
**Key type three-jaw drill chucks —
Specification**

Mandrins de perceuse trois mors à clé — Spécifications



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Foreword

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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 10887 was prepared by Technical Committee ISO/TC 29, *Small tools*.

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Key type three-jaw drill chucks — Specification

1 Scope

This International Standard specifies the dimensional characteristics and concentricity tolerance requirements for key type three-jaw drill chucks with taper bore or internal thread mounts.

Three classes of chucks are specified, namely:

- Heavy (H)
- Medium (M)
- Light (L)

for use in various fields of activity.

Basic dimensions for three-jaw drill chuck keys are also specified.

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 6 in.*

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 Keyed three-jaw drill chucks

4.1 Dimensions

4.1.1 Taper mount type

See Figure 1 and Table 1.

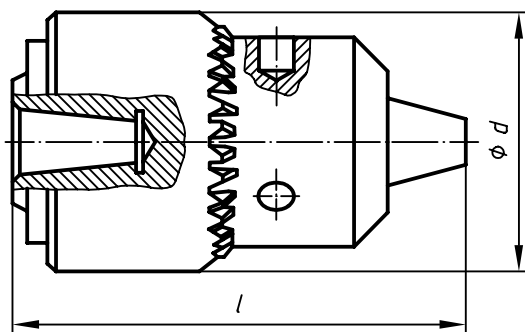


Figure 1 — Three-jaw drill chuck — Taper mount type

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

Dimensions in millimetres

Class		4H	6,5H	8H	10H	13H	16H	20H	26H
Heavy (H)	Capacity (from/to)	0,5/4	0,8/6,5	0,8/8	1/10	1/13	1/16	5/20	5/26
	<i>l</i> max. ^a	50	60	62	80	93	106	120	148
	<i>d</i> max.	26	38	38	46	55	60	65	93
Class		—	6,5M	8M	10M	13M	16M	—	—
Medium (M)	Capacity (from/to)	—	0,8/6,5	0,8/8	1/10	1,5/13	3/16	—	—
	<i>l</i> max. ^a	—	58	58	65	82	93	—	—
	<i>d</i> max.	—	35	35	42,9	47	52	—	—
Class		—	6,5L	8L	10L	13L	—	—	—
Light (L)	Capacity (from/to)	—	0,8/6,5	1/8	1,5/10	2,5/13	—	—	—
	<i>l</i> max. ^a	—	56	56	65	82	—	—	—
	<i>d</i> max.	—	30	30	34	42,9	—	—	—

^a *l* max.: chucks with closed jaws.

4.1.2 Internal thread mount type

See Figure 2 and Table 2.

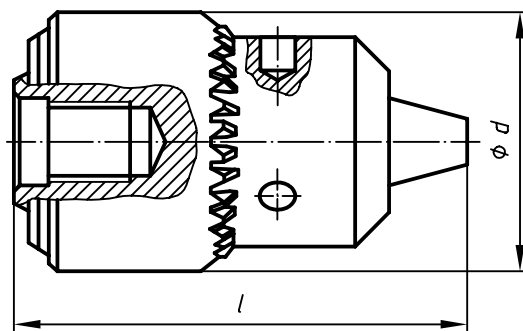


Figure 2 — Three-jaw drill chuck — Internal thread mount type

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

Dimensions in millimetres

Class		4H	6,5H	8H	10H	13H	16H	20H
Heavy (H)	Capacity (from/to)	0,5/4	0,8/6,5	0,8/8	1/10	1/13	1/16	5/20
	<i>l</i> max. ^a	50	60	62	80	90	100	110
	<i>d</i> max.	26	34	38	46	55	60	65
Class		—	6,5M	8M	10M	13M	16M	—
Medium (M)	Capacity (from/to)	—	0,8/6,5	0,8/8	1/10	1,5/13	3/16	—
	<i>l</i> max. ^a	—	56	56	65	82	90	—
	<i>d</i> max.	—	35	35	42,9	46	52	—
Class		—	6,5L	8L	10L	13L	—	—
Light (L)	Capacity (from/to)	—	0,8/6,5	1/8	1,5/10	2,5/13	—	—
	<i>l</i> max. ^a	—	56	56	65	82	—	—
	<i>d</i> max.	—	30	30	34	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.

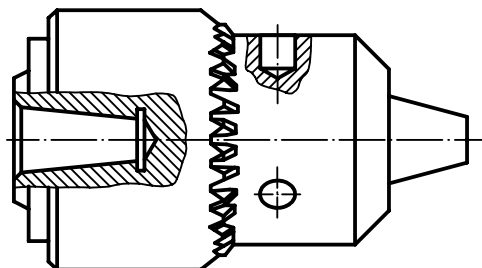


Figure 3 — Three-jaw drill chuck — Taper mount type

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

Class		Capacity max. mm	Morse taper mount Designation No.						Jacobs taper mount Designation No.								
			B10	B12	B16	B18	B22	B24	0	1	2sa	2	33	6	(3)	(4)	(5)
Heavy (H)	4H	4	×						×								
	6,5H	6,5		×						×							
	8H	8		×							×						
	10H	10			×						×	×	×				
	13H	13			×								×	×			
	16H	16				×									×		
	20H	20					×								×		
	26H	26							×							×	×
Medium (M)	6,5M	6,5	×							×							
	8M	8		×						×							
	10M	10		×							×	×	×				
	13M	13			×							×	×	×			
	16M	16			×									×			
Light (L)	6,5L	6,5	×							×							
	8L	8	×							×							
	10L	10		×							×	×	×				
	13L	13		×	×							×	×	×			

NOTE For dimensional details of tapers, see ISO 239.

