

*Transformed*

**ISO**

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

**ISO RECOMMENDATION  
R 68**

**SCREW THREADS**

**1<sup>st</sup> EDITION**

**August 1958**

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## BRIEF HISTORY

The ISO Recommendation R 68, *Screw Threads*, was prepared by Technical Committee ISO/TC 1, *Screw Threads*, the Secretariat of which is held by the Sveriges Standardiseringskommission (SIS).

As soon as it was created, in London, in 1946, ISO entrusted the Technical Committee with the drawing up of an international standard for screw threads for screws, bolts and nuts, applicable both in the "metric" countries and in the "inch" countries.

The Technical Committee met successively in Paris, in June 1949, in New York, in June 1952, in Stockholm, in June 1955, and in Lisbon, in May 1957.

At its first meeting, the Technical Committee appointed a Working Commission to assist the Secretariat in preparing the work. At a later date, that Working Commission adopted the title of Working Group No. 2.

The first endeavours of the Working Group, which met six times between 1949 and 1954, resulted in the adoption by the Technical Committee of a Draft ISO Recommendation, dealing on the one hand with the ISO Basic Profile, applicable to triangular screw threads, and on the other with basic dimensions of screw threads for screws, bolts and nuts in the diameter range up to 5 mm.

In July 1955, this Draft was submitted to the approval of all ISO Member Bodies. The interpretation to be given to comments and reservations, formulated in the course of this enquiry by various ISO Member Bodies, was considered by Working Group No. 2 at its seventh meeting, held in Paris, in April 1956, and by the Technical Committee itself, at its fourth plenary meeting, held in Lisbon, in May 1957. Further investigations made by the Secretariat of the Technical Committee led several Committee Members to revise their initial attitude with regard to the Draft.

Finally, the Draft ISO Recommendation was approved by the following 24 (out of a total) of 37 Member Bodies:

Austria	India	Portugal
Belgium	*Israel	Spain
Bulgaria	Italy	Sweden
Chile	Japan	Switzerland
Finland	Mexico	*Union of South Africa
France	Netherlands	United Kingdom
Germany	Norway	U.S.S.R.
Hungary	Pakistan	Yugoslavia

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in September 1958, to accept it as an ISO RECOMMENDATION.

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\* These Member Bodies stated that they had no objection to the Draft being approved.

## FOREWORD\*

This ISO Recommendation is one of a number of ISO Recommendations determining internationally interchangeable triangular screw threads.

It is intended that the complete set of these ISO Recommendations will cover the following specifications:

Basic Profile for ISO Triangular Screw Threads (except for pipe threads) and design profiles for nut and bolt	(ISO Recommendation R 68, section 2)
ISO Metric Screw Threads. General Plan (diameter range 0.25 to 300 mm)	(ISO Recommendation R 261)
ISO Metric Screw Threads for screws, bolts and nuts (a) diameter range 0.25 to 5 mm (b) diameter range 6 to 39 mm	(ISO Recommendation R 68, section 3) (ISO Recommendation R 262)
ISO Inch Screw Threads. General Plan (diameter range 0.06 to 6 in) and selection for screws, bolts and nuts	(ISO Recommendation R 263)
ISO Selected Screw Threads for screws, bolts and nuts	(Under study)

All these ISO Recommendations on screw threads will utilize the Basic Profile for ISO Triangular Screw Threads set out in ISO Recommendation R 68, *Screw Threads*.

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## CONTENTS

	Page
1. Scope . . . . .	4
2. ISO Triangular Screw Threads . . . . .	4
2.1 Basic Profile. . . . .	4
2.2 Design Profiles for Nut and Bolt ( <i>Maximum metal condition</i> ) . . . . .	5
3. Screw Threads for Screws, Bolts and Nuts . . . . .	6
3.1 Basic Dimensions: Major Diameters 0.25 mm to 1 mm (0.01 in to 0.039 in) . . . . .	6
3.2 Basic Dimensions: Major Diameters 1.1 mm to 5 mm (0.043 in to 0.197 in) . . . . .	7

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\* The text of this foreword brings up to date the one in the first printing of June 1959.

