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BSI Standards Publication

Thermoplastics pipe and fitting systems for hot and cold water for domestic purposes and heating installations in buildings

Part 1: General requirements

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Foreword

Publishing information

This part of BS 7291 is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 30 April 2010. It was prepared by Subcommittee ⟨A1⟩ PRI/88/2, *Plastic piping for pressure applications* ⟨A1⟩, under the authority of Technical Committee PRI/88, *Plastics piping systems*. A list of organizations represented on this committee can be obtained on request to the committee manager.

Supersession

BS 7291-1:2010+A1:2023 supersedes BS 7291-1:2010, which is withdrawn.

Information about this document

Text introduced or altered by Amendment No. 1 is indicated in the text by tags ⟨A1⟩ ⟨A1⟩. Minor editorial changes are not tagged.

The increase in unvented hot water storage systems in the UK, and the higher temperatures and pressures associated with these, lead to potential health and safety concerns in the UK. These are addressed by the exclusive use of the Class "S" for the full range of service conditions given in Table 1.

The size range of pipes and associated fittings to which this standard is applicable is up to and including 110 mm nominal outside diameter. Particular ranges of sizes are specified with reference to BS ISO 4065 and/or BS EN 1057 and/or BS EN 1254-2:1998 and/or BS EN 1254-3:1998, as appropriate, by the other parts of BS 7291. These alternative size ranges arise because, in addition to providing for specifications in accordance with metric sizes of thermoplastics pipes, it is considered desirable to standardize the requirements for plastics pipes made and widely used for such applications with dimensions compatible with pipework, fittings and accessories for metric sizes of copper pipes.

Additional requirements for pipes and fittings made from specific types of thermoplastics materials are specified in other parts of BS 7291:

- Part 2: Specification for polybutylene (PB) pipes and associated fittings;
- Part 3: Specification for cross-linked polyethylene (PE-X) pipes and associated fittings.

In particular, these parts specify requirements and test methods to ensure the quality of the material and the performance of pipes and fittings of that material, including requirements for component dimensions, which contribute to performance. The other parts also rationalize the pipe sizes specified and identify suitable jointing methods.

Fittings are permitted to be made of plastics materials other than those from which the pipes are made or of other materials, e.g. metallic fittings conforming to BS EN 1254-2:1998 and/or BS EN 1254-3:1998, subject to conformity with this part of BS 7291 and with any applicable requirements for jointed assemblies specified in BS 7291-2 or BS 7291-3, as applicable.

Attention is drawn to BS 5955-8, which specifies the installation requirements for plastics pipes and associated fittings falling within the scope of BS 7291 and references other relevant standards.

Assessed capability. Users of this part of BS 7291 are advised to consider the desirability of quality system assessment and registration against the appropriate standard in the BS EN ISO 9000 series by an accredited third-party certification body.

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Presentational conventions

The provisions of this document are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is "shall".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Where words have alternative spellings, the preferred spelling of the *Shorter Oxford English Dictionary* is used (e.g. "organization" rather than "organisation").

Requirements in this document are drafted in accordance with the *Rules for the structure and drafting of UK standards:2022*, subclause **G.1.1**, which states, "Requirements should be expressed using wording such as: 'When tested as described in Annex A, the product shall ...'". This means that only those products that are capable of passing the specified test will be deemed to conform to this document.

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Compliance with a British Standard cannot confer immunity from legal obligations.

In particular, attention is drawn to the following specific Acts and regulations:

- The Health and Safety at Work, etc Act 1974 [1]
- The Water Supply (Water Fittings) Regulations 1999 [2]

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1 Scope

This part of BS 7291 specifies general requirements and methods of test for thermoplastics pipe and fitting systems intended for use within buildings for the conveyance of cold water, including drinking water, and heated water for use in domestic hot and cold water distribution and heating installations. These systems are also suitable for the conveyance of cold water for a period of 50 years at a temperature of 20 °C and a design pressure of 12½ bar.

This British Standard is applicable only to Class "S" pipes and fittings.

Details of the specific applications and service conditions are given in Table 1.

This specification is applicable to rigid or flexible plain pipes, pipes incorporating a polymeric barrier to inhibit gas permeability through the pipe wall and multilayer pipes having a nominal outside diameter up to and including 110 mm.

NOTE 1 Methods of test are given in Annex A, Annex B, Annex C and Annex D. Annex E gives guidance on factory control procedures.

NOTE 2 BS 7291-2 and BS 7291-3 specify additional requirements for pipes and/or fittings manufactured from specific thermoplastics materials. They should be read in conjunction with this part of BS 7291.

NOTE 3 Reference to "pressure" in this part of BS 7291 means "gauge pressure", unless otherwise stated.

NOTE 4 Where the pipe or fitting is of a thermoplastics material covered by BS 7291-1, BS 7291-2 or BS 7291-3, either the requirements for preventing or controlling the extent of permeation specified in the applicable part, e.g. by use of a barrier pipe, should be followed, or a corrosion inhibitor added to the primary circuits in accordance with BS 5955-8.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 5955-8, *Plastics pipework (thermoplastics materials) – Part 8: Specification for the installation of thermoplastics pipes and associated fittings for use in domestic hot and cold water services and heating systems in buildings*

BS 6100-5, *Building and civil engineering – Vocabulary – Part 5: Civil engineering – Water engineering, environmental engineering and pipe lines*

BS 6100-7, *Building and civil engineering – Vocabulary – Part 7: Services*

BS 6920-1, *Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water – Part 1: Specification*

〚A1〛 BS 7291-2:2010+A1:2023 〚A1〛, *Thermoplastics pipe and fitting systems for hot and cold water for domestic purposes and heating installations in buildings – Part 2: Specification for polybutylene (PB) pipe and associated fittings*

〚A1〛 BS 7291-3:2010+A1:2023 〚A1〛, *Thermoplastics pipe and fitting systems for hot and cold water for domestic purposes and heating installations in buildings – Part 3: Specification for cross-linked polyethylene (PE-X) pipes and associated fittings*

〚A1〛 Text deleted 〚A1〛

BS EN 1057, *Copper and copper alloys – Seamless, round copper tubes for water and gas in sanitary and heating installations*

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