
**Tools for pressing — Guide bushes —
Part 5:
Form D, ball cage bushes, headed, type
1**

Outillage de presse — Bagues de guidage —

Partie 5: Forme D, bagues à collerette pour guidage à billes, type 1



Reference number
ISO 9448-5:2013(E)

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Published in Switzerland

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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.

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The committee responsible for this document is ISO/TC 29, *Small tools*, Subcommittee SC 8, *Tools for pressing and moulding*.

This second edition results from the reinstatement of ISO 9448-5:1991, which was withdrawn in 2006 and with which it is technically identical.

ISO 9448 consists of the following parts, under the general title *Tools for pressing — Guide bushes*:

- Part 1: *Forms*
- Part 2: *Form A, gliding bushes, plain, type 1*
- Part 3: *Form B, ball cage bushes, plain, type 1*
- Part 4: *Form C, gliding bushes, headed, type 1*
- Part 5: *Form D, ball cage bushes, headed, type 1*
- Part 6: *Form E, gliding bushes, flanged, type 1*
- Part 7: *Form F, ball cage bushes, flanged, type 1*
- Part 8: *Form G, gliding bushes, stepped, type 1*
- Part 9: *Form B, ball cage bushes, plain, type 2*
- Part 10: *Form E, gliding bushes, flanged, type 2*
- Part 11: *Form F, ball cage bushes, flanged, type 2*

Tools for pressing — Guide bushes —

Part 5: Form D, ball cage bushes, headed, type 1

1 Scope

This part of ISO 9448 specifies the main dimensions and tolerances, in millimetres, of guide bushes of form D, headed ball cage bushes, type 1, intended for use in press tools and to be mounted in the clamp plate with transition fit and fixed to the plate by means of screws.

It gives guidance on the materials, and specifies the hardness and the designation of bushes in accordance with this part of ISO 9448.

2 Dimensions

The dimensions of type 1 headed ball cage bushes (form D) shall conform to the indications in [Figure 1](#) and [Table 1](#).

Details not stated, such as chamfers, radii, lubrication grooves, are left to the manufacturer's discretion.

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Table 1

D_1		16	20	25	32	40	50						
D_2 k5 ^a		28	32	40	48	58	70						
D_3		45	50	63	72	85	104						
D_4		35	40	50	58	70	86						
Clearance hole	D_6	4,5	4,5	5,5	5,5	6,6	9						
For screw		M4	M4	M5	M5	M6	M8						
K		15	18	23	28	33	38						
	l_1												
nom.	tol.	l	(l_2)										
25	-2,0 -2,5	31	6	40	15								
32		38	6	47	15	57	25						
40	-3 -4			55	15	65	25	65	25	70	30		
50								75	25	80	30	92	42
63												105	42
To prevent incorrect assembly of the upper and lower plates of the die set in relation to each other, the following values of D_1 are recommended: 15, 19, 24, 30, 38 and 48.													
^a Intended to fit into a hole having a tolerance of H7.													

3 Material

The material is left to the manufacturer's discretion and the hardness shall be (63 ± 1) HRC.

4 Designation

A guide bush in accordance with this part of ISO 9448 shall be designated by:

- "Guide bush";
- a reference to this part of ISO 9448, i.e ISO 9448-5;
- its form;
- its guiding diameter, D_1 , in millimetres;
- its length, l_1 , in millimetres.

EXAMPLE A guide bush of form D, headed ball cage bush, type 1 of guiding diameter $D_1 = 16$ mm and of length $l_1 = 25$ mm is designated as follows:

Guide bush ISO 9448-5 D - 16 × 25

Bibliography

- [1] ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method*

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www.iso.org/standard/59668.html

ICS 25.120.10

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