



BSI Standards Publication

Tools for pressing — Guide bushes

Part 3: Form B, ball cage bushes, plain, type 1

National foreword

This British Standard is the UK implementation of ISO 9448-3:2013. It supersedes BS 7568-19:1992 (ISO 9448-3:1991) which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MTE/12, Tools for pressing and moulding.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Tools for pressing — Guide bushes —
Part 3:
Form B, ball cage bushes, plain, type 1

Outillage de presse — Bagues de guidage —

Partie 3: Forme B, bagues lisses pour guidage à billes, type 1



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Foreword

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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This second edition results from the reinstatement of ISO 9448-3:1991, which was withdrawn in 2006 and with which it is technically identical.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 3: Form B, ball cage bushes, plain, type 1

1 Scope

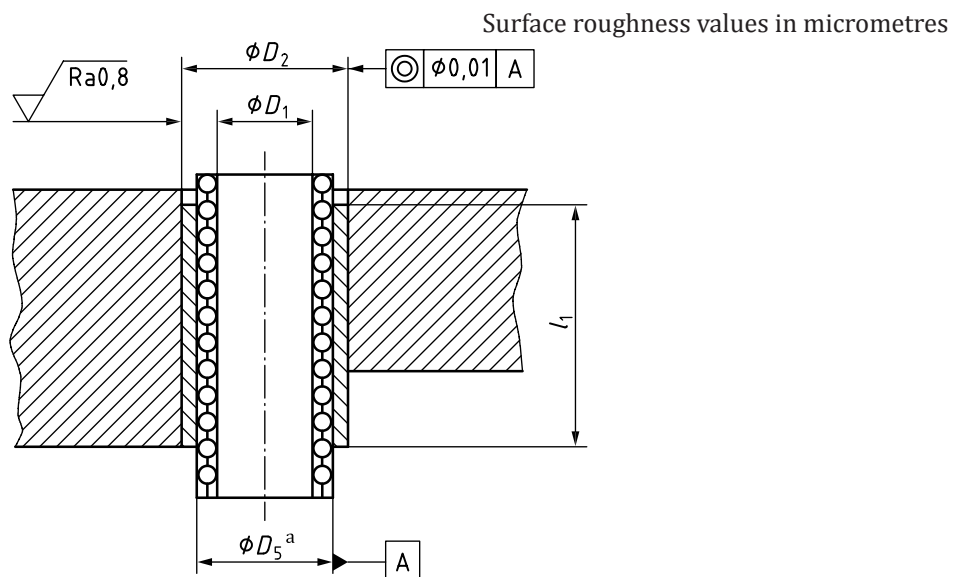
This part of ISO 9448 specifies the main dimensions and tolerances, in millimetres, of guide bushes of form B, plain ball cage bushes, type 1, intended for use in press tools and to be mounted in the clamp plate by means of interference fit.

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 plain ball cage bushes (form B) shall conform to the indications of [Figure 1](#) and [Table 1](#).

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



- ^a The manufacturer shall determine the internal diameter, D_5 , of the bush, using the tolerance M5. This diameter is intended to be lapped or ground to ensure the proper preloading of the balls between the pillar and the bush, as determined by the manufacturer. This lapping or grinding operation shall be carried out to give a surface roughness $Ra = 0,05 \mu\text{m}$ and this diameter shall act as a reference diameter for the concentricity and perpendicularity tolerances.

Figure 1 — Form B, plain ball cage guide bushes, type 1

Table 1

nom.	l_1	D_1						
		12	16	20	25	32	40	50
		D_2 n6 ^a						
		22	28	32	40	48	58	70
25	-2,0 -2,5	×	×					
32		×	×	×				
40	-3 -4	×	×	×	×			
50		×	×	×	×	×		
63			×	×	×	×	×	
80				×	×	×	×	×
100	-3 -5					×	×	×
125							×	×
160								×
× standardized dimension 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: 11, 15, 19, 24, 30, 38 and 48.								
^a Intended to fit into a hole having a tolerance of H7. When the bushes are glued, tolerance j6 is permitted.								

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 9448-3;
- its form;
- its guiding diameter, D_1 , in millimetres;
- its length, l_1 , in millimetres.

EXAMPLE A guide bush of form B, plain ball cage bush, type 1 of guiding diameter $D_1 = 12$ mm and of length $l_1 = 25$ mm is designated as follows:

Guide bush ISO 9448-3 B - 12 × 25

Bibliography

- [1] ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method (scales A, B, C, D, E, F, G, H, K, N, T)*

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BSI Group Headquarters

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