

Metal scaffolding —

Part 1: Tubes —

Section 1.1 Specification for steel tube

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Civil Engineering and Building Structures Standards Policy Committee (CSB/-) to Technical Committee CSB/57, upon which the following bodies were represented:

- Association of Consulting Engineers
- Association of Consulting Scientists
- British Constructional Steelwork Association Ltd.
- British Steel Industry
- Building Employers' Confederation
- Concrete Society
- Construction Health and Safety Group
- Construction Industry Training Board
- Department of the Environment (Property Services Agency)
- Electricity Supply Industry in England and Wales
- Engineering Equipment and Materials Users' Association
- English Net Manufacturers' Association
- Federation of Civil Engineering Contractors
- Health and Safety Executive
- Institute of Building Control
- Institution of Civil Engineers
- Institution of Structural Engineers
- National Association of Formwork Contractors
- National Association of Scaffolding Contractors
- National Federation of Master Steeplejacks and Lightning Conductor Engineers
- Prefabricated Aluminium Scaffolding Manufacturers' Association
- Suspended Access Equipment Manufacturers' Association

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Foreword

This Section of BS 1139 has been prepared under the direction of the Civil Engineering and Building Structures Standards Policy Committee. Together with BS 1139-1.2:1990, it supersedes BS 1139-1:1982, which is withdrawn.

This Section of BS 1139 is one of a series specifying requirements for the design, construction and testing of equipment for use in scaffolding and other temporary structures. It specifies requirements for steel tubing of the type traditionally used in tubular scaffolding and false-work. Recommendations for the design of tubular scaffolding structures are given in BS 5973 and BS 5974.

This standard was previously published as Part 1 of BS 1139:1982 which also contained specifications for aluminium scaffold tube. With the exception of specifying one wall thickness only (i.e. 4 mm), this standard technically aligns with European Harmonization Document HD 1039.

Tubing complying with this British Standard also complies with the requirements for type 4 only of HD 1039, and therefore can be classified and marked “EN 39” (see clauses 8 and 9).

BS 1139 is now published in separate Parts and Sections as follows.

- *Part 1: Tubes;*
- *Section 1.1: Specification for steel tube;*
- *Section 1.2: Specification for aluminium tube;*
- *Part 2: Couplers;*
- *Section 2.1: Specification for steel couplers, loose spigots and base plates for use in working scaffolds and falsework made of steel tubes (Identical with HD 74);*
- *Section 2.2¹⁾: Specification for steel and aluminium couplers, fittings and accessories for use in tubular scaffolding;*
- *Part 3: Specification for prefabricated access and working towers;*
- *Part 4: Specification for prefabricated steel splitheads and trestles;*
- *Part 5²⁾: Specification for materials, dimensions, design loads and safety requirements for service and working scaffolds made of prefabricated elements (Identical with HD 1000).*

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Summary of pages

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

¹⁾ In preparation: it will cover couplers, fittings and accessories not included in Section 2.1. Additional couplers have not yet been harmonized.

²⁾ In preparation.

0 Introduction

This Section of BS 1139 describes a tube intended for use in falsework and working scaffolds. Other very similar tubes are available, and to ensure that scaffolding tubes are able to be identified without doubt on the building site, there is a requirement for marking.

Scaffolds or falsework using these tubes should be erected in accordance with sound national practice; in some countries this could restrict the choice of tube.

Prefabricated steel scaffold components may be fabricated with these tubes, or others. The design of such scaffolds will relate to the steel sections actually used in them.

1 Object and field of application

This Section of BS 1139 specifies requirements for steel tube intended for use in falsework and in access and working scaffolds constructed with separate tubes and couplers. It has an outside diameter of 48,3 mm, and a wall thickness of 4,0 mm. It also specifies tests on protective coatings and gives values for the design of structures.

2 References

The titles of the publications referred to in this standard are listed on the inside back cover.

3 Terminology

The tube is referred to as “type 4” tube and represents a wall thickness of 4,0 mm.

4 Steel

4.1 Chemical composition

Tubes shall be manufactured from steel whose chemical composition shall be in accordance with Table 1.

Table 1 — Determination of chemical composition of steel by ladle analysis

Elements	%
Carbon	≤ 0,20
Silicon	≤ 0,30
Phosphorus	≤ 0,05
Sulphur	≤ 0,05
Nitrogen	≤ 0,009

For steel treated with aluminium, the nitrogen content may be increased to a maximum of 0,015 %.

For steel which is to be protected by hot dip galvanizing (see 6.1) the silicon content shall not exceed 0,05 %.

The use of rimming steel is not permitted.

4.2 Mechanical properties

The mechanical properties of the tube shall be in accordance with Table 2.

Table 2 — Mechanical properties

Tensile strength	R_m	N/mm ²	≥ 340 < 480
Yield stress	R_{eH}	N/mm ²	≥ 235
Elongation (on $L_0 = 5,65 \sqrt{S_0}$) ^a	A		≥ 24 %

^a In accordance with BS 18

L_0 = original gauge length of the tensile test piece.

S_0 = original cross-sectional area of the gauge length.

5 Manufacture

5.1 General

5.1.1 The tube shall be produced by a seamless or welded process. If the method of manufacture of the tube is not specified in the order, the choice of the method shall be at the option of the tube manufacturer.

5.1.2 The tubes shall have a smooth external surface consistent with the method of manufacture. Surface imperfections are permissible provided that the tube dimensions remain within the tolerance limit specified in Table 3.

5.1.3 The tubes shall have a circular profile and any ovality shall not exceed the tolerance limits on outside diameter specified in Table 3.