INTERNATIONAL STANDARD

ISO 10888

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1999-11-15

Keyless type three-jaw drill chucks — Specification

Mandrins de perceuse trois mors sans clé — Spécifications

Reference number
ISO 10888:1999(E)

Contents

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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.

International Standard ISO 10888 was prepared by Technical committee ISO/TC 29, *Small tools*.

Keyless type three-jaw drill chucks — Specification

1 Scope

This International Standard specifies the dimensional characteristics and concentricity tolerance requirements for three-jaw keyless type, self-tightening drill chucks with taper bore or internal thread mounts. It also applies to three-jaw keyless type, hand tightening drill chucks with internal thread mounts.

Three classes of chucks are specified, namely:

— Heavy (H)

— Medium (M)

— Light (L)

for use in various fields of activity.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 239:1999, *Drill chuck tapers.*

ISO 263:1973, *ISO inch screw threads — General plan and selection for screws, bolts and nuts — Diameter range 0.06 to 6in.*

ISO 725:1978, *ISO inch screw threads — Basic dimensions.*

ISO 5864:1978, *ISO inch screw threads — Allowances and tolerances.*

3 Classes

For the purposes of this International Standard the following classes of use are defined:

Class	Type	Use
H	Heavy duty chucks	for use on machine tools and heavy duty portable machines
M	Medium duty chucks	primarily for use on light industrial and portable tools
L	Light duty chucks	for use on light industrial and the do-it-yourself (D.I.Y.) range of tools, corded or cordless

4 Self tightening keyless three-jaw drill chucks

4.1 Dimensions

4.1.1 Taper mount type

See Figure 1 and Table 1.

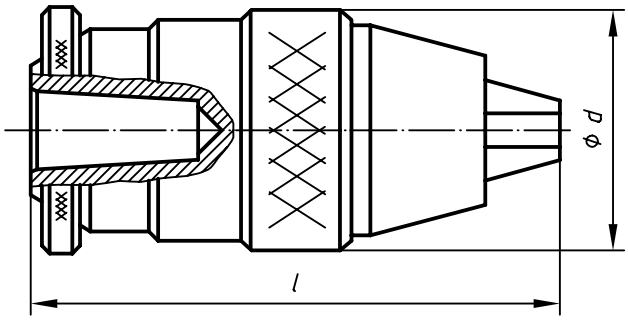


Figure 1 — Three jaw drill chuck — Taper mount type

Table 1 — Three jaw drill chucks — Taper mount type — Overall dimensions

Dimensions in millimetres

Class		3H	4H	5H	6,5H	8H	10H	13H	16H
Heavy (H)	Capacity (from/to)	0,2/3	0,5/4	0,5/5	0,5/6.5	0,5/8	0,5/10	1/13	3/16
	l max.[a]	50	62	63	72	80	103	110	115
	d max.	25	30	32	35	38	42,9	54	56
Class		—	—	—	6,5M	8M	10M	13M	16M
Medium (M)	Capacity (from/to)	—	—	—	0,5/6,5	0,5/8	1/10	1/13	3/16
	l max.[a]	—	—	—	72	80	103	110	115
	d max.	—	—	—	35	38	42,9	42,9	54

[a] *l* max.: Chucks with closed jaws.

4.1.2 Internal thread mount type

See Figure 2 and Table 2.

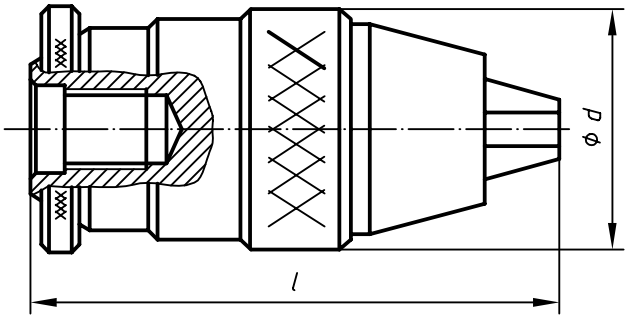


Figure 2 — Three jaw drill chuck — Internal thread mount type

Table 2 — Three jaw drill chucks — Internal thread mount type — Overall dimensions

Dimensions in millimetres

Class		6,5M	8M	10M	13M	16M
Medium (M)	Capacity (from/to)	0,5/6,5	0,5/8	1/10	1/13	3/16
	l max.	72	74	103	110	115
	d max.	35	35	42,9	42,9	54
Class		—	8L	10L	13L	—
Light (L)	Capacity (from/to)	—	1/8	1,5/10	1,5/13	—
	l max.[a]	—	72	78	97	—
	d max.	—	35	36	42,9	—

a *l* max.: Chucks with closed jaws.

