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**Plain bearings — Wrapped bushes —  
Part 6:  
Checking the inside diameter**

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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 (see [www.iso.org/directives](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 123, *Plain bearings*, Subcommittee SC 5, *Quality analysis and assurance*.

This second edition cancels and replaces the first edition (ISO 3547-6:2007), which has been technically revised.

The main changes compared to the previous edition are as follows:

- [Clause 2](#) has been updated;
- [Figures 1, 2 and 3](#) have been updated;
- [Clause 3](#) (Terms and definitions) has been added;
- [Figure 4](#) has been implemented;
- [Clauses 5 and 6](#) have been updated.

A list of all parts in the ISO 3547 series can be found on the ISO website.

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](http://www.iso.org/members.html).

## Introduction

Wrapped bushes in the free condition are flexible, but after insertion they adapt largely to the shape of the housing bore due to the interference between the outside diameter of the bush and the housing bore.

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# Plain bearings — Wrapped bushes —

## Part 6: Checking the inside diameter

### 1 Scope

The document specifies, following ISO 12301, the checking of the inside diameter of wrapped bushes (see ISO 3547-2:2017, method C) and describes the necessary checking methods and measuring equipment.

NOTE 1 All dimensions in this document are given in millimetres except where otherwise noted/designated.

NOTE 2 The dimensions and tolerances of wrapped bushes are given in ISO 3547-1.

NOTE 3 Checking of the wall thickness is the subject of ISO 3547-7.

NOTE 4 Checking of the outside diameter of wrapped bushes is the subject of ISO 3547-5.

### 2 Normative references

There are no normative references in this document.

### 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 and units

For the purposes of this document, the symbols and units given in [Table 1](#) apply.

**Table 1 — Symbols and units**

Symbol	Parameter	Unit
$B$	Nominal width of the bush	millimetres
$b_{ch,1}$	Width of the ring gauge	millimetres
$b_{ch,2}$	Width of the plug gauge	millimetres
$d_0$	Outside diameter of the ring gauge	millimetres
$D_i$	Nominal inside diameter of the bush	millimetres
$D_{i,ch}$	Inside diameter of the bush in the ring gauge	millimetres
$D_o$	Nominal outside diameter of the bush	millimetres
$Ra$	Surface roughness	micrometres
$t_1$	Tolerance of form and position	millimetres
$d_{ch,1}$	Inside diameter of the ring gauge	millimetres

Table 1 (continued)

Symbol	Parameter	Unit
$d_{ch,2}$	Outside diameter of the plug gauge	millimetres

### 5 Method of checking

The free diameter of a wrapped bush is not measured directly because of the flexible nature of the components.

To check the inside diameter,  $D_{i,ch}$ , the bush is pressed into a ring gauge whose nominal diameter  $D_i$  corresponds to the dimension of the housing. For bushes specified in ISO 3547-1, the tolerance class of housing bore is normally H7.

When the bush is pressed into the ring gauge, it is possible that there is a permanent reduction in the outside diameter.

The inside diameter,  $D_{i,ch}$ , is measured with a three-point measuring instrument or with a GO or a NO GO gauge.

In order to enable the supplier and the user to compare results of this test, it shall be agreed whether results shall be obtained by measuring or by gauging.

