
INTERNATIONAL STANDARD



241

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Shanks for turning and planing tools — Types and dimensions of the section

Queues d'outils de tournage et de rabotage -- Formes et dimensions de la section

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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, Technical Committee ISO/TC 29 has reviewed ISO Recommendation R 241 and found it technically suitable for transformation. International Standard ISO 241 therefore replaces ISO Recommendation R 241-1961 to which it is technically identical.

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ISO Recommendation R 241 was approved by the Member Bodies of the following countries :

Austria	India	Romania
Belgium	Italy	Sweden
Czechoslovakia	Mexico	United Kingdom
France	Netherlands	U.S.A.
Germany	Pakistan	U.S.S.R.
Greece	Poland	
Hungary	Portugal	

The Member Body of the following country expressed disapproval of the Recommendation on technical grounds :

Switzerland

The Member Body of the following country disapproved the transformation of ISO/R 241 into an International Standard :

Switzerland

Shanks for turning and planing tools – Types and dimensions of the section

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1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the types and dimensions of the sections of shanks for turning and planing tools. The dimensions given in each of the two tables, in millimetres and in inches, are sufficiently close to provide practical interchangeability between corresponding shanks in the two series, except in the case of shanks intended for mounting in tool-holders.

Three types of sections are specified, namely :

- 1) round section;
- 2) square sections;
- 3) rectangular sections with ratios of height to width of respectively :
 - approximately 1,25,
 - approximately 1,6 and
 - approximately 2.

The dimensions are shown in two tables, giving respectively the dimensions in millimetres and the corresponding dimensions in inches.

2 INTERCHANGEABILITY

3 TOLERANCES ON SHANKS INTENDED FOR MOUNTING IN A TOOL-HOLDER

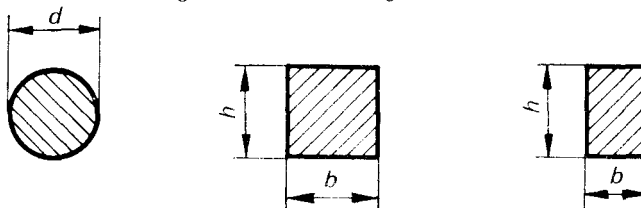
This International Standard does not specify the tolerances to be applied to shanks of tools intended for mounting in a tool-holder.

It is recommended however that the magnitude of the deviation relative to the nominal size on the "NOT GO" side should not appreciably exceed that obtained with one of the following ISO fit symbols :

- e11 – h12 or d12 for square and rectangular sections;
- f7 – h9 for round sections.

4 TYPES AND DIMENSIONS OF THE SECTIONS

Use for preference the round or square sections, or the rectangular section having a ratio of approximately 1,6. Avoid, whenever possible, the use of the rectangular sections having ratios of approximately 1,25 and 2.



4.1 Dimensions in millimetres

Round section	Square section	Rectangular sections		
		Ratio of sides, approximately		
		1,25	1,6	2
d	$h \times b$	$h \times b$	$h \times b$	$h \times b$
6	6 × 6	6 × 5	6 × 4	6 × 3
8	8 × 8	8 × 6	8 × 5	8 × 4
10	10 × 10	10 × 8	10 × 6	10 × 5
12	12 × 12	12 × 10	12 × 8	12 × 6
16	16 × 16	16 × 12	16 × 10	16 × 8
20	20 × 20	20 × 16	20 × 12	20 × 10
25	25 × 25	25 × 20	25 × 16	25 × 12
32	32 × 32	32 × 25	32 × 20	32 × 16
40	40 × 40	40 × 32	40 × 25	40 × 20
50	50 × 50	50 × 40	50 × 32	50 × 25
63	63 × 63	63 × 50	63 × 40	63 × 32

4.2 Dimensions in inches

Round section	Square section	Rectangular sections		
		Ratio of sides, approximately		
		1,25	1,6	2
d	$h \times b$	$h \times b$	$h \times b$	$h \times b$
1/4	1/4 × 1/4	1/4 × 3/16	1/4 × 5/32	1/4 × 1/8
5/16	5/16 × 5/16	5/16 × 1/4	5/16 × 3/16	5/16 × 5/32
3/8	3/8 × 3/8	3/8 × 5/16	3/8 × 1/4	3/8 × 3/16
1/2	1/2 × 1/2	1/2 × 3/8	1/2 × 5/16	1/2 × 1/4
5/8	5/8 × 5/8	5/8 × 1/2	5/8 × 3/8	5/8 × 5/16
3/4	3/4 × 3/4	3/4 × 5/8	3/4 × 1/2	3/4 × 3/8
1	1 × 1	1 × 3/4	1 × 5/8	1 × 1/2
1 1/4	1 1/4 × 1 1/4	1 1/4 × 1	1 1/4 × 3/4	1 1/4 × 5/8
1 1/2	1 1/2 × 1 1/2	1 1/2 × 1 1/4	1 1/2 × 1	1 1/2 × 3/4
2	2 × 2	2 × 1 1/2	2 × 1 1/4	2 × 1
2 1/2	2 1/2 × 2 1/2	2 1/2 × 2	2 1/2 × 1 1/2	2 1/2 × 1 1/4

4.3 Tolerances

Tool shanks without special need for precision :

- a) unmachined shanks : the normal rolling or forging tolerance (before finishing the bottom face),
- b) machined shanks : h15.

For dimensions in inches, direct conversion into inches of the metric values of the tolerance h15.