

1. SCOPE

This schedule specifies characteristics for Straight Couplings manufactured by UTS Engineering Ltd. for joining cast iron, ductile iron, steel, PVC, clay and concrete potable and waste water pipes open ended pipes of either the same or different materials.

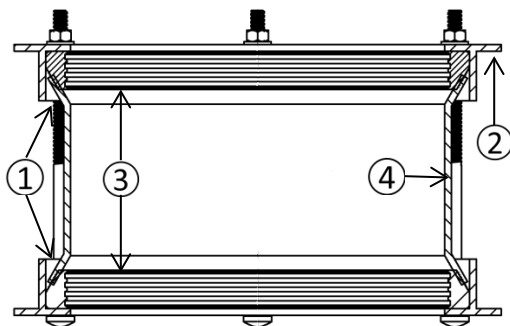
It is applicable to Couplings designed for pipe diameters of between 300 mm and 2300 mm nominal bore, operating up to a pressure of 16 bar.

The Couplings do not provide end restraint.

2. PRODUCT DESCRIPTION

2.1 Introduction

The Straight Coupling systems consist of two mechanical joints at either end of a steel tube. The mechanical joints comprise of T-section rings which compress elastomeric seals between the inside of the steel tube and the outside of the connecting pipe.



1. Mechanical Joints
2. T-section ring
3. Elastomeric seals
4. Steel tube

The two variations of the Straight Coupling system are:

a) Straight Coupling for joining plain ended pipes of the same diameter; or

b) Stepped Straight Coupling for joining plain ended pipes of the same nominal diameter, but with different outside diameters.

Where end restraint is required a thrust block should be used in combination with the Coupling.

2.2 Applicable standards

The following standards are applicable to this product:

WIS 4-21-02:1994⁽¹⁾

2.3 Approval History

The Straight Coupling was originally awarded WRc Approved™ certification in September 2010 (Certificate reference PT/310/0910).

3. TESTING & REQUIREMENTS

3.1 Materials and Components

Material requirements

The T-section rings and the tube shall be made of grade 275 steel to BS EN 10025-2:2004⁽²⁾.

Engineering Studs shall be to BS EN ISO 898-1:2013⁽³⁾ grade 8.8.

Nuts shall be to BS 4190:2014⁽⁴⁾ grade 4.

Washers shall be in accordance with BS 4320:1968⁽⁵⁾ and shall be made from grade A2 steel in accordance with BS EN ISO 3506⁽⁶⁾.

Elastomeric seals shall comply with the requirements of BS EN 681-1:1996⁽⁷⁾.

Adhesives for elastomeric seals shall comply with the manufacturer's specification.

Coatings

The T-sections and tube shall be coated in accordance with the requirements of WIS 4-52-01 Part 1⁽⁸⁾.

Fixings not made from stainless steel shall be coated in accordance with the requirements of WIS 4-52-03⁽⁹⁾.

Dimensions

Straight Couplings shall be manufactured to a tolerance of ± 1 mm.

Materials in contact with drinking water

All components of the Straight Coupling that are intended to be in contact with drinking water shall comply with Water Supply (Water Quality) Regulations 2016 (SI 2016/618) Regulation 31⁽¹⁰⁾ or the equivalent regulations in Wales, Scotland or Northern Ireland.

3.2 Type Testing

Mechanical resistance

Short term hydrostatic pressure: when tested in accordance with WIS 4-21-02⁽¹⁾ Appendix A the Straight Coupling shall meet the requirements of clause 17.2.

Short term vacuum: when tested in accordance with WIS 4-21-02⁽¹⁾ Appendix B the Straight Coupling shall meet the requirements of clause 17.3.

Bolt-load relaxation: when tested in accordance with WIS 4-21-02⁽¹⁾ Appendix C the Straight Coupling shall meet the requirements of clause 17.4.

Leak tightness: when tested in accordance with WIS 4-21-02⁽¹⁾ Appendix D and H the Straight Coupling shall meet the requirements of clause 17.5 and clause

17.8 at the manufacturer's maximum recommended angular deflection of 3 degrees at each end of the unit.

Resistance to shear: when tested in accordance with WIS 4-21-02⁽¹⁾ Appendix G the Straight Coupling shall meet the requirements of clause 17.7.

3.3 Manufacture

To ensure the quality and performance of the Straight Couplings, the manufacturing process shall include appropriate systems for the:

- Specification of component materials;
- Verification component material received are to specification;
- Handling and storage of all component materials; and
- Fabrication and quality of workmanship.

The production of the Straight Coupling and related quality control procedures shall comply with requirements of WIS 4-21-02⁽¹⁾: clause 18.1 and 18.2 to ensure the stated performance of the product is reliably achieved.

The coatings shall be applied in accordance with WIS 4-52-01 Part 2⁽¹¹⁾.

Welding shall be carried out by a welder qualified in accordance BS EN ISO 9606-1⁽¹²⁾ as appropriate.

Fabrication shall be carried out in accordance with BS EN 10224:2002⁽¹³⁾.

3.4 Installation

When installed in accordance with the installation documentation, the Straight

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manufactured by UTS Engineering Ltd.**



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Couplings shall be reasonably expected to perform as described.

4. APPROVAL

The UTS Engineering Ltd's Straight Coupling has been audited and has successfully met all of the requirements stated within this assessment schedule.

Signed:

A handwritten signature in black ink, appearing to read 'G. Han', with a long horizontal flourish extending to the right.

Valid until: 15th September 2025

5. REFERENCES

- 1) WIS 4-21-02:1994 Mechanical couplings and repair clamps for iron pipes for the conveyance of cold potable water (underground use) for the size range 40 to 1600 mm.
- 2) BS EN 10025-2:2004 - Hot rolled products of structural steels.
- 3) BS EN ISO 898-1:2013 Mechanical properties of fasteners made of carbon steel and alloy steel. Bolts, screws and studs with specified property classes. Coarse thread and fine pitch thread.
- 4) BS 4190:2014 ISO metric black hexagon bolts, screws and nuts. Specification.
- 5) BS 4320:1968 Specification for metal washers for general engineering purposes. Metric series.
- 6) BS EN ISO 3506-1:2020 Fasteners. Mechanical properties of corrosion-resistant stainless steel fasteners.
- 7) BS EN 681-1:1996 Elastomeric seals. Material requirements for pipe joint seals used in water and drainage applications. Vulcanized rubber.
- 8) WIS 4-52-01:1994 Polymeric anti-corrosion (Barrier) coatings: Part 1 - Requirements of the coating system material.
- 9) WIS 4-52-03:1994 Anti-corrosion coatings on threaded fasteners.
- 10) Water Supply (Water Quality) Regulations 2016 (SI 2016/618) Regulation 31
- 11) WIS 4-52-01:1994 Polymeric anti-corrosion (Barrier) coatings: Part 2 – Requirements of the factory applied.
- 12) BS EN ISO 9606-1:2017 Qualification testing of welders. Fusion welding. Steels.
- 13) BS EN 10224:2002 Non-alloy steel tubes and fittings for the conveyance of water and other aqueous liquids. Technical delivery conditions.