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ISO/DIS 3548-2

ISO/TC 123/SC 5

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Plain bearings — Thin-walled half bearings with or without flange —

Part 2: Measurement of wall thickness and flange thickness

Paliers lisses — Demi-coussinets minces à collerette ou sans collerette —

Partie 2: Mesurage de l'épaisseur de paroi et de l'épaisseur de collerette

ICS: 21.100.10

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[ISO/DIS 3548-2](#)

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Foreword

This part of ISO 3548 replaces parts of ISO 12306 which has been cancelled.

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.

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ISO 3548-2 was prepared by Technical Committee ISO/TC 123, *Plain Bearings*, Subcommittee SC 5, *Quality analysis and assurance*.

This second/third/... edition cancels and replaces the first/second/... edition (), [clause(s) / subclause(s) / table(s) / figure(s) / annex(es)] of which [has / have] been technically revised.

ISO 3548 consists of the following parts, under the general title *Plain bearings — Thin-walled half bearings with or without flange*:

- *Part 1: Tolerances, design and methods of test* [ISO/DIS 3548-2](https://standards.iteh.ai/catalog/standards/sist/da987c1f-5c53-41de-9a5f-d686972bf78d/iso-dis-3548-2)
- *Part 2: Measurement of wall-thickness and flange thickness*
- *Part 3: Measurement of peripheral length*

Plain bearings — Thin-walled half bearings with or without flange —

Part 2: Measurement of wall thickness and flange thickness

1 Scope

This part of ISO 3548 specifies in accordance with ISO 12301 the checking of the wall-thickness of thin-walled half bearings with or without flange and describes the necessary checking methods and measuring equipment. This standard applies to a maximum bearing diameter of 150 mm. If this standard should be applied to bigger diameter, an agreement between supplier and user is necessary.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 3548. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 3548 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 3548-1, *Plain bearings — Thin-walled half bearings with or without flange — Part 1: Tolerances, design features and methods of test*

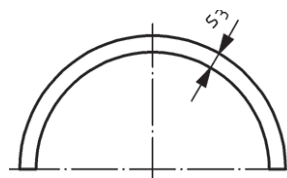
ISO 12301, *Plain bearings — Quality control techniques and inspection of geometrical and material quality characteristics*

3 Definition

For the purposes of this International Standard, the following definitions apply:

3.1 Wall thickness, s_3

Radial distance between the opposing measuring points at the inside and the outside surface diameter. (See [Figure 1](#).)



half bearing

Figure 1 — Wall thickness, s_3

3.2 Measuring points [lines]

Agreed points [lines] established to facilitate agreement on checking

NOTE 1 The establishment of measuring points [lines] does not preclude the need to comply with dimensional specifications in other areas.

3.3 Tolerance

Range between the upper specified limit and the lower specified limit.

3.4 Uncertainty of measurement

Deviation of the measured value from the real value caused by statistical or systemic reasons.

4 Symbols and units

For the purposes of this International Standard, the symbols and units are as given in [Table 1](#).

Table 1 — Symbols and units

Symbol	Parameter	unit
a_{ch}	Distance to measuring position	mm
a_1	Distance to measuring position rectangular from parting line	mm
α_2	Angle to measuring position from parting line	°
H	Distance to measuring position from bearing parting line	mm
C_i	Inner chamfer width	mm
B	Width	mm
D_0	Nominal outside diameter	mm
F_{pin}	Measuring Pin load	N
s_3	Wall thickness	mm
x_1	Center point of nominal outside diameter	mm
x_2	Center point of eccentric bore	mm
e_B	Eccentricity	mm
u	wall thickness reduction at angle α_2	mm
s_a	wall thickness at angle α_2	mm

5 Purpose of checking

In order to ensure the required bearing clearance and consequently the operational efficiency of the plain bearing unit, it is necessary to keep to the wall thickness tolerances as specified in ISO 3548-1.

6 Checking methods

6.1 Measuring principle

The gauging axis of the measuring device shall be in the radial direction and at the right angle to the outside surface of the test piece in order to find the minimum value of the wall thickness. The measured

values may be recorded by a single measurement or by sum measurement, which are symbolically represented in Figure 2.

