

ISO general purpose metric screw threads — Tolerances —

Part 1: Principles and basic data

ICS 21.040.10

National foreword

This British Standard is the UK implementation of ISO 965-1:1998, 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 1: Principles and basic data

Filetages métriques ISO pour usages généraux — Tolérances —

Partie 1: Principes et données fondamentales



Contents

	Page
Foreword	iii
1 Scope	1
2 Normative references	1
3 Definitions and symbols	1
3.1 Definitions	1
3.2 Symbols	2
4 Structure of the tolerance system	2
5 Designation	3
5.1 General	3
5.2 Designation of single-start screw threads	3
5.3 Designation of multiple-start screw threads	4
5.4 Designation of the left hand threads	5
6 Tolerance grades	5
7 Tolerance positions	5
8 Lengths of thread engagement	8
9 Crest diameter tolerances	10
9.1 Minor diameter tolerances of internal threads (T_{D1})	10
9.2 Major diameter tolerance of external thread (T_d)	10
10 Pitch diameter tolerances	11
11 Root contours	14
12 Recommended tolerance classes	15
13 Formulae	16
13.1 Fundamental deviations	16
13.2 Length of thread engagement	16
13.3 Crest diameter tolerances	17
13.3.1 Tolerances for major diameter of external thread (T_d), grade 6	17
13.3.2 Tolerances for minor diameter of internal thread (T_{D1}), grade 6	17
13.4 Pitch diameter tolerances	17
13.4.1 Tolerances for pitch diameter of external thread (T_{d2})	17
13.4.2 Tolerances for pitch diameter of internal thread (T_{D2})	17
Figure 1 — Position of tolerances with respect to zero line (basic size)	2
Figure 2 — Internal threads with tolerance position G	5
Figure 3 — Internal threads with tolerance position H	5
Figure 4 — External threads with tolerance positions e, f and g	6
Figure 5 — External threads with tolerance position h	7
Figure 6 — External root profile	14
Table 1 — Fundamental deviations for internal threads and external threads	8
Table 2 — Lengths of thread engagement	9
Table 3 — Minor diameter tolerance of internal thread (T_{D1})	10
Table 4 — Major diameter tolerance of external thread (T_d)	11
Table 5 — Pitch diameter tolerance of internal thread (T_{D2})	12
Table 6 — Pitch diameter tolerance of external thread (T_{d2})	13
Table 7 — Minimum root radii	15
Table 8 — Recommended tolerance classes for internal threads	16
Table 9 — Recommended tolerance classes for external threads	16

Descriptors: Screw threads, ISO metric threads, form specifications, dimensional tolerances, designation, generalities.

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

This third edition cancels and replaces the second edition (ISO 965-1:1980), 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

AC1 This part of ISO 965 specifies a tolerance system for ISO general purpose metric screw threads (M) conforming to ISO 261. **AC1**

The tolerance system refers to the basic profile in accordance with ISO 68-1.

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 ISO 68-1, *ISO general purpose screw threads — Basic profile — Part 1: Metric screw threads*.

ISO 261, *ISO general purpose metric screw threads — General plan*.

ISO 262, *ISO general purpose metric screw threads — Selected sizes for screws, bolts and nuts*.

ISO 724, *ISO general purpose metric screw threads — Basic dimensions*.

Text deleted **AC1**

AC1 ISO 965-2, *ISO general purpose metric screw threads — Tolerances — Part 2: Limits of sizes for general purpose external and internal screw threads — Medium quality*

ISO 956-3, *ISO general purpose metric screw threads — Tolerances — Part 3: Deviations for constructional screw threads*.

ISO 1502, *ISO general purpose metric screw threads — Gauges and gauging*.

ISO 5408, *Screw threads — Vocabulary* **AC1**

3 Definitions and symbols

3.1 Definitions

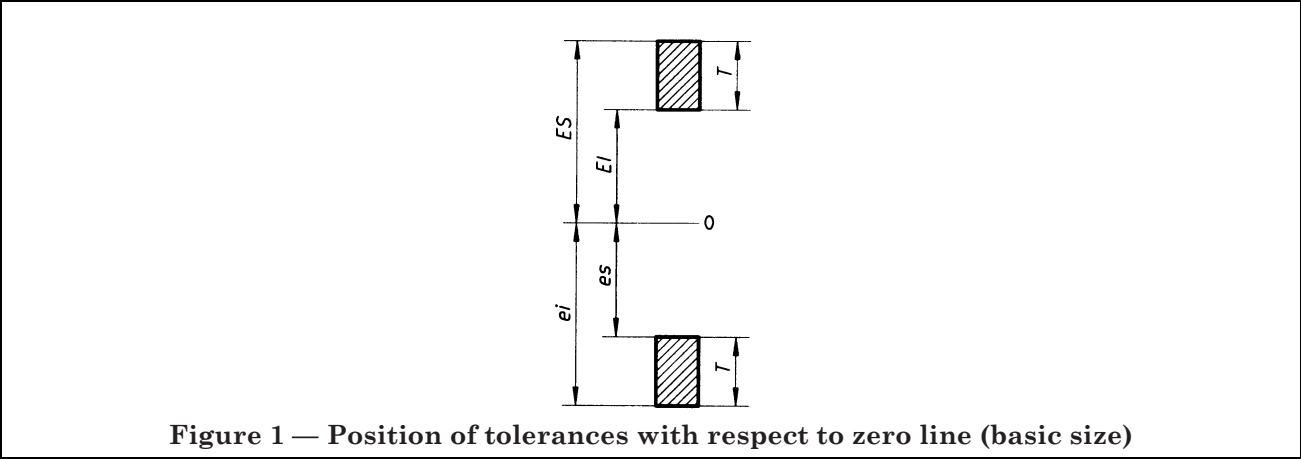
For the purpose of this part of ISO 965 the definitions given in ISO 5408 apply.

AC1 Footnote deleted **AC1**

3.2 Symbols

The following symbols are used:

Symbol	Explanation
D	basic major diameter of internal thread
D_1	basic minor diameter of internal thread
D_2	basic pitch diameter of internal thread
d	basic major diameter of external thread
d_1	basic minor diameter of external thread
d_2	basic pitch diameter of external thread
d_3	minor diameter of external thread
P	pitch
Ph	lead
H	height of fundamental triangle
S	designation for thread engagement group “short”
N	designation for thread engagement group “normal”
L	designation for thread engagement group “long”
T	tolerance
$\boxed{\text{AC1}} T_{D1}, T_{D2}$ $T_d, T_{d2} \boxed{\text{AC1}}$	tolerances for D_1, D_2, d, d_2
ei, EI es, ES	lower deviations (see Figure 1) upper deviations (see Figure 1)
R	root radius of external thread
C	root truncation of external thread



4 Structure of the tolerance system

The system gives tolerances defined by tolerance grades and tolerance positions and a selection of grades and positions.

The system provides for:

- a) a series of tolerance grades for each of the four screw thread diameters, as follows:

	Tolerance grades
D_1	4, 5, 6, 7, 8
d	4, 6, 8
D_2	4, 5, 6, 7, 8
d_2	3, 4, 5, 6, 7, 8, 9