INTERNATIONAL STANDARD

ISO 240

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Milling cutters — Interchangeability dimensions for cutter arbors or cutter mandrels

Fraises à métaux — Dimensions d'interchangeabilité avec les arbres porte-fraises ou les mandrins porte-fraise

Reference number
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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 29, *Small tools*, Subcommittee SC 2, *Holding tools, adaptive items and interfaces*.

This third edition cancels and replaces the second edition (ISO 240:1994), of which it constitutes a minor revision with the following changes:

— deleted Annex A giving the conversion of the metric values into inches;

— added Annex A giving the relationship between the symbols of this International Standard and the symbols according to the ISO 13399- series.

Milling cutters — Interchangeability dimensions for cutter arbors or cutter mandrels

1 Scope

This International Standard specifies the dimensions for interchangeability between the cutter and the arbor or mandrel, i.e. the diameter of the bore and the arbor or mandrel and elements of the drive, whether by keying or tenon.

It applies to all types of milling cutters mounted on cutter arbors or mandrels.

2 Dimensions

2.1 Key drive

The dimensions of key drive shall be in accordance with the dimensions shown in Figure 1 and given in Table 1.

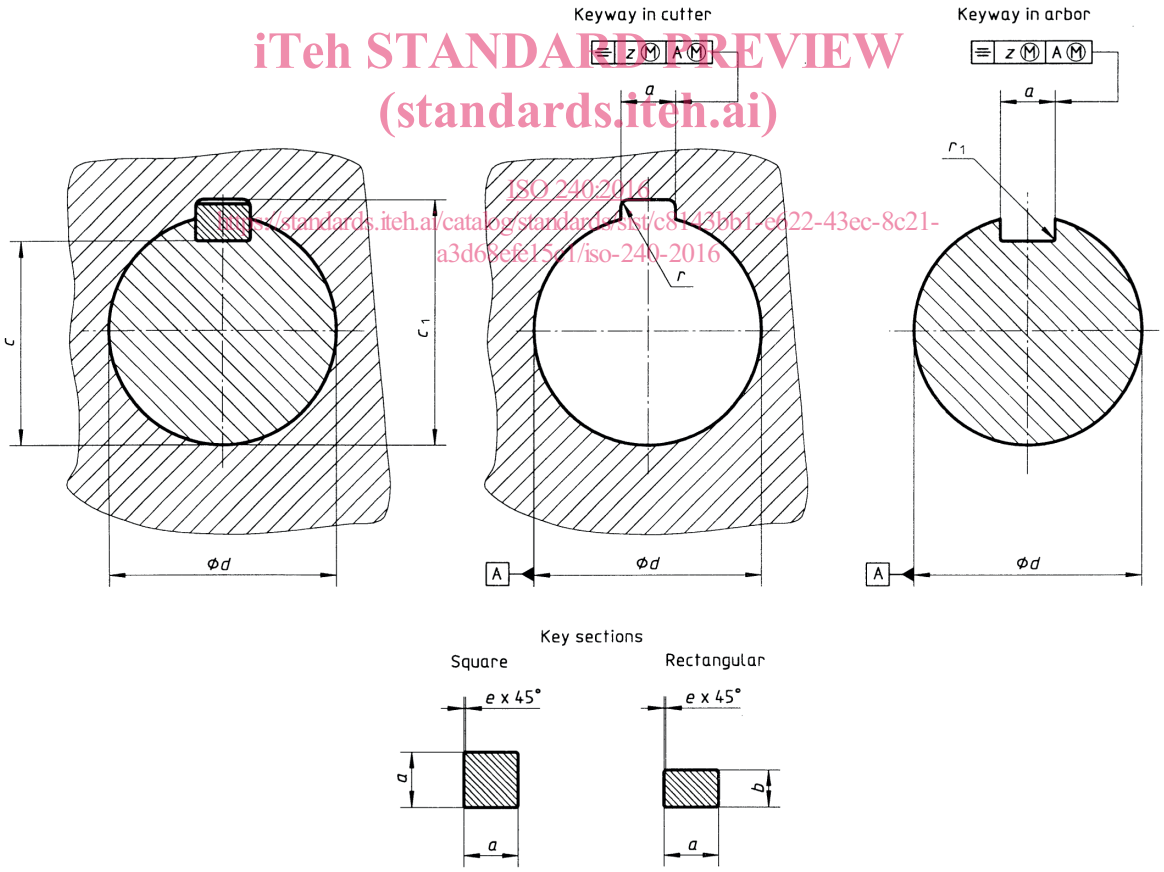

Figure 1 — Dimensions of key drive

Table 1 — Dimensions of key drive

Dimensions in millimetres

d[a]	a[a]	b h11	c		c_1		e		r		r_1		z
			nom.	tol.	nom.	tol.	nom.	tol.	nom.	tol.	nom.	tol.	
8	2		6,7		8,9								
10	3		8,2		11,5				0,4	0 −0,1			0,03
13	3		11,2		14,6		0,16	+0,09 0			0,16	0 −0,08	
16	4		13,2	0 −0,1	17,7	+0,1 0			0,6	0 −0,2			0,035
19	5		15,6		21,1				1				
22	6		17,6		24,1		0,25	+0,15 0		0 −0,3	0,25	0 −0,09	
27	7		22		29,8				1,2				0,04
32	8	7	27		34,8								
40	10	8	34,5		43,5								
50	12	8	44,5		53,5				1,6				
60	14	9	54	0 −0,2	64,2	+0,2 0	0,4	+0,2 0			0,4	0 −0,15	0,045
70	16	10	63,5		75				2	0 −0,5			
80	18	11	73		85,5								
100	25	14	91		107		0,6		2,5		0,6	0 −0,2	0,055

