages intérieurs et extérieurs (classes de tolérance 6H et 6g pour M1,6 à M100 et 5H et 6h pour M1 à M1,4)

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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).

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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 fourth edition cancels and replaces the third edition (ISO 965-2:1998), which has been technically revised. It also incorporates the Amendment ISO 965-2:1998/Amd.1:2021.

The main changes are as follows:

— in Tables 1 and 2, the large nominal diameters (from 68 mm to 100 mm) have been added;

— in Tables 1 and 2, the normal lengths of thread engagement have been updated for M10×1, M12×1,5, M18×2, M20×2 and M22×2 (in Tables 3 and 4 in the previous edition).

A list of all parts in the ISO 965 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.

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ISO general purpose metric screw threads — Tolerances —

Part 2: Limits of sizes for internal and external threads (tolerance classes 6H and 6g for M1,6 to M100 and 5H and 6h for M1 to M1,4)

1 Scope

This document specifies the limits of sizes for pitch and crest diameters of ISO general purpose metric screw threads (M) conforming to ISO 262 having basic and design profiles according to ISO 68-1.

This document is applicable to the metric fastening screw threads with tolerance classes 6H and 6g for M1,6 to M100 and 5H and 6h for M1 to M1,4.

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

ISO 5408, *Screw threads — Vocabulary*

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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 Designation

A screw thread in conformity with this document shall be designated in accordance with ISO 965-1.

5 Limits of sizes

5.1 General

The limits of sizes specified shall be derived from the fundamental deviations and tolerances specified in ISO 965-1.

For coated threads, the tolerance classes shall apply to the parts before coating, unless otherwise stated.

After coating, the actual screw thread profile shall not, at any point, transgress the maximum material limit for the tolerance position H or h. A maximum torque can be given in the relevant coating product standards.

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When the maximum, or lower, torque is applied, the GO thread plug gauge shall pass through the coated internal threads or the GO thread ring gauge shall pass over the coated external threads.

NOTE These provisions are intended for thin coatings, e.g. those obtained by electroplating.

The root contours and truncations of screw threads shall be according to ISO 965-1.

5.2 Internal threads

Tolerance quality: Medium

Length group of thread engagement: Normal

Tolerance class:

— 5H for screw threads with nominal diameters up to and including 1,4 mm;

— 6H for screw threads with nominal diameters over 1,4 mm.

The limits of sizes for internal threads with the tolerance classes above shall be as specified in Table 1.

Table 1 — Limits of sizes for internal threads

Dimensions in millimetres

Nominal diameter D	Pitch P	Length of thread engagement		Pitch diameter D_2		Minor diameter D_1	
		over	up to and including	max.	min.	max.	min.
1	0,25	0,6	1,7	0,894	0,838	0,785	0,729
1,2	0,25	0,6	1,7	1,094	1,038	0,985	0,929
1,4	0,3	0,7	2	1,265	1,205	1,142	1,075
1,6	0,35	0,8	2,6	1,458	1,373	1,321	1,221
1,8	0,35	0,8	2,6	1,658	1,573	1,521	1,421
2	0,4	1	3	1,830	1,740	1,679	1,567
2,5	0,45	1,3	3,8	2,303	2,208	2,138	2,013
3	0,5	1,5	4,5	2,775	2,675	2,599	2,459
3,5	0,6	1,7	5	3,222	3,110	3,010	2,850
4	0,7	2	6	3,663	3,545	3,422	3,242
5	0,8	2,5	7,5	4,605	4,480	4,334	4,134
6	1	3	9	5,500	5,350	5,153	4,917
7	1	3	9	6,500	6,350	6,153	5,917
8	1	3	9	7,500	7,350	7,153	6,917
8	1,25	4	12	7,348	7,188	6,912	6,647
10	1	3	9	9,500	9,350	9,153	8,917
10	1,25	4	12	9,348	9,188	8,912	8,647
10	1,5	5	15	9,206	9,026	8,676	8,376
12	1,25	4,5	13	11,368	11,188	10,912	10,647
12	1,5	5,6	16	11,216	11,026	10,676	10,376
12	1,75	6	18	11,063	10,863	10,441	10,106
14	1,5	5,6	16	13,216	13,026	12,676	12,376
14	2	8	24	12,913	12,701	12,210	11,835
16	1,5	5,6	16	15,216	15,026	14,676	14,376
16	2	8	24	14,913	14,701	14,210	13,835

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