

ISO general purpose metric screw threads — Tolerances —

Part 3: Deviations for constructional screw threads

ICS 21.040.10

National foreword

This British Standard is the UK implementation of ISO 965-3:1998, incorporating corrigendum July 2009.

The start and finish of text introduced or altered by corrigendum is indicated in the text by tags. Text altered by ISO corrigendum July 2009 is indicated in the text by AC1 AC1.

The UK participation in its preparation was entrusted by Technical Committee FME/9, Fasteners, to Subcommittee FME/9/3, Product standards for fasteners.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

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ISO general purpose metric screw threads — Tolerances —

Part 3: Deviations for constructional screw threads

Filetages métriques ISO pour usages généraux — Tolérances —

Partie 3: Écarts pour filetages de construction



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Descriptors: Screw threads, ISO metric threads, dimensions, dimensional tolerances, dimensional deviations.

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.

ISO 965-3 was prepared by Technical Committee ISO/TC 1, *Screw threads*, Subcommittee 2, *Tolerances*.

This third edition cancels and replaces the second edition (ISO 965-3:1980), which has been technically revised.

ISO 965 consists of the following parts, under the general title *ISO general purpose metric screw threads — Tolerances*

- *Part 1: Principles and basic data;*
- *Part 2: Limits of sizes for general purpose bolt and nut threads — Medium quality;*
- *Part 3: Deviations for constructional screw threads;*
- *Part 4: Limits of sizes for hot-dip galvanized external threads to mate with internal threads tapped with tolerance position H or G after galvanizing;*
- *Part 5: Limits of sizes for internal screw threads to mate with hot-dip galvanized external screw threads with maximum size of tolerance position h before galvanizing.*

1 Scope

This part of ISO 965 specifies deviations for pitch and crest diameters for ISO general purpose metric screw threads (M) conforming to ISO 261 having basic profile AC1 in accordance with AC1 ISO 68-1.

The deviations specified are derived from the fundamental deviations and tolerances specified in ISO 965-1.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 965. 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 965 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.

AC1 *References deleted* AC1

AC1 ISO 5408, *Screw threads — Vocabulary* AC1

3 Definitions

For the purpose of this part of ISO 965 the definitions given in ISO 5408 apply.

4 Deviations

For internal threads as well as external threads, the actual root contour shall not in any point transgress the basic profile.

The tabulated deviation values for the minor diameter of the external thread are calculated on the basis of $\frac{H}{6}$ truncation and may be used for stress

calculations $\left[\text{deviation} = - \left(|es| + \frac{H}{6} \right) \right]$.

For coated threads, the tolerances apply to the parts before coating, unless otherwise stated. After coating the actual thread profile shall not in any point transgress the maximum material limits for position H or h respectively.

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

Table 1

ES, es = upper deviation; *EI, ei* = lower deviation

Basic major diameter		Pitch	Internal thread						External thread				
over	up to		Tolerance class	Pitch diameter		Minor diameter		Tolerance class	Pitch diameter		Major diameter		Minor diameter
				<i>ES</i>	<i>EI</i>	<i>ES</i>	<i>EI</i>		<i>es</i>	<i>ei</i>	<i>es</i>	<i>ei</i>	Deviation $-(es + \frac{H}{6})$ for stress calculation
mm	mm		mm		μm	μm	μm	μm		μm	μm	μm	μm
0,99	1,4	0,2	—	—	—	—	—	3h4h	0	−24	0	−36	−29
			4H	+ 40	0	+ 38	0	4h	0	−30	0	−36	−29
			5G	—	—	—	—	5g6g	−17	−55	−17	−73	−46
			5H	—	—	—	—	5h4h	0	−38	0	−36	−29
			—	—	—	—	—	5h6h	0	−38	0	−56	−29
			—	—	—	—	—	6e	—	—	—	—	—
			—	—	—	—	—	6f	—	—	—	—	—
			6G	—	—	—	—	6g	−17	−65	−17	−73	−46
			6H	—	—	—	—	6h	0	−48	0	−56	−29
			—	—	—	—	—	7e6e	—	—	—	—	—
			7G	—	—	—	—	7g6g	—	—	—	—	—
			7H	—	—	—	—	7h6h	—	—	—	—	—
			8G	—	—	—	—	8g	—	—	—	—	—
			8H	—	—	—	—	9g8g	—	—	—	—	—
		0,25	—	—	—	—	—	3h4h	0	−26	0	−42	−36
			4H	+ 45	0	+ 45	0	4h	0	−34	0	−42	−36
			5G	+ 74	+ 18	+ 74	+ 18	5g6g	−18	−60	−18	−85	−54
			5H	+ 56	0	+ 56	0	5h4h	0	−42	0	−42	−36
			—	—	—	—	—	5h6h	0	−42	0	−67	−36
			—	—	—	—	—	6e	—	—	—	—	—
			—	—	—	—	—	6f	—	—	—	—	—
			6G	—	—	—	—	6g	−18	−71	−18	−85	−54
			6H	—	—	—	—	6h	0	−53	0	−67	−36
			—	—	—	—	—	7e6e	—	—	—	—	—
			7G	—	—	—	—	7g6g	—	—	—	—	—
			7H	—	—	—	—	7h6h	—	—	—	—	—
			8G	—	—	—	—	8g	—	—	—	—	—
			8H	—	—	—	—	9g8g	—	—	—	—	—
		0,3	—	—	—	—	—	3h4h	0	−28	0	−48	−43
			4H	+ 48	0	+ 53	0	4h	0	−36	0	−48	−43
			5G	+ 78	+ 18	+ 85	+ 18	5g6g	−18	−63	−18	−93	−61
			5H	+ 60	0	+ 67	0	5h4h	0	−45	0	−48	−43
			—	—	—	—	—	5h6h	0	−45	0	−75	−43
			—	—	—	—	—	6e	—	—	—	—	—
			—	—	—	—	—	6f	—	—	—	—	—
			6G	+ 93	+ 18	+ 103	+ 18	6g	−18	−74	−18	−93	−61
			6H	+ 75	0	+ 85	0	6h	0	−56	0	−75	−43
			—	—	—	—	—	7e6e	—	—	—	—	—
			7G	—	—	—	—	7g6g	—	—	—	—	—
			7H	—	—	—	—	7h6h	—	—	—	—	—
			8G	—	—	—	—	8g	—	—	—	—	—
			8H	—	—	—	—	9g8g	—	—	—	—	—
1,4	2,8	0,2	—	—	—	—	—	3h4h	0	−25	0	−36	−29
			4H	+ 42	0	+ 38	0	4h	0	−32	0	−36	−29
			5G	—	—	—	—	5g6g	−17	−57	−17	−73	−46
			5H	—	—	—	—	5h4h	0	−40	0	−36	−29
			—	—	—	—	—	5h6h	0	−40	0	−56	−29