[a] Tolerances

— on d (except for gear hobs):

on the arbor: h6;

on the cutter: H7;

— on a:

for keyway in arbor:

free keying: H9;

close keying: N9;

f or keyway in cutter: C11;

key: h9.

2.2 Tenon drive

The dimensions of tenon drive shall be in accordance with the dimensions shown in Figure 2 and given in Table 2.

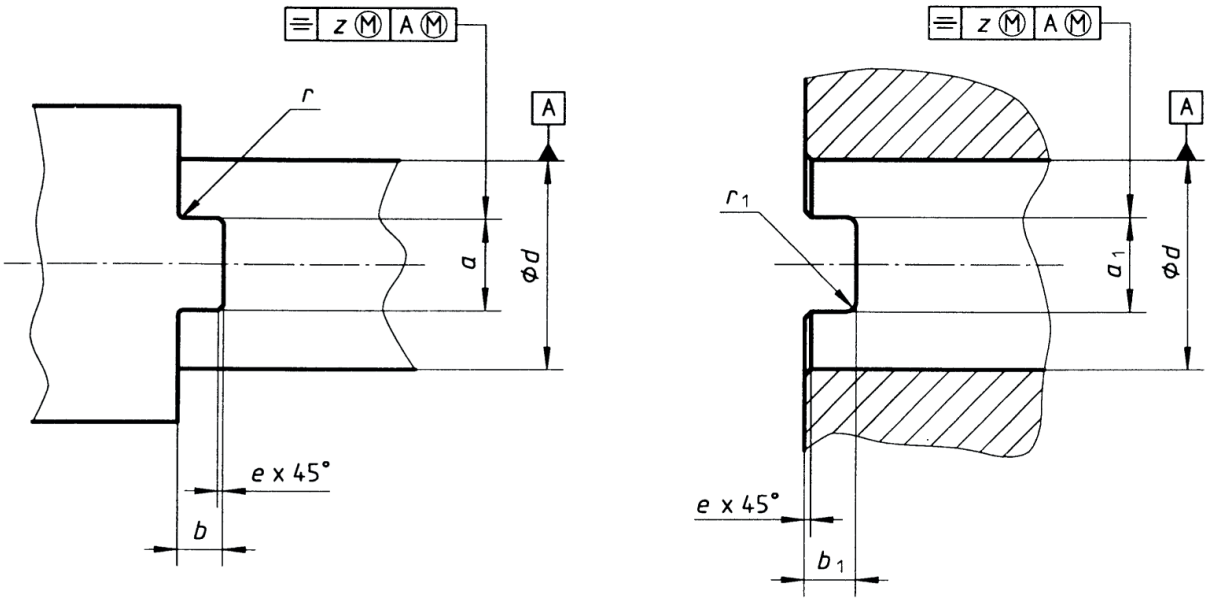

Figure 2 — Dimensions of tenon drive

Table 2 — Dimensions of tenon drive

d^a	Arbor			Cutter			e		z
	a h11	b h11	r max.	a_1 H11	b_1 H13	r_1 max.	nom.	tol.	
5	3	2	0,3	3,3	2,5	0,6	0,3	+0,1 0	0,15
8	5	3,5	0,4	5,4	4		0,4		0,2
10	6	4	0,5	6,4	4,5	0,8	0,5		
13	8	4,5		8,4	5	1			
16		5	0,6		5,6		0,6	+0,2 0	
19	10	5,6		10,4	6,3	1,2			
22									
27	12	6,3	0,8	12,4	7		0,8		
32	14	7		14,4	8	1,6			
40	16	8	1	16,4	9	2	1	+0,3 0	
50	18	9		18,4	10				
60	20	10		20,5	11,2				0,25

[a] Tolerances on d (except for gear hobs):
on the arbor: h6;
on the cutter: H7.

Annex A
(informative)

Relationship between designations in this International Standard and ISO 13399

For the relationship between designations in this International Standard and preferred symbols according to ISO 13399, see Table A.1.

Table A.1 — Relationship between designations in this International Standard and ISO 13399

Symbol in ISO 3364	Reference in ISO 3364	Property name in the ISO 13399 series	Symbol in the ISO 13399 series	Reference in the ISO 13399 series
d	Figure 1 Figure 2	Connection diameter	DCON	ISO/TS 13399-4, 71EDDBF5060E6

Bibliography

[1] ISO/TS 13399-4, *Cutting tool data representation and exchange — Part 4: Reference dictionary for adaptive items*