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Plain bearings — Thermoplastic bushes — Dimensions and tolerances

Paliers lisses — Bagues thermoplastiques — Dimensions et tolérances

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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Contents

	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols	1
5 Dimensions	2
6 Material	7
7 Design	8
8 Testing	8
8.1 General	8
8.2 Outside diameter D_o	8
8.3 Inside diameter D_i	9
9 Assembling	9
10 Designation	10

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Foreword

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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 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 123, *Plain bearings*, Subcommittee SC 7, *Special types of plain bearings*.

This second edition cancels and replaces the first edition (ISO 16287:2005), which has been technically revised. The main changes compared to the previous edition are as follows:

- Clause “Terms and definitions” have been added.
- [Figures 2](#) and [3](#) have been reviewed.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Plain bearings — Thermoplastic bushes — Dimensions and tolerances

1 Scope

This document specifies the dimensions and tolerances for inserted thermoplastic bushes used as plain bearings with or without lubrication grooves in accordance with ISO 12128. These thermoplastic bushes are dimensionally exchangeable to wrapped bushes according to ISO 3547-1.

This International Standard is not applicable to reinforced plastics.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 286-1, *Geometrical product specifications (GPS) — ISO code system for tolerances on linear sizes — Part 1: Basis of tolerance, deviations and fits*

ISO 554, *Standard atmospheres for conditioning and/or testing — Specifications*

ISO 3547-1, *Plain bearings — Wrapped bushes — Part 1: Dimensions*

ISO 3547-2, *Plain bearings — Wrapped bushes — Part 2: Test data for outside and inside diameter*

ISO 6691, *Thermoplastics polymers for plain bearings — Classification and designation*

ISO 12128, *Plain bearings — Lubrication holes, grooves and pockets — Dimensions, types, designation and their application to bearing bushes*

ISO 12301, *Plain bearings — Quality control techniques and inspection of geometrical and material quality characteristics*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 Symbols

B	nominal width of bush
B_{fl}	flange thickness
C_i	inside chamfer
C_o	outside chamfer

D_{fl}	flange diameter
D_H	nominal housing bore diameter
D_i	nominal inside diameter of the bush
$D_{i,ch}$	inside diameter of the bush when inserted in a ring gauge middle H7
D_o	nominal outside diameter of the bush
r	radius for flange bushes

5 Dimensions

The dimensions and tolerances of the thermoplastic bushes are shown in Figures 1 and 2, according to whether cylindrical (type C) or flanged (type F), and given, in millimetres, in Tables 1, 2, 3 and 4. The surface finishes x and y represented in Figures 1 and 2 are given in Table 5.

For determination of the IT value (see ISO 286-1) of the coaxiality tolerance, the dimensions of D_o are applicable.

For determination of the IT value (ISO 286-1) of the axial run-out tolerance, the dimensions of D_{fl} are applicable.

