

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 725

ISO INCH SCREW THREADS

BASIC DIMENSIONS

1st EDITION
May 1968

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Printed in Switzerland

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BRIEF HISTORY

The ISO Recommendation R 725, *ISO inch screw threads – Basic dimensions*, was drawn up by Technical Committee ISO/TC 1, *Screw threads*, the Secretariat of which is held by the Sveriges Standardiseringskommission (SIS).

Work on this question by the Technical Committee began in 1962 and led, in 1964, to the adoption of a Draft ISO Recommendation.

In September 1965, this Draft ISO Recommendation (No. 783) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Argentina	France	South Africa,
Australia	Hungary	Rep. of
Austria	India	Spain
Belgium	Israel	Sweden
Brazil	Japan	Switzerland
Canada	Netherlands	Turkey
Chile	New Zealand	U.A.R.
Czechoslovakia	Norway	United Kingdom
Denmark	Poland	U.S.A.
Finland	Romania	Yugoslavia

One Member Body opposed the approval of the Draft :

Germany

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council which decided, in May 1968, to accept it as an ISO RECOMMENDATION.

ISO INCH SCREW THREADS

BASIC DIMENSIONS

1. SCOPE

This ISO Recommendation tabulates the basic dimensions for ISO inch screw threads according to ISO Recommendation R 263, *ISO inch screw threads – General plan and selection for screws, bolts and nuts (diameter range 0.06 to 6 in)*.

2. APPLICATION

When inch units are given in a national standard, the values should preferably be rounded to four decimal places.

When a conversion to metric units is required, the following rules should be applied :

- (1) multiply the relevant figure, found in the Tables, by 25.4;
- (2) round the value obtained to three decimal places.

3. CALCULATION

The values given in this ISO Recommendation have been calculated from the following formulae. The values have been given to six decimal places in order to enable a proper conversion to metric units (see section 2).

$$D_2 = D - 2 \times \frac{3}{8} H = D - \frac{0.649\,519\,053}{n} \text{ in}$$

$$d_2 = d - 2 \times \frac{3}{8} H = d - \frac{0.649\,519\,053}{n} \text{ in}$$

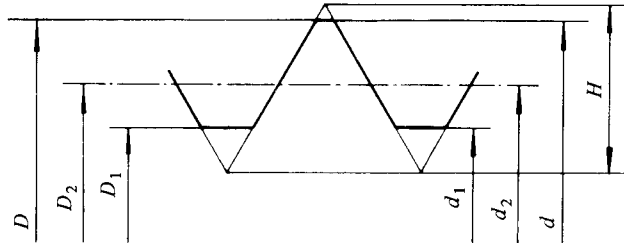
$$D_1 = D - 2 \times \frac{5}{8} H = D - \frac{1.082\,531\,755}{n} \text{ in}$$

$$d_1 = d - 2 \times \frac{5}{8} H = d - \frac{1.082\,531\,755}{n} \text{ in}$$

where

- D is the basic major diameter for internal threads,
- D_2 is the basic pitch diameter for internal threads,
- D_1 is the basic minor diameter for internal threads,
- d is the basic major diameter for external threads,
- d_2 is the basic pitch diameter for external threads,
- d_1 is the basic minor diameter for external threads,
- H is the height of fundamental triangle,
- n is the number of threads per inch.

4. BASIC DIMENSIONS IN INCHES



Sizes	Number of threads per inch <i>n</i>	Major diameter <i>D, d</i>	Pitch diameter <i>D₂, d₂</i>	Minor diameter <i>D₁, d₁</i>
No. 0	80	0.060 000	0.051 881	0.046 468
No. 1	72 64	0.073 000	0.063 979 0.062 851	0.057 965 0.056 085
No. 2	64 56	0.086 000	0.075 851 0.074 401	0.069 085 0.066 669
No. 3	56 48	0.099 000	0.087 401 0.085 468	0.079 669 0.076 447
No. 4	48 40	0.112 000	0.098 468 0.095 762	0.089 447 0.084 937
No. 5	44 40	0.125 000	0.110 238 0.108 762	0.100 397 0.097 937
No. 6	40 32	0.138 000	0.121 762 0.117 703	0.110 937 0.104 171
No. 8	36 32	0.164 000	0.145 958 0.143 703	0.133 930 0.130 171
No. 10	32 24	0.190 000	0.169 703 0.162 937	0.156 171 0.144 895
No. 12	32 28 24	0.216 000	0.195 703 0.192 803 0.188 937	0.182 171 0.177 338 0.170 895
1/4	32 28 20	0.250 000	0.229 703 0.226 803 0.217 524	0.216 171 0.211 338 0.195 873
5/16	32 28 24 20 18	0.312 500	0.292 203 0.289 303 0.285 437 0.280 024 0.276 416	0.278 671 0.273 838 0.267 395 0.258 373 0.252 359
3/8	32 28 24 20 16	0.375 000	0.354 703 0.351 803 0.347 937 0.342 524 0.334 405	0.341 171 0.336 338 0.329 895 0.320 873 0.307 342
7/16	32 28 20 16 14	0.437 500	0.417 203 0.414 303 0.405 024 0.396 905 0.391 106	0.403 671 0.398 838 0.383 373 0.369 842 0.360 176