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BSI Standards Publication

**Specification for mechanical fittings for use in the repair, connection and renovation of pressurized water supply pipelines – Requirements and test methods**

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### Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 48, an inside back cover and a back cover.

## Foreword

### Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 December 2013. It was prepared by Technical Committee B/504, *Water supply*. A list of organizations represented on this committee can be obtained on request to its secretary.

### Presentational conventions

The provisions of this standard 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.*

### Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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

In particular, attention is drawn to the following regulations. The commentary in this British Standard reflects the state of the regulations at the time of publication.

### Water fittings

In this document, the following national regulations, which apply to requirements relating to plumbing systems in premises to which a supply of public mains water (municipal water supply) has been provided, are referred to as the "Water Fittings Regulations [1]":

- The Water Supply (Water Fittings) Regulations 1999, as amended, in England and Wales;
- Scottish Water Byelaws 2004, in Scotland; and
- The Water Regulations (Northern Ireland) 2006, in Northern Ireland.

### Public water supplies

These regulations refer to the standards of wholesomeness for water quality parameters where the water is intended for public supply. In this standard, the following national regulations, which apply standards of wholesomeness to water provided from the public mains supply (municipal supply), are referred to as the "Water Quality Regulations [2]":

- The Water Supply (Water Quality) Regulations 2000 as amended, in England;
- The Water Supply (Water Quality) Regulations (Northern Ireland) 2007 as amended, in Northern Ireland;
- The Water Supply (Water Quality) (Scotland) Regulations 2001 as amended, in Scotland; and
- The Water Supply (Water Quality) (Wales) Regulations 2010, in Wales.

### Private water supplies

These regulations refer to the standards of wholesomeness for water quality parameters in premises where the water for human consumption or food production has been sourced from a private supply. In this standard, the following national regulations, which apply standards of wholesomeness to water provided from private water sources (non-municipal supply), are referred to as the "Private Water Supplies Regulations [3]":

- The Private Water Supplies Regulations 2009 as amended, in England;
- The Private Water Supplies Regulations (Northern Ireland) 2009 as amended in Northern Ireland;
- The Private Water Supplies (Scotland) Regulations 2006 as amended, in Scotland; and
- The Private Water Supplies (Wales) Regulations 2010 as amended, in Wales.

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## 1 Scope

This British Standard specifies the requirements and associated test methods applicable to fittings with flexible, flexible restrained and restrained joints intended for connection to existing water supply pipes for the purposes of localized repair, new branch connections or pipeline rehabilitation.

*NOTE* These fittings may additionally connect to new pipe materials to replace faulty sections of existing pipe.

It also specifies requirements for materials and dimensions and gives performance requirements for joints.

It applies to fittings in the diameter range of DN 50 to DN 1 800 made for use on the following pipe materials other than polyethylene (PE):

- grey iron;
- ductile iron;
- steel;
- polyvinyl chloride (PVC);
- fibre cement; and
- glass-reinforced polyester (GRP).

It applies to fittings in the diameter range of DN 75 to DN 1 000 made for use on the following PE pipe material:

- PE80 material (medium-density polyethylene – MDPE);
- PE100 material (high-density polyethylene – HDPE); and
- PE barrier pipe for contaminated land [4].

This specification applies to fittings including (but not necessarily limited to) pipe couplings, flange adaptors, under pressure tees (including any similar components permanently installed on mains as part of flow isolation techniques or to facilitate equipment access into mains), repair clamps, pipe saddles and joint encapsulation units for both potable and non-potable applications.

It applies to fittings which seal to both the existing water supply pipe, including corroded or physically degraded pipe surfaces, and any new pipe by mechanical compression of elastomeric seals, though pressure actuated sealing may additionally be incorporated.

It also gives performance requirements for fittings designed to provide axial restraint when installed on the existing pipe. Joint design and gasket shapes are not covered by this British Standard.

## 2 Normative references

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

### Standards publications

BS 4190, *ISO metric black hexagon bolts, screws and nuts – Specification*

BS EN 545, *Ductile iron pipes, fittings, accessories and their joints for water pipelines – Requirements and test methods*

BS EN 681-1:1996, *Elastomeric seals – Material requirements for pipe joint seals used in water and drainage applications – Part 1: Vulcanized rubber*