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Specification for

Copper and copper alloy pressure piping systems

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Co-operating organizations

The Pressure Vessel Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:

Associated Offices Technical Committee*	Department of Trade
Association of Consulting Engineers*	Electricity Supply Industry in England and Wales*
Association of Shell Boilermakers	Engineering Equipment Users' Association*
British Chemical Engineering Contractors' Association*	Institution of Chemical Engineers
British Gas Corporation*	Institution of Gas Engineers*
British Insurance (Atomic Energy)	Institution of Mechanical Engineers
British Mechanical Engineering Confederation	Lloyd's Register of Shipping*
British Steel Industry*	Oil Companies Materials Association
Chemical Industries Association	Process Plant Association*
Council of British Manufacturers of Petroleum Equipment*	United Kingdom Atomic Energy Authority
Department of Employment	University of Manchester Institute of Technology and Science
Department of Energy	Water-tube Boilermakers' Association
	Welding Institute

The scientific and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

Aluminium Federation	British Valve Manufacturers' Association
Association of Hydraulic Equipment Manufacturers	Copper Development Association
British Compressed Air Society	Department of Trade (Marine Division)
British Electrical and Allied Manufacturers' Association	High Pressure Pipework Consultative Committee
BNF Metals Technology Centre	Ministry of Defence

This British Standard, having been approved by the Pressure Vessel Industry Standards Committee, was published under the authority of the Executive Board on 30 September 1975

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BS 1306-2 first published November 1948
BS 1306-2 withdrawn as superseded by BS 2871-2:1972
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The following BSI references relate to the work on this standard:
Committee references PVE/10, PVE/10/2
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Amendments issued since publication

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Foreword

This British Standard is the second revision of BS 1306 and has been prepared under the authority of the Pressure Vessel Industry Standards Committee. This revised version is issued in one Part only since Part 2, withdrawn in 1973, has been superseded by BS 2871 “Copper and copper alloys — tubes”, Part 2 “Tubes for general purposes”. To reflect current requirements the title of this revision has been changed from that of BS 1306-1:1955.

This standard is one of a series on pressure piping. Complementary standards are BS 806 “Ferrous pipes and piping installations for and in connection with land boilers” and BS 5222 “Aluminium piping systems”, Part 1 “Dimensions, materials and construction of components” and Part 2 “Design”.

For those items in the system for which separate British Standards exist, only references to such standards are given in this revision. The design stresses specified in this standard have been supplied by the BNF Metals Technology Centre, who based their recommendation on BS 3274 “Tubular heat exchangers for general purposes”.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

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.

Section 1. General

1 Scope

This British Standard specifies the design, manufacture, installation and inspection of copper and copper alloy pipework subject to internal pressure for industrial and marine systems. The following systems are specifically covered:

- a) steam boiler, feed and hot water;
- b) hydraulic (water or oil);
- c) oil fuel (BS 799);
- d) pneumatic and gas;
- e) refrigeration and cryogenic.

This standard does not specifically apply to piping systems for petroleum refineries and petrochemical plants, which are covered by BS 3351.

NOTE Users of this standard, when applying it to marine work, should note that it is essential to ensure compliance with such statutory requirements, rules and regulations of the Regulatory Bodies and classification societies concerned. Attention is also drawn to the requirements of BS MA 18, BS MA 51, BS MA 60 and BS MA 67.

2 References

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

3 Definitions

For the purposes of this British Standard the following definitions apply.

3.1

design pressure

the value of pressure to be used for the calculation of pipe thickness. It is to be not less than the highest set pressure of any safety valve or protective device

3.2

design temperature

the design temperature to be considered for determining the design stress in Table 1 is, in general, the maximum temperature of the medium inside the pipe

3.3

test pressure

the pressure to which the system and its components are subjected under test conditions (see clause 23)

4 Information to be supplied by the purchaser

The purchaser of the system shall state the following in all enquiries and orders:

- a) the system requirements and environment, including the design pressures and temperatures, and service conditions for all pipes and equipment which are to comply with the requirements of this standard;
- b) the name of the Inspecting Authority, if any;
- c) any special statutory or other regulations with which the pipes or piping installations are required to comply;
- d) method of pipe joining;
- e) whether or not the purchaser or his representative desires to witness the tests;
- f) whether test certificates are required;
- g) whether the required material has to be suitable for hot bending (see clause 18);
- h) cleanliness requirements of the installed system (see clause 22).

5 Materials

Materials shall normally be copper or copper alloy and shall comply with one of the following standards except as otherwise agreed between manufacturer and purchaser.

- a) *Tubes*. Materials shall be selected from Table 1 of this British Standard.
- b) *Flanges*. Materials shall comply with the requirements of BS 4504-2.
- c) *Castings*. Materials shall comply with the requirements of BS 1400 or of Table 1 in BS MA 18:1974.
- d) *Fittings*. Materials for fittings shall comply with the requirements of BS 66 & BS 99, BS 143 & BS 1256, BS 864-2, or BS 2051-1.

In certain applications materials other than copper alloys, as specified in one of the following standards, may be used, or may be as otherwise agreed between manufacturer and purchaser.

- e) *Flanges*. Materials shall comply with the requirements of BS 4504-1.
- f) *Castings*. Materials shall comply with the requirements of Table 1 in BS MA 18:1974.
- g) *Fittings*. Materials for fittings shall comply with the requirements of BS 143 & BS 1256 or BS 4368-1 and BS 4368-3.

NOTE Normal precautions against corrosion should be observed in the choice of materials in their particular application and environment.