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Milling machine arbors with 7/24 tapers —

Part 1: Dimensions and designation

Arbres porte-fraises au cône 7/24 —

Partie 1: Dimensions et désignation



Reference number
ISO 839-1:2006(E)

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Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 839-1 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 2, *High speed steel cutting tools and their attachments*.

This second edition cancels and replaces the first edition (ISO 839-1:1976), which has been technically revised.

ISO 839 consists of the following parts, under the general title *Milling machine arbors with 7/24 tapers*:

- *Part 1: Dimensions and designation*
- *Part 2: Accessories*

Milling machine arbors with 7/24 tapers —

Part 1: Dimensions and designation

1 Scope

This part of ISO 839 specifies the dimensions of milling machine arbors with 7/24 tapers in accordance with ISO 297. It also specifies the designation of these arbors.

NOTE The accessories of these arbors (spacing collars, bearing collars and clamping nuts) are specified in ISO 839-2.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 297:1988, *7/24 tapers for tool shanks for manual changing*

ISO 2768-1:1989, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

3 Choice of dimensions and tolerances

The diameters, which have been adopted in this part of ISO 839 as the most commonly used, correspond to the values given in ISO 240 from 16 mm to 100 mm (omitting 19 mm and 70 mm).

The shoulder, whether cylindrical or tapered, between the flange of diameter d_1 and the cylindrical portion of diameter d , is optional. With or without the shoulder, however, the diameter of the flange locating face shall not in any case be less than d_2 .

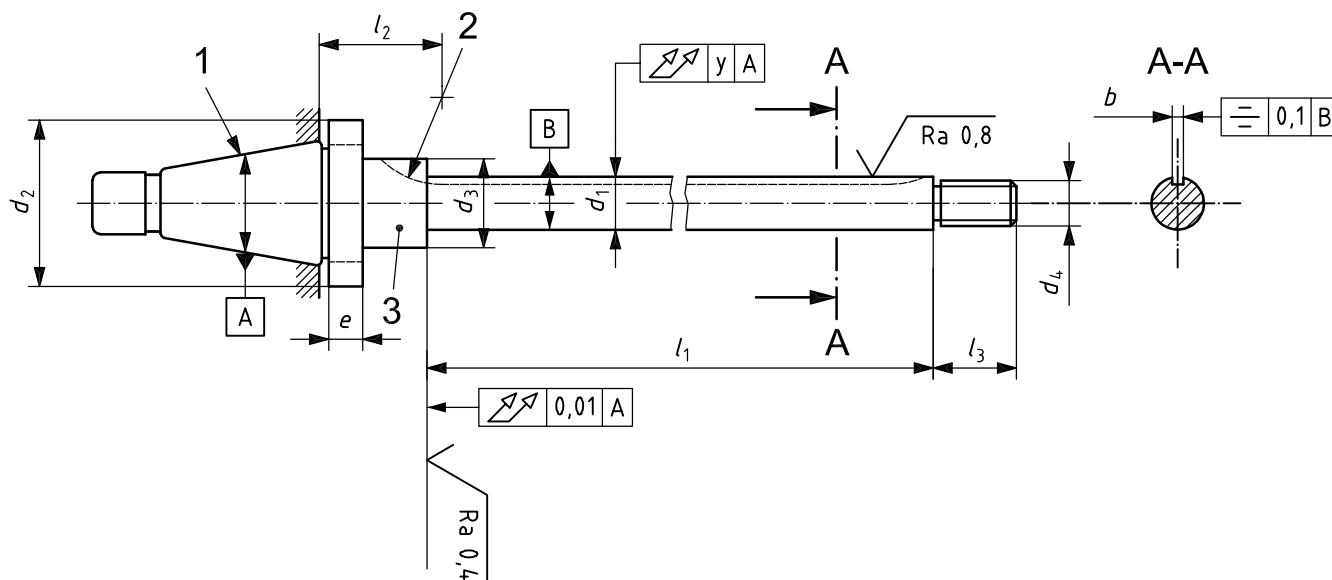
4 Dimensions

4.1 General

All dimensions and tolerances are given in millimetres. Tolerances not specified shall be of tolerance class m, in accordance with ISO 2768-1:1989.

4.2 Principal dimensions

The principal dimensions of milling machine arbors with 7/24 tapers are shown in Figure 1 and given in Table 1.



