INTERNATIONAL STANDARD

ISO
3547-6

Plain bearings — Wrapped bushes —

Part 6:
Checking the inside diameter

Paliers lisses — Bagues roulées —

Partie 6: Contrôle du diamètre intérieur

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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 according to 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 3547-6 was prepared by Technical Committee ISO/TC 123, *Plain bearings*, Subcommittee SC 5, *Quality analysis and assurance*.

This part of ISO 3547 cancels and replaces ISO 12307-2:2000, which has been technically revised.

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

— *Part 1: Dimensions*

— *Part 2: Test data for outside and inside diameters*

— *Part 3: Lubrication holes, grooves and indentations*

— *Part 4: Materials*

— *Part 5: Checking the outside diameter*

— *Part 6: Checking the inside diameter*

— *Part 7: Measurement of wall thickness of thin-walled bushes*

Plain bearings — Wrapped bushes —

Part 6:
Checking the inside diameter

1　Scope

The part of ISO 3547 specifies, following ISO 12301, the checking of the inside diameter of wrapped bushes (see ISO 3547-2:2006, method C) and describes the necessary checking methods and measuring equipment.

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.

NOTE 1　All dimensions in this part of ISO 3547 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

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 3547-1:2006, *Plain bearings — Wrapped bushes — Part 1: Dimensions*

3 Symbols and units

See Table 1.

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
R_a	Surface roughness	micrometres
t_1	Tolerance of form and position	millimetres
$d_{ch, 1}$	Inside diameter of the ring gauge	millimetres
$d_{ch, 2}$	Outside diameter of the plug gauge	millimetres

4 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 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.

5 Test equipment

5.1 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.

Dimensions in millimetres, unless otherwise designated
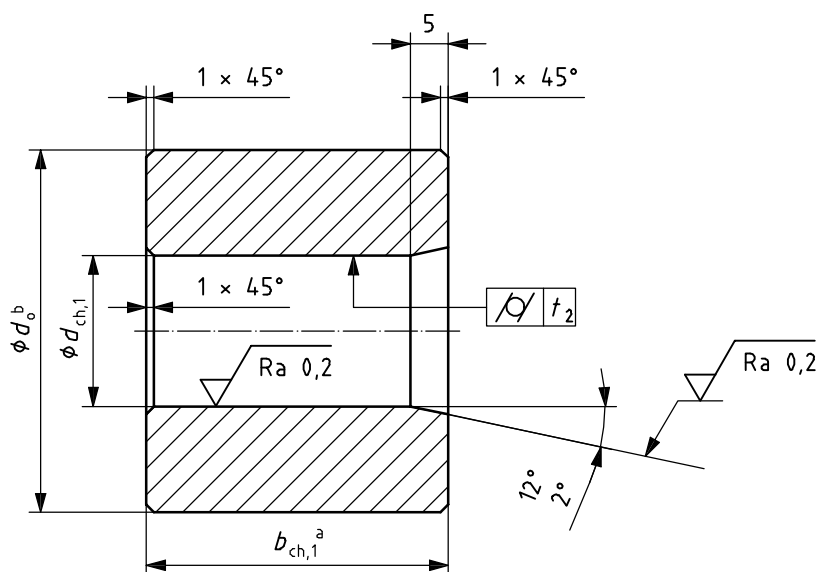
Figure 1 — Ring gauge

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

Dimensions in millimetres

| D_o [a] nominal		Target Size[b]	$d_{ch,1}$		$d_{ch,2}$		t_1	
			Manufacturing tolerance	Wear limit	Manufacturing tolerance	Wear limit	Manufacturing tolerance	Wear limit
	$\leqslant 10$	$D_o + 0{,}008$	$^{+\,0,003}_{\ \ \ 0}$	$^{+\,0,005}_{\ \ \ 0}$	$^{\ \ \ 0}_{-\,0,003}$	$-0{,}005$	$0{,}002$	$0{,}004$
> 10	$\leqslant 18$	$D_o + 0{,}009$						
> 18	$\leqslant 30$	$D_o + 0{,}011$						
> 30	$\leqslant 50$	$D_o + 0{,}013$						
> 50	$\leqslant 80$	$D_o + 0{,}015$						
> 80	$\leqslant 120$	$D_o + 0{,}018$						
> 120	$\leqslant 180$	$D_o + 0{,}020$	$^{+\,0,005}_{\ \ \ 0}$	$+0{,}007$	$^{\ \ \ 0}_{-\,0,005}$	$-0{,}007$	$0{,}003$	$0{,}005$

[a] For bushes with $D_o > 180$ mm, agreement shall be reached between the supplier and user.

[b] 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.