^a Short Jacobs taper mount.

4.2.2 Internal thread mount type

See Figure 4 and Table 4.

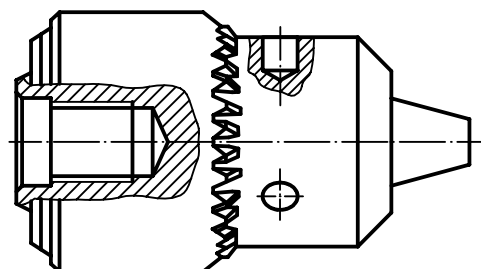


Figure 4 — Three-jaw drill chuck — Internal thread mount type

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

Class		Capacity max. mm	Thread — inch series				
			Designation				
			5/16 x 24	3/8 x 24	1/2 x 20	5/8 x 16	3/4 x 16
			Minimum depth mm				
			12	14,5	16	19	20
Heavy (H)	4H	4	×				
	6,5H	6,5		×	×		
	8H	8		×	×		
	10H	10			×		
	13H	13			×	×	
	16H	16			×	×	
	20H	20					×
Medium (M)	6,5M	6,5	×	×			
	8M	8		×	×		
	10M	10		×	×		
	13M	13			×		
	16M	16			×	×	
Light (L)	6,5L	6,5		×			
	8L	8		×	×		
	10L	10		×	×		
	13L	13		×	×		

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

5 Concentricity tolerances

The accuracy of the drill chuck shall be determined by measuring the concentricity tolerance 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 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.

