
INTERNATIONAL STANDARD



263

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ISO inch screw threads — General plan and selection for screws, bolts and nuts — Diameter range 0,06 to 6 in

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, International Standard ISO 263 replaces ISO Recommendation R 263-1962 drawn up by Technical Committee ISO/TC 1, *Screw threads*.

The Member Bodies of the following countries approved the Recommendation :

Argentina	France	New Zealand
Australia	Germany	Norway
Austria	Greece	Poland
Canada	Hungary	Spain
Chile	India	Switzerland
Colombia	Israel	United Kingdom
Czechoslovakia	Italy	U.S.A.
Denmark	Japan	
Finland	Netherlands	

The Member Bodies of the following countries expressed disapproval of the Recommendation on technical grounds :

Bulgaria
Sweden
U.S.S.R.

ISO inch screw threads — General plan and selection for screws, bolts and nuts — Diameter range 0.06 to 6 in

1 SCOPE AND FIELD OF APPLICATION

This International Standard tabulates ISO inch screw threads (except for pipe threads) having the basic profile for triangular screw threads specified in ISO 68, *ISO general purpose screw threads — Basic profile*.

It comprises both a general plan of the ISO inch screw threads and the ISO inch screw threads for screws, bolts and nuts, the latter being a selection from the former.

It contains sizes in the diameter range 0.06 to 6 in, comprising a number of series of diameter/pitch combinations, together with a system of thread designations.

It remains for each industry to choose for itself, by means of selection among the screw threads of this International Standard, the diameter/pitch combinations appropriate to its own needs.

2 THREADS SERIES

The general plan is characterized by a number of thread series, i.e. groups of diameter/pitch combinations distinguished from each other by the number of threads per inch associated with specific diameters of threads. These thread series are shown in Table 1.

2.1 Diameters

Columns 1 and 2 of Table 1 give primary and secondary sizes which should suffice to meet the common needs of design. Column 3 gives the decimal equivalents of these sizes.

2.2 Number of threads per inch

Columns 4 to 14 (inclusive) of Table 1 give the number of threads per inch which are recommended for association with the sizes in columns 1 and 2. These columns of threads per inch are divided into two groups :

- series with graded pitches : columns 4, 5 and 6;
- series with constant (uniform) pitches : columns 7 to 14.

2.2.1 Series with graded pitches

There are three series with graded pitches. They are headed "coarse", "fine" and "extra-fine", in compliance with present practice.

These terms denote the relative magnitudes of the pitches of the three series for any given diameter of thread and do not imply any difference in the quality of the threads in the series.

The coarse and fine thread series shall be the first choice for general engineering applications, and they form the selected series for the commercial production of screws, bolts and nuts.

2.2.2 Series with constant (uniform) pitches

In addition to the three series of graded pitches, Table 1 includes columns of constant pitches which have been selected from the range 4 to 32 threads per inch. Each of these series is limited to an appropriate range of diameters.

3 DESIGNATIONS

The screw threads in this general plan are designated as shown in the column headings of Table 1, i.e. as follows :

3.1 Series with graded pitches

Coarse thread series : designation UNC;
for example : 1/4-20 UNC, No. 4-40 UNC

Fine thread series : designation UNF;
for example : 1/4-28 UNF, No. 4-48 UNF

Extra-fine thread series : designation UNEF;
for example : 1/4-32 UNEF.

3.2 Series with constant (uniform) pitches

All of the diameter/pitch combinations of the threads in these constant-pitch series are designated UN; for example 1-16 UN.

