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BS 6S 100:2010



BSI Standards Publication

AEROSPACE SERIES

Procedure for inspection, testing and acceptance of wrought steels (other than plate, sheet, strip and tube)

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 66, an inside back cover and a back cover.

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Publishing information

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Supersession

This British Standard supersedes BS 5S 100:1993+A2:2003, which is withdrawn.

Information about this document

This is a full revision of BS S 100, and introduces the following principal changes.

Section 1

- a) Temperature control during heat treatment to BS M 54 replaced by AMS 2750.
- b) Use of polymer quenchant added.
- c) Heat treatment temperature tolerances added.
- d) Requirements for application of values for chemical composition added.
- e) Tensile testing at ambient temperature to BS 4A4:1966, Part 1.1 replaced by BS EN 2002-1.
- f) Tensile testing at elevated temperature to BS 4A4:1966, Part 1.2 replaced by BS EN 2002-2.
- g) Creep and rupture testing to BS 4A4:1966, Part 1.3 replaced by BS EN 2002-005.
- h) Impact testing to BS 4A4:1966, Part 2 replaced by BS 131 and BS EN 10045-1.
- i) Brinell hardness testing to BS EN 10003-1 replaced by BS EN ISO 6506-1.
- j) Rockwell hardness testing to BS EN 10109-1 replaced by BS EN ISO 6508-1.
- k) Grain size test to BS 4490 replaced by BS EN ISO 643.
- l) Hardenability test to BS 4437 replaced by BS EN ISO 642.
- m) Dimensional tolerances to BS 970-1, BS 970-2 and BS 4114 replaced by BS EN 10017, BS EN 10058, BS EN 10059, BS EN 10060, BS EN 10061, BS EN 10092-1, BS EN 10108 and BS EN 10243-1.

Section 8

- n) Requirements for bar and nuts for the manufacture of forged bolts and forged nuts only transferred from Section 9. (In the previous edition Section 8 was unallocated.)
- o) Examination for carburization and decarburization to BS 6617-1 replaced by BS EN ISO 3887.

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p) Requirements for spring steel rod and wire for springs transferred from Section 10.

q) Examination for carburization and decarburization to BS 6617-1 replaced by BS EN ISO 3887.

r) Mechanical testing to BS 4545 replaced by BS EN 10218-1.

Section 10

s) Section deleted and requirements transferred to Section 9.

Annex A (was Annex D)

t) Re-identified as "Rules for application of values for chemical composition and mechanical properties given in material specifications".

u) Reference to withdrawn BS 1957 replaced by details for rounding of values.

Annex B (was Annex A)

v) Re-identified as "Cleanness examination procedure".

Annex C (was Annex B)

w) Re-identified as "Ultrasonic examination procedure".

Annex D (was Annex C)

x) Re-identified as "Inspection and testing requirements for springs".

Hazard warnings

WARNING. This British Standard calls for the use of substances and/or procedures that can be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

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.

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1 Scope

This British Standard specifies procedures for the inspection, testing and acceptance of wrought steel billet, bar, rod and forgings, of parts made from such forms and subsequently heat treated, and of spring steel rod for wire drawing, spring wire and springs, to be used for aerospace purposes.

The standard is applicable to material specifications in the British Standard Aerospace S series.

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 131-1, *Notched bar tests – Part 1: The Izod impact test of metals*

BS 131-4, *Notched bar tests – Part 4: Calibration of pendulum impact testing machines for metals*

BS 6200-2.1, *Sampling and analysis of iron, steel and other ferrous metals – Part 2: Sampling and sample preparation – Section 2.1: Methods for iron and steel*

BS 6200-2.2, *Sampling and analysis of iron, steel and other ferrous metals – Part 2: Sampling and sample preparation – Section 2.2: Methods for ferroalloys and other alloying additives*

BS A 100, *Specification for general requirements for bolts and free running nuts of tensile strength not exceeding 1249 MPa*

BS EN 2002-1, *Metallic materials – Test methods – Part 1: Tensile testing at ambient temperature*

BS EN 2002-2, *Metallic materials – Test methods – Part 2: Tensile testing at elevated temperature*

BS EN 2002-005, *Metallic materials – Test methods – Part 005: Uninterrupted creep and stress-rupture testing*

BS EN 4179, *Qualification and approval of personnel for non-destructive testing*

BS EN 10017, *Steel rod for drawing and/or cold rolling – Dimensions and tolerances*

BS EN 10045-1, *Charpy impact test on metallic materials – Part 1: Test method (V- and U-notches)*

BS EN 10058, *Hot rolled flat steel bars for general purposes – Dimensions and tolerances on shape and dimensions*

BS EN 10059, *Hot rolled square steel bars for general purposes – Dimensions and tolerances on shape and dimensions*

BS EN 10060, *Hot rolled round steel bars for general purposes – Dimensions and tolerances on shape and dimensions*

BS EN 10061, *Hot rolled hexagon steel bars for general purposes – Dimensions and tolerances on shape and dimensions*