

BS 2SP 90:2008+A1:2016



BSI Standards Publication

Specification for corrosion-resisting steel split cotter pins for aircraft – Inch series

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Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 30 November 2008. 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BS 2SP 90:2008+A1:2016 supersedes BS 2SP 90:2008, which is withdrawn.

Text introduced or altered by Amendment No. 1 is indicated in the text by tags  . Minor editorial changes are not tagged.

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 material, dimensions, finish and identification of corrosion-resisting split cotter pins for aircraft.

2 Normative references

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.

BS 2S 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 2S 205, *Austenitic chromium-nickel steel wire rod, wire and springs – Specification*

BS EN 2573, *Aerospace series – Steel FE-PA3601 (X6CrNiTi18-10) – Softened – $R_m \leq 780$ MPa – Wire – $0,25 \text{ mm} \leq D_e \leq 3$ mm*

MoD DStan DTD 189, *Chromium-nickel Corrosion-resisting steel Wire, Rivets and Split Pins*

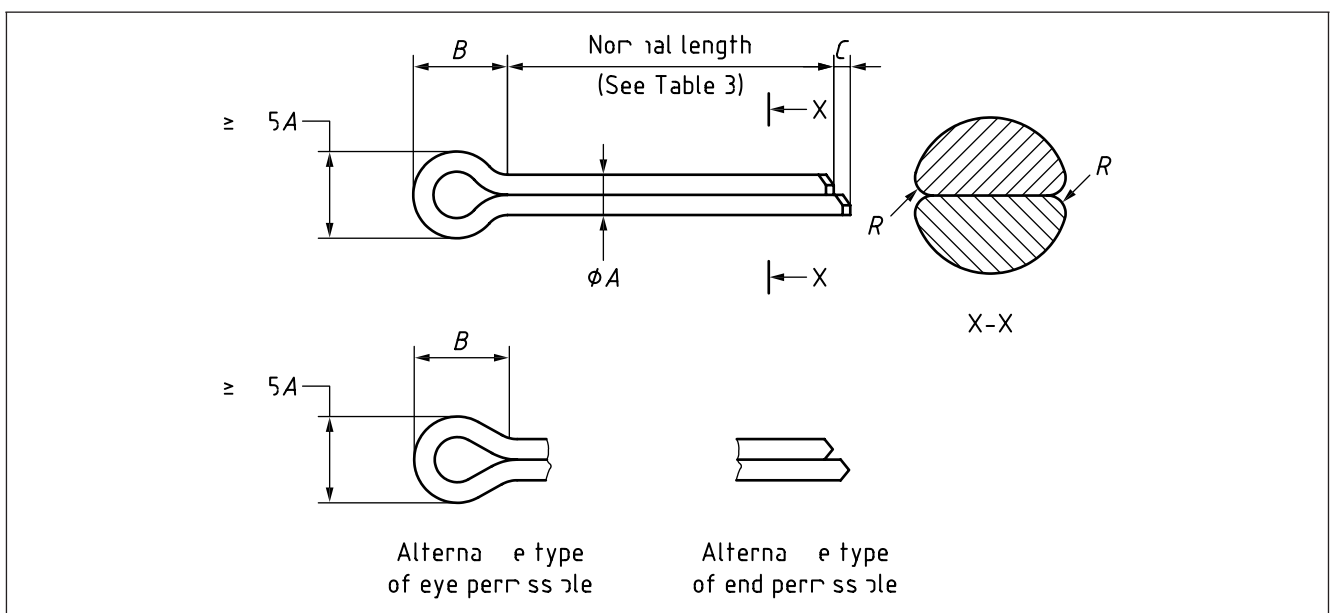
3 Material

The pins shall be manufactured from wire of half-round section with radiused edges, as shown in Figure 1, complying with the requirements of BS 2S 130, BS 2S 205, BS EN 2573 or the latest issue of MoD DStan DTD 189.

4 Dimensions

The pins shall conform to the dimensions and tolerances given in Figure 1, Table 1 and Clause 5.

Figure 1 Split cotter pins



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Table 1 \square_{A_1} Dimensions \square_{A_1}