4 DIAMETER/PITCH COMBINATIONS

TABLE 1 — Diameter/pitch

Sizes		Basic Major diameter in	Number of threads per inch										
			Series with graded pitches			Series with constant (uniform) pitches							
			Coarse thread series * UNC	Fine thread series * UNF	Extra- fine thread series * UNEF	4-thread series UN	6-thread series UN	8-thread series UN	12- thread series UN	16- thread series UN	20- thread series UN	28- thread series UN	32- thread series UN
Primary	Secondary		4	5	6	7	8	9	10	11	12	13	14
No.0		0.060 0		80									
	No.1	0.073 0	64	72									
No.2		0.086 0	56	64									
	No.3	0.099 0	48	56									
No.4		0.112 0	40	48									
No.5		0.125 0	40	44									
No.6		0.138 0	32	40									UNC
No.8		0.164 0	32	36									UNC
No.10		0.190 0	24	32									UNC
	No.12	0.216 0	24	28	32							UNF	UNEF
1/4		0.250 0	20	28	32						UNC	UNF	UNEF
5/16		0.312 5	18	24	32						20	28	UNEF
3/8		0.375 0	16	24	32					UNC	20	28	UNEF
7/16		0.437 5	14	20	28					16	UNF	UNEF	32
1/2		0.500 0	13	20	28					16	UNF	UNEF	32
9/16		0.562 5	12	18	24				UNC	16	20	28	32
5/8		0.625 0	11	18	24				12	16	20	28	32
	11/16	0.687 5			24				12	16	20	28	32
3/4		0.750 0	10	16	20				12	UNF	UNEF	28	32
	13/16	0.812 5			20				12	16	UNEF	28	32
7/8		0.875 0	9	14	20				12	16	UNEF	28	32
	15/16	0.937 5			20				12	16	UNEF	28	32
1		1.000 0	8	12	20			UNC	UNF	16	UNEF	28	32
	1 1/16	1.062 5			18			8	12	16	20	28	
1 1/8		1.125 0	7	12	18			8	UNF	16	20	28	
	1 3/16	1.187 5			18			8	12	16	20	28	
1 1/4		1.250 0	7	12	18			8	UNF	16	20	28	
	1 5/16	1.312 5			18			8	12	16	20	28	
1 3/8		1.375 0	6	12	18		UNC	8	UNF	16	20	28	
	1 7/16	1.437 5			18		6	8	12	16	20	28	
1 1/2		1.500 0	6	12	18		UNC	8	UNF	16	20	28	
	1 9/16	1.562 5			18		6	8	12	16	20		
1 5/8		1.625 0			18		6	8	12	16	20		
	1 11/16	1.687 5			18		6	8	12	16	20		
1 3/4		1.750 0	5				6	8	12	16	20		
	1 13/16	1.812 5					6	8	12	16	20		
1 7/8		1.875 0					6	8	12	16	20		

* Selected series for screws, bolts and nuts, and first choice for general engineering applications.

TABLE 1 — (concluded)

Sizes		Basic major diameter in	Number of threads per inch										
			Series with graded pitches			Series with constant (uniform) pitches							
			Coarse thread series *	Fine thread series *	Extra-fine thread series	4-thread series	6-thread series	8-thread series	12-thread series	16-thread series	20-thread series	28-thread series	32-thread series
Pri- mary	Sec- ondary		UNC	UNF	UNEF	UN	UN	UN	UN	UN	UN	UN	UN
1	2	3	4	5	6	7	8	9	10	11	12	13	14
2	1 15/16	1.937 5	4 1/2				6	8	12	16	20		
		2.000 0					6	8	12	16	20		
	2 1/8	2.125 0					6	8	12	16	20		
2 1/4	2 3/8	2.250 0	4 1/2				6	8	12	16	20		
		2.375 0					6	8	12	16	20		
2 1/2		2.500 0	4			UNC	6	8	12	16	20		
2 3/4	2 5/8	2.625 0	4			4	6	8	12	16	20		
		2.750 0				UNC	6	8	12	16	20		
	2 7/8	2.875 0				4	6	8	12	16	20		
3	3 1/8	3.000 0	4			UNC	6	8	12	16	20		
		3.125 0				4	6	8	12	16			
3 1/4		3.250 0	4			UNC	6	8	12	16			
3 1/2	3 3/8	3.375 0	4			4	6	8	12	16			
		3.500 0				UNC	6	8	12	16			
	3 5/8	3.625 0				4	6	8	12	16			
3 3/4	3 7/8	3.750 0	4			UNC	6	8	12	16			
		3.875 0				4	6	8	12	16			
4		4.000 0	4			UNC	6	8	12	16			
4 1/4	4 1/8	4.125 0				4	6	8	12	16			
		4.250 0				4	6	8	12	16			
	4 3/8	4.375 0				4	6	8	12	16			
4 1/2	4 5/8	4.500 0				4	6	8	12	16			
		4.625 0				4	6	8	12	16			
4 3/4		4.750 0				4	6	8	12	16			
5	4 7/8	4.875 0				4	6	8	12	16			
		5.000 0				4	6	8	12	16			
	5 1/8	5.125 0				4	6	8	12	16			
5 1/4	5 3/8	5.250 0				4	6	8	12	16			
		5.375 0				4	6	8	12	16			
5 1/2		5.500 0				4	6	8	12	16			
5 3/4	5 5/8	5.625 0				4	6	8	12	16			
		5.750 0				4	6	8	12	16			
	5 7/8	5.875 0				4	6	8	12	16			
6		6.000 0				4	6	8	12	16			

* Selected series for screws, bolts and nuts, and first choice for general engineering applications.