This is a preview of "BS 3643-1:2007". Click here to purchase the full version from the ANSI store.

**BRITISH STANDARD** 

# **ISO metric screw threads**

# **Part 1: Principles and basic data**

ICS 21.040.10



NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

# This is a preview of "BS 3643-1:2007". Click here to purchase the full version from the ANSI store.

The BSI copyright notice displayed in this document indicates when the document was last issued.

 $\odot$  BSI 2009

ISBN 978 0 580 68655 9

The following BSI references relate to the work on this standard: Committee reference FME/9 Draft for comment 07/30158486 DC

#### **Publication history**

First published June 1963 Second edition, March 1981 Third edition, November 2007

## Amendments issued since publication

Amd. no.	Date	Text affected
C1	August 2009	Figure A.1b corrected
		Annex B, Example 1, $d_3$ corrected to $d_1$ in four places
		Annex B, Example 2, correction to

formula for maximum pitch diameter

## This is a preview of "BS 3643-1:2007". Click here to purchase the full version from the ANSI store.

#### Foreword *iii*

- 1 Scope 1
- 2 Normative references 1
- **3** Terms and definitions and symbols *1*
- 4 Basic profile 2
- **5** General plan 5
- **6** Basic dimensions *8*
- 7 Tolerances Principles and basic data 18
- 8 Tolerances Deviations for constructional threads 35
- **9** Tolerances 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 53
- 10 Tolerances 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 55

#### Annexes

Annex A (informative) Notes for guidance 60 Annex B (informative) Examples of calculations of limits of size for metric screw threads 65

Bibliography 68

#### List of figures

- Figure 1 Basic profile of ISO metric thread 3
- Figure 2 Basic dimensions 8

Figure 3 – Tolerance positions with respect to zero line (basic size) 19

- Figure 4 Internal threads with tolerance position G 21
- Figure 5 Internal threads with tolerance position H 22

Figure 6 – External threads with tolerance positions e, f and g 22

Figure 7 – External threads with tolerance position h 23

Figure 8 – External root profile 31

Figure A.1 – Maximum material profiles for internal and external threads 61

Figure B.1 – Illustration of limits of size for external thread (see Example 1) 66

#### List of tables

Table 1 – Basic profile dimensions4

Table 2 – Maximum nominal diameter5

Table 3 – Diameter/pitch combinations 6

Table 4 – Basic dimensions 9

Table 5 – Fundamental deviations for internal threads and external

threads 24

Table 6 – Lengths of thread engagement 25

Table 7 – Minor diameter tolerances of internal threads  $(T_{D1})$  26

Table 8 – Major diameter tolerances of external threads  $(T_d)$  27

Table 9 – Pitch diameter tolerances of internal threads  $(T_{D2})$  28

Table 10 – Pitch diameter tolerances of external threads  $(T_{d2})$  29

Table 11 – Minimum root radii 31

Table 12 – Recommended tolerance classes for internal threads 32

Table 13 – Recommended tolerance classes for external threads 32

Table 14 – Deviations 36

Table 15 – Deviations for hot-dip galvanized external threads 54