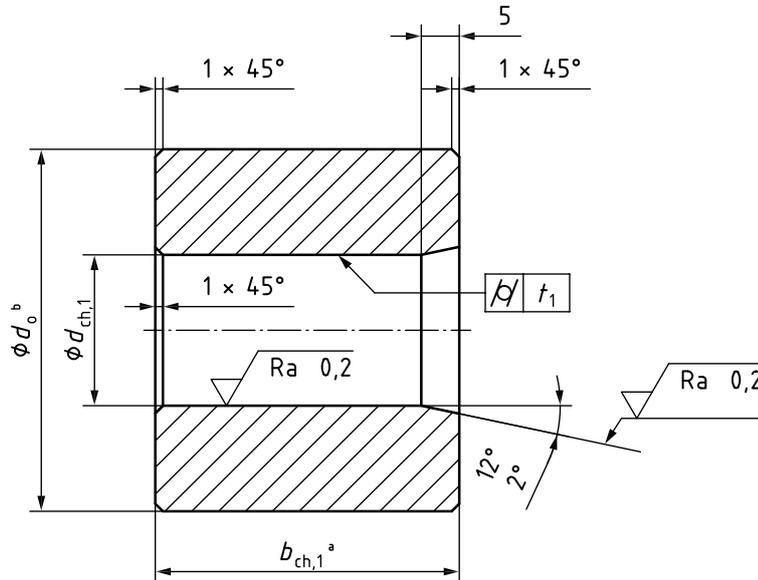
### 6 Test equipment

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#### 6.1 Ring gauge

Unless otherwise agreed between supplier and user, the dimensions shown in [Figure 1](#) and given in [Table 2](#) are valid for the ring gauge.

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Dimensions in millimetres, unless otherwise designated



<sup>a</sup>  $b_{ch,1} \geq B + 9$ .

<sup>b</sup>  $d_o \geq d_{ch,1} + 50$ .

Figure 1 — Ring gauge

**Table 2 — Dimensions, manufacturing tolerances and wear limits for ring gauges and plug gauges**  
 Dimensions in millimetres

$D_o^a$ nominal		$d_{ch,1}$			$d_{ch,2}$		$t_1$	
		Target size <sup>b</sup>	Manufacturing tolerance	Wear limit	Manufacturing tolerance	Wear limit	Manufacturing tolerance	Wear limit
	≤10	$D_o + 0,008$	+0,003 0	+0,005	0 -0,003	-0,005	0,002	0,004
>10	≤18	$D_o + 0,009$						
	>18 ≤30	$D_o + 0,011$						
	>30 ≤50	$D_o + 0,013$						
	>50 ≤80	$D_o + 0,015$						
	>80 ≤120	$D_o + 0,018$	+0,005 0	+0,007	0 -0,005	-0,007	0,003	0,005
	>120 ≤180	$D_o + 0,020$						

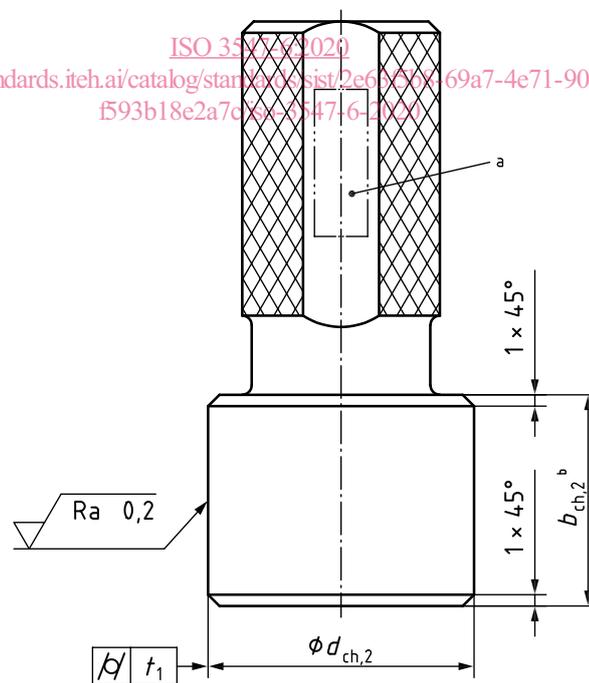
<sup>a</sup> For bushes with  $D_o > 180$  mm, an agreement shall be reached between the supplier and user.

<sup>b</sup> The target size of the ring gauge inside diameter is made up of  $D_o$  and the rounded average value of the tolerance class H7. In ISO 3547-1, H7 is recommended as the tolerance class for the housing bore.

**6.2 Plug gauge**

Unless otherwise agreed between supplier and user, the following dimensions are valid for the plug gauge (see Figures 2 and 3 and Table 2).

The nominal plug gauge diameter can be obtained from ISO 3547-1:2018, Table 4.



<sup>a</sup> Field for marking.

<sup>b</sup>  $b_{ch,2} \geq B + 5$ .

**Figure 2 — Plug gauge, solid, for  $d_{ch,2} \leq 80$  mm**