

Specification for

Steel pipes, joints and specials for water and sewage

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Piping Systems Components Standards Policy Committee (PSE/-) to Technical Committee PSE/8, upon which the following bodies were represented:

- Adhesive Tape Manufacturers' Association
- British Compressed Air Society
- British Gas plc
- British Malleable Tube Fittings Association
- British Steel Industry
- British Valve and Actuator Manufacturers' Association
- British Welded Steel Tube Association
- Food and Drink Federation
- Institution of Civil Engineers
- Institution of Gas Engineers
- Institution of Water and Environmental Management
- Mechanical Handling Engineers' Association
- Stainless Steel Fabricators' Association of Great Britain
- TI (Group Services) Ltd.
- Water Companies' Association
- Water Research Centre
- Water Services' Association of England and Wales
- Wrought Fitting Makers' Association

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Foreword

This British Standard has been prepared under the direction of the Piping Systems Components Standards Policy Committee and supersedes BS 534:1981 which is withdrawn.

Pipe outside diameters have been aligned with ISO 4200 published by the International Organization for Standardization.

Requirements for external and internal protections given in section 5 will be replaced in due course by protection requirements given in new British Standards.

Reference is made to the need for non-metallic products which will come into contact with potable water to comply with BS 6920-1.

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 to iv, pages 1 to 18, 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 standard specifies requirements for seamless and welded carbon steel pipes and specials and for joints in respect of the pipe end preparation, in sizes 60.3 mm to 2 235 mm outside diameter, for the conveyance of water and sewage. It includes external and internal protection against the corrosive action of the surrounding medium and conveyed fluid.

NOTE 1 This standard does not apply to those steel tubes and tubulars with screwed and socketed joints, which are covered by the requirements of BS 1387.

NOTE 2 For recommendations on the basis of design and service limitations, reference should be made to CP 2010-2.

NOTE 3 The titles of the publications referred to in this standard are listed on the inside back cover.

2 Information to be supplied by the purchaser

2.1 The purchaser is to provide to the supplier the information given in Appendix A to enable products to be supplied in accordance with this standard.

2.2 A number of options are permitted by this standard as given in Appendix B.

Both the definitive requirements specified throughout this standard and the options selected by the purchaser shall be satisfied by the manufacturer before a claim of compliance with this standard can be made and verified. In the event that the purchaser does not indicate his requirements at the time of enquiry and order the manufacturer shall select the option where appropriate.

3 Definitions

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

3.1 pipe

a straight conduit for fluid, of circular cross section, with plain or prepared ends

3.2 fitting

a component fitted to a pipe for jointing, connecting or changing the direction or bore of a pipe

3.3 special

a fitting made from manipulated or fabricated pipe, i.e. bend, gusseted bend, tee, collar

3.4 working pressure

the maximum sustained operating pressure at which the pipe, fitting or special is intended to be used

3.5 random lengths

normal manufacturing lengths falling within a specified range

3.6 cut lengths

pipes cut to a specified length on which only a small tolerance is allowed

3.7 effective length

the actual length that a pipe contributes when correctly assembled in a run of piping. This dimension excludes the additional length contributed by a slip-on type coupling when this is used

3.8 glass tissue

a uniformly porous mat, of minimum mass 40 g/m², made of glass monofilaments in random arrangement bonded with a thermosetting resin

3.9 reinforced glass tissue

glass tissue with the addition of strands of glass yarn to give additional longitudinal tensile strength, the whole being bonded with a thermosetting resin

3.10 woven glass cloth

a loom-state fabric, of minimum mass 120 g/m², made of low alkali glass, complying with BS 3396-1 and uniformly woven from continuous filament yarn to form a porous cloth with selvages well made, substantially straight and even, or a lock woven square mesh lacquer bonded fabric

3.11 composite glass fibre fabric

a reinforcement consisting of glass lock welded fabric and glass fibre combined

NOTE This reinforcement may be impregnated uniformly with a suitable bitumen or coal tar derived material.

3.12 lining

a durable material applied to the internal surface of steel pipes and fittings to protect the metal from corrosion, erosion or chemical attack

3.13 coating

a durable material applied to the external surface of steel pipes and fittings to protect the metal

3.14 closing length

the final length of pipe which effectively completes or closes the system and which is normally cut to length on site

4 Designation of size

4.1 Pipes

Pipes shall be designated by their outside diameters (in mm).

4.2 Specials

4.2.1 Bends shall be designated by their outside diameter (in mm) and the angle of the bend.

4.2.2 Tees shall be designated as follows.

- a) A tee with no reductions shall be designated by its common size.
- b) A tee reducing only on the branch shall be designated by two sizes, the size of the main being given first.
- c) A tee reducing on the branch and the main or only on the main shall be designated by three sizes, the larger size of the main followed by the smaller size of the main followed by the size of the branch.

4.2.3 Collars shall be designated by the outside diameter (in mm) of the pipes for which they are intended.

5 Materials

5.1 Pipes

Pipes shall comply with BS 3601.

NOTE 1 It is essential that the grade and method of manufacture required is stated in the enquiry and order (see item b) of Appendix A).

NOTE 2 The purchaser has options permitted under BS 3601.

5.2 Specials

The main bodies of specials shall comply with BS 3601.

NOTE 1 It is essential that the grade and method of manufacture is stated in the enquiry and order (see item b) of Appendix A).

NOTE 2 Unless otherwise specified by the purchaser branches of tees may be made of other grades of weldable steel, provided the completed fittings are at least as strong as required for the main bodies. The purchaser should state in the enquiry and order if the material for branches of tees should be identical to that used for the main bodies (see item a) of Appendix B).

6 Effect of non-metallic products on water quality

When used under the conditions for which they are designated, non-metallic products in contact with or likely to come into contact with potable water shall comply with BS 6920-1:1988.

NOTE 1 Non-metallic products for installation and use in the United Kingdom which are verified and listed under the UK Water Fittings Byelaws Scheme are deemed to satisfy the requirements of this clause. Details of the Scheme are obtainable from the Water Research Centre Byelaws Advisory Service, 660 Ajax Avenue, Slough SL1 4BG.

Non-metallic products approved by the Department of the Environment Committee on Chemicals and Materials of Construction for use in Public Water Supply and Swimming Pools are considered free from adverse health effects for the purposes of compliance with this clause.

NOTE 2 A list of approved chemicals and materials and details of the approvals scheme is available from the Secretary of the Committee at the Department of the Environment, Water Division, Romney House, 43 Marsham Street, London SW1P 3PY.

7 Marking

7.1 Each pipe and special shall be legibly marked by stencilling or other indelible marking in accordance with 7.2.

7.2 The marking shall consist of the following in the sequence indicated:

- a) the manufacturer's name or identification mark;
- b) the number and date of this British Standard, i.e. BS 534:1990¹⁾;
- c) the designation of size;
- d) the material designation as given in BS 3601, e.g. ERW 430;
- e) when a test certificate is supplied, the purchaser's order number or other appropriate mark to identify the pipes with the test certificate.

Alternatively, for tubes that are bundled, the information given in a), b), c) and e) shall be either stamped on one or more metal or other durable tags, or printed on banding clips or straps, which shall be securely attached to each bundle.

Not more than one steel grade shall be included in any one bundle.

NOTE Additional markings may be used provided they do not conflict with the requirements of 7.2.

¹⁾ Marking BS 534:1990 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 therefore solely the responsibility of the person making the claim. Such a declaration is not to be confused with third party certification of conformity, which may also be desirable.