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मानक

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IS 7008-1 (1999): ISO Metric Trapezoidal Screw Threads, Part 1: Basic Profile and Maximum Material Profile [PGD 20: Engineering Standards]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक

आई. एस. ओ. मीट्रिक समलम्बी पेंच चूड़ियां
भाग 1 आधारभूत प्रोफाइल और अधिकतम सामग्री प्रोफाइल
(दूसरा पुनरीक्षण)

Indian Standard

ISO METRIC TRAPEZOIDAL SCREW THREADS

PART 1 BASIC PROFILE AND MAXIMUM MATERIAL PROFILE

(Second Revision)

ICS 21.040.10

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

NATIONAL FOREWORD

This Indian Standard (Part 1) (Second Revision) which is identical with ISO 2901 : 1993 'ISO metric trapezoidal screw threads — Basic profile and maximum material profiles', issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendation of the Engineering Standards Sectional Committee and approval of the Light Mechanical Engineering Division Council.

This standard was originally issued in 1973 and subsequently revised in 1988. The first revision was harmonized with ISO Standard by adopting ISO 2901 : 1977. This second revision has been taken up to align it with the latest version of ISO 2901, which has been technically revised in 1993.

The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. In the adopted standard certain conventions are not identical to those used in Indian Standards; attention is especially drawn to the following:

- a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
- b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a full point (.) as the decimal marker.

In this adopted standard, reference appears to one International Standard for which Indian Standard also exists. The corresponding Indian Standard which is to be substituted in its place is listed below along with its degree of equivalence for the editions indicated:

<i>International Standard</i>	<i>Corresponding Indian Standard</i>	<i>Degree of Equivalence</i>
ISO 2903 : 1993	IS 7008 (Part 4) : 1999 ISO metric trapezoidal screw threads: Part 4 Tolerances (<i>second revision</i>)	Identical

This standard (Part 1) covers the requirements of basic profile and maximum material profile for ISO metric trapezoidal screw threads. The other parts covering various aspects of the ISO metric trapezoidal screw threads are given as under:

<i>IS No.</i>	<i>Title</i>
IS 7008 (Part 2) : 1988	ISO metric trapezoidal screw threads: Part 2 Pitch diameter combination (<i>first revision</i>)
IS 7008 (Part 3) : 1988	ISO metric trapezoidal screw threads: Part 3 Basic dimensions (<i>first revision</i>)
IS 7008 (Part 4) : 1999	ISO metric trapezoidal screw threads: Part 4 Tolerances (<i>second revision</i>)
IS 7684 : 1975	Limits of sizes for ISO metric trapezoidal nut threads (diameter range 8 to 100 mm)
IS 7685 : 1975	Limits of sizes for ISO metric trapezoidal bolts threads (diameter range 8 to 100 mm)
IS 7726 : 1975	Limits of sizes for ISO metric trapezoidal nut threads (diameter range 105 to 300 mm)
IS 7727 : 1975	Limits of sizes for ISO metric trapezoidal bolts threads (diameter range 105 to 300 mm)

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard
ISO METRIC TRAPEZOIDAL SCREW THREADS
PART 1 BASIC PROFILE AND MAXIMUM MATERIAL PROFILE
(Second Revision)

1 Scope

This International Standard specifies the basic profile and maximum material profiles of ISO metric trapezoidal screw threads.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2903:—¹⁾, *ISO metric trapezoidal screw threads — Tolerances.*

3 Symbols

- D major diameter of internal thread
- d major diameter of external thread (nominal diameter)

- D_2 pitch diameter of internal thread
- d_2 pitch diameter of external thread
- D_1 minor diameter of internal thread
- d_1 minor diameter of external thread
- P pitch
- H height of fundamental triangle
- H_1 height of basic profile
- a_c crest clearance
- es fundamental deviation on external threads²⁾

4 Basic profile

The basic profile is the theoretical profile, and this is associated with the basic sizes of the major, pitch and minor diameters of the thread. The deviations are applied to the basic sizes.

5 Basic profile dimensions

These dimensions are shown in figure 1 and given in table 1.

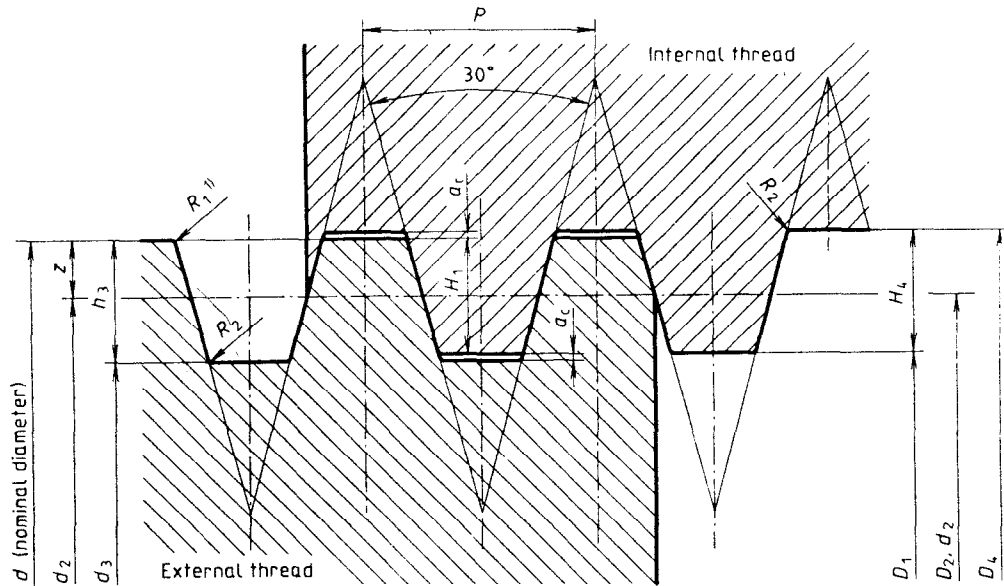
1) To be published. (Revision of ISO 2903:1977)

2) See ISO 2903:1993, table 1.

