

BRITISH STANDARD SPECIFICATION

CENTRIFUGALLY CAST (SPUN)
IRON PRESSURE PIPES
FOR WATER, GAS & SEWAGE

B.S. 1211 : 1958

Confirmed August 1981

THIS BRITISH STANDARD, having been approved by the Iron and Steel Industry Standards Committee and endorsed by the Chairman of the Engineering Divisional Council, was published under the authority of the General Council on 24th February, 1958.

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The Institution desires to call attention to the fact that this British Standard does not purport to include all the necessary provisions of a contract.

In order to keep abreast of progress in the industries concerned, British Standards are subject to periodical review. Suggestions for improvements will be recorded and in due course brought to the notice of the committees charged with the revision of the standards to which they refer.

A complete list of British Standards, numbering over 5000, indexed and cross-indexed for reference, together with an abstract of each standard, will be found in the Institution's Yearbook.

This standard makes reference to the following British Standard:—

B.S. 78. Cast iron pipes (vertically cast) for water, gas and sewage and special castings for use therewith.

British Standards are revised, when necessary, by the issue either of amendment slips or of revised editions. It is important that users of British Standards should ascertain that they are in possession of the latest amendments or editions.

The following B.S.I. references relate to the work on this standard:
Committee reference ISE/16 Draft for comment CX(ISE) 6797

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CO-OPERATING ORGANIZATIONS

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

Admiralty
 Alloy Steels Association
 British Bolt, Nut, Screw and Rivet Federation
 *British Cast Iron Research Association
 British Constructional Steelwork Association
 British Electrical and Allied Manufacturers' Association
 British Engineers' Association
 *British Iron and Steel Federation
 British Ironfounders Association
 British Railways, The British Transport Commission
 British Steel Founders' Association
 Council of Ironfoundry Associations
 Council of Iron Producers
 *Crown Agents for Oversea Governments and Administrations
 Engineering Equipment Users Association
 Federation of Civil Engineering Contractors
 *Institute of British Foundrymen
 Institute of Iron and Steel Wire Manufacturers
 Institute of Marine Engineers
 *Institution of Civil Engineers
 Institution of Mechanical Engineers (Automobile Division)
 Institution of Structural Engineers
 Iron and Steel Board
 Iron and Steel Institute
 Joint Iron Council
 Lloyd's Register of Shipping
 Ministry of Labour and National Service (Factory Inspectorate)
 Ministry of Supply
 National Association of Drop Forgers and Stampers
 National Ironfounding Employers' Association
 National Physical Laboratory (D.S.I.R.)
 *Oil Companies Materials Committee
 Royal Institute of British Architects
 Shipbuilding Employers' Federation
 Society of British Aircraft Constructors
 Society of Motor Manufacturers and Traders Ltd.

The Government departments and 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:

Associated Master Plumbers and Domestic Engineers
 Association of Consulting Engineers (Incorporated)
 British Waterworks Association
 Gas Council
 Greensand Pipe Founders' Association of Scotland
 Institution of Gas Engineers
 Institution of Mechanical Engineers
 Institution of Municipal Engineers
 Institution of Water Engineers
 Ministry of Housing and Local Government
 Post Office
 Individual firms

BRITISH STANDARD SPECIFICATION FOR CENTRIFUGALLY CAST (SPUN) IRON PRESSURE PIPES FOR WATER, GAS AND SEWAGE

FOREWORD

This revised British Standard is one of a series of standards for cast iron pipes. It has been authorized by The Iron and Steel Industry Standards Committee.

In preparing this revision, the Committee entrusted with the work have taken due note of the fact that American standards and the Recommendations prepared by the International Organization for Standardization require test pressures in excess of those specified in the previous edition.

Consideration has also been given to the requirements of the socket design and the coating to avoid unduly restricting future manufacturing techniques.

In general, the fittings to be used with the pipes specified in this standard will conform to B.S. 78, 'Cast iron pipes (vertically cast) for water, gas and sewage and special castings for use therewith'.

Metric equivalents of British units are not given in this Standard. The reason for this is that there is a similar, but slightly different, series of metric sizes for pipes.

Some of the nominal dimensions in the two ranges overlap, and it would therefore be very confusing if metric equivalents were given when the equivalent of a British size was only slightly different from an actual metric size.