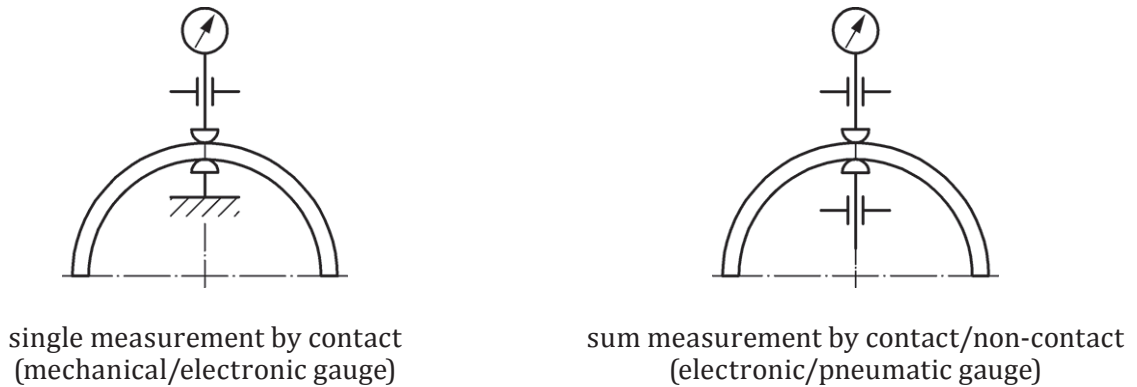


Figure 2 — Measuring principle of wall thickness measurement

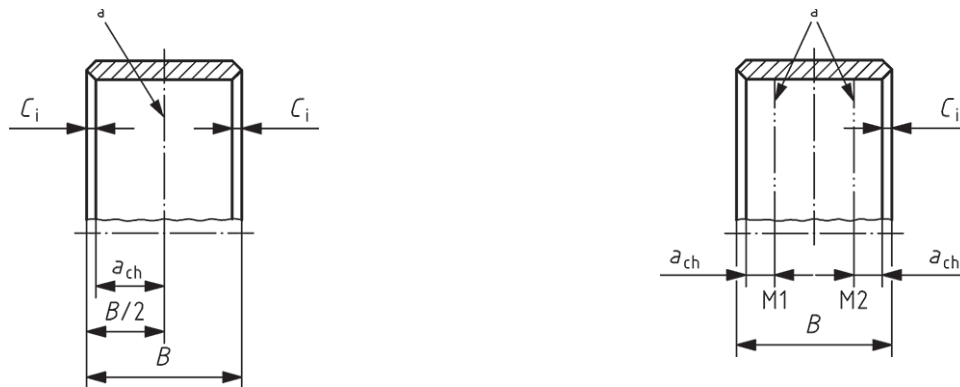
The presence of lubricating holes, oil pockets, oil grooves, markings or special chamfers may require deviation from the measuring lines and measuring points specified in the following and shall be agreed upon separately.

Any wall thickness not conforming to the specified values due to the manufacturing process, because of deformation of the bearing backing in the area of marking or at non-load bearing places, shall be defined separately.

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6.2 Line measurement around the circumference

Measurement of the wall thickness around the circumference shall be carried out at the measuring lines specified in Figure 3 and Table 2.



Key

- a Measuring lines M
- C_i Inner chamfer width

Figure 3 — Position of measuring lines

Table 2 — Distance to measuring position a_{ch}

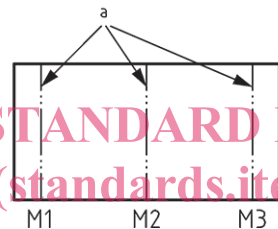
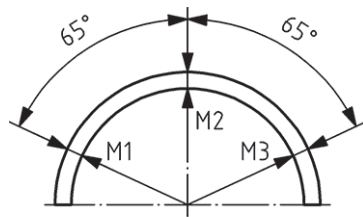
Width	Distance to measuring position	Number of measuring lines M
B	a_{ch}	
$B \leq 15$	$B/2 - C_i$	1

Table 2 (continued)

Width	Distance to measuring position	Number of measuring lines M
$15 < B \leq 50$	4	2
$B > 50$	6	2

6.3 Line measurement in axial direction

Measurement of the wall thickness in axial direction shall be carried out by using the definition of measuring lines specified in [Figure 4a](#) (Method A) or by using the definition of measuring lines specified in [Figure 4b](#) and [Table 3](#) (Method B). Position of measuring lines for bearings >150 mm nominal outside diameter is subject to agreement between manufacturer and customer.