Key

- 1 7/24 taper in accordance with ISO 297
- 2 cutter radius
- 3 cylindrical or taper

Figure 1 — Principal dimensions of milling machine arbors with 7/24 tapers

Table 1 — Principal dimensions of milling machine arbors with 7/24 tapers

7/24 taper No.	b N11	d ₁	d ₂	d ₃	d ₄	e	Useful length l ₁										l ₂	l ₃		
							63	100	160	200	250	315	400	500	630	800			1 000	
30	4	16	50	27	M 16 × 1,5	8	—	—	—	—	—	—	—	—	—	—	—	18		
	6	22		34	M 20 × 1,5		—	—	—	—	—	—	—	—	—	—	—	—	24	
	7	27		41	M 24 × 1,5		—	—	—	—	—	—	—	—	—	—	—	—	—	30
40	4	16	63	27	M 16 × 1,5	10	—	—	—	—	—	—	—	—	—	—	—	18		
	6	22		34	M 20 × 1,5		—	—	—	—	—	—	—	—	—	—	—	—	24	
	7	27		41	M 24 × 1,5		—	—	—	—	—	—	—	—	—	—	—	—	—	30
	8	32		47	M 30 × 1,5		—	—	—	—	—	—	—	—	—	—	—	—	—	34
	10	40		55	M 36 × 2		—	—	—	—	—	—	—	—	—	—	—	—	—	42
50	6	22	100	34	M 20 × 1,5	12	—	—	—	—	—	—	—	—	—	—	—	24		
	7	27		41	M 24 × 1,5		—	—	—	—	—	—	—	—	—	—	—	—	30	
	8	32		47	M 30 × 1,5		—	—	—	—	—	—	—	—	—	—	—	—	—	34
	10	40		55	M 36 × 2		—	—	—	—	—	—	—	—	—	—	—	—	—	42
	12	50		69	M 42 × 2		—	—	—	—	—	—	—	—	—	—	—	—	—	48
60	14	60	160	84	M 52 × 2	16	—	—	—	—	—	—	—	—	—	—	—	58		
	12	50		69	M 42 × 2		—	—	—	—	—	—	—	—	—	—	—	—	48	
	14	60		84	M 52 × 2		—	—	—	—	—	—	—	—	—	—	—	—	—	58
	18	80		109	M 68 × 3		—	—	—	—	—	—	—	—	—	—	—	—	—	72
y according to length	24	100	134	134	M 80 × 4	0,015	0,020										56	82		
	0,030										0,035	0,04	—							

4.3 Pilot at end of arbor

The dimensions of the pilot at the end of the arbor are shown in Figure 2 and given in Table 2.

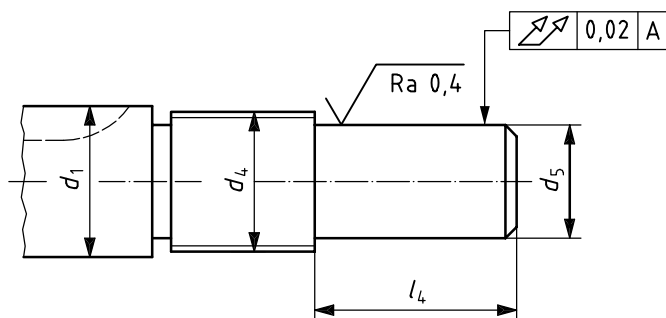


Figure 2 — Dimensions of pilot at end of arbor

Table 2 — Dimensions of pilot at end of arbor

d_1	d_4	d_5 g6	l_4
16	M 16 × 1,5	13	20
22	M 20 × 1,5	16	25
27	M 24 × 1,5	20	32
32	M 30 × 1,5	23	
40	M 36 × 2	29	
50	M 42 × 2	34	56
60	M 52 × 2	40	

4.4 Protective boss at end of arbor

The dimensions of the protective boss at the end of the arbor are shown in Figure 3 and given in Table 3.

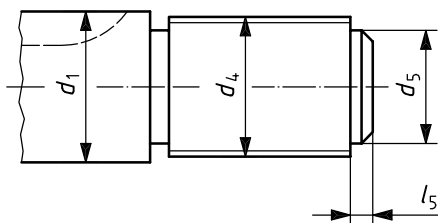


Figure 3 — Dimensions of protective boss at end of arbor

Table 3 — Dimensions of protective boss at end of arbor

d_1	d_4	d_5	l_5 min.
16	M 16 × 1,5	13	2
22	M 20 × 1,5	16	
27	M 24 × 1,5	20	
32	M 30 × 1,5	23	
40	M 36 × 2	29	
50	M 42 × 2	34	3
60	M 52 × 2	40	
80	M 68 × 3	49	5
100	M 80 × 4	61	

5 Material

The material is at the option of the manufacturer; however, the tensile strength shall be at least 800 N/mm².

Hardness shall be 56 +4HRC.

6 Designation

A milling machine arbor with 7/24 taper in accordance with this part of ISO 839 shall be designated by:

- “Arbor”;
- reference to this part of ISO 839, i.e. “ISO 839-1”;
- dash;
- 7/24 taper number/dimension of d_1 ;
- information as to whether the end of arbor is protected or piloted, or nothing.

EXAMPLE Designation of a milling machine arbor with 7/24 taper in accordance with ISO 839-1, 7/24 taper No. 40, $d_1 = 8$ mm and with protected end of arbor:

Arbor ISO 839-1 - 40/8 protected

Bibliography

- [1] ISO 240:1994, *Milling cutters — Interchangeability dimensions for cutter arbors or cutter mandrels*

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