

Specification for

# Aircraft material —

**Phosphor bronze castings for  
bearings — (including solid and cored  
sticks)**

NOTE The Association desires to call attention to the fact that this Specification is intended to include the technical provisions necessary for the supply of the material herein referred to, but does not purport to comprise all the necessary provisions of a contract.

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.

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**Summary of pages**

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 and 2 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.

**Amendments issued since publication**

Amd. No.	Date of issue	Comments
7090	January 1941	
305	November 1944	
4135	December 1982	Indicated by a sideline in the margin

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**Obsolescent** (by Amendment No. 3). The need for the material covered by this British Standard has been reviewed and it has been decided that, in the interests of rationalization, it should be regarded as obsolescent and not therefore used for new designs. The standard will be withdrawn in due course.

## 1 Chemical composition

a) The chemical composition of the castings shall be:—

Phosphorus	—	Not less than 0.5 per cent.
Tin	—	Not less than 10.0 per cent.
Total Impurities	—	Not more than 0.50 per cent., of which Lead shall be not more than 0.25 per cent.; Zinc nil.
Copper	—	The remainder.

b) The Manufacturer shall supply, when required, the analysis of the castings to the Inspector.

## 2 Freedom from defects

a) The castings shall be clean, sound and free from blow-holes. They shall be capable of being satisfactorily machined, *i.e.*, of taking a good finish.

b) No patching, plugging, or welding will be allowed unless previous permission in writing has been obtained from the Inspector.

c) Any casting may be rejected for faults of manufacture, defects, or incorrectness of dimensions, whether discovered during inspection or subsequently during machining, notwithstanding that it has been passed previously as conforming to the analysis and mechanical tests of this Specification.

## 3 Tensile test

a) The test pieces must comply with the following test, which shall be carried out in the presence of the Inspector and to his satisfaction.

b) Test samples cast as specified in Clause 4 shall be machined to a form having a gauge length of four times the square root of the area (a suitable test piece is shown in Figure 1.)

The testing appliances shall be such that the load when applied shall be axial.

Should a tensile test piece break outside the middle half of its gauge length the test may be discarded and another test made.

When tested in tension they must give the following results:—

	Maximum Stress. Tons per sq. in.	Elongation per cent.
Chill Castings — (Including Solid and Cored Sticks)	Not less than:— 16	Not less than 1½ and not more than 4.
Sand Castings —	10	Not less than 1½.

c) The test samples shall not be treated in any manner otherwise than the castings they represent before they are tested.

## 4 Provision of test samples

a) *Chill Castings (including Solid and Cored Sticks)*. Test samples shall be taken from the castings when possible. When this is not possible and also in all cases of bushes and sticks over 1 inch diameter the test samples shall be cast 1 inch in diameter and from 7 to 9 inches long, in iron chills which have been heated before they are filled. At least one test sample shall be cast to represent each one cwt. of metal or less cast at the same time.

b) *Sand Castings*. Wherever possible, test samples shall be cast integral with the castings, and of the ruling thickness of the castings. At least one test sample shall be cast to represent each large casting. For small castings, at least one test sample shall be cast to represent each one cwt. of metal or less cast at the same time.

Where the test samples cannot be cast integral with the castings, they shall be cast 1 inch in diameter and from 7 to 9 inches long in moulds of similar materials to those used for the castings they represent.

Where castings are made directly from a melt of the alloying constituents, one test sample shall be cast and tested to represent each cast or 1 cwt. whichever is the greater weight.

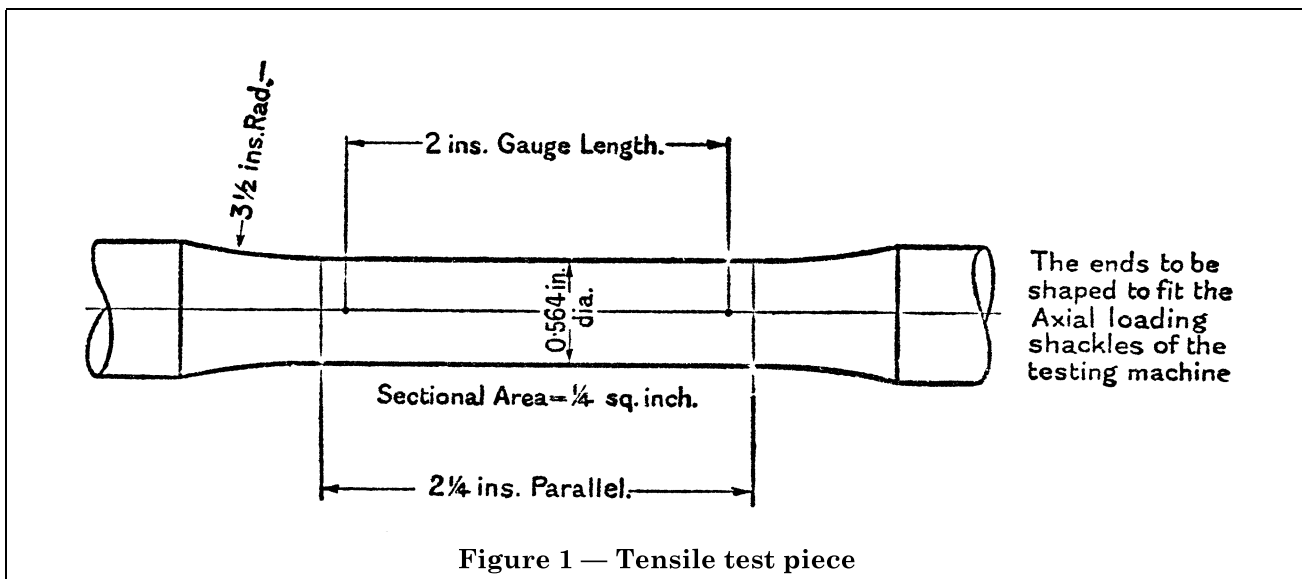
There castings are made by remelting alloying ingot which has previously been proved to comply with the mechanical test requirements of the Specification, one test sample shall be cast and tested to represent each cast or 3 cwt. whichever is the greater weight.

## 5 Re-tests

If a test sample selected for testing fails to meet the requirements the Specification, two further test samples, representing the same castings as the original one which failed, shall be selected by the Inspector and tested in the same manner. If either of these test samples fails to meet the requirements of the Specification, the whole parcel represented may be rejected.

## 6 Identification

All castings passed by the Inspector shall be labelled or made into parcels and labelled with the Specification Number, the identification mark of the Inspector and the Manufacturer's trade mark or symbol.



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