BS ISO 3548-1:2022+A1:2024

BSI Standards Publication

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

Part 1: Tolerances, design features and methods of test

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National foreword

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

Part 1: Tolerances, design features and methods of test

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

Partie 1: Tolérances, caractéristiques de conception et méthodes d'essai

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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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This document was prepared by Technical Committee ISO/TC 123, *Plain Bearings*, Subcommittee SC 3, *Dimensions, tolerances and constructions details*.

This second edition cancels and replaces the first edition (ISO 3548:2014), which has been technically revised.

The main changes are as follows:

— normative references have been revised in Clause 2;

— symbols and terms with units have been added to Table 1;

— symbols in Figure 2 have been modified;

— symbols and measures in Figure 7 have been modified;

— Figures 3, 10 and 11 have been modified;

— symbols in 7.2 and 7.3 have been modified.

A list of all parts in the ISO 3548 series can be found on the ISO website.

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

Part 1: Tolerances, design features and methods of test

1 Scope

This document specifies tolerances, design features and test methods for thin-walled half bearings with integral flange up to an outside diameter of D_0 = 250 mm and without flange up to an outside diameter of D_0 = 500 mm. Due to the variety of design, it is, however, not possible to standardize the dimensions of the half bearings.

Half bearings according to this document are predominantly used in reciprocating machinery and consist of a steel backing and one or more bearing metal layers on the inside.

In reciprocating machinery, flanged half bearings can be used in connection with half bearings without flange.

Alternatively, to serve as a flanged half bearing, it is possible to use a half bearing without flange together with two separate half thrust washers according to ISO 6526, or a half bearing with assembled flanges.

NOTE All dimensions and tolerances are given in millimetres.

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 3548-3, *Plain bearings — Thin-walled half bearings with or without flange — Part 3: Measurement of peripheral length*

〚A1〛 ISO 4378-1, *Plain bearings — Terms, definitions, classification and symbols — Part 1: Design, bearing materials and their properties* 〚/A1〛

ISO 6526, *Plain bearings — Pressed bimetallic half thrust washers — Features and tolerances*

ISO 21920-3, *Geometrical product specifications (GPS) — Surface texture: Profile — Part 3: Specification operators*

3 Terms and definitions

〚A1〛 For the purposes of this document, the terms and definitions given in ISO 4378-1 and the following apply. 〚/A1〛

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

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3.1
sliding surface
surface of the bearing

3.2
eccentric bearing bore
bearing where the axis of the bore is parallel to but not coincident with the axis of the outside diameter

3.3
recess in the housing
housing recess
indentation in the housing into which the nick in the bearing engages on assembly

3.4
joint face relief
removal of areas of the joint face to avoid contact and compressive stress where it is undesirable e.g. in flanged bearings where the flanges are relieved from abutting at the joint

3.5
sliding surface relief
reduction in the wall thickness towards the joint face. It is used to avoid the danger of a small step due to manufacturing tolerances in the bearing wall

3.6
scalloped toe
optional joint feature to facilitate maximum material utilization

3.7
flange face
face normal to the axial bore of a bearing, to locate the bearing and, in some cases to take thrust loading

3.8
assembled flange
thrust washers that are integrated into the bearing

3.9
crown
term applied particularly to half bearings to denote the part of the bearing midway between the joint faces

4 Symbols

Symbols and units are shown in Figures 1 and 2 and Table 1.

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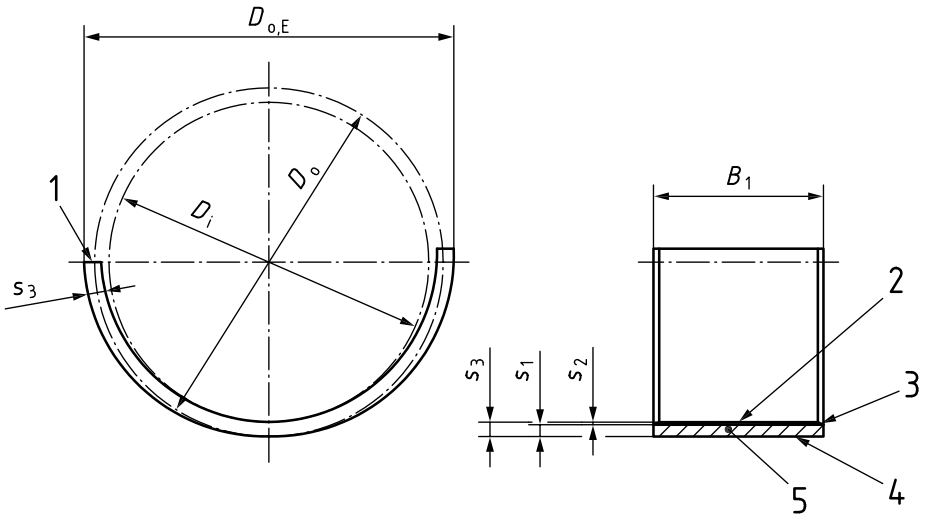