5.2 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 Table 4 in ISO 3547-1:2006.
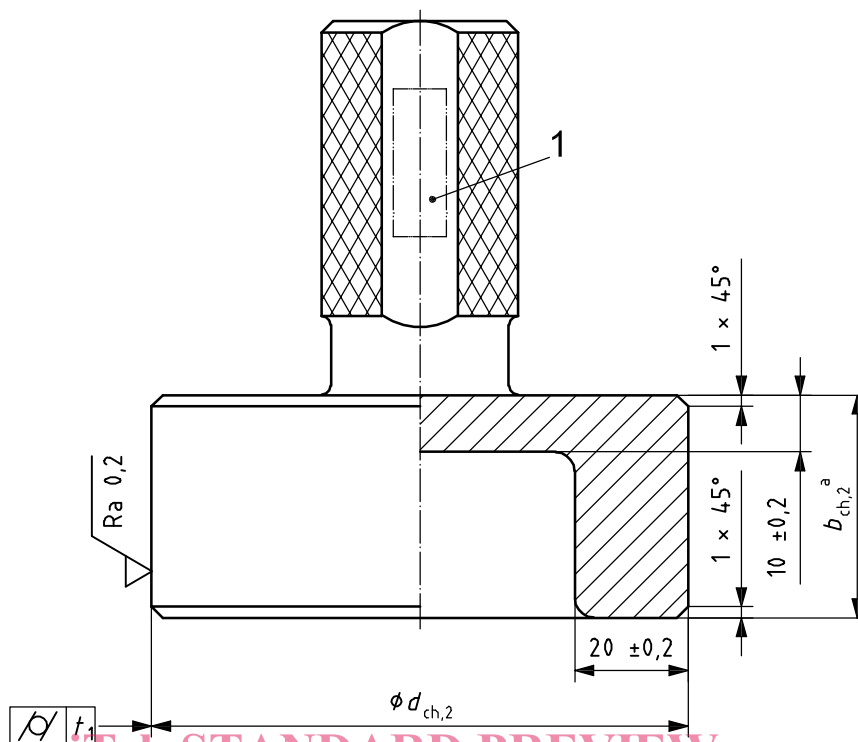
Key
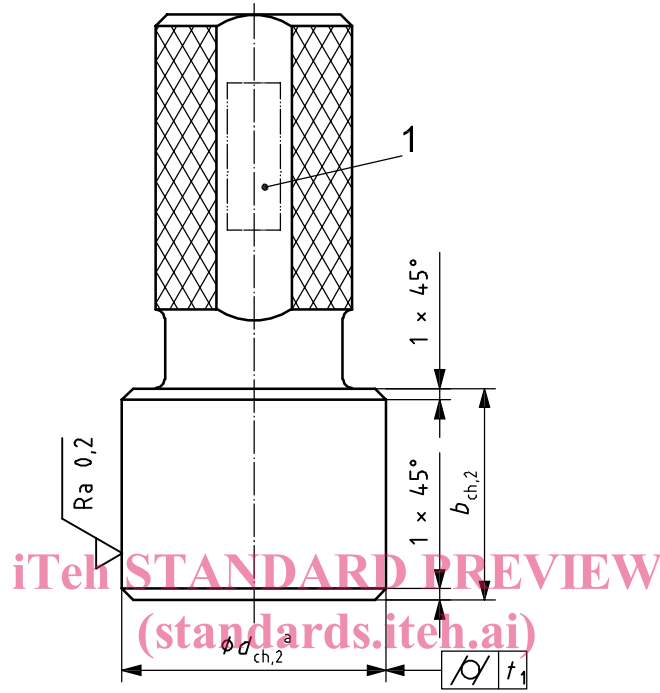
1   field for marking

a $b_{ch,2} \geqslant B + 5$

Figure 2 — Plug gauge, solid, for $d_{ch,2} \leqslant 80$ mm
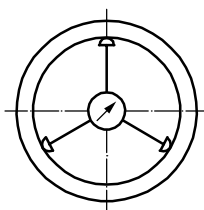
Dimensions in millimetres, unless otherwise designated

$1 \times 45°$

$1 \times 45°$

Ra 0,2

$10 \pm 0,2$

$b_{\mathrm{ch},2}$ [a]

$20 \pm 0,2$

$\phi\, d_{\mathrm{ch},2}$

$\boxed{\diagup}\ t_1$

Key

1   field for marking

[a] $b_{\mathrm{ch},2} \geqslant B + 5$

Figure 3 — Plug gauge, example with blind hole, for $d_{\mathrm{ch},2} > 80$ mm

5.3   Three-point measuring instrument

Measures are made in the radial direction using the spherical faces of the measuring pins shown in Figure 4.

Figure 4 — Three-point measuring instrument