BS 3A 117:1962+A2:2016

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AEROSPACE SERIES

Bolts, Pan Head, Slotted Drive, Unified Threads, Corrosion Resisting Steel, Strength Class 880 MPa, for Aircraft – Specification

bsi.

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Amendments issued since publication

Date	Text affected
October 1962	Amendment No.1, (PD 4656)
May 2016	Amendment No.2, See tags A2 A2

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to ii, pages 1 to 6, an inside back cover and a back cover.

Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 May 2016. It was prepared by Technical Committee ACE/12, *Aerospace fasteners and fastening systems*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

BS 3A 117:1962+A2:2016 supersedes BS 3A 117:1962 (Incorporating Amendment No 1:1962), which is withdrawn.

Information about this document

Amendment No.2:2016 introduces the following principle changes:

- the addition of high expansion heat resisting steel conforming to BS HR 650, BS EN 2398 and BS EN 2399;
- to take account of the mechanical properties of these steels, the introduction of a part number code for bolts made from high expansion heat resisting steels (to be marked on the bolt surface), to distinguish them from bolts made from the BS S 80 material (see Clause **9**).

The start and finish of text introduced or altered by Amendment No.2:2016 is indicated in the text by tags [A2] 〈A2〉. Minor editorial changes are not tagged. Previous amendments are not indicated.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is "shall".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

1 Scope

〈A2〉 This British Standard specifies the materials, dimensions and inspection requirements for corrosion resisting steel pan head bolts (Unified threads), Strength class 880 MPa, for aircraft. 〈A2〉

2 Normative references

〈A2〉 The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS S 80, *High chromium-nickel corrosion resisting steel forging stock, bars, forgings and parts (880 to 1 080 MPa: limiting ruling section 100 mm)*

BS 4A 100:2003, *Aerospace series – Specification for general requirements for bolts and free running nuts of tensile strength not exceeding 1 245 MPa*

BS HR 650, *Aerospace series – Specification for high expansion heat-resisting steel bar and wire for the manufacture of bolts, studs, set screws and nuts (Ni 25.5, Cr 15, Ti 2, Mn 1.5, Mo 1.25, Si 0.7, V 0.3) (Limiting ruling section 50 mm)*

BS EN 2398, *Aerospace series – Heat resisting steel FE-PA2601 (X6NiCrTiMoV26-15) – Rm ≥ 900 MPa – Bars for machined bolts – D ≤ 25 mm*

BS EN 2399, *Aerospace series – Heat resisting steel FE-PA2601 (X4NiCrTiMoV26-15) – Rm ≥ 900 MPa – Bars for forged bolts – D ≤ 25 mm*

BS EN ISO 6506-1, *Metallic materials – Brinell hardness test – Part 1: Test method*

BS EN ISO 6507-1, *Metallic materials – Vickers hardness test – Part 1: Test method*

BS EN ISO 6508-1, *Metallic materials – Rockwell hardness test – Part 1: Test method* 〈A2〉

3 General requirements

The bolts shall comply with the relevant requirements of 〈A2〉 BS 4A 100:2003 〈A2〉 in respect of manufacture, screw threads, identification and marking.

4 Material and manufacture

a) 〈A2〉 The bolts shall be manufactured by one of the following methods:

- machined from bright drawn bars that conform to one of the British Standards specified in Table 1; or
- forged from material that conforms to one of the British Standards specified in Table 1.

b) The materials used for the manufacture of forged bolts shall have the following mechanical properties in the final heat-treated condition:

- 0.2% proof stress (min): 590 MPa;
- tensile strength (min): 880 MPa;
- elongation (min): 12%;
- izod impact (min): 55 J (40 ft·lbf). [1] 〈A2〉

[1] Not applicable to the materials given in BS HR 650, BS EN 2398 and BS EN 2399.