However, to assist readers who are more familiar with metric than British units, a small table of basic conversions is given in Appendix C.

SPECIFICATION

SECTION ONE : GENERAL

SCOPE

1. This British Standard covers centrifugally cast (spun) iron pressure pipes for water, gas and sewage. The pipes are manufactured in either metal or sand moulds. The requirements common to both methods of moulding are given in Section One, those peculiar to metal moulds in Section Two and those peculiar to sand moulds in Section Three.

GENERAL

2. The pipes shall be of cast iron and shall conform in every respect to this specification, except that pipes may be ordered and supplied with the ends different from the specified spigots and sockets; in such a case, the body of each pipe shall conform to all the relevant requirements of this specification.

QUALITY OF METAL USED IN CASTING PIPES

3. The metal used for the manufacture of the pipes shall be good quality cast iron. It shall be prepared, at the discretion of the manufacturer, in a cupola or active mixer or other suitable furnace.

QUALITY CONTROL

4. The manufacturer shall provide, and test, ring and bar test pieces to enable the quality of the pipes to be controlled and shall keep records of all such tests made; such records shall be available for inspection by the purchaser or his representative.

The pieces for ring and bar tests shall be selected so as to be representative of the pipes being manufactured.

The particular test piece used shall be as follows:

a. Pipes up to and including 12 in. nominal internal diameter. The test piece shall consist of a ring approximating to 1 in. in width and having parallel sides.

b. Pipes over 12 in. nominal internal diameter. The test piece shall be machined to the dimensions shown in the table in Appendix B according to the thickness of the pipes.

SELECTION OF TEST PIECES BY THE PURCHASER

5. If stated on the enquiry and subsequent order that the purchaser wishes to witness ring and bar tests in respect of the pipes to that order, the pieces may be selected by the purchaser or his representative.

For the purpose of providing and selecting test pieces, the pipes to that order shall be arbitrarily divided into batches of 100. Any pipes remaining after dividing into batches of 100 shall be considered as a batch. Where the total order is less than 100, then the order shall be considered as a batch. A batch may contain pipes of any of the sizes 12 in. and under. Alternatively a batch may contain pipes of any of the sizes over 12 in.

The two ranges may not both be represented in the same batch. (See Clauses 20 and 21 or 27 and 28 as appropriate.)

One test piece shall be taken from each batch, always provided that if the batch contains more than one size of pipe, the test piece selected shall be regarded as representative of all the sizes in the batch.

The test pieces shall be cut from the spigot ends of the selected pipes. Each test piece shall be marked and the manufacturer shall provide

facilities to enable the purchaser to relate each test piece to the batch of pipes from which it was taken.

The test pieces shall be in accordance with Clause 4.

If the test piece representing any batch does not pass the test, two further tests shall be made on test pieces selected by the purchaser or his representative from two other pipes from the same batch. Should either of these additional test pieces fail to pass the test, then that batch of pipes shall be deemed not to comply with this British Standard (see also Clause 9).

MECHANICAL TESTS

6. The test pieces shall be tested in accordance with Section Two Clauses 20, 21 and 22 or Section Three Clauses 27 and 28 of this specification, whichever is applicable.

HYDRAULIC TESTS

7. All pipes shall be hydraulically tested over their full length at the manufacturer's works. Whenever practicable the test shall be applied before the pipes are coated.

a. Test procedure. Hydraulic pressure shall be applied at a steady rate and maintained sufficiently long for proof and inspection. The internal pressure imposed on the pipes shall be measured by an accurate pressure gauge and means shall be provided for attaching the gauge of the purchaser or his representative. While under the test pressure, each pipe shall be smartly struck over the full length with a hand hammer weighing approximately $1\frac{1}{2}$ lb. Testing shall be conducted under cover wherever possible.

b. Works test requirements. The pipes shall withstand the hydraulic test pressures shown in Column 2 of Table 1 without showing any leakage, sweating or other defects.

c. Installation test requirements. The pipes shall withstand the hydraulic test pressures shown in columns 3 and 4 of Table 1 for the respective classes of pipe.

TABLE 1. TEST PRESSURE

Class	Hydraulic test pressure at works	Maximum hydraulic test pressure after installation	
	lb/sq. in.	ft head	lb/sq. in.
B	500	400	173
C	500	600	260
D	500	800	347