Key

1 joint face
2 sliding surface
3 bearing metal
4 bearing back
5 steel bearing backing

Figure 1 — Half bearing without flange with positive free spread

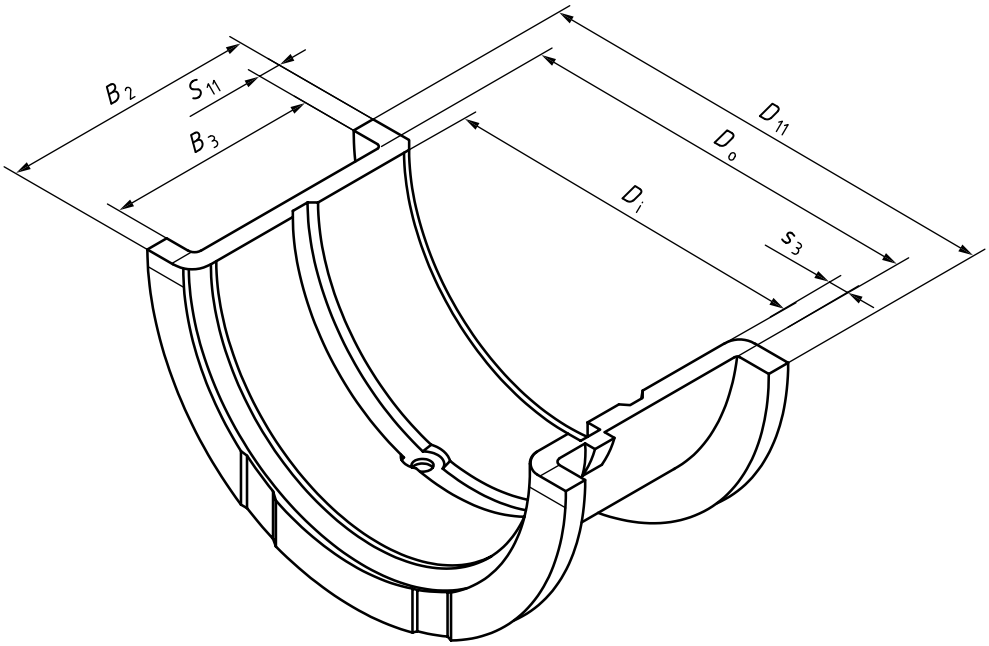

Figure 2 — Flange half bearing, integral or assembled, excluding free spread

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Table 1 — Symbols and units

Symbol	Description	Unit
h	Crush height	mm
h_A	Crush height in checking method A	mm
h_B	Crush height in checking method B	mm
h_{B1}	Crush height on first joint face side in checking method B	mm
h_{B2}	Crush height on second joint face side in checking method B	mm
a_1	Measuring point perpendicular to plane of joint face	mm
a_2	Circumferential length of locating nick	mm
a_4	Locating nick protrusion	mm
a_5	Locating recess depth	mm
a_6	Bearing bore relief length	mm
a_7	Sliding relief length	mm
a_8	Sliding relief length under 10° inclination	mm
a_9	Bending transition length	mm
a_{10}	Undercut length	mm
a_{11}	Groove centre distance	mm
A_{cal}	Reduced area of cross section (calculated value) of half bearing	mm^2
A_f	Face area of flange	mm^2
b_1	Distance to locating nick	mm
b_2	Locating nick width	mm
b_3	Distance recess centre to locating nick	mm
b_4	Distance locating nick groove to lubrication hole	mm
b_5	Locating recess width	mm
b_6	Clearance	mm
b_G	Oil groove width	mm
b_H	Housing width	mm
B_1	Half bearing width (without flange)	mm
B_2	Flange half bearing width	mm
B_3	Distance between flanges	mm
c_i	Inside chamfer	mm
c_o	Outside chamfer	mm
d_{cb}	Diameter of the checking block bore	mm
d_H	Housing diameter	mm
D_{11}	Outside diameter of flange	mm
D_i	Nominal inside diameter of the half bearing (bearing bore)	mm
D_o	Nominal outside diameter of the half bearing	mm
$D_{o,E}$	Outside diameter of the half bearing in the free state (with free spread)	mm
e_B	Amount of eccentricity	mm
F	Test force	N
F_{ax}	Axial test force for assembled flange bearings	N
i_1	Bearing bore relief height	mm
i_2	Flange bearing, sliding relief length	mm
i_3	Flange bearing, sliding relief length under 10° inclination	mm
L_{Bu}	Bottom limit of u	—
L_{Uu}	Upper limit of u	—

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