

Specification for

Plain bearings: metric series —

Part 2: Solid plastics bushes

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Motor Cycle Association of Great Britain	

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Foreword

This part of this British Standard has been prepared under the authority of the Mechanical Engineering Industry Standards Committee at the request of industry in order to provide a range of standard metric bearing sizes. The sizes specified have been based on the latest ISO agreements for plain bearings made from sintered metal. The list of standards in this metric series is as follows:

BS 4480 Plain bearings: metric series

- *Part 1: Sintered bronze bushes;*
- *Part 2: Solid plastics bushes;*
- *Part 3: Solid copper alloy bushes (in course of preparation).*

In order that all normally used plastics materials may be covered by the standard, three separate tables of dimensions and tolerances have been included. It is intended that manufacturers shall be free to indicate to which of the tables particular types of bearings conform (see **A.4**).

It is hoped that the guidelines to selection given in Appendix A will provide sufficient information for users to be able to gain a general idea of the range of factors which are relevant to the correct selection of plastics bushes. It is hoped that they will then be in a better position to enter into useful discussions about particular requirements with suppliers.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 12, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This part of BS 4480 specifies the dimensions and tolerances for plain and flanged plastics bearing bushes in the range 3 mm to 60 mm inside diameter.

2 References

The titles of the British Standards referred to in this standard are listed on the inside back cover.

3 Definitions

For the purposes of this British Standard the following definitions apply.

3.1

bearing

an element of a mechanism which provides support and location for a moving part with respect to other parts of the mechanism, and allows force to be transmitted between them

3.2

plain bearing

a bearing with wholly sliding surfaces (i.e. with no balls or rollers)

3.3

bush

a bearing in the form of a complete (360°) tube

3.4

plain bush

a bush without a flange (see Figure 1)

3.5

flanged bush

a bush with a flange at one end, so that there is a surface at right angles to the axis to provide a location and to serve as part of a light thrust bearing (see Figure 2)

3.6

journal bearing

a plain bearing in which the relatively sliding surfaces are cylindrical and the motion is rotary. (The load is at right angles to the axis of rotation, i.e. radial)

3.7

journal

that part of a shaft or axle which forms the inner cylinder of a journal bearing and which rotates relative to it. (It is a portion of a larger unit, e.g. a crankshaft or lineshaft, and it is preferred that the term "shaft" be kept for the whole unit)

3.8

bearing bore

the working surface surrounding the journal

3.9

bearing housing

the member into which a bearing is fitted

3.10

bearing clearance

the space between the journal and the bearing bore, defined by the difference between their diameters

3.11

bearing width

the overall dimension of a bush, measured axially (including the flange, in the case of a flanged bush)

3.12

upper deviation

the algebraical difference between the maximum limit of size and the corresponding basic size

3.13

lower deviation

the algebraical difference between the minimum limit of size and the corresponding basic size

3.14

thermoplastic

a plastics material capable of being softened by heating and hardened by cooling; these phenomena are repeatable

3.15

thermoset

a plastics material which does not soften significantly on heating to temperatures below its decomposition temperature

3.16

thermosetting

having the property of becoming thermoset on the application of sufficient heat (curing)

4 Material

Any suitable thermosetting or thermoplastics material may be used (see also A.2).

5 Dimensions

There are three principal groups of materials, each requiring different minimum interference and minimum clearance conditions.

The dimensions of the bushes for each of these groups are given in Table 1 to Table 3. The additional dimensions for flanged bushes are given in Table 4.

In the case of bushes requiring medium interference (Table 2) it has been necessary to include two types to allow for different methods of manufacture and different conditions of use.

It should be noted that it is intended that bearing suppliers should indicate the number of the table to which a particular type of bush conforms. (See also A.4 and A.5.)

6 Limits and tolerance

6.1 Diameters. The limits of tolerance on diameters are given in Table 1 to Table 3. The limits on internal diameter directly affect bearing performance and should be checked with the bearing inserted in a suitable housing or ring gauge manufactured within H5 limits. (See also note to Table 1.)

6.2 Width. The limits of tolerance on the width of bushes shall be ± 0.25 mm.

6.3 Housing. The limits on housings shall be as given in the tables.

6.4 Journal diameter. The standard limits of tolerance on the journal diameter given in the tables are based on BS 4500 “h7” limits. (See also A.5 for the effect of using other standard limits.)

6.5 Flanges. The tolerance on the thickness and diameter of flanges shall be to j_s 13 limits.

6.6 Concentricity. The concentricity tolerance (full indicated movement, see BS 308-1) of the outside diameter with respect to the inside diameter shall be in accordance with the following values. These values are generally in agreement with the IT9 tolerance grade related to the inside diameter of the bush.

Inside diameter	Concentricity (full indicated movement)
mm	mm
3	0.025
4- 6	0.030
7- 0	0.036
12-18	0.043
20-30	0.052
32-40	0.062
42-60	0.074

7 Ordering

When ordering plastics bearing bushes to this standard, the customer should specify the following particulars in the order shown.

- a) The number of this British Standard, i.e. BS 4480-2.
- b) The nominal inside diameter.
- c) The nominal outside diameter.
- d) The width.
- e) The material and relevant table number.
- f) Whether plain or flanged.