Table 1 — Basic profile dimensions

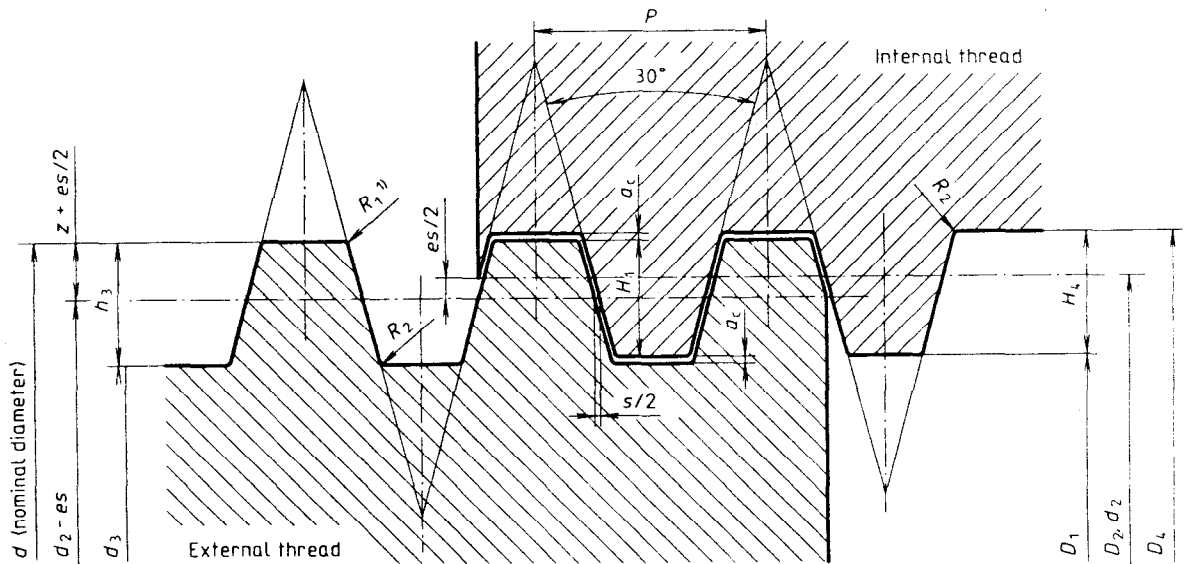
Dimensions in millimetres

Pitch <i>P</i>	<i>H</i> 1,866 <i>P</i>	<i>H</i> /2 0,933 <i>P</i>	<i>H</i> ₁ 0,5 <i>P</i>	0,366 <i>P</i>
1,5	2,799	1,400	0,75	0,549
2	3,732	1,866	1	0,732
3	5,598	2,799	1,5	1,098
4	7,464	3,732	2	1,464
5	9,330	4,665	2,5	1,830
6	11,196	5,598	3	2,196
7	13,062	6,531	3,5	2,562
8	14,928	7,464	4	2,928
9	16,794	8,397	4,5	3,294
10	18,660	9,330	5	3,660
12	22,392	11,196	6	4,392
14	26,124	13,062	7	5,124
16	29,856	14,928	8	5,856
18	33,588	16,794	9	6,588
20	37,320	18,660	10	7,320
22	41,052	20,526	11	8,052
24	44,784	22,392	12	8,784
28	52,248	26,124	14	10,248
32	59,712	29,856	16	11,712
36	67,176	33,588	18	13,176
40	74,640	37,320	20	14,640
44	82,104	41,052	22	16,104



1) It is recommended to provide for a rounding or a chamfer equal to $0,5a_c$ or less at the major diameter of the external threads. For rolled screw threads with pitch 2 to 12, it is recommended to provide for a rounding or a chamfer equal to $0,6a_c$ or less at the major diameter of the external threads.

Figure 2 — Profiles for threads with clearance on the crest and without clearance on the flank



1) It is recommended to provide for a rounding or a chamfer equal to $0,5a_c$ or less at the major diameter of the external threads. For rolled screw threads with pitch 2 to 12, it is recommended to provide for a rounding or a chamfer equal to $0,6a_c$ or less at the major diameter of the external threads.

Figure 3 — Profiles for threads with clearance on the crest and on the flank

Table 2 — Dimensions for maximum material profiles

Dimensions in millimetres

Pitch <i>P</i>	a_c	$H_4 = h_3$	R_1 max.	R_2 max.
1,5	0,15	0,9	0,075	0,15
2	0,25	1,25	0,125	0,25
3	0,25	1,75	0,125	0,25
4	0,25	2,25	0,125	0,25
5	0,25	2,75	0,125	0,25
6	0,5	3,5	0,25	0,5
7	0,5	4	0,25	0,5
8	0,5	4,5	0,25	0,5
9	0,5	5	0,25	0,5
10	0,5	5,5	0,25	0,5
12	0,5	6,5	0,25	0,5
14	1	8	0,5	1
16	1	9	0,5	1
18	1	10	0,5	1
20	1	11	0,5	1
22	1	12	0,5	1
24	1	13	0,5	1
28	1	15	0,5	1
32	1	17	0,5	1
36	1	19	0,5	1
40	1	21	0,5	1
44	1	23	0,5	1

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Handbook' and 'Standards: Monthly Additions'.

This Indian Standard has been developed from Doc : No. LM 01 (0369).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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