1	2	3	4	5	6	7	8
Nominal diameter		Shank diameter		Length of eye		Additional length of long leg	Radius on corners of wire
		$\square_{A_1} \text{ } \varnothing A \text{ } \square_{A_1}$		B		C	R
		Min	Max	Min	Max	$\pm \frac{1}{32}$ in.	Max
in.	in.	in.	in.	in.	in.	in.	in.
$\frac{1}{32}$	$\square_{A_1} .03125 \square_{A_1}$	.026	.031	.090	.130	$\frac{3}{32}$	.002
$\frac{3}{64}$	$\square_{A_1} .04675 \square_{A_1}$	.041	.046	.090	.130	$\frac{3}{32}$	.003
$\frac{1}{16}$	$\square_{A_1} .0625 \square_{A_1}$	.056	.062	.120	.160	$\frac{3}{32}$	.005
$\frac{5}{64}$	$\square_{A_1} .078125 \square_{A_1}$	.071	.077	.160	.200	$\frac{3}{32}$	.006
$\frac{3}{32}$	$\square_{A_1} .09375 \square_{A_1}$	.086	.093	.190	.230	$\frac{3}{32}$	.007
$\frac{1}{8}$	$\square_{A_1} .125 \square_{A_1}$	.116	.124	.250	.300	$\frac{1}{8}$	.009
$\frac{5}{32}$	$\square_{A_1} .15625 \square_{A_1}$	.145	.155	.310	.360	$\frac{1}{8}$	.012
$\frac{3}{16}$	$\square_{A_1} .1875 \square_{A_1}$	.176	.186	.380	.440	$\frac{1}{8}$	.014
$\frac{1}{4}$	$\square_{A_1} .250 \square_{A_1}$	.239	.249	.500	.560	$\frac{1}{8}$	.019

NOTE Dimensions are in inches.

5 Tolerance on nominal length

The permissible tolerance on the nominal length shall be as given in Table 2.

Table 2 Tolerance on nominal length

Nominal diameter	Nominal length	Tolerance
in.	in.	in.
$\leq \frac{1}{8}$	≤ 2	$\pm \frac{1}{32}$
$\leq \frac{1}{8}$	$> 2 \leq 2\frac{3}{4}$	$\pm \frac{3}{64}$
$> \frac{1}{8} \leq \frac{1}{4}$	$\leq 2\frac{3}{4}$	$\pm \frac{3}{64}$

6 Eye

6.1 Form

The eye shall approximate to the form shown in Figure 1.

6.2 Length

The length of the eye shall conform to the dimensions specified in Table 1, Columns 5 and 6, when measured in accordance with the following.

Insert the pin by hand as far as possible into a plain hole gauge, the hole being equivalent to the nominal diameter of the pin $\boxed{A_1}$ stated in Table 1 $\langle A_1 \rangle$. Measure the distance from the leading face of the gauge to the extreme end of the eye.

7 Shank

The shank shall be straight with both legs parallel throughout the nominal length.

8 Ends of legs

The end of each leg shall be bevelled as shown in Figure 1 and shall be free from burrs.

9 $\boxed{A_1}$ Protective finish $\langle A_1 \rangle$

The finish shall be natural (as manufactured).

NOTE For example, there should be no further plating, passivation or acid cleaning applied.

10 Freedom from defects

- 10.1 The finished pins shall be free from all cracks and other harmful defects.
- 10.2 Pins shall be rejected at any time for faults in, or revealed by, manufacture, although they have been made from material passed previously for chemical composition and mechanical properties.

11 Standard sizes

The standard lengths and $\boxed{A_1}$ part number codes $\langle A_1 \rangle$ of the pins shall be as given in Table 3.

12 Identification

The pins shall be identified for ordering purposes by $\boxed{A_1}$ the British Standard number $\langle A_1 \rangle$, together with the appropriate $\boxed{A_1}$ size code $\langle A_1 \rangle$ shown in Table 3, e.g. a $\frac{1}{16}$ inch diameter pin $\boxed{A_1}$ x $\langle A_1 \rangle$ $\frac{5}{8}$ inch long is $\boxed{A_1}$ SP90C5 $\langle A_1 \rangle$ ¹⁾.

1) Marking $\boxed{A_1}$ SP90 $\langle A_1 \rangle$ on or in relation to a product represents a manufacturer's declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of the claim is solely the claimant's responsibility. Such a declaration is not to be confused with third-party certification of conformity.

Table 3 Standard lengths and size codes

Nominal diameter in.	Nominal length/size code in.																					
	¼	⅜	½	⅝	¾	⅞	1	1⅛	1¼	1⅜	1½	1⅝	1¾	1⅞	2	2⅛	2¼	2⅜	2½	2⅝	2¾	3
1/32	A2	A3	A4	A5	A6	A7	A8	—	—	A11	—	—	—	A15	—	—	—	—	—	—	—	—
3/64	B2	B3	B4	B5	B6	B7	B8	B9	B10	—	—	—	—	—	—	—	—	—	—	—	—	—
1/16	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	—	—	C18	C19	—	—	C22	—
5/64	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	—	—	—	—	—	—	—	—
3/32	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13	E14	E15	E16	—	E18	—	—	E21	E22	—
1/8	—	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	G13	G14	G15	G16	—	G18	—	G20	—	G22	—
5/32	—	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12	H13	H14	H15	H16	H17	H18	—	H20	—	H22	—
3/16	—	K3	K4	K5	K6	K7	K8	K9	K10	K11	K12	K13	K14	K15	K16	K17	K18	—	K20	K21	K22	K24
¼	—	—	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16	—	L18	—	L20	—	L22	—

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