

## DIN ISO 965-1



ICS 21.040.10

Supersedes  
DIN ISO 965-1:1999-11

**ISO general purpose metric screw threads –  
Tolerances –  
Part 1: Principles and basic data (ISO 965-1:2013),  
English translation of DIN ISO 965-1:2017-05**

Metrisches ISO-Gewinde allgemeiner Anwendung –  
Toleranzen –

Teil 1: Prinzipien und Grundlagen (ISO 965-1:2013),  
Englische Übersetzung von DIN ISO 965-1:2017-05

Filetages métriques ISO pour usages généraux –  
Tolérances –

Partie 1: Principes et données fondamentales (ISO 965-1:2013),  
Traduction anglaise de DIN ISO 965-1:2017-05

Document comprises 25 pages

Translation by DIN-Sprachendienst.

In case of doubt, the German-language original shall be considered authoritative.

*A comma is used as the decimal marker.*

## Contents

|                                                                | Page |
|----------------------------------------------------------------|------|
| National foreword .....                                        | 3    |
| National Annex NA (informative) Bibliography .....             | 4    |
| Foreword .....                                                 | 5    |
| 1 Scope .....                                                  | 6    |
| 2 Normative references .....                                   | 6    |
| 3 Terms, definitions and symbols .....                         | 6    |
| 3.1 Terms and definitions .....                                | 6    |
| 3.2 Symbols .....                                              | 6    |
| 4 Tolerance system .....                                       | 7    |
| 5 Tolerance positions .....                                    | 8    |
| 6 Tolerance grades .....                                       | 10   |
| 7 Lengths of thread engagement .....                           | 14   |
| 8 Recommended tolerance classes .....                          | 15   |
| 8.1 General .....                                              | 15   |
| 8.2 Tolerance quality .....                                    | 15   |
| 8.3 Preference order .....                                     | 16   |
| 8.4 Combination of internal threads and external threads ..... | 16   |
| 8.5 Coated threads .....                                       | 16   |
| 9 Multiple-start threads .....                                 | 17   |
| 10 Formulae .....                                              | 17   |
| 10.1 General .....                                             | 17   |
| 10.2 Fundamental deviations .....                              | 17   |
| 10.3 Crest diameter tolerances .....                           | 18   |
| 10.4 Pitch diameter tolerances .....                           | 19   |
| 10.5 Length of thread engagement .....                         | 20   |
| 11 Root contours .....                                         | 20   |
| 12 Designation .....                                           | 22   |
| 12.1 General .....                                             | 22   |
| 12.2 Designation of single-start screw threads .....           | 22   |
| 12.3 Designation of multiple-start screw threads .....         | 24   |
| 12.4 Designation of left-hand threads .....                    | 24   |
| Bibliography .....                                             | 25   |

## National foreword

ISO 965-1:2013 has been adopted in this standard without any modification. This document has been prepared by Technical Committee ISO/TC 1 “Screw threads” (Secretariat: SAC, China).

The responsible German body involved in its preparation was *DIN-Normenausschuss Technische Grundlagen* (DIN Standards Committee Technical Fundamentals), Working Committee NA 152-02-01 AA “Screw threads”.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. DIN shall not be held responsible for identifying any or all such patent rights.

The standard series DIN ISO 965, “ISO general purpose metric screw threads — Tolerances” consists of the following parts:

- *Part 1: Principles and basic data*
- *Part 2: Limits of sizes for general purpose external and internal screw threads — Medium quality*
- *Part 3: Deviations for constructional threads*
- *Part 4: Limits of sizes for hot-dip galvanized external screw threads to mate with internal screw 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*

The DIN Standards corresponding to the International Standards referred to in this document are as follows:

|           |                  |
|-----------|------------------|
| ISO 68-1  | DIN ISO 68-1     |
| ISO 261   | DIN ISO 261      |
| ISO 898-1 | DIN EN ISO 898-1 |
| ISO 1502  | DIN ISO 1502     |

Further information for the use of this document is given in the national footnotes:

- N1) Pitch and lead are identical ( $P = Ph$ ) in multiple-start threads.
- N2) The designation of the zero lines in Figures 4 and 5 as “o” which had been incorrect in ISO 965-1:2013 unfortunately could not be corrected in this DIN standard.
- N3) The tolerances of the crest diameter of the external thread  $T_{d3}$  are numerically increased by the same amount as tolerance  $T_{d2}$ .
- N4) With  $C_{\min}$ , the result is:  $d_{3\min} = d_2 - |es| - T_{d2} - H + 0,25 P$ .

## **Amendments**

This standard differs from DIN ISO 965-1:1999-11 as follows:

- a) tolerance positions a, b, c and d for external threads have been included;
- b) fundamental deviations for tolerance positions G and g have been corrected as concerns lead 0,2;
- c) the term “multiple-start threads” has been extended (*Ph* can be dropped);
- d) Clause 9 “Multiple-start threads” including Table 9 with factors for multiple-start threads for the determination of tolerances has been included;
- e) the standard has been editorially revised.

## **Previous editions**

DIN 40404: 1957-11

DIN 13-32: 1960-10, 1962-10, 1964-06, 1965-07

DIN 13-14: 1952-01, 1972-03, 1982-08

DIN 13-15: 1952-01, 1972-03, 1982-08

DIN ISO 965-1: 1999-11

## **National Annex NA** (informative)

## **Bibliography**

DIN EN ISO 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs with specified property classes — Coarse thread and fine pitch thread*

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

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

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