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Machine bridge reamers

Alésoirs de chaudronnerie, à machine

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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 of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 9, *Tools with defined cutting edges, holding tools, cutting items, adaptive items and interfaces*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

This third edition cancels and replaces the second edition (ISO 2238:2011), of which it constitutes a minor revision.

The main changes compared to the previous edition are as follows:

— addition of Annex B;

— editorial changes to align with the ISO/IEC Directives.

Machine bridge reamers

1 Scope

This document specifies the dimensions of machine bridge reamers. It gives, for a series of diameter ranges, d_1, from 6 mm to 50,8 mm, the values, in millimetres, for the following dimensions of these tools:

— overall length, l_3;

— total cutting edge length, l_2;

— tapered cutting edge length, l_1.

Unless otherwise stated, these reamers are right-hand cutting.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 296, *Machine tools — Self-holding tapers for tool shanks*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Dimensions

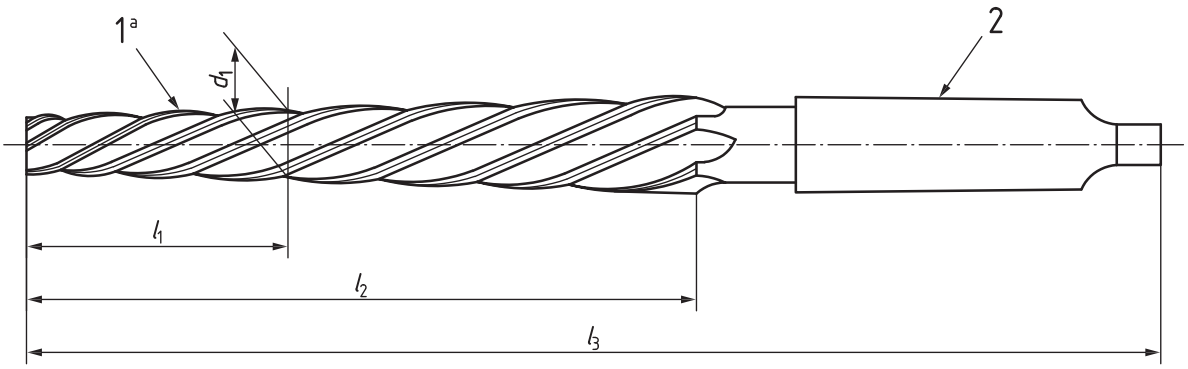
4.1 General

The Morse taper shanks shall be in accordance with ISO 296.

All dimensions and tolerances are given in millimetres.

4.2 Dimensions of machine bridge reamers

The dimensions of machine bridge reamers shall be in accordance with the indications given in Figure 1 and Table 1.



Key

1 rate of taper 1:10

2 Morse taper according to ISO 296

[a] 1:10 corresponds approximately to an opening angle of 5°45'.

Figure 1 — Dimensions of machine bridge reamers

Table 1 — Dimensions of machine bridge reamers

Diameter ranges, d_1[a,b] k11		l_1	l_2	l_3	**Morse taper No.**
from (over)	to (including)				
6,0	6,7	30	75	151	1
6,7	7,5	32	80	156	
7,5	8,5	34	85	161	
8,5	9,5	36	90	166	
9,5	10,6	38	95	171	
10,6	11,8	40	100	176	
11,8	13,2	42	105	199	2
13,2	14,0	46	115	209	
14,0	15,0	50	125	219	
15,0	16,0	54	135	229	
16,0	17,0	54	135	251	3
17,0	19,0	58	145	261	
19,0	21,2	62	155	271	
21,2	23,6	66	165	281	
23,6	26,5	72	180	296	
26,5	30,0	78	195	311	
30,0	31,5	84	210	326	

Table 1 *(continued)*

Diameter ranges, d_1[a,b] k11		l_1	l_2	l_3	**Morse taper No.**
from (over)	to (including)				
31,5	33,5	84	210	354	4
33,5	37,5	88	220	364	
37,5	42,5	92	230	374	
42,5	47,5	96	240	384	
47,5	50,8	100	250	394	

NOTE Tolerance on lengths, l_1 and l_2: lengths, l_1 and l_2, may vary, within one diameter step, between the minimum and maximum limits corresponding respectively to the figures given for nearest lower or upper step (increased or decreased, as far as the total length is concerned, by the length of the two Morse taper, if the Morse taper combined with one of the two adjacent steps is larger or smaller than that the steps is question).

EXAMPLE For the diameter, d_1 = 13 mm, length l_2 can vary between 100 mm and 115 mm from the nominal value 105 mm, and length l_1 can vary between 176 mm and 209 mm from the nominal value 199 mm.

[a] Diameter, d_1, of bridge reamers shall be based on the following principle:

— for rivets below 10 mm in diameter: the diameter of the reamer equals the diameter of the rivet +0,4 mm;

— for rivets 10 mm and above in diameter: the diameter of the reamer equals the diameter of the rivet +1 mm.

[b] The recommended diameters are given in Annex A.

Annex A
(informative)

Recommended stocked dimensions of bridge reamers

The following diameters of bridge reamers, in millimetres, are recommended as stocked dimensions:

6,4 – (7,4) – 8,4 – 11 – 13 – (15) – 17 – (19) – 21 – (23) – 25 – (28) – 31 – (34) – 37 – (40).

They correspond to the rivet diameters 6 mm to 36 mm defined in ISO 1051.

The dimensions in parentheses are only considered as second choice.

Annex B
(informative)

Relationship between designations in this document and ISO 13399 (all parts)

See Table B.1.

Table B.1 — Relationship between designations in this document and ISO 13399 (all parts)

Symbol in this document	Reference in this document	Property name in the ISO 13399 series	Symbol in the ISO 13399 series	Reference in the ISO 13399 series
d_1	Figure 1 Table 1	cutting diameter minimum	DCN	71D0846556288
l_1	Figure 1 Table 1	distance reference point PK	LDC	726E3AAAF99A3
l_2	Figure 1 Table 1	cutting edge length	L	71DD6C95DA49B
l_3	Figure 1 Table 1	overall length	OAL	71D078EB7C086
Rate of taper 1:10	Figure 1, Key1	taper gradient	TG	71CEAEC02FEBD
Morse taper in accordance with ISO 296	Figure 1, Key2	connection size code machine side	CZCMS	71EBDBF5060E6