4.2 Drill chuck mounts

4.2.1 Taper mount type

See Figure 3 and Table 3.

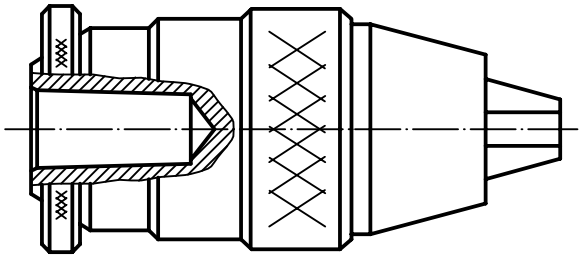


Figure 3 — Three jaw drill chuck — Taper mount type

Table 3 — Three jaw drill chucks — Taper mount type designation

Class		**Capacity** max. mm	**Morse taper mount** Designation No.							**Jacobs taper mount** Designation No.						
			B6	B10	B12	B16s[a]	B16	B18s[a]	B18	0	1	2s[b]	2	33	6	(3)
Heavy (H)	H3	3	×	×						×	×					
	H4	4		×						×	×					
	H5	5		×	×						×					
	H6,5	6,5		×	×						×					
	H8	8		×	×							×				
	H10	10			×		×						×	×		
	H13	13					×						×	×	×	
	H16	16					×	×	×						×	
Medium (M)	M6,5	6,5		×	×						×					
	M8	8		×	×						×	×				
	M10	10			×	×	×					×	×	×		
	M13	13			×	×	×						×	×	×	
	M16	16					×	×							×	×

NOTE For dimensional details on tapers refer to ISO 239.

[a] Short Morse taper mount.

[b] Short Jacobs taper mount.

4.2.2 Internal thread mount type

See Figure 4 and Table 4.

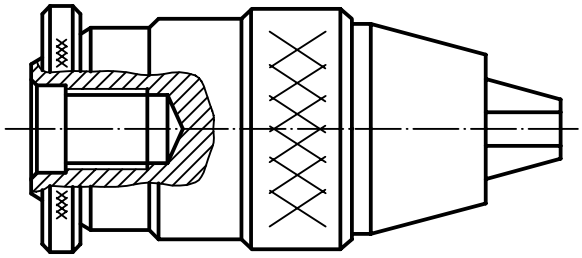


Figure 4 — Three-jaw drill chuck — Internal thread mount type

Table 4 — Three-jaw drill chucks — Internal thread mount type designation

Class		Capacity max.	Thread — Inch series Designation		
			3/8 × 24	1/2 × 20	5/8 × 16
			Minimum depth mm		
		mm	14,5	16	19
Medium (M)	6,5M	6,5	×		
	8M	8	×		
	10M	10	×	×	
	13M	13		×	×
	16M	16		×	×
Light (L)	8L	8	×		
	10L	10	×	×	
	13L	13	×	×	

NOTE Only ISO inch screw threads to ISO 263, ISO 725 and ISO 5864 are presented as industrial practice is to use and specify the inch screw threads.

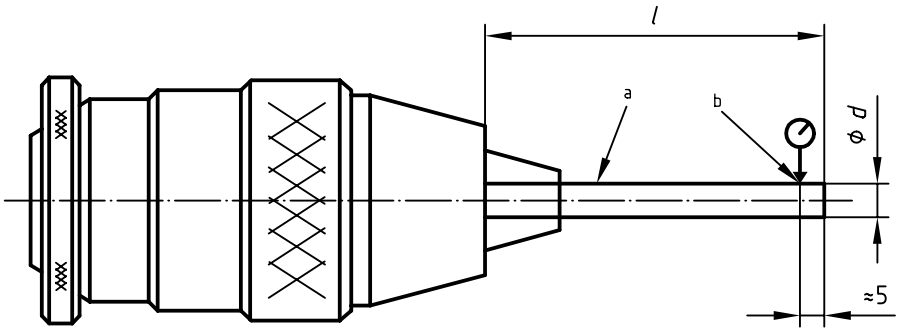
5 Concentricity tolerances of self tightening keyless three-jaw drill chucks

The accuracy of the drill chuck shall be determined by measuring the concentricity tolerances of a test mandrel at a specified distance from the chuck body (see Figure 5).

