INTERNATIONAL STANDARD ISO 839/I

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

Milling machine arbors with 7/24 tapers — Part I : Dimensions

Arbres porte-fraises au cône 7/24 — Partie I : Dimensions

First edition — 1976-06-15

UDC 621.914.3-229.2

Ref. No. ISO 839/I-1976 (E)

Descriptors : tools, machine tools, milling cutter arbors, accessories, specifications, dimensions.

Price based on 5 pages

FOREWORD

ISO (the International Organization for Standardization) is a worlwide 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 Standard 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 839 and found it technically suitable for transformation, with the exception of sub-clauses 3.2 and 4.2, which are the subject of International Standard ISO 839/II. International Standard ISO 839/I therefore partly replaces ISO Recommendation R 839-1968.

ISO Recommendation R 839 was approved by the Member Bodies of the following countries :

Belgium	India	Poland
Brazil	Ireland	Portugal
Chile	Israel	Spain
Czechoslovakia	Italy	Sweden
France	Japan	Turkey
Greece	Korea, Rep. of	United Kingdom
Hungary	Netherlands	

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

Germany*
Switzerland*
U.S.A.

* Subsequently, these Member Bodies approved the Recommendation.

The Member Bodies of the following countries disapproved the transformation of ISO/R 839 into an International Standard :

Austria
Czechoslovakia
Sweden
Switzerland

Printed in Switzerland

Milling machine arbors with 7/24 tapers — Part I : Dimensions

0 INTRODUCTION

During the preparatory work on ISO/R 839-1968, it was found that it was impossible to unify milling machine arbors in a manner which would be satisfactory to countries using the metric system and to those using the inch system. The ISO Recommendation therefore standardized two completely distinct series of arbors, which are retained in this International Standard.

There is thus no interchangeability between these two series, which are based respectively on the metric and inch series of ISO 240. There are many features which are not strictly identical in both types, the only interchangeable elements being the shanks with 7/24 tapers in accordance with ISO 297.

1 SCOPE

This International Standard, concerning milling machine arbors with 7/24 tapers, specifies two completely distinct series of manufacturing arbor dimensions :

— the one, for the metric series, is covered by the various tables in clause 4;

— the other, for the inch series, is covered by the various tables in clause 5.

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

2 REFERENCES

ISO 240, *Milling cutters — Interchangeability dimensions for cutter arbors or cutter mandrels — Metric series and inch series.*

ISO 297, *7/24 tapers for tool shanks.*[1)]

ISO 839/II, *Milling machine arbors with 7/24 tapers — Part II : Accessories.*[2)]

3 CHOICE OF DIMENSIONS AND TOLERANCES

The diameters which have been adopted in this International Standard as those most commonly used correspond to the values given in ISO 240 from 16 to 100 mm (omitting 19 mm and 70 mm) for the metric series and from 0.625 to 2.500 in for the inch series.

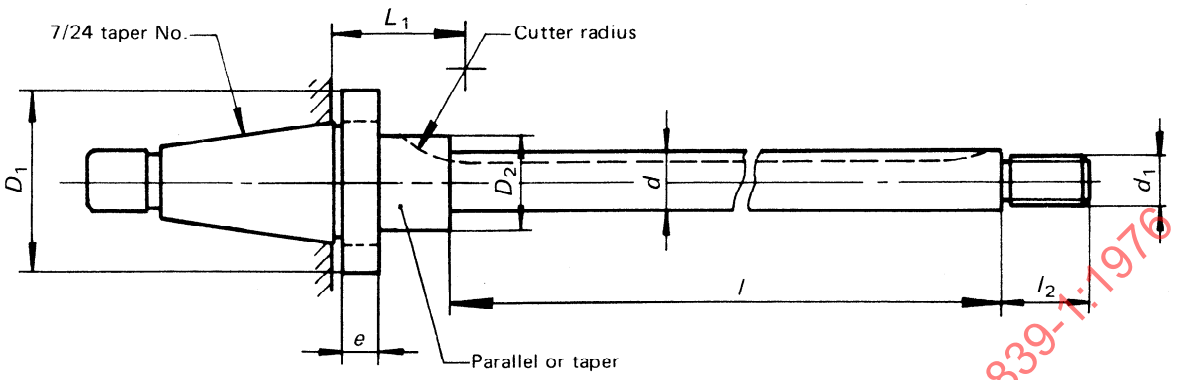
The shoulder, whether parallel or tapered, between the flange of diameter D_1 and the parallel portion of diameter d is optional and is not generally found in the inch series. With or without the shoulder, however, the diameter of the flange locating face should not in any case be less than D_2.

1) At present at the stage of draft. (Revision of ISO/R 297-1963.)

2) At present at the stage of draft. (Revision of sub-clauses 3.2 and 4.2 of ISO/R 839-1968.)

