

PT/556/0425-AS (April 2025)

**Assessment Schedule for Type FA 150B
and Type FA 200B flexible saddles as
supplied by Fernco**



independent certification of your products & services

1. SCOPE

This schedule specifies the requirements for the Type FA 150B and Type FA 200B flexible saddles as supplied by Fernco for the in-situ connection of laterals to gravity sewers with a wall thickness of 50mm to 150mm.

The Type FA 150B is applicable to the connection of DN150 laterals to DN375 – DN1500 gravity sewers.

The Type FA 200B is applicable to the connection of DN 200 laterals to DN 450 – DN 1500 gravity sewers.

2. PRODUCT DESCRIPTION

2.1 Introduction

The Type FA Saddle enables a secure and leaktight lateral connection to be made to a larger sewer without the need to excavate and disturb the bedding.

A cored hole is required having a diameter of 172 mm for the FA 150B and 232 mm for the FA 200B and can have a deflection on the lateral of 15 degrees.

The internal diameter of the main pipe can range from 375mm to 1500mm for the FA 150B and from 450mm to 1500mm for the FA 200B. The wall thickness of the sewer can range from 50mm to 150mm for both saddle sizes.

The Type FA Saddles can be used with solid walled lateral pipes of any pipe material. It is however, most suitable for: concrete, vitrified clay and fibre cement. An elastomeric bush may also be required for connecting to some sewer pipe materials.

2.2 Applicable standards

The following standard is applicable to this product:

- BS EN 16397-1⁽¹⁾.

2.3 Approval History

The Type FA 150B and Type FA 200B flexible saddles were originally awarded WRc Approved® certification in February 2000:

- PT/90/0200 & PT/100/0600.
- PT/243/0405 & PT/244/0405.
- PT/303/0410 & PT/302/0410.
- PT/382/0415.
- PT/476/1220.

3. REQUIREMENTS AND TESTING

3.1 Materials and components

Elastomeric components shall comply with the requirements of BS EN 681-1⁽²⁾.

Stainless steel bands shall comply with the requirements of BS EN 16397-2⁽³⁾ clause 4.2.1 and the strength of bands shall comply with BS EN 16397-2 clause 4.3.3.

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

3.2 Type Testing

Water Tightness

When tested in accordance with clause 6.1 of BS EN 16397-1, using the pressure requirements specified in Appendix A 3.4.1 of BS EN 295-4⁽⁴⁾, the Type FA Saddle shall meet the requirements of clause 5.4. of BS EN 16397-1.

The saddle shall be assembled in accordance with the manufacturer's instructions including, when necessary, the use of a bush.

Shear & Deformation test

When tested in accordance with clause 5.4.4 of BS EN 16397-1, with an applied shear force or deformation as specified from the requirements in Table 1, the Type FA 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 10% change in pressure after the pressure has stabilised.

Table 1 Shear force or deformation

Type of lateral pipe	Shear load at joint assembly (BS EN 16397-1, 5.4.4)	Deformation (BS EN 16397-1, 5.4.4)
Rigid	25N per mm of nominal size (BS EN 16397-1: 5.4.4.2)	n/a
Rigid & Flexible	n/a	(5±0.5)% (BS EN 16397-1: 2014, 5.4.4.3)
Flexible	n/a	(10±1.0)% (BS EN 16397-1: 2014, 5.4.4.3)

Properties of saddle connection (to concrete pipe)

When an axial load (20 kN) is applied along the lateral there shall be no permanent visible deformation or damage on the connection.

Shear load through the connection shall be as given in Table 1 in accordance with clause 5.4.4 of BS EN 16397-1. The tests shall be undertaken on DN 450 concrete pipe, (this is believed to satisfy the needs of the range of applicable pipes).

Deflection test

When tested in accordance with clause 5.4.3 of BS EN 16397-1, with an angular deflection as specified in Table 2, at an internal pressure of 0.5 bar for 5 minutes, there shall be no visible leakage or more than 10% change in pressure after the pressure has stabilised.

When tested in accordance with clause 5.4.3 of BS EN 16397-1, with an angular deflection as specified in Table 2, at an internal vacuum of -0.25 bar (0.75 bar absolute) for 5 minutes, there shall be no visible leakage or more than 10% change in pressure after the pressure has stabilised.

Table 2 Angular Deflection

Type of saddle	Angle
FA 150B	Minimum: 4.6 degrees Declared value: 18 degrees
FA 200B	Minimum: 4