BS A 401-420:2015

BSI Standards Publication

AEROSPACE SERIES

Specification for screws, pan and 100° countersunk head, hexalobular drive recess (unified threads below ¼ inch) in various materials

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Contents

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 28, 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 October 2015. 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.

Information about this document

This British Standard has been introduced to give a hexalobular drive recess alternative to the traditional slot used in screws in the BSI range A 204, A 206, A 208 and A 217 to A 221 (a quick reference guide is provided in Annex A). This is intended to alleviate the risks of screw driver blade slippage in the vicinity of electronic printed circuit board copper track work and associated wiring.

The method of manufacturing choices are more controlled than those of the slotted BS A 204, etc. range, especially for the austenitic corrosion resistant (CRES) steel option, so to better maintain its strength characteristics, e.g. by cold heading and cold rolling threads. This new standard's title omits the term "machine" as in "machine screw" to reflect this.

This standard also expands the choices by introducing stronger alloy steel, martensitic CRES steel and high temperature/high expansion steel options.

The historic thread size of 2-64 UNF has been maintained. However, very few mating female threaded fasteners such as nuts and helical wire thread inserts, are available commercially; most are 2-56 UNC. Thread size 2-56 UNC has therefore been included as a thread size option.

This standard does not incorporate a mating range of plain hexagon nuts to match the new range of material choices listed above.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

Hazard warnings

CAUTION. Screws conforming to BS A 401 and BS A 411 have cadmium as a plating material, which has been restricted and/or banned in many countries owing to environmental and health concerns. Users should consult local officials if they have questions concerning the use of cadmium-plated parts.

Use of this document

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

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

This British Standard specifies the dimensions, materials, protective finishes and part numbers for 100° countersunk head and pan head screws with unified threads for non-structural general aerospace use.

2 Normative references

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.

ASD-STAN TR 3775, *Aerospace series – Bolts and pins – materials*

BS 1134, *Assessment of surface texture – Guidance and general information*

BS 1473, *Specification for wrought aluminium and aluminium alloys for general engineering purposes – rivet, bolt and screw stock*

BS 1580-3, *Unified screw threads – Screw threads with diameters below ¼ in – Part 3: Requirements*

BS 1872, *Specification for electroplated coatings of tin*

BS 6338, *Specification for chromate conversion coatings on electroplated zinc and cadmium coatings*

BS A 100, *Specification for general requirements for bolts and free running nuts of tensile strength not exceeding 1 245 MPa*

BS L 102, *Specification for bars and extruded sections of aluminium-copper-magnesium-silicon-manganese alloy (solution treated and aged at room temperature) (not exceeding 200 mm diameter or minor sectional dimension) (Cu 4.4, Mg 0.5, Si 0.7, Mn 0.8)*

BS L 168, *Specification for bars and extruded sections of aluminium-copper-magnesium-silicon-manganese alloy (solution treated and artificially aged) (not exceeding 200 mm diameter or minor sectional dimension) (Cu 4.4, Mg 0.5, Si 0.7, Mn 0.8)*

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 S 129, *Specification for 18/9 chromium-nickel corrosion-resisting steel (titanium stabilized) billets, bars, forgings and parts (540 MPa: limiting ruling section 150 mm)*

BS S 130, *Specification for 18/9 chromium-nickel corrosion-resisting steel (niobium stabilized) billets, bars, forgings and parts (540 MPa: limiting ruling section 150 mm)*

BS S 142, *Specification for 1% chromium-molybdenum steel billets, bars, forgings and parts (900–1 100 MPa: limiting ruling section 40 mm)*

BS S 147, *Specification for 0.5% nickel-chromium-molybdenum steel bars for the manufacture of forged bolts and forged nuts*

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

BS S 154, *Specification – 2½% nickel-chromium-molybdenum steel billets, bars, forgings and parts (880–1 080 MPa: limiting ruling section 150 mm)*

BS S 158, *Specification for 1% chromium-molybdenum steel bars for the manufacture of forged bolts and forged nuts*