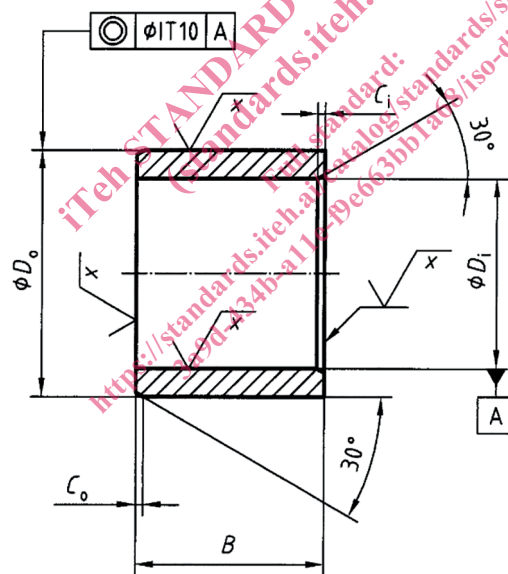


Figure 1 — Cylindrical bush

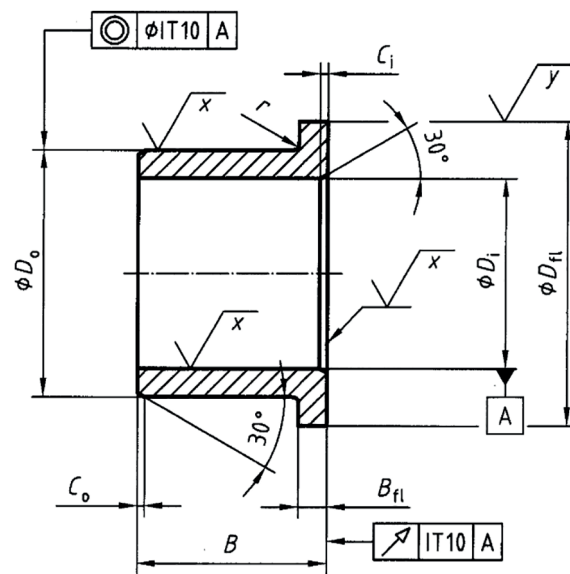


Figure 2 — Flanged bush

Table 1 — Nominal sizes and limits for thick-walled bushes type C and type F

D_i nom.	nom.		D_o Limits for tolerance group (see Table 5)		D_n h13	B_n h13	B h13			C_i	r
			A	B						C_o max.	
6	10	12	+0,21	zb11	14	3	6	10	—	0,8	0,5
8	12	14	+0,07		18	3	6	10	15	0,8	0,5
10	14	16	+0,27		20	3	6	10	15	0,8	0,5
12	16	18	+0,09		22	3	10	15	20	0,8	0,8
14	18	20	+0,33		25	3	10	15	20	0,8	0,8
15	18	21	+0,11		27	3	10	15	20	0,8	0,8
16	20	22	+0,45		28	3	12	15	20	0,8	0,8
18	22	24			30	3	12	20	30	0,8	0,8
20	24	26	+0,15		32	3	15	20	30	1,5	0,8
22	26	28			34	3	15	20	30	1,5	0,8
24	28	30	+0,60		36	3	15	20	30	1,5	0,8
25	30	32			38	4	20	30	40	1,5	0,8
28	34	36	+0,20		42	4	20	30	40	2	0,8
30	36	38			44	4	20	30	40	2	0,8
32	38	40	+0,69		46	4	20	30	40	2	0,8
35	41	45			50	5	30	40	50	2	0,8
38	45	48	+0,23		54	5	30	40	50	2	0,8
40	48	50			58	5	30	40	60	2	0,8
42	50	52	+0,90		60	5	30	40	60	2	0,8
45	53	55			63	5	30	40	60	2,5	0,8
48	56	58	+0,30		66	5	40	50	60	2,5	0,8
50	58	60			68	5	40	50	60	2,5	0,8
55	63	65	+0,30		73	5	40	50	70	2,5	0,8
60	70	75			83	7,5	40	60	80	2,5	0,8

Table 1 (continued)

D_i			D_o		D_{fl}	B_{fl}	B			C_i	r
			Limits for tolerance group (see Table 5)							C_o	
			A	B						max.	
nom.	nom.				h13	h13	h13			max.	max.
65	75	80	To be agreed		88	7,5	50	60	80	2,5	2
70	80	85			95	7,5	50	70	90	2,5	2
75	85	90			100	7,5	50	70	90	2,5	2
80	90	95			105	7,5	60	80	100	2,5	2
85	95	100			110	7,5	60	80	100	2,5	2
90	105	110		za11	120	10	60	80	120	2,5	2
95	110	115			125	10	60	100	120	2,5	2
100	115	120			130	10	80	100	120	2,5	2
105	120	125			135	10	80	100	120	2,5	2
110	125	130			140	10	80	100	120	2,5	2
120	135	140			150	10	100	120	150	2,5	2
130	145	150			160	10	100	120	150	3	2
140	155	160			170	10	100	150	180	3	2
150	165	170			180	10	120	150	180	3	2
160	180	185			200	12,5	120	150	180	3	2
170	190	195			210	12,5	120	180	200	3	2
180	200	210			220	15	150	180	250	3	2
190	210	220			230	15	150	180	250	3	2
200	220	230			240	15	180	200	250	3	2

Table 2 — Nominal sizes and limits for thin-walled cylindrical bushes type C

D_i			D_o Limits for tolerance group (see Table 5)	B	B						C_i C_o
nom.	nom.		A	B	h13						max.
6	8		+0,21	zb11	4	6	8	10			0,8
8	10		+0,07		6	8	10	12	15		0,8
10	12		+0,27		6	8	10	12	15	20	0,8
12	14		+0,09		8	10	12	15	20	25	0,8
14	16				10	12	15	20	25		0,8
15	17		+0,33		10	12	15	20	25		0,8
16	18		+0,11		10	12	15	20	25		0,8
18	20				10	15	20	25			0,8
20	23				10	15	20	25	30		1,5
22	25		+0,45			15	20	25	30		1,5
24	27		+0,15			15	20	25	30		1,5
25	28					15	20	25	30	50	1,5
28	32		+0,60			15	20	25	30		2
30	34		+0,20		10	15	20	25	30	40	2
32	36				20	30	40				2
35	39		+0,69		20	30	35	40	50		2
38	42		+0,23		20	30	40				2
40	44				20	30	40	50			2

Table 2 (continued)

D_i	nom.	D_o Limits for tolerance group (see Table 5)		B						C_i C_o
		A	B	h13						max.
45	50	+0,90 +0,30		20	30	40	45	50		2,5
50	55			20	30	40	50	60		2,5
55	60			20	30	40	50	60		2,5
60	65	20		30	40	50	60	70	2,5	
65	70	30		50	70				2,5	
70	75	30		40	50	70			2,5	
75	80			40	60	80			2,5	
80	85			40	60	80	100		2,5	
85	90			30	40	60	80	100	2,5	
90	95	To be agreed		za11	40	60	100			
95	100				60	100				2,5
100	105		50		60	100	115			2,5
105	110		60		100	105				2,5
110	115		60		100	115				2,5
115	120		60		100					2,5
120	125		60		100					2,5
125	130		60		100					2,5
130	135		60		100					3
135	140		60		100					3
140	145	60	100					3		
150	155	60	100					3		

Table 3 — Nominal sizes and limits for thin-walled flanged bushes type F

D_i	nom.	D_o Limits for tolerance group (see Table 5)		D_{fl}	B_{fl}	B			C_i	r	
		A	B						C_o		
									max.		
nom.	nom.	A	B	d13	h13	h13			max.	max.	
6	8	+0,21		12	1	6	10		0,8	0,5	
8	10	+0,07		15	1	6	10	15	0,8	0,5	
10	12	+0,27		18	1	6	10	15	0,8	0,5	
12	14			+0,09	20	1	10	15	20	0,8	0,8
14	16				22	1	10	15	20	0,8	0,8
15	17	+0,33			23	1	10	15	20	0,8	0,8
16	18			+0,11	24	1	12	15	20	0,8	0,8
18	20				26	1	12	20	30	0,8	0,8
20	23	+0,45			30	1,5	15	20	30	1,5	0,8
22	25			31	1,5	15	20	30	1,5	0,8	
24	27			+0,15	34	1,5	15	20	30	1,5	0,8
25	28				35	1,5	20	30	40	1,5	0,8