

Pins headed, plain shank, drilled, steel alloy and corrosion resisting steel with a strength class 880 MPa

ICS 49.030.40

Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee ACE/12, Aerospace details and parts, upon which the following bodies were represented:

Institute of Petroleum
Society of British Aerospace Companies Ltd.
UK Steel Association
Ministry of Defence
Civil Aviation Authority

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 15 April 2000

© The British Standards Institution 2012

The following BSI references relate to the work on this British Standard:

Committee reference ACE/12
Draft for comment
99/701767 DC
11/30251779 DC

ISBN 978 0 580 76417 2

Amendments issued since publication

Amd. No.	Date	Comments
Corrigendum No. 1	August 2000	Figure 1 amended
Amendment No. 1	13 January 2006	Figure 1 and Table 3 amended
Amendment No. 2	31 December 2007	Figure 1 amended
A3	31 March 2012	See Foreword.

Contents

	Page
Committees responsible	Inside front cover
Foreword	ii
1 Scope	1
2 Normative references	1
3 Materials and manufacture	1
4 Dimensions and tolerances	2
5 Identification and marking	2
6 Surface texture	2
7 Hardness values	2
8 Flaw detection	2
9 Protective finish	3
10 Machined and forged pins	3
11 Quality assurance procedure	3
Figure 1 — Dimensions for pins	3
Table 1 — Pin dimensions and tolerances	4
Table 2 — Materials for manufacture of pins	8

Foreword

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution. This British Standard has been prepared by Technical Committee ACE/12. It supersedes BS 6SP 4:2000+A2:2007, which is withdrawn.

The start and finish of text introduced or altered by Amendments No. 1, No. 2 and No. 3 are indicated in the text by tags **A1**, **A1**, **A2**, **A2** and **A3**, **A3**. Minor editorial changes are not tagged.

Amendment A3 introduces the following principal changes:

- there is now one set of head diameters for the heads of both forged and machined pins;
- material specifications have been updated;
- identification and marking details have been introduced to separate high expansion heat resisting steel pins from standard corrosion resisting steel pins.

CAUTION. BS SP 4Y pins have 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.

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.

Summary of pages

This document comprises a front cover, an inside front cover, pages i to ii, pages 1 to 8, an inside back cover and a back cover.

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

1 Scope

This British Standard specifies materials and manufacture, dimensions, protective ^{A3} finish ^{A3} and quality assurance requirements for pins headed, plain shank, drilled, steel alloy and corrosion resisting ^{A3} steel ^{A3} strength class 880 ^{A3} Text deleted. ^{A3} MPa.

2 Normative references

^{A3} The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies. ^{A3}

^{A3} BS 1134, *Assessment of surface texture – Guidance and general information* ^{A3}

BS 6001-1, ISO 2859-1, *Sampling procedures for inspection by attributes. Specification for sampling plans indexed by acceptable quality level (AQL) for lot-by-lot inspection.*

^{A3} BS 4A 100:2003 ^{A3}, *Specification for general requirements for bolts and free running nuts of tensile strength not exceeding 1 249 MPa.*

BS HR 650, *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 ^{A3} 50 mm ^{A3}).*

^{A3} BS S 80 ^{A3}, *Specification for high chromium-nickel corrosion-resisting steel forging stock, bars, forgings and parts (880/1 080 MPa, limiting ruling section 100 mm).*

^{A3} BS S 143 ^{A3}, *Specification for chromium-nickel-copper-molybdenum corrosion-resisting steel (precipitation hardening) billets, bars, forgings and parts (930/1 080 MPa).*

^{A3} BS S 147 ^{A3}, *Specification for 0,5 % nickel-chromium-molybdenum steel bars for the manufacture of forged bolts and forged nuts.*

^{A3} BS S 154 ^{A3}, *Specification 2½ % nickel-chromium-molybdenum steel billets, bars, forgings and parts (880/1 080 MPa: limiting ruling section 150 mm).*

^{A3} BS EN 2133, *Cadmium plating of steel with specified tensile strength ≤ 1 450 MPa, copper, copper alloys and nickel alloys*

BS EN 2398, *Heat resisting steel FE-PA2601 (X6NiCrTiMoV26-15) – R_m = 900 MPa – Bars for machined bolts – D = 25 mm*

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

Def Stan 03-19, *Electro-Deposition of Cadmium* ^{A3}

3 Materials and manufacture

3.1 The pins shall be manufactured by one of the following methods:

- machined from bright bars which conform to one of the British Standards listed in ^{A3} Table 2 ^{A3};
- cold or hot forged from material which conforms to one of the British Standards listed in ^{A3} Table 2 ^{A3}.

3.2 The material used for the manufacture of forged pins shall have the following mechanical properties in the finally heat treated condition:

- 0.2 % proof stress (min): 590 MPa;
- tensile stress (min): 880 MPa ^{A3} Text deleted. ^{A3};
- elongation (min): 12 %;
- Izod impact (min): 55 J (40 ft. lbf).

^{A3} NOTE This is not applicable to the materials given in BS HR 650, BS EN 2398 and BS EN 2399. ^{A3}