

Specification for

Hexagonal head steel bolts 1100 MPa

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This revision of BS A229:1968 has been prepared to incorporate Amendment Slip No. 1:1969 (AMD 195,) and also to extend the size range to include $\frac{9}{16}$ –18 to $1\frac{1}{4}$ –12 UNJF bolts. Dimensions for oversize bolts are given in Appendix A.

It provides a range of 1 100 MPa to 1 250 MPa steel bolts with UNJ profile threads and close tolerance shanks for aircraft use. The lengths of the bolts are in fractional increments.

This standard requires reference to the following British Standards:

BS 4084, *Unified screw threads of “UNJ” basic profile.*

BS A 100, *General requirements for bolts and nuts of tensile strength not exceeding 1 250 MPa.*

BS S 147, *Nickel-chromium-molybdenum steel (bar for the manufacture of forged bolts only).*

BS S 148, *Low nickel-chromium steel (bar for the manufacture of forged bolts only).*

BS S 149, *1.75 per cent nickel-chromium-molybdenum steel.*

BS S ..., *1 % chromium-molybdenum steel bars for the manufacture of forged bolts and forged nuts¹⁾.*

NOTE 1 The values in imperial units are to be regarded as the standard. The table in Appendix A provides millimetre equivalents of inch dimensions and is based on the tables in BS 350, “*Conversion factors and tables*”.

NOTE 2 1 MPa = 1 N/mm² = 1 MN/m² = 145.0 lbf/in². Information on SI units is given in BS 3763, “*The International System of units (SI)*”.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, 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⁾ In course of preparation.

1 Scope

This British Standard specifies the materials, dimensions, finish and inspection requirements for cadmium plated steel bolts with hexagonal heads and Unified threads for aircraft use.

2 General requirement

The bolts shall be manufactured, inspected and tested in accordance with the requirements of BS A 100.

3 Material and manufacture

3.1 The bolts shall be forged from material which complies with the latest issue of one of the following British Standards:

- BS S 147
- or BS S 148
- or BS S 149
- or BS S ...²⁾.

3.2 In the finally heat-treated condition, the mechanical properties of the material used for forged bolts shall be as follows:

0.2 % proof stress	not less than 965 MPa
Tensile strength	not less than 1 100 MPa
Elongation on $5.65 \sqrt{S_0}$	not less than 10 %

4 Dimensions

4.1 All bolts, after application of the ant-corrosion coating, shall conform to the dimensions and tolerances given in Table 1 and Table 2 or Appendix A.

4.2 The run-out of the thread shall comply with the relevant requirements of BS A 100.

4.3 The nominal length of the bolt shall be the bearing length L .

4.4 Dimensions of oversize bolts are given in Appendix A.

5 Screw threads

The screw threads shall conform to the basic thread form, diameter and related pitches specified in BS 4084, "*Unified screw threads of "UNJ" basic profile (Class 3A)*".

6 Anti-corrosion treatment

All bolts shall be coated with cadmium, in accordance with the relevant requirements of BS A 100.

7 Identification and marking

The bolts shall be marked on the top face of the head with the number of this British Standard and the relevant part numbers shown in Table 2, e.g. 2A 229E62.

Oversize bolts shall be marked as state in Appendix A.

²⁾ In course of preparation.