UDC 621.882.082

Ref. No. : ISO/R 725-1968 (E)

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 725

ISO INCH SCREW THREADS

BASIC DIMENSIONS

1st EDITION
May 1968

For each individual country the only valid standard is the national standard of that country.

Printed in Switzerland

Also issued in French and Russian. Copies to be obtained through the national standards organizations.

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

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 Recommendation R 725 May 1968

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).

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

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

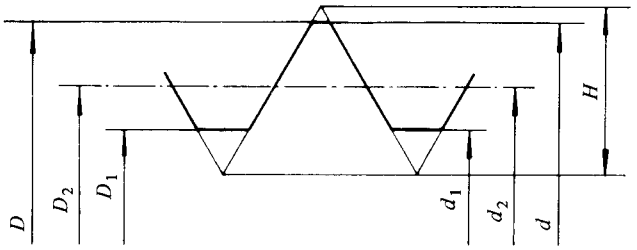
$$D_1 = D - 2 \times 5/8\,H = D - \frac{1.082\,531\,755}{n} \text{ in}$$

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

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 n	Major diameter D, d	Pitch diameter D_2, d_2	Minor diameter D_1, d_1
No. 0	80	0.060 000	0.051 881	0.046 468
No. 1	72	0.073 000	0.063 979	0.057 965
	64		0.062 851	0.056 085
No. 2	64	0.086 000	0.075 851	0.069 085
	56		0.074 401	0.066 669
No. 3	56	0.099 000	0.087 401	0.079 669
	48		0.085 468	0.076 447
No. 4	48	0.112 000	0.098 468	0.089 447
	40		0.095 762	0.084 937
No. 5	44	0.125 000	0.110 238	0.100 397
	40		0.108 762	0.097 937
No. 6	40	0.138 000	0.121 762	0.110 937
	32		0.117 703	0.104 171
No. 8	36	0.164 000	0.145 958	0.133 930
	32		0.143 703	0.130 171
No. 10	32	0.190 000	0.169 703	0.156 171
	24		0.162 937	0.144 895
No. 12	32	0.216 000	0.195 703	0.182 171
	28		0.192 803	0.177 338
	24		0.188 937	0.170 895
1/4	32	0.250 000	0.229 703	0.216 171
	28		0.226 803	0.211 338
	20		0.217 524	0.195 873
5/16	32	0.312 500	0.292 203	0.278 671
	28		0.289 303	0.273 838
	24		0.285 437	0.267 395
	20		0.280 024	0.258 373
	18		0.276 416	0.252 359
3/8	32	0.375 000	0.354 703	0.341 171
	28		0.351 803	0.336 338
	24		0.347 937	0.329 895
	20		0.342 524	0.320 873
	16		0.334 405	0.307 342
7/16	32	0.437 500	0.417 203	0.403 671
	28		0.414 303	0.398 838
	20		0.405 024	0.383 373
	16		0.396 905	0.369 842
	14		0.391 106	0.360 176

4. BASIC DIMENSIONS IN INCHES *(continued)*

Sizes	Number of threads per inch n	Major diameter D, d	Pitch diameter D_2, d_2	Minor diameter D_1, d_1
1/2	32	0.500 000	0.479 703	0.466 171
	28		0.476 803	0.461 338
	20		0.467 524	0.445 873
	16		0.459 405	0.432 342
	13		0.450 037	0.416 728
9/16	32	0.562 500	0.542 203	0.528 671
	28		0.539 303	0.523 838
	24		0.535 437	0.517 395
	20		0.530 024	0.508 373
	18		0.526 416	0.502 359
	16		0.521 905	0.494 842
	12		0.508 373	0.472 289
5/8	32	0.625 000	0.604 703	0.591 171
	28		0.601 803	0.586 338
	24		0.597 937	0.579 895
	20		0.592 524	0.570 873
	18		0.588 916	0.564 859
	16		0.584 405	0.557 342
	12		0.570 873	0.534 789
	11		0.565 953	0.526 588
11/16	32	0.687 500	0.667 203	0.653 671
	28		0.664 303	0.648 838
	24		0.660 437	0.642 395
	20		0.655 024	0.633 373
	16		0.646 905	0.619 842
	12		0.633 373	0.597 289
3/4	32	0.750 000	0.729 703	0.716 171
	28		0.726 803	0.711 338
	20		0.717 524	0.695 873
	16		0.709 405	0.682 342
	12		0.695 873	0.659 789
	10		0.685 048	0.641 747
13/16	32	0.812 500	0.792 203	0.778 671
	28		0.789 303	0.773 838
	20		0.780 024	0.758 373
	16		0.771 905	0.744 842
	12		0.758 373	0.722 289
7/8	32	0.875 000	0.854 703	0.841 171
	28		0.851 803	0.836 338
	20		0.842 524	0.820 873
	16		0.834 405	0.807 342
	14		0.828 606	0.797 676
	12		0.820 873	0.784 789
	9		0.802 831	0.754 719
15/16	32	0.937 500	0.917 203	0.903 671
	28		0.914 303	0.898 838
	20		0.905 024	0.883 373
	16		0.896 905	0.869 842
	12		0.883 373	0.847 289