4 DIMENSIONS FOR THE METRIC SERIES

4.1 Principal dimensions



Dimensions in millimetres

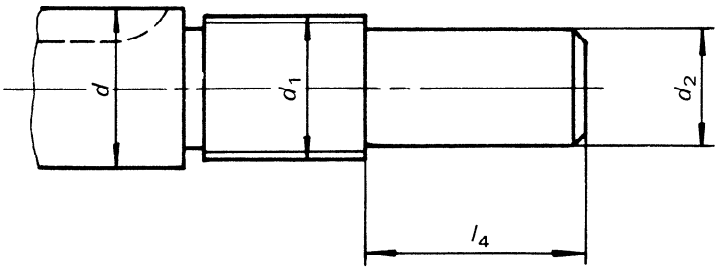
7/24 taper No.	D_1	e	L_1 max.	D_2 min.	d h6	Useful length l											d_1	l_2
						63	100	160	200	250	315	400	500 (450)	630 (560)	800 (710)	1 000 (900)		
30	50	8	32	27	16	–	–	–	–	–	–						M 16 X 1,5	1 to 1,25 d_1 + 2 mm
				34	22	–	–	–	–	–	–	–					M 20 X 2	
				41	27	–	–	–	–	–	–	–					M 24 X 2	
40	63	10	36	27	16	–	–	–	–	–	–	–					M 16 X 1,5	
				34	22	–	–	–	–	–	–	–	–				M 20 X 2	
				41	27	–	–	–		–	–	–	–	–			M 24 X 2	
				47	32	–		–		–	–	–	–	–			M 27 X 2	
				55	40		–	–			–	–	–	–			M 33 X 2	
50	100	12	45	34	22	–	–	–	–	–	–	–	–	–			M 20 X 2	
				41	27	–	–	–		–	–	–	–	–	–		M 24 X 2	
				47	32	–	–	–			–	–	–	–	–	–	M 27 X 2	
				55	40		–	–				–	–	–	–	–	M 33 X 2	
				69	50							–	–	–	–	–	M 39 X 3	
				84	60							–	–	–	–	–	M 45 X 3	
60	160	16	56	69	50									–	–	–	M 39 X 3	
				84	60									–	–	–	M 45 X 3	
				109	80										–	–	M 56 X 4	
				134	100										–	–	M 68 X 4	

The lengths l in brackets should be avoided as far as possible.

7/24 tapers and drive seating conform to ISO 297.

Body of arbor and keys and keyways conform to ISO 240.

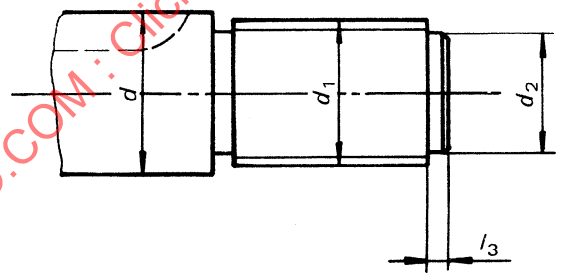
4.2 Pilot at end of arbor



Dimensions in millimetres

d	d_1	d_2 g6	l_4
16	M 16 X 1,5	13	20
22	M 20 X 2	16	25
27	M 24 X 2	20	32
32	M 27 X 2	23	
40	M 33 X 2	29	
50	M 39 X 3	34	56
60	M 45 X 3	40	

4.3 Protective boss at end of arbor

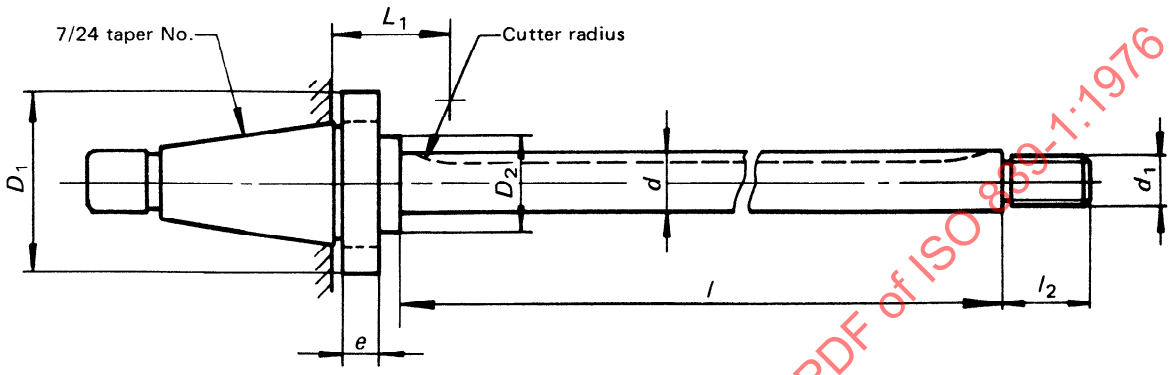


Dimensions in millimetres

d	d_1	d_2	l_3 min.
16	M 16 X 1,5	13	2
22	M 20 X 2	16	
27	M 24 X 2	20	
32	M 27 X 2	23	
40	M 33 X 2	29	
50	M 39 X 3	34	3
60	M 45 X 3	40	
80	M 56 X 4	49	5
100	M 68 X 4	61	

5 DIMENSIONS FOR THE INCH SERIES

5.1 Principal dimensions



Dimensions in inches

7/24 taper No.	D_1	e	L_1 max.	D_2 min.	d $^{-0,000\,5}_{-0.001\,0}$	Useful length l 6	9	12	15	18	21	24	30	36	d_1	l_2
30	2	0.312 5	1.25	1.125	0.625	–									5/8 - 11 UNC	1
				1.250	0.750	–	–								3/4 - 10 UNC	1
				1.625	1.000	–	–	–	–						1 - 10 UN	1.375
40	2.5	0.375 0	1.50	1.250	0.750		–	–							3/4 - 10 UNC	1
				1.625	1.000	–	–	–	–	–	–	–			1 - 10 UN	1.375
				1.875	1.250	–	–	–	–	–	–	–			1 - 10 UN	1.625
				2.125	1.500			–	–	–	–	–			1 3/8 - 10 UN	1.875
50	4	0.468 8	1.75	1.625	1.000		–	–	–	–	–	–			1 - 10 UN	1.375
				1.875	1.250			–	–	–	–	–	–		1 - 10 UN	1.625
				2.125	1.500				–	–	–	–	–	–	1 3/8 - 10 UN	1.875
				2.750	2.000							–	–	–	1 3/8 - 10 UN	1.875
				3.375	2.500								–	–	1 3/8 - 10 UN	1.875

7/24 tapers and drive seatings conform to ISO 297.

Body of arbor and keys and keyways conform to ISO 240.