## SCREW THREADS

### 1. SCOPE

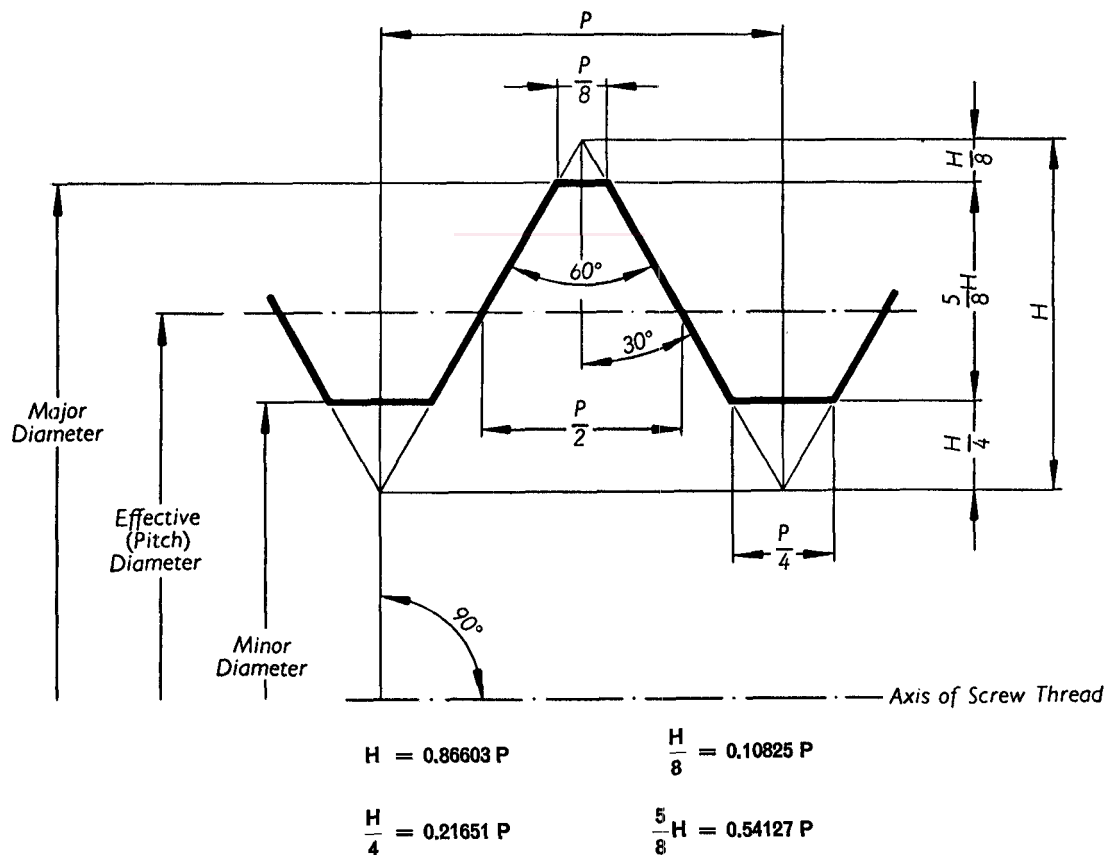
This ISO Recommendation contains two parts:

- (a) The ISO Basic Profile for triangular screw threads (except for pipe threads) as well as the associated design profiles;
- (b) Basic sizes for screw threads for screws, bolts and nuts in the major diameter range 0.25 to 5 mm (0.01 to 0.197 in). The sizes in this range are presented in two series:

Sizes recommended for General Purposes,  
 Sizes recommended for Special Purposes only.

