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**INTERNATIONAL STANDARD**



**2238**

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

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## **Machine bridge reamers**

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**Descriptors :** reamers, riveting, dimensions.

## 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.

International Standard ISO 2238 was drawn up by Technical Committee ISO/TC 29, *Small tools*.

It was approved in May 1971 by the Member Bodies of the following countries :

Austria	Israel	Spain
Belgium	Italy	Sweden
Czechoslovakia	Japan	Switzerland
Egypt, Arab Rep. of	Korea, Dem. P. Rep. of	United Kingdom
France	Netherlands	U.S.A.
Germany	Poland	U.S.S.R.
Hungary	Portugal	Yugoslavia
India	Romania	
Ireland	South Africa Rep. of	

No Member Body expressed disapproval of the document.

# Machine bridge reamers

## 1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the characteristics of machine bridge reamers. It gives, for a series of diameter ranges  $d$  from 6 to 50.8 mm (0.236 2 to 2.000 0 in), the values in millimetres and inches for the following dimensions of these tools :

- overall length  $L$ ;
- total cutting edge length  $l$ ;
- tapered cutting edge length  $l_1$ .

The Morse taper number is also shown for each diameter range  $d$ . The dimensions of the Morse tapers are in accordance with ISO/R 296.

## 2 REFERENCES

ISO/R 296, *Self-holding tapers for tool shanks*.

ISO/R 1051, *Rivet shank diameters (Diameter range 1 to 36 mm)*.

3 DIMENSIONS

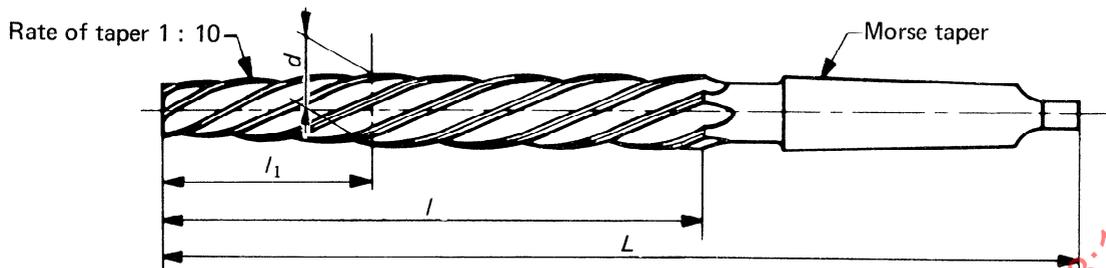


TABLE – Dimensions in millimetres and inches

Diameter ranges $d$				Lengths						Morse taper No.
mm		in		mm			in			
from (over)	to (including)	from (over)	to (including)	$L$	$l$	$l_1$	$L$	$l$	$l_1$	
6.0	6.7	0.236 2	0.263 8	151	75	30	5 15/16	2 15/16	1 3/16	1
6.7	7.5	0.263 8	0.295 3	156	80	32	6 5/32	3 5/32	1 1/4	1
7.5	8.5	0.295 3	0.334 6	161	85	34	6 11/32	3 11/32	1 11/32	1
8.5	9.5	0.334 6	0.374 0	166	90	36	6 17/32	3 17/32	1 13/32	1
9.5	10.6	0.374 0	0.417 3	171	95	38	6 3/4	3 3/4	1 1/2	1
10.6	11.8	0.417 3	0.464 6	176	100	40	6 15/16	3 15/16	1 9/16	1
11.8	13.2	0.464 6	0.519 7	199	105	42	7 27/32	4 1/8	1 21/32	2
13.2	14.0	0.519 7	0.551 2	209	115	46	8 1/4	4 17/32	1 13/16	2
14.0	15.0	0.551 2	0.590 6	219	125	50	8 5/8	4 29/32	1 31/32	2
15.0	16.0	0.590 6	0.629 9	229	135	54	9 1/32	5 5/16	2 1/8	2
16.0	17.0	0.629 9	0.669 3	251	135	54	9 7/8	5 5/16	2 1/8	3
17.0	19.0	0.669 3	0.748 0	261	145	58	10 9/32	5 23/32	2 9/32	3
19.0	21.2	0.748 0	0.834 6	271	155	62	10 21/32	6 3/32	2 7/16	3
21.2	23.6	0.834 6	0.929 1	281	165	66	11 1/16	6 1/2	2 19/32	3
23.6	26.5	0.929 1	1.043 3	296	180	72	11 21/32	7 3/32	2 27/32	3
26.5	30.0	1.043 3	1.181 1	311	195	78	12 1/4	7 11/16	3 1/16	3
30.0	31.5	1.181 1	1.240 2	326	210	84	12 27/32	8 9/32	3 5/16	3
31.5	33.5	1.240 2	1.318 9	354	210	84	13 15/16	8 9/32	3 5/16	4
33.5	37.5	1.318 9	1.476 4	364	220	88	14 5/16	8 21/32	3 15/32	4
37.5	42.5	1.476 4	1.673 2	374	230	92	14 23/32	9 1/16	3 5/8	4
42.5	47.5	1.673 2	1.870 1	384	240	96	15 3/32	9 7/16	3 25/32	4
47.5	50.8	1.870 1	2.000 0	394	250	100	15 1/2	9 27/32	3 15/16	4

Unless otherwise stated, these reamers will be right hand cutting.

## NOTES

**1 Entrance taper**

The taper at the entrance of the reamer is 1 : 10, which corresponds approximately to an opening angle of 5° 45'.

**2 Tolerance on lengths  $L$  and  $l$** 

Lengths  $L$  and  $l$  may vary within one diameter step, between the minimum and maximum limits corresponding respectively to the figures given for the nearest lower or upper step (increased or decreased, as far as the total length is concerned, by the lengths of the two Morse tapers, if the Morse taper combined with one of the two adjacent steps is larger or smaller than that of the steps in question).

*Example*

For the diameter 13 mm, length  $l$  may vary between 100 and 115 mm from the nominal value 105 mm, and length  $L$  may vary between 176 and 209 mm from the nominal value of 199 mm.

**3 Diameters  $d$** 

Diameters  $d$  of bridge reamers shall be based on the following principle :

- for rivets below 10 mm diameter : diameter of reamer = diameter of rivet + 0.4 mm;
- for rivets 10 mm diameter and above : diameter of reamer = diameter of rivet + 1 mm;
- tolerance on diameter  $d$  : k11;
- recommended diameters in millimetres : see Appendix.

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APPENDIX

**RECOMMENDED STOCKED SIZES OF BRIDGE REAMERS**

The following diameters of bridge reamers are recommended as stocked sizes :

6.4 – (7.4) – 8.4 – 11 – 13 – (15) – 17 – (19) – 21 – (23) – 25 – (28) – 31 – (34) – 37 – (40) mm.

They correspond to the rivet diameters 6 to 36 mm of ISO/R 1051.

Dimensions in parentheses shall only be considered as a second choice.

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