4. BASIC DIMENSIONS IN INCHES *(continued)*

Sizes	Number of threads per inch n	Major diameter D, d	Pitch diameter D_2, d_2	Minor diameter D_1, d_1
1	32	1.000 000	0.979 703	0.966 171
	28		0.976 803	0.961 338
	20		0.967 524	0.945 873
	16		0.959 405	0.932 342
	12		0.945 873	0.909 789
	8		0.918 810	0.864 684
1 1/16	28	1.062 500	1.039 303	1.023 838
	20		1.030 024	1.008 373
	18		1.026 416	1.002 359
	16		1.021 905	0.994 842
	12		1.008 373	0.972 289
	8		0.981 310	0.927 184
1 1/8	28	1.125 000	1.101 803	1.086 338
	20		1.092 524	1.070 873
	18		1.088 916	1.064 859
	16		1.084 405	1.057 342
	12		1.070 873	1.034 789
	8		1.043 810	0.989 684
	7		1.032 212	0.970 353
1 3/16	28	1.187 500	1.164 303	1.148 838
	20		1.155 024	1.133 373
	18		1.151 416	1.127 359
	16		1.146 905	1.119 842
	12		1.133 373	1.097 289
	8		1.106 310	1.052 184
1 1/4	28	1.250 000	1.226 803	1.211 338
	20		1.217 524	1.195 873
	18		1.213 916	1.189 859
	16		1.209 405	1.182 342
	12		1.195 873	1.159 789
	8		1.168 810	1.114 684
	7		1.157 212	1.095 353
1 5/16	28	1.312 500	1.289 303	1.273 838
	20		1.280 024	1.258 373
	18		1.276 416	1.252 359
	16		1.271 905	1.244 842
	12		1.258 373	1.222 289
	8		1.231 310	1.177 184
1 3/8	28	1.375 000	1.351 803	1.336 338
	20		1.342 524	1.320 873
	18		1.338 916	1.314 859
	16		1.334 405	1.307 342
	12		1.320 873	1.284 789
	8		1.293 810	1.239 684
	6		1.266 747	1.194 578

4. BASIC DIMENSIONS IN INCHES *(continued)*

Sizes	Number of threads per inch n	Major diameter D, d	Pitch diameter D_2, d_2	Minor diameter D_1, d_1
1 7/16	28	1.437 500	1.414 303	1.398 838
	20		1.405 024	1.383 373
	18		1.401 416	1.377 359
	16		1.396 905	1.369 842
	12		1.383 373	1.347 289
	8		1.356 310	1.302 184
	6		1.329 247	1.257 078
1 1/2	28	1.500 000	1.476 803	1.461 338
	20		1.467 524	1.445 873
	18		1.463 916	1.439 859
	16		1.459 405	1.432 342
	12		1.445 873	1.409 789
	8		1.418 810	1.364 684
	6		1.391 747	1.319 578
1 9/16	20	1.562 500	1.530 024	1.508 373
	18		1.526 416	1.502 359
	16		1.521 905	1.494 842
	12		1.508 373	1.472 289
	8		1.481 310	1.427 184
	6		1.454 247	1.382 078
1 5/8	20	1.625 000	1.592 524	1.570 873
	18		1.588 916	1.564 859
	16		1.584 405	1.557 342
	12		1.570 873	1.534 789
	8		1.543 810	1.489 684
	6		1.516 747	1.444 578
1 11/16	20	1.687 500	1.655 024	1.633 373
	18		1.651 416	1.627 359
	16		1.646 905	1.619 842
	12		1.633 373	1.597 289
	8		1.606 310	1.552 184
	6		1.579 247	1.507 078
1 3/4	20	1.750 000	1.717 524	1.695 873
	16		1.709 405	1.682 342
	12		1.695 873	1.659 789
	8		1.668 810	1.614 684
	6		1.641 747	1.569 578
	5		1.620 062	1.533 494
1 13/16	20	1.812 500	1.780 024	1.758 373
	16		1.771 905	1.744 842
	12		1.758 373	1.722 289
	8		1.731 310	1.677 184
	6		1.704 247	1.632 078
1 7/8	20	1.875 000	1.842 524	1.820 873
	16		1.834 405	1.807 342
	12		1.820 873	1.784 789
	8		1.793 810	1.739 684
	6		1.766 747	1.694 578