### 2. ISO TRIANGULAR SCREW THREADS

#### 2.1 BASIC PROFILE

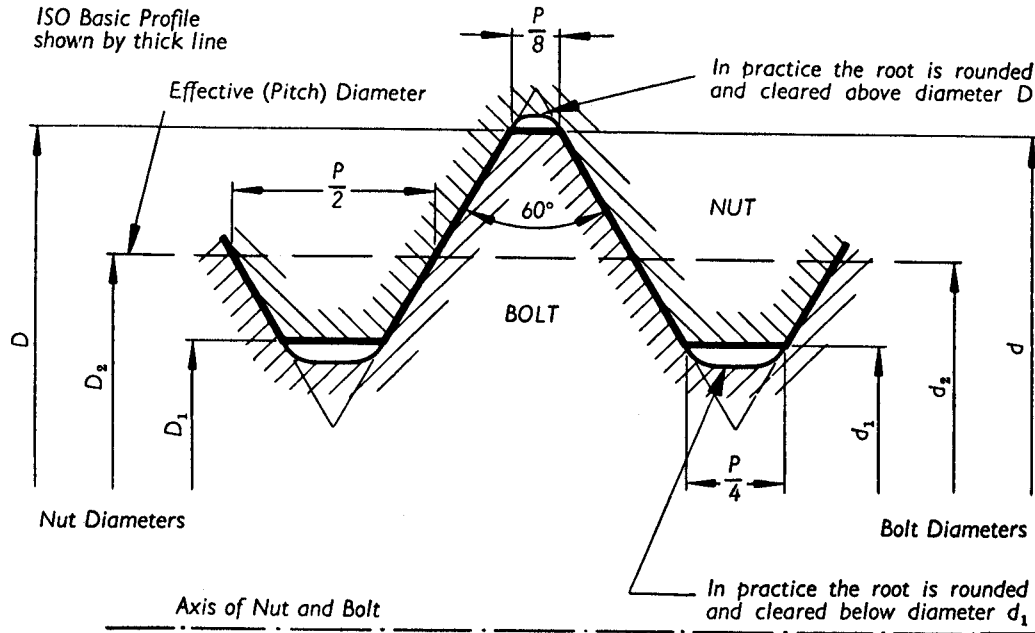


The Basic Profile is the profile to which the deviations, which define the limits of the external and internal threads, are applied.

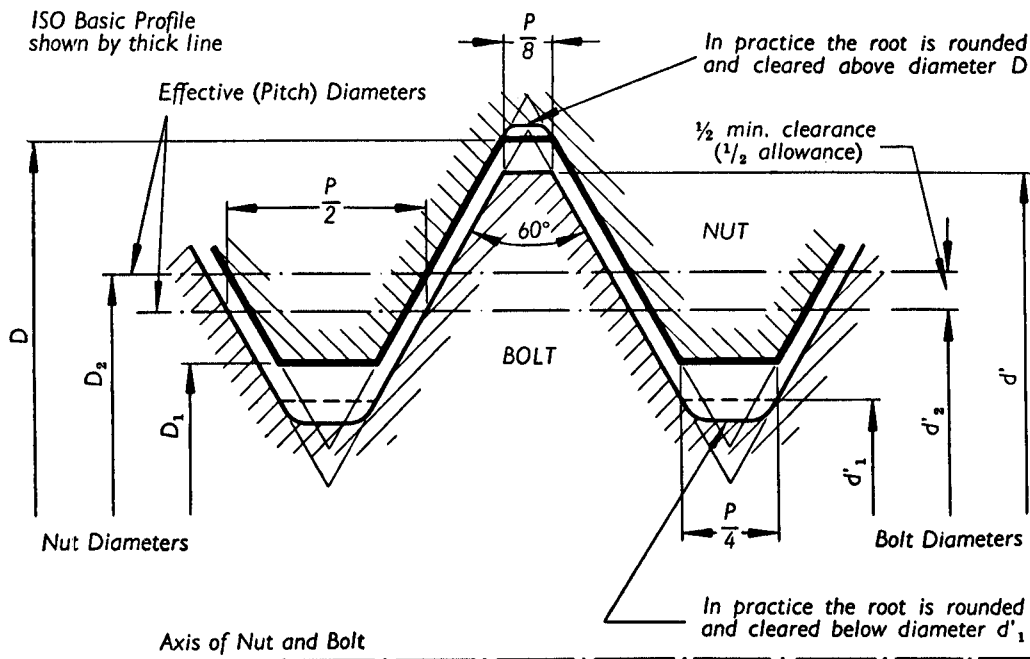
Consequently, it plays the same part in screw threads as the basic size does in the limits and fits applicable to plain holes and shafts.

