INTERNATIONAL STANDARD

ISO 9448-7

Second edition
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Tools for pressing — Guide bushes —

Part 7: Form F, ball cage bushes, flanged, type 1

Outillage de presse — Bagues de guidage —

Partie 7: Forme F, bagues à collerette à brider pour guidage à billes, type 1

Reference number
ISO 9448-7:2013(E)

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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.

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. www.iso.org/directives

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

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This second edition results from the reinstatement of ISO 9448-7:1991, which was withdrawn in 2006 and with which it is technically identical.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 7:
Form F, ball cage bushes, flanged, type 1

1 Scope

This part of ISO 9448 specifies the main dimensions and tolerances, in millimetres, of guide bushes of form F, flanged 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 guide clamps.

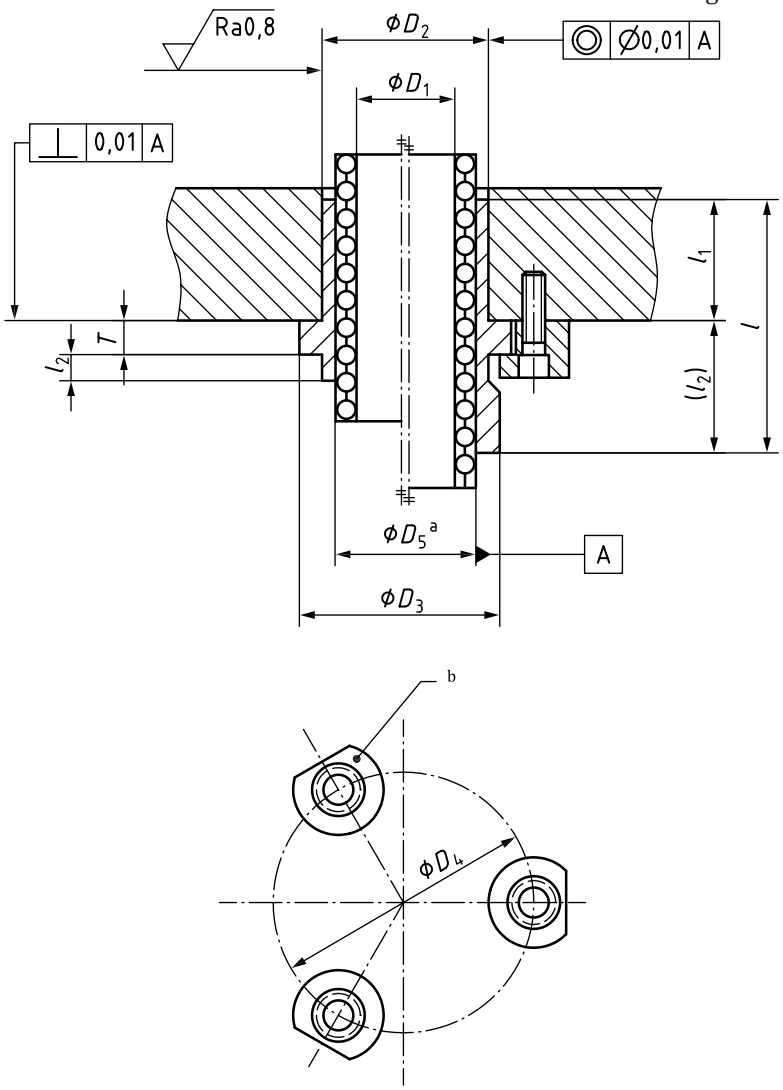
It gives guidance on the materials, and specifies the hardness and the designation of bushes in accordance with this part of ISO 9448.

2 Dimensions

The dimensions of type 1 flanged ball cage bushes (form F) shall conform to the indications in Figure 1 and Table 1.

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

Surface roughness values in micrometres



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 µm, and this diameter shall act as a reference diameter for the concentricity and perpendicularity tolerances.

b Number of guide clamps at the manufacturer's discretion.

Figure 1 — Form F, flanged ball cage bushes, type 1

Table 1

D_1		12		16		20		25		32		40		50	
D_2 k5[a]		22		28		32		40		48		58		70	
D_3		30		36		40		48		56		66		80	
D_4		47		53		57		65		73		83		97	
T	± 0,1	6,3		6,3		6,3		6,3		6,3		6,3		6,3	
l_1 nom.	nom.	l	(l_2)	l	(l_2)	l	(l_2)	l	(l_2)	l	(l_2)	l	(l_2)	l	(l_2)
20		30	10												
		45	25												
25		35	10	35	10	37	12	37	12						
		50	25	57	32	45	20	61	36						
	–2,0 –2,5					61	36	81	56						
32		42	10	42	10	44	12	57	25	44	12				
				64	32	68	36	82	50	77	45				
										95	63				
40				50	10	52	12	52	12	72	32	55	15		
						76	36	80	40	96	56	85	45		
												111	71		
50						62	12	62	12	65	15	82	32	68	18
								90	40	95	45	113	63	100	50
	–3 –4													130	80
63								75	12	78	15	78	15	99	36
										108	45	113	50	134	71
80												95	15	98	18
												130	50	143	63
100	–3 –5													118	18
														163	63
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.															

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:

a) "Guide bush";

b) a reference to this part of ISO 9448, i.e ISO 9448-7;

c) its form;

d) its guiding diameter, D_1, in millimetres;

e) its length, l_1, in millimetres.

f) its length, l, in millimetres.

EXAMPLE A guide bush of form F, flanged ball cage bush, type 1 of guiding diameter D_1 = 12 mm, of length l_1 = 20 mm and of length l = 30 mm is designated as follows:

Guide bush ISO 9448-7 F - 12 × 20 × 30

Bibliography

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

ICS 25.120.10

Price based on 5 pages