



BSI Standards Publication

AEROSPACE SERIES

**Bolt, 100° Countersunk
head, Hi-Torque speed drive
recess, UNJF thread, split pin
hole option, titanium alloy,
various finishes,
Classification: 80 Tf/in²
(1 100 MPa) at T_A/+315 °C**

Publishing and copyright information

The BSI copyright notice displayed in this document indicates when the document was last issued.

© The British Standards Institution 2016

Published by BSI Standards Limited 2016

ISBN 978 0 580 91579 6

ICS 49.030.20

The following BSI references relate to the work on this document:

Committee reference ACE/12

Draft for comment 15/30329889 DC

Publication history

First published January 1977

Second (current) edition February 2016

Amendments issued since publication

Date	Text affected
------	---------------

Contents

Foreword *ii*

- 1 Scope 1
- 2 Normative references 1
- 3 General requirements 2
- 4 BS part number 12
- 5 Identification and marking 12

Bibliography 13

List of figures

- Figure 1 – Basic dimensions 2
- Figure 2 – Dimensions: length and optional hole position variables 5
- Figure 3 – Example of part number call up 12
- Figure 4 – Typical dispersion of the various markings 12

List of tables

- Table 1 – Dimensions (standard shank diameters) 3
- Table 2 – Oversize shank diameters 5
- Table 3 – Material and protective finish 5
- Table 4 – Dimensions: lengths and optional hole position variables 6

Summary of pages

This document comprises a front cover, an inside front cover, pages i to ii, pages 1 to 14, 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 29 February 2016. It was prepared by Technical Committee ACE/12, *Aerospace fasteners and fastening*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This British Standard supersedes BS A 266 to A 271:1977, which is withdrawn.

Information about this document

This British Standard has been prepared to provide a range of 80 Tf/in² (1 100 MPa) to 90 Tf/in² (1 250 MPa) titanium alloy bolts with UNF, fine threads and close tolerance shanks for aerospace use. The lengths of the bolts are in fractional increments. Dimensions for oversize shank diameters are also included.

When considering the use of cadmium plated titanium bolts, attention is drawn to Def Stan 00-970 Pt.1/12 Section 4 Leaflet 8, which recommends certain limitations on their use.

When bolts are drilled for split pins, they are suitable for use with hexagonal castle nuts specified in BS A 242 to 245.

This is a full revision of the standard, and introduces the following principal changes:

- updating and/or providing additional alternative reference document numbers;
- adding alternative materials to the existing BS TA 28;
- adding reference document numbers for flushness control and the drive recess; and
- specifying a temperature rating relating to the strength class.

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 materials, dimensions, finish and inspection requirements for titanium alloy bolts with 100° countersunk heads and UNJF threads for aerospace use.

NOTE The values in Imperial British units are to be regarded as the standard.

CAUTION. A269 has cadmium as a plating material, which has been restricted and/or banned for use in many countries owing to environmental and health concerns; they should not be used in new product designs. Local officials should be consulted about any concerns on using cadmium-plated parts.

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.

AMS 4967, *Titanium alloy, bars, wire, forgings and rings* – 6.2V – 4.0V, annealed, heat treatable

BS A 346 (ISO 3161), *UNJ threads – General requirements and limit dimensions*

BS A 101, *Specification for general requirements for titanium bolts*

BS A 242 to 245, *Specification for hexagonal castle nuts (of class 3B UNJ thread)*

BS A 272, *Specification for Hi-torque speed drive recesses – Dimensions and gauging for countersunk head fasteners*

BS A 273, *Specification for gauging practice for 100° countersunk head fasteners for flushness control*

BS EN 2133, *Cadmium plating of steels with specified tensile strength ≤ 1450 MPa, copper, copper alloys and nickel alloys*

BS EN 2808, *Anodizing of titanium and titanium alloys*

BS EN 3813, *Titanium alloy TI-P64001 (Ti-6Al-4V) – Annealed – Bar and wire for forged fasteners* – $D_e \leq 50$ mm

BS M 58 (ISO 1080), *Specification for anodic coating of titanium and titanium alloys by the sulphuric acid process*

BS T 228, *Specification for forging stock and wire of titanium–aluminium–vanadium alloy (tensile strength 1100–1300 MPa) (limiting rolling section 20 mm)*

DTD 942, *Anodizing of titanium and titanium alloys*

SAE AMS 03-19, *Electro-deposition of cadmium*

SAE AS5272, *Lubricant, solid film, heat cured, corrosion inhibiting procurement specification*

SAE ITC RS678, *Fasteners, rolled threads, chamfers, lead threads and runouts*