2.2 DESIGN PROFILES FOR NUT AND BOLT (Maximum metal condition)

Fit without a Minimum Clearance (Allowance) on Flanks

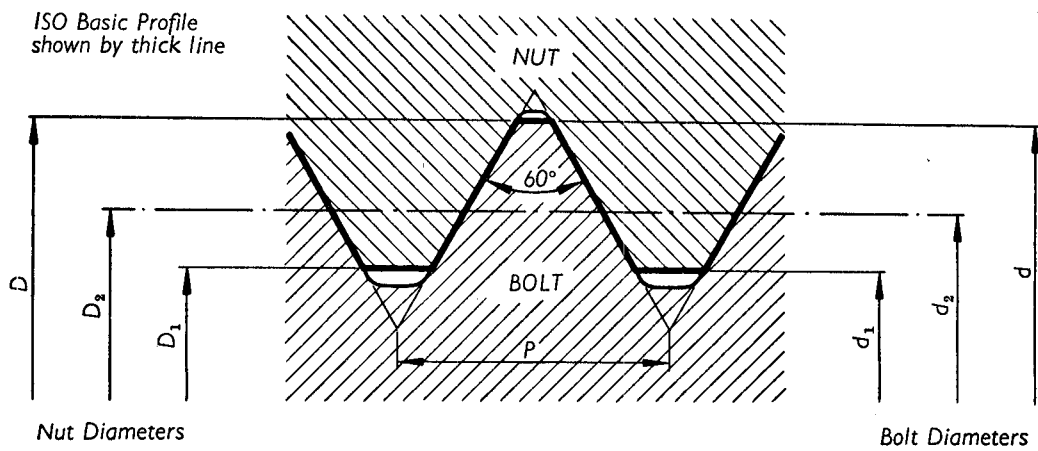


Fit with a Minimum Clearance (Allowance) on Flanks



### 3. SCREW THREADS FOR SCREWS, BOLTS AND NUTS

#### 3.1 BASIC DIMENSIONS: MAJOR DIAMETERS 0.25 mm to 1 mm (0.01 in to 0.039 in)



#### Sizes recommended for General Purposes

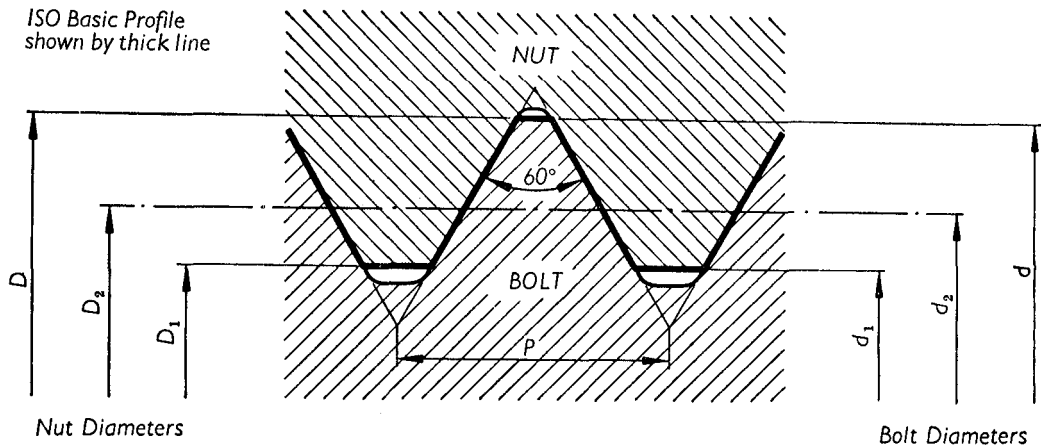
Size	$D_2$ $d_2$		P		$D$ $d$		$D_1$ $d_1$	
	mm	in	mm	in	mm	in	mm	in
<b>0.25</b>	0.201	0.0079	0.075	0.002953	0.25	0.0098	0.169	0.0066
<b>0.3</b>	0.248	0.0098	0.08	0.003150	0.3	0.0118	0.213	0.0084
<b>0.4</b>	0.335	0.0132	0.1	0.003937	0.4	0.0157	0.292	0.0115
<b>0.5</b>	0.419	0.0165	0.125	0.004921	0.5	0.0197	0.365	0.0144
<b>0.6</b>	0.503	0.0198	0.15	0.005906	0.6	0.0236	0.438	0.0172
<b>0.8</b>	0.670	0.0264	0.2	0.007874	0.8	0.0315	0.583	0.0230
<b>0.9</b>	0.754	0.0297	0.225	0.008858	0.9	0.0354	0.656	0.0258
<b>1</b>	0.838	0.0330	0.25	0.009843	1	0.0394	0.729	0.0287