4. BASIC DIMENSIONS IN INCHES *(continued)*

Sizes	Number of threads per inch n	Major diameter D, d	Pitch diameter D_2, d_2	Minor diameter D_1, d_1
1 15/16	20	1.937 500	1.905 024	1.883 373
	16		1.896 905	1.869 842
	12		1.883 373	1.847 289
	8		1.856 310	1.802 184
	6		1.829 247	1.757 078
2	20	2.000 000	1.967 524	1.945 873
	16		1.959 405	1.932 342
	12		1.945 873	1.909 789
	8		1.918 810	1.864 684
	6		1.891 747	1.819 578
	4 1/2		1.855 662	1.759 437
2 1/8	20	2.125 000	2.092 524	2.070 873
	16		2.084 405	2.057 342
	12		2.070 873	2.034 789
	8		2.043 810	1.989 684
	6		2.016 747	1.944 578
2 1/4	20	2.250 000	2.217 524	2.195 873
	16		2.209 405	2.182 342
	12		2.195 873	2.159 789
	8		2.168 810	2.114 684
	6		2.141 747	2.069 578
	4 1/2		2.105 662	2.009 437
2 3/8	20	2.375 000	2.342 524	2.320 873
	16		2.334 405	2.307 342
	12		2.320 873	2.284 789
	8		2.293 810	2.239 684
	6		2.266 747	2.194 578
2 1/2	20	2.500 000	2.467 524	2.445 873
	16		2.459 405	2.432 342
	12		2.445 873	2.409 789
	8		2.418 810	2.364 684
	6		2.391 747	2.319 578
	4		2.337 620	2.229 367
2 5/8	20	2.625 000	2.592 524	2.570 873
	16		2.584 405	2.557 342
	12		2.570 873	2.534 789
	8		2.543 810	2.489 684
	6		2.516 747	2.444 578
	4		2.462 620	2.354 367
2 3/4	20	2.750 000	2.717 524	2.695 873
	16		2.709 405	2.682 342
	12		2.695 873	2.659 789
	8		2.668 810	2.614 684
	6		2.641 747	2.569 578
	4		2.587 620	2.479 367
2 7/8	20	2.875 000	2.842 524	2.820 873
	16		2.834 405	2.807 342
	12		2.820 873	2.784 789
	8		2.793 810	2.739 684
	6		2.766 747	2.694 578
	4		2.712 620	2.604 367

4. BASIC DIMENSIONS IN INCHES *(continued)*

Sizes	Number of threads per inch n	Major diameter D, d	Pitch diameter D_2, d_2	Minor diameter D_1, d_1
3	20	3.000 000	2.967 524	2.945 873
	16		2.959 405	2.932 342
	12		2.945 873	2.909 789
	8		2.918 810	2.864 684
	6		2.891 747	2.819 578
	4		2.837 620	2.729 367
3 1/8	16	3.125 000	3.084 405	3.057 342
	12		3.070 873	3.034 789
	8		3.043 810	2.989 684
	6		3.016 747	2.944 578
	4		2.962 620	2.854 367
3 1/4	16	3.250 000	3.209 405	3.182 342
	12		3.195 873	3.159 789
	8		3.168 810	3.114 684
	6		3.141 747	3.069 578
	4		3.087 620	2.979 367
3 3/8	16	3.375 000	3.334 405	3.307 342
	12		3.320 873	3.284 789
	8		3.293 810	3.239 684
	6		3.266 747	3.194 578
	4		3.212 620	3.104 367
3 1/2	16	3.500 000	3.459 405	3.432 342
	12		3.445 873	3.409 789
	8		3.418 810	3.364 684
	6		3.391 747	3.319 578
	4		3.337 620	3.229 367
3 5/8	16	3.625 000	3.584 405	3.557 342
	12		3.570 873	3.534 789
	8		3.543 810	3.489 684
	6		3.516 747	3.444 578
	4		3.462 620	3.354 367
3 3/4	16	3.750 000	3.709 405	3.682 342
	12		3.695 873	3.659 789
	8		3.668 810	3.614 684
	6		3.641 747	3.569 578
	4		3.587 620	3.479 367
3 7/8	16	3.875 000	3.834 405	3.807 342
	12		3.820 873	3.784 789
	8		3.793 810	3.739 684
	6		3.766 747	3.694 578
	4		3.712 620	3.604 367
4	16	4.000 000	3.959 405	3.932 342
	12		3.945 873	3.909 789
	8		3.918 810	3.864 684
	6		3.891 747	3.819 578
	4		3.837 620	3.729 367
4 1/8	16	4.125 000	4.084 405	4.057 342
	12		4.070 873	4.034 789
	8		4.043 810	3.989 684
	6		4.016 747	3.944 578
	4		3.962 620	3.854 367