BRITISH STANDARD AEROSPACE SERIES

BS 3T 53:1980

(Superseding BS 2T 53)

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Specification for

Chromium-molybdenum steel tube (700 MPa) —

(Outside diameter not less than 12.5 mm) (Weldable)

UDC 629.7:669.15′2b′28-194-462:621.791.011

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Summary of pages

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

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

This British Standard, having been prepared under the direction of the Aerospace Standards Committee, was published under the authority of the Executive Board on 29 February 1980.
It comes into effect (see note 1) on 30 May 1980

The following BSI references relate to the work on this standard:
Committee reference ACE/15
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Amendments issued since publication

Amd. No.	Date of issue	Comments

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NOTE 1 Attention is drawn to the fact that this British Standard does not come into effect until 3 months after the date of publication. This is to enable users of the standard to obtain copies and make the necessary amendments to their documentation before the effective date.
NOTE 2 Tube of the same composition at higher strength levels is covered by BS T 60 (for tube of maximum thickness 8 mm), BS T 76 and BS T 77.

1 Inspection and testing procedure

1.1 General. This British Standard shall be used in conjunction with sections 1 and 2 of the latest issue of BS T 100.

1.2 Sulphur printing or deep etching tests. One sample shall be taken from each ingot for sulphur printing or deep etching tests.

2 Process of manufacture

The steel shall be manufactured by an electric process.

3 Chemical composition

The steel shall contain:

Element	%	
	min.	max.
Carbon	0.22	0.29
Silicon	0.15	0.35
Manganese	0.5	0.8
Phosphorus	—	0.020
Sulphur	—	0.015
Chromium	0.9	1.2
Molybdenum	0.15	0.25
Nickel	—	0.30

4 Surface dressing

The steel shall be overall dressed.

5 Condition

The tube shall be supplied in any of the following conditions, at the option of the manufacturer, unless a specific condition is stated on the order:

a) cold drawn and tempered, or

b) hardened and tempered, or

c) normalized and tempered.

6 Heat treatment

6.1 Hardening. The hardening treatment shall consist of heating uniformly at a temperature between 870 °C and 910 °C, followed by quenching in oil or water.

6.2 Normalizing. The normalizing treatment shall consist of heating uniformly at a temperature between 870 °C and 910 °C, followed by cooling in air.

6.3 Tempering. The tempering treatment shall consist of heating uniformly at a temperature of not more than 675 °C, followed by cooling in a suitable manner.

7 Decarburization

The depth of decarburization, at either of the surfaces, shall be not greater than 0.1 mm or 2 % of the nominal thickness, whichever is the lesser.

8 Mechanical properties

8.1 Tensile test. The mechanical properties obtained from test pieces, selected, prepared and tested in accordance with the relevant requirements of BS T 100, shall be as follows.

0.2 % proof stress	Tensile strength	
min.	min.	max.
MPa (= N/mm^2)	MPa (= N/mm^2)	MPa (= N/mm^2)
620	700	900
NOTE Information on SI units is given in BS 3763 "*The International System of units (SI)*" and BS 350 "*Conversion factors and tables*".		

8.2 Flattening test. The distance between the inner surfaces of the test piece in the direction of flattening shall be 5*T* or 0.75 internal diameter, whichever is the smaller.

8.3 Hardness test. The hardness of the tube shall be:

197 min./262 max. HB

or

210 min./275 max. HV

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