#### Sizes recommended for Special Purposes only

Size	$D_2$ $d_2$		P		$D$ $d$		$D_1$ $d_1$	
	mm	in	mm	in	mm	in	mm	in
<b>(0.35)</b>	0.292	0.0115	0.09	0.003543	0.35	0.0138	0.253	0.0099
<b>(0.45)</b>	0.385	0.0152	0.1	0.003937	0.45	0.0177	0.342	0.0135
<b>(0.55)</b>	0.469	0.0185	0.125	0.004921	0.55	0.0217	0.415	0.0163
<b>(0.7)</b>	0.586	0.0231	0.175	0.006890	0.7	0.0276	0.511	0.0201

Sizes in brackets should be avoided for general purposes

### 3.2 BASIC DIMENSIONS: MAJOR DIAMETERS 1.1 mm to 5 mm (0.043 in to 0.197 in)



#### Sizes recommended for General Purposes

Size	$\frac{D_2}{d_2}$		P		$\frac{D}{d}$		$\frac{D_1}{d_1}$	
	mm	in	mm	in	mm	in	mm	in
<b>1.2</b>	1.038	0.0409	0.25	0.009843	1.2	0.0472	0.929	0.0366
<b>1.6</b>	1.373	0.0540	0.35	0.013780	1.6	0.0630	1.221	0.0481
<b>2</b>	1.740	0.0685	0.4	0.015748	2	0.0787	1.567	0.0617
<b>2.5</b>	2.208	0.0869	0.45	0.017717	2.5	0.0984	2.013	0.0792
<b>3</b>	2.675	0.1053	0.5	0.019685	3	0.1181	2.459	0.0968
<b>4</b>	3.545	0.1396	0.7	0.027559	4	0.1575	3.242	0.1276
<b>5</b>	4.480	0.1764	0.8	0.031496	5	0.1969	4.134	0.1628

#### Sizes recommended for Special Purposes only

Size	$\frac{D_2}{d_2}$		P		$\frac{D}{d}$		$\frac{D_1}{d_1}$	
	mm	in	mm	in	mm	in	mm	in
<b>(1.1)</b>	0.938	0.0369	0.25	0.009843	1.1	0.0433	0.829	0.0327
<b>(1.4)</b>	1.205	0.0474	0.3	0.011811	1.4	0.0551	1.075	0.0423
<b>(1.8)</b>	1.573	0.0619	0.35	0.013780	1.8	0.0709	1.421	0.0559
<b>(2.2)</b>	1.908	0.0751	0.45	0.017717	2.2	0.0866	1.713	0.0674
<b>(3.5)</b>	3.110	0.1225	0.6	0.023622	3.5	0.1378	2.850	0.1122
<b>(4.5)</b>	4.013	0.1580	0.75	0.029528	4.5	0.1772	3.688	0.1452

Sizes in brackets should be avoided for general purposes