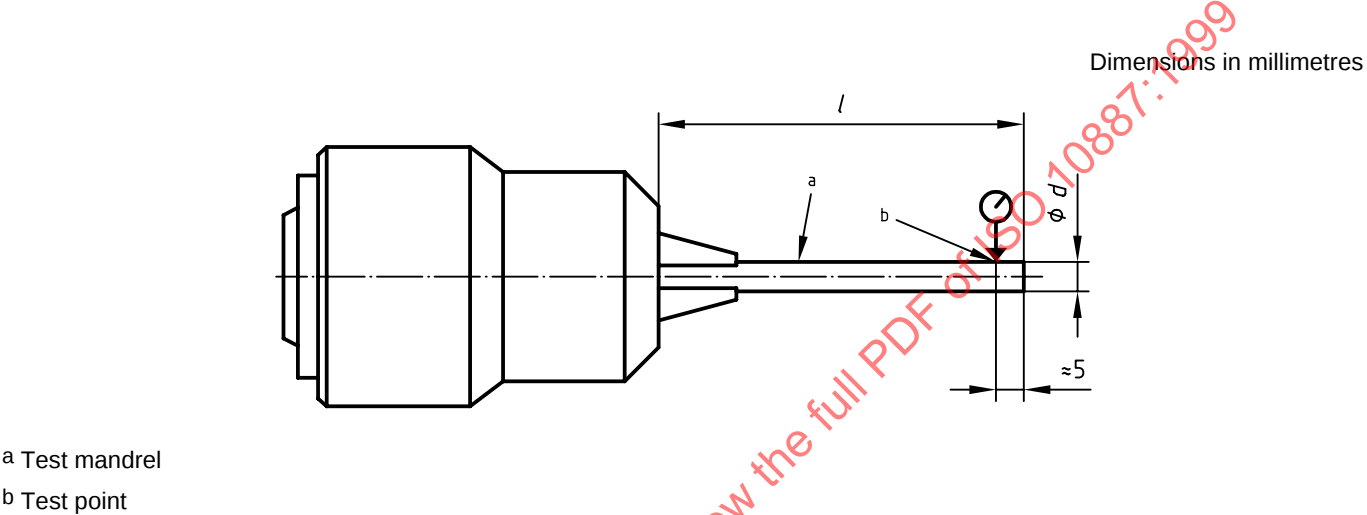


Figure 5 — Testing of concentricity tolerance

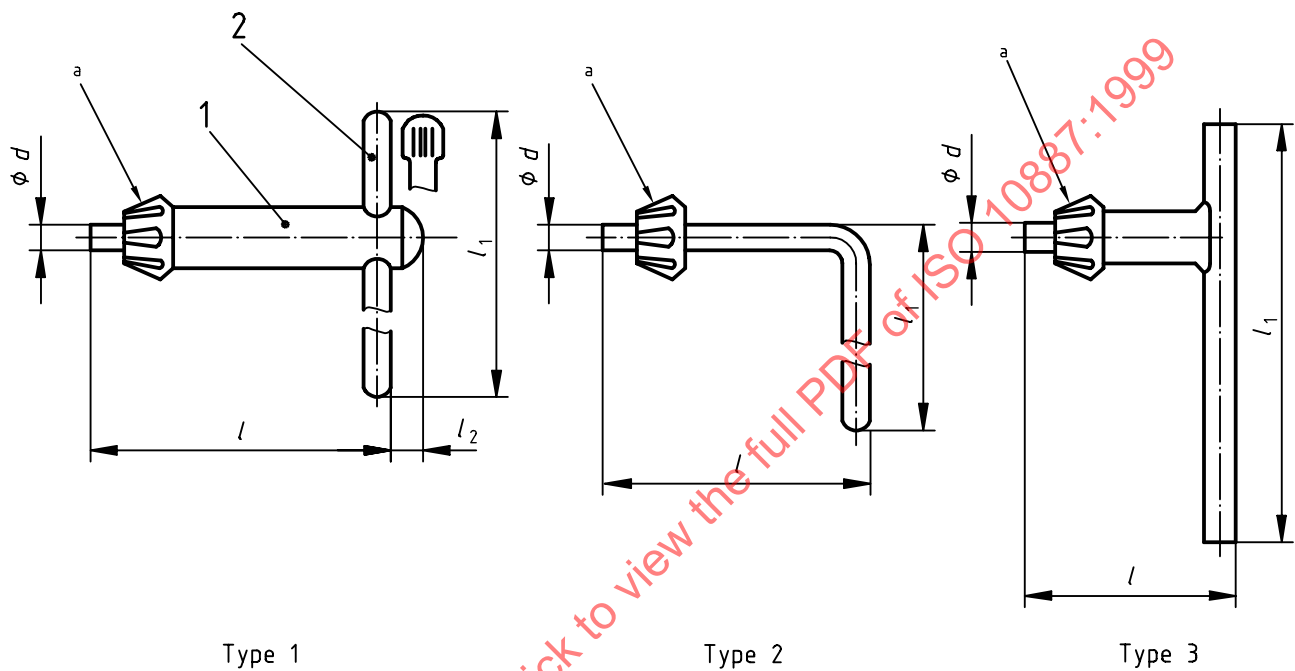
Table 5 — Concentricity tolerance

Dimensions in millimetres										
Test Mandrel diameter		<i>d</i> = cap. max.	4	6,5	8	10	13	16	20	26
		<i>l</i>	50	50	50	75	100	100	125	125
		<i>d</i> = cap. 1/2max.	2	3	4	5	6	8	10	13
		<i>l</i>	25	25	25	37,5	50	50	62,5	62,5
FIM	Class H	Thread	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25
		Taper	0,20	0,20	0,20	0,20	0,20	0,20	0,25	0,25
	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	0,35			
		Taper		0,35	0,35	0,35	0,35			
NOTE The term FIM thread/taper refers to thread and taper mounting types.										

6 Chuck keys — Key types

Three types are defined (see Figure 6):

- type 1: tee for use with heavy, medium and light duty chucks;
- type 2: 90° bend for use with light duty chucks;
- type 3: welded design for use with heavy, medium and light duty chucks.



Key

- 1 Body
- 2 Handle
- a Cogged ferrule

Figure 6 — Key types

Table 6 — Chuck key — Overall dimensions and class of application

Dimensions in millimetres

Size No.	d	Number of teeth	Length					Applicable to chucks of the following classes																
			Types 1 and 3			Type 2		Heavy (H)								Medium (M)					Light (L)			
			l min.	l ₂ +1 0	l ₁ min.	l min.	l ₁ min.	4	6,5	8	10	13	16	20	26	6,5	8	10	13	16	6,5	8	10	13
1	4	10	30	2	60			×	×							×	×				×	×		
2	4	12	37,5	2	65											×					×			
3	5,5	12	40	3	75				×									×					×	
4	6	12	41	3	80					×	×							×	×				×	×
5	6,5	12	47	3	90						×							×						×
6	8	12	50	3	90							×	×						×					
7	9	12	55	5	120								×											
8	9	14	56	5	110									×	×									
9	3,175	11	27	1,5	55			×																
10	3,968	11	28	4	55											×								
11	5,556	11	33	1	60				×															
12	5,953	10	36	2	70					×								×						
13	6,35	11	39	1,8	70													×						
14	6,35	10	40	2	80						×								×					
15	6,096	11	29	3,8	55																×	×	×	
16	6,096	11				33	39,7														×	×	×	
17	6,985	10	35	2,8	70																		×	×
18	6,985	10				38	55																×	×
19	7,937	11	40	3	90							×	×											
20	9,525	12	50	2	110									×										
21	11,112	12	92	3	200										×									