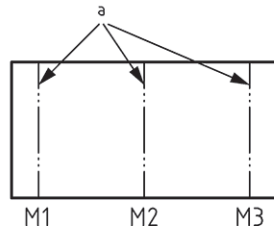
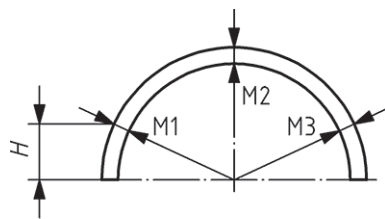


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Key

- a Measuring lines M <https://standards.iteh.ai/catalog/standards/sist/da987c1f-5c53-41de-9a5f-d68b972bf78d/iso-dis-3548-2>

Figure 4a — Position of measuring lines – Method A



Key

- a Measuring lines M

Figure 4b — Position of measuring lines – Method B

Table 3 — Distance to measuring position

Nominal outside diameter D_0 [mm]	Distance to measuring position H [mm]
$25 < D_0 \leq 40$	$6 < H \leq 8$
$40 < D_0 \leq 90$	$9 < H \leq 13$
$90 < D_0 \leq 120$	$H = 13$
$120 < D_0 \leq 150$	$H = 20$

6.4 Point measurement

Point-by-point measurement of wall thickness shall be carried out by using the definition of measuring points specified in Figure 5 or Figure 6a (Method A) or Figure 6b and Table 3 (Method B) for widths of $B \leq 90$ mm. In the case where $B > 90$ mm, the measurement method shall be subject to agreement between the manufacturer and customer. The measuring position distance, a_{ch} , shall be taken from Table 2.

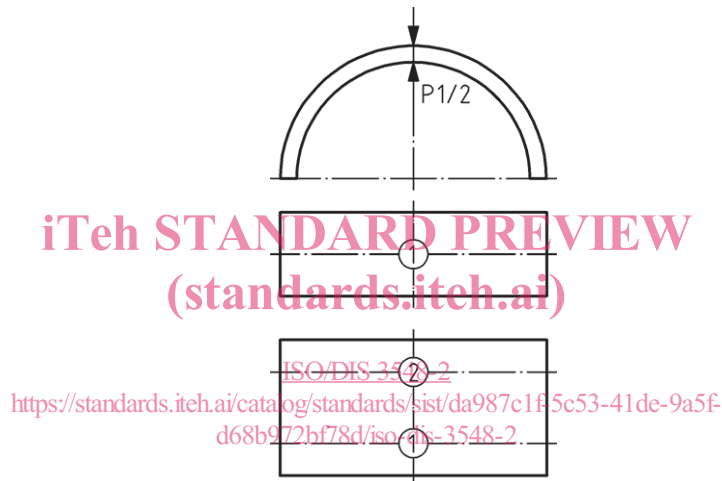


Figure 5 — One- or two-point measuring scheme for half-bearings

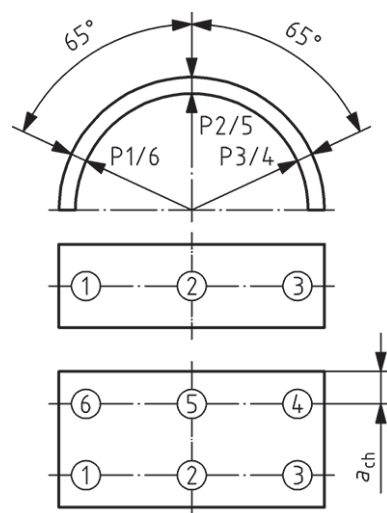


Figure 6a — Three- or six-point measuring scheme for half-bearings (Method A)