The measurement taken shall be the Full Indicator Movement (FIM).

For chucks of class H and M the measurement shall be carried out on two test mandrel sizes corresponding to approximately one half the chuck capacity and the maximum chuck capacity respectively (see Table 5).

For chucks of class L the measurement shall be carried out on a test mandrel size corresponding to the maximum chuck capacity only.



a Test mandrel

b Test point

Figure 5 — Testing of concentricity tolerance

Table 5 — Concentricity tolerance of self tightening keyless type

Dimensions in millimetres

Test mandrel diameter		*d* = cap. max.	3	4	5	6,5	8	10	13	16
		l	40	50	50	50	50	75	100	100
		d = cap.1/2 max.	1,5	2	2,5	3	4	5	6	8
		l	20	25	25	25	25	37,5	50	50
FIM	**Class H**	Taper	0,20	0,20	0,20	0,20	0,20	0,20	0,20	0,20
	Class M	Thread				0,30	0,30	0,30	0,30	0,30
		Taper				0,25	0,25	0,25	0,25	0,25
	Class L	Thread					0,35	0,35	0,35	
NOTE The term FIM thread/taper refers to thread and taper chuck mounting types.										

6 Hand tightening keyless three-jaw drill chucks for use with portable power tools, both corded and cordless

6.1 Dimensions

See Figure 6 and Table 6.

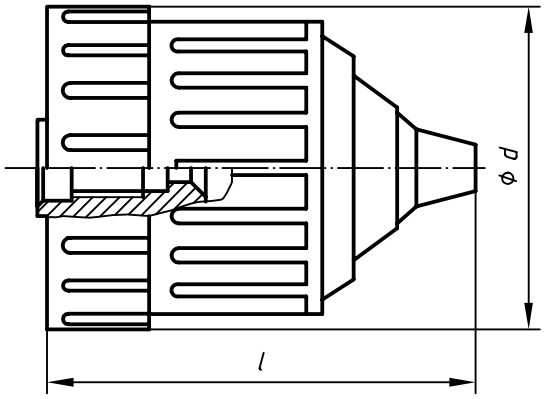


Figure 6 — Three-jaw drill chuck — Internal thread mount type

Table 6 — Three-jaw drill chucks — Internal thread mount type — Overall dimensions

Dimensions in millimetres

Class		10H	13H
Heavy (H)	Capacity (from/to)	1/10	2/13
	l max. [a]	80	90
	d max.	42,9	46
Class		10M	13M
Medium (M)	Capacity (from/to)	1/10	1,5/13
	l max. [a]	75	85
	d max.	42,9	42,9
Class		10L	13L
Light (L)	Capacity (from/to)	1,5/10	2,5/13
	l max. [a]	75	85
	d max.	47	57

[a] *l* max.: chucks with closed jaws.

6.2 Internal thread mount type

See Figure 7 and Table 7.

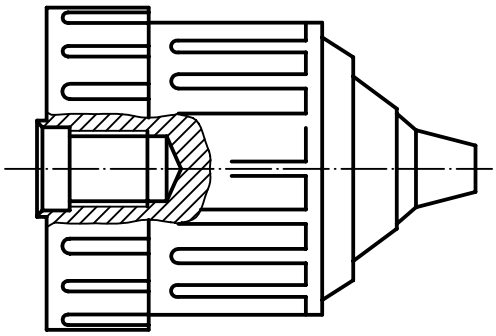


Figure 7 — Three-jaw drill chuck — Internal thread mount type

Table 7 — Three-jaw drill chucks — Internal thread mount type

Class	Thread — Inch series			
	Designation	Minimum depth mm	Designation	Minimum depth mm
	10H		13H	
Heavy (H)	3/8 × 24	14,5	1/2 × 20	16
	1/2 × 20	16	5/8 × 16	19
	10M		13M	
Medium (M)	3/8 × 24	14,5	3/8 × 24	14,5
	1/2 × 20	16	1/2 × 20	16
	10L		13L	
Light (L)	3/8 × 24	14,5	3/8 × 24	14,5
	1/2 × 20	16	1/2 × 20	16

NOTE Only ISO inch screw threads to ISO 263, ISO 725 and ISO 5864 are presented as industrial practice is to use and specify the inch screw threads

