PT/512/0123-AS (January 2023)

Assessment Schedule for Twistee™ Saddle as manufactured by Mission Rubber UK Ltd

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1. SCOPE

This schedule specifies the requirements for the Twistee™ saddle manufactured by Mission Rubber. The Twistee™ saddle terminates with a plain DN150 stub end.

It is applicable to the connection of DN150 laterals to DN300 – DN1500 with a minimum wall thickness of 32 mm.

2. PRODUCT DESCRIPTION

2.1 Introduction

The Twistee™ saddle enables a secure and leak tight lateral connection to be made to a larger sewer or surface water pipe without the need to fully excavate and disturb the bedding.

The Twistee™ saddle consists of two components; an EPDM Rubber gasket which has an internal thread and an PP (Polypropylene) insert that has a tapered male thread and terminates in a straight ended stub.

A cored hole is required having a diameter of 186 mm (+1/-0). The gasket is placed in the core and the insert is screwed into the gasket thereby expanding and compressing the gasket in the core. The saddle can be used on clay and concrete.

To connect the lateral pipe to the saddle a connector is required.

2.2 Applicable standards

The following relevant standards were identified for gravity sewerage and drainage pipe couplings:

- BS EN 295-3:2012[(1)]
- BS EN 295-4:2013[(2)]
- BS EN 16397-1:2014[(3)]
- BS EN 16397-2:2014[(4)]
- BS EN 681-1:1996[(5)]
- WIS 4-35-01:2008[(6)].

2.3 Approval History

The Twistee™ Saddle was originally awarded WRc Approved™ certification in January 2018 and the certification number is stated below:

- PT/413/0118

This is the second approval for the Twistee™ Saddle.

3. REQUIREMENTS AND TESTING

3.1 Type Testing

Materials Properties:

Elastomeric components shall comply with the requirements of BS EN 681-1:1996;

The PP sleeve shall be in accordance with the manufacturer's specification.

Water Tightness:

When tested in accordance with BS EN 16397-1:2014, 6.1, the saddle shall meet the requirements of BS EN 16397-1:2014, 5.4. The saddle shall be assembled in accordance with the manufacturer's instructions.

Shear Resistance & Deformation:

When tested in accordance with BS EN 16397-1:2014 5.4.4, with an applied shear force or deformation as specified from the requirements in Table 1. The saddles shall be separately tested for the internal pressure (0.5 bar) and internal vacuum (-0.25 bar) for 15 minutes. There shall be no visible leakage or more than

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10% change in pressure after the pressure has stabilised.

Properties of saddle connection to host pipe:

When a load of 20 KN is applied to the saddle stub in an upright position with the saddle positioned at the crown of the pipe there shall be no signs of damage and the lateral connection must not puncture the saddle and push through into the main pipe.

Shear load through the connection shall be as given in Table 1 in accordance with BS EN 16397-1, 5.4.4. The tests shall be undertaken on DN 300 and DN500 pipe, (this is believed to satisfy the needs of the range of applicable pipes).

Thermal Cycling: When tested in accordance with BS EN 295-3:2012, 24.2, the joint assemblies shall withstand a long term thermal stability test for 7 days at 45°C, followed by a leak tightness test applying 0.5 bar internal pressure for 15 minutes, there shall be no visible leakage.

Resistance to High Pressure Water Jetting: When tested in accordance with WIS 4-35-01, Appendix B. The high pressure water jet is applied for 120 seconds and shall meet the minimum requirement of 180 Bar (2600 psi), there shall be no penetration through the pipe wall.

3.2 Installation

The product and installation documentation supplied by Mission Rubber. shall be complete and accurate and allow for the full benefit of the product to be achieved through clear installation procedures(7).

4. APPROVAL

Twistee Saddle has been audited and successfully met all the requirements stated within this assessment schedule

Signed:

Valid until 18 January 2028

5. REFERENCES

1. BS EN 295-3 Vitrified clay pipe systems for drains and sewers. Requirements for pipes, fittings and joints. 2013.
2. BS EN 295-4: Vitrified clay pipe and fittings and pipe joints for drains and sewers - Part 4 Requirements for special fittings, adaptors and compatible accessories. 2013.
3. BS EN 16397-1 Flexible Couplings – Part 1 Performance requirements: 2014.
4. BS EN 16397-2 Flexible Couplings Part 2: Characteristics and testing for metal banded flexible couplings, adaptors and bushes 2014.
5. BS EN 681-1: Elastomeric seals. Materials requirements for pipe joint seals used in water and drainage applications. 1996.
6. WIS 4-35-01: Specification for Thermoplastic Structured Wall Pipes – Supplementary Test Requirements.
7. Installation data sheet (TWISTEE Installation Guide MISSION 01-2018).

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