
**Plain bearings — Wrapped bushes —
Part 1:
Dimensions**

Paliers lisses — Bagues roulées —

Partie 1: Dimensions

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ISO 3547-1:2006

<https://standards.iteh.ai/catalog/standards/sist/33b59e91-bada-4528-93b8-e749b107f8b4/iso-3547-1-2006>



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 3547-1 was prepared by Technical Committee ISO/TC 123, *Plain bearings*, Subcommittee SC 3, *Dimensions, tolerances and construction details*.

This second edition cancels and replaces the first edition (ISO 3547-1:1999), which has been technically revised.

ISO 3547 consists of the following parts, under the general title *Plain bearings — Wrapped bushes*:

- *Part 1: Dimensions* <https://standards.iteh.ai/catalog/standards/sist/33b59e91-bada-4528-93b8-e749b107f8b4/iso-3547-1-2006>
- *Part 2: Test data for outside and inside diameters*
- *Part 3: Lubrication holes, grooves and indentations*
- *Part 4: Materials*

The following parts are under preparation:

- *Part 5: Checking the outside diameter*
- *Part 6: Checking the inside diameter*
- *Part 7: Measurement of wall thickness of thin-walled half-bearings and thin-walled bushes*

Plain bearings — Wrapped bushes —

Part 1: Dimensions

1 Scope

This part of ISO 3547 specifies the dimensions and designations of cylindrical and flanged wrapped bushes made of solid and multi-layer bearing material for plain bearing applications.

2 Normative references

The following referenced documents are indispensable for the application 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 3547-2:2006, *Plain bearings — Wrapped bushes — Part 2: Test data for outside and inside diameters*

ISO 3547-4, *Plain bearings — Wrapped bushes — Part 4: Materials*

ISO 4378-1, *Plain bearings — Terms, definitions and classification — Part 1: Design, bearing materials and their properties*

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

ISO 13715, *Technical drawings — Edges of undefined shape — Vocabulary and indication*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4378-1 apply.

4 Symbols and units

See Table 1.

Table 1 — Symbols and units

Symbol	Description	Unit
B	Width of the bush	mm
C_i	Inside chamfer	mm
C_o	Outside chamfer	mm
D_i	Inside diameter of the bush	mm
$D_{i, ch}$	Inside diameter of the bush in the ring gauge	mm
D_{fl}	Flange diameter	mm
D_H	Housing bore diameter	mm
D_o	Outside diameter of the bush	mm
D_S	Shaft diameter	mm
$d_{ch, 1}$	Diameter of the checking block or ring gauge	mm
r	Flange radius	mm
Ra	Surface roughness	μm
s_1	Thickness of the backing layer ^a	mm
s_2	Thickness of the bearing material layer ^a	mm
s_3	Wall thickness ^a	mm
s_{fl}	Flange thickness	mm

^a For bushes which are made of a single material $s_1 = s_3$ or $s_2 = s_3$.

5 Dimensions

See Figure 1 and Tables 2 to 4.

The largest dimension of the inside diameter of the bush in its pressed-in condition is obtained from the largest dimension of the bore in the housing minus twice the smallest dimension of the wall thickness, s_3 . The smallest dimension of the inside diameter of the bush in its pressed-in condition can be obtained from the smallest dimension of the bore in the housing minus twice the greatest dimension of the wall thickness, s_3 . This assumes that there is no expansion of the bore in the housing caused by pressing in the bush. In reality, the expansion depends on several factors, such as the stiffness of the housing and the bush. An example of the calculation is given in Clause 7.

The wall thickness limit deviation depends on whether or not there is a machining allowance in the bush bore and on the material type, as specified in ISO 3547-4. The preferred limit deviation series (A to E) is specified in Table 5.

Instead of the wall thickness, the inside diameter, $D_{i, ch}$, of the bush may be specified. $D_{i, ch}$ is the inside diameter of the bush, when this is pressed into a ring gauge (Test C — gauging — in accordance with ISO 3547-2:2006, see also ISO 3547-6).

For bushes which are supplied with a machined bore (Series W), the limit deviations of the inside diameter of the bush, $D_{i, ch}$, checked in a ring gauge, are given in Table 6.

In no case shall wall thickness and inside diameter be given at the same time as the dimensions that are to be checked.