7 Concentricity tolerances of hand tightening keyless three-jaw drill chucks

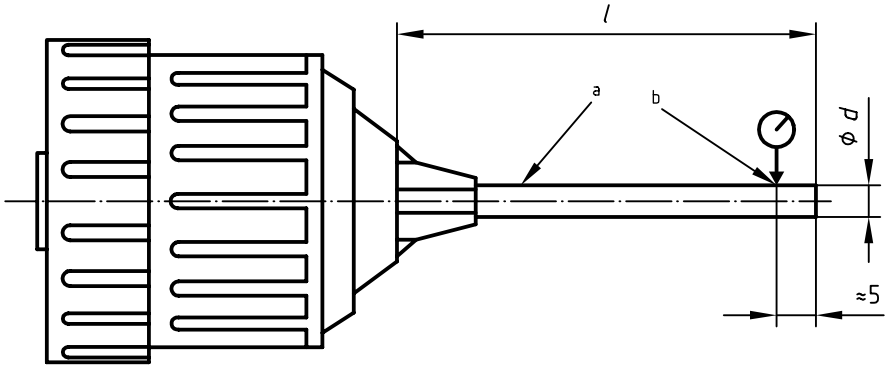
The accuracy of the drill chuck shall be determined by measuring the concentricity tolerances of a test mandrel at a specified distance from the chuck body (see Figure 8).

The measurement taken shall be the Full Indicator Movement (FIM).

For chucks of class H and M the measurement shall be carried out on two mandrel sizes corresponding to approximately one half the chuck capacity and the maximum chuck capacity respectively (see Table 8).

For chucks of class L the measurement shall be carried out on a spindle size corresponding to the maximum chuck capacity only.

Dimensions in millimetres



a Test madrel

b Test point

Figure 8 — Testing of concentricity tolerance

Table 8 — Concentricity tolerances of hand tightening keyless type

Dimensions in millimetres

Test mandrel diameter		d = cap. max.	10	13
		l	75	100
		d = cap.1/2 max.	5	6
		l	37,5	50
FIM	**Class H**	Thread	0,30	0,30
	Class M	Thread	0,35	0,35
	Class L	Thread	0,40	0,40
NOTE The term FIM thread refers to thread chuck mounting types.				

8 Designation

8.1 Self-tightening keyless chucks

A self-tightening keyless drill chuck conforming to this International Standard shall be designated by:

a) "Self-tightening keyless chuck";

b) reference to this International Standard, i.e. ISO 10888;

c) capital letter

   1) either T, if designated as Taper mount type followed by J, if designated as Jacobs taper mount type, or number of Morse taper mount type,

   2) or I, if designated as internal thread (inch) mount type followed by the size of the appropriate thread mount;

d) the value of the chuck capacity in millimetres;

e) class of chuck (H, M or L).

EXAMPLE 1

A self-tightening keyless chuck, taper mount type , with Morse taper mount B10, capacity of 6,5 mm, heavy type, is designated as follows:

Self-tightening keyless chuck ISO 10888 - T - B10 - 6,5M

EXAMPLE 2

A self-tightening keyless chuck, taper mount type, with Jacobs taper mount 2 short, capacity of 8 mm, medium type, is designated as follows:

Self-tightening keyless chuck ISO 10888 - T - J2 s - 8M

EXAMPLE 3

A self-tightening keyless chuck, internal thread mount type, with thread inch series 1/2 × 20, capacity of 13 mm, light type, is designated as follows:

Self-tightening keyless chuck ISO 10888 - I - 1/2 × 20 - 13L

8.2 Hand-tightening keyless chucks

A hand-tightening keyless drill chuck conforming to this International Standard shall be designated by:

a) "Hand-tightening keyless chuck";

b) reference to this International Standard, i.e. ISO 10888;

c) capital letter I followed by the size of the appropriate thread mount;

d) the value of the chuck capacity, in millimetres;

e) class of chuck (H, M or L).

EXAMPLE

A hand-tightening keyless chuck, with thread inch series 1/2 × 20, capacity of 13 mm, light type, is designated as follows:

Hand-tightening keyless chuck ISO 10888 - I - 1/2 × 20 - 13L

9 Marking

The chuck marking shall be of a permanent nature, and the manufacturing origin of the product shall be clearly identified either on the packaging or on the chuck.

9.1 Self-tightening keyless chucks

Each chuck shall be marked with:

— the manufacturer's name or mark and model number;

— the capacity range;

— the taper symbol number or thread designation.

9.2 Hand-tightening keyless chucks

Each chuck shall be marked with:

— the manufacturer name or mark and model number;

— the capacity range.

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