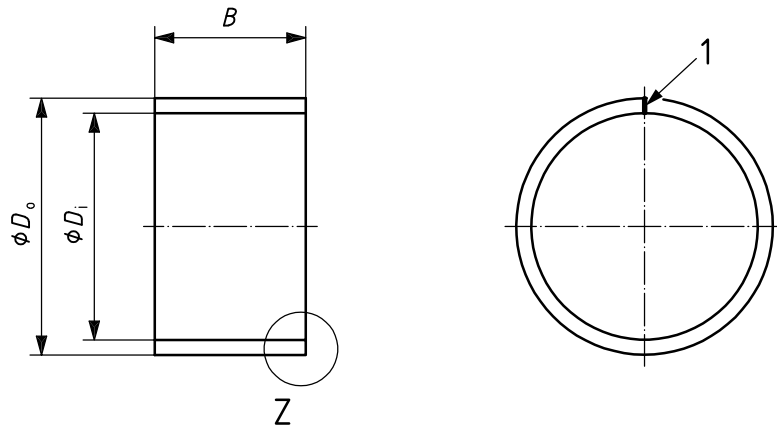
The tolerance for the inside diameter, $D_{i, ch}$, of the bush in the ring gauge is given in Table 6. The tolerance of the inside diameter of a bush pressed into a housing is found from the sum of the tolerance for, $D_{i, ch}$, and the tolerance of the housing bore. As in the case of the calculation of the inside diameter from the wall thickness, it is assumed that there is no expansion of the housing bore.

Dimensions for the outside diameter, D_o , of the bush are given in Table 7.

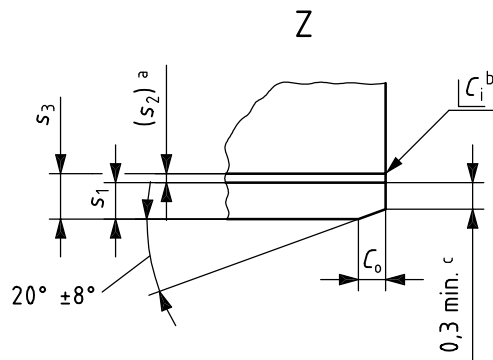
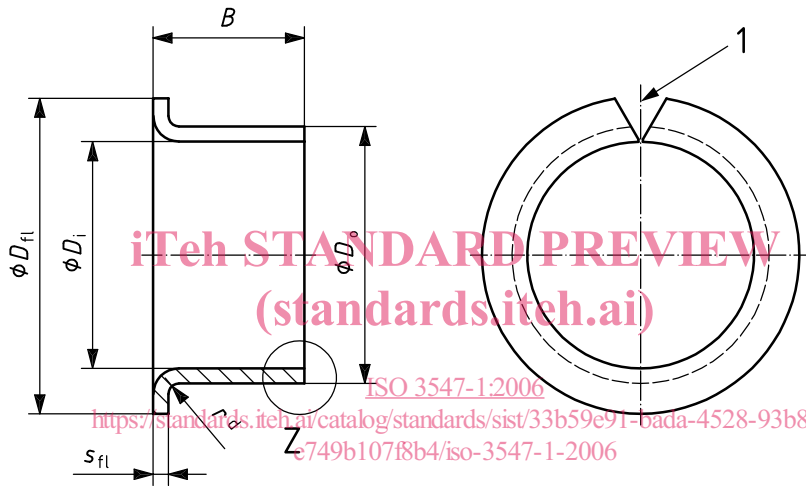
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Type C cylindrical bush



Type F flanged bush

Key

- 1 split
- a Thickness of the bearing material layer: only valid as a basis for calculation in accordance with ISO 3547-2.
- b C_i may be a chamfer or break edge, in accordance with ISO 13715.
- c 0,2 mm min. for nominal wall thickness 0,5 mm.
- d $r_{\max} = s_3$

Figure 1 — Cylindrical and flanged bush

Table 2 — Preferred nominal dimensions for inside diameter, D_i , outside diameter, D_o , wall thickness, s_3 , and bush width, B

Dimensions in millimetres

$s_3 = 0,5$													
D_i	D_o	s_3	B										
			3	4	5	6	8	10	12				
2	3	0,5	a		a								
3	4	0,5	a		a	a							
4	5	0,5	a	a		a							
5	6	0,5			a		a	a					
6	7	0,5		a		a	a	a					
8	9	0,5				a	a	a	a				
10	11	0,5						a	a	a			
$s_3 = 0,75$													
D_i	D_o	s_3	B										
			3	4	5	6	7	8	10				
2	3,5	0,75	a		a								
3	4,5	0,75	a		a	a							
4	5,5	0,75	a	a		a					a		
$s_3 = 1,0$													
D_i	D_o	s_3	B										
			3	4	5	6	7	8	10	12	15	20	25
3	5	1,0	a	a	a	a							
4	6	1,0	a	a		a							
6	8	1,0			a	a	a	a	a				
7	9	1,0			a		a		a	a			
8	10	1,0			a	a	a	a	a	a			
9	11	1,0							a				
10	12	1,0					a	a	a	a	b	b	
12	14	1,0					a	a	a	a	b	b	b
13	15	1,0							a		b	b	
14	16	1,0							a	a	b	b	b
15	17	1,0							a	a	b	b	b
16	18	1,0							a	a	b	b	b
17	19	1,0									b	b	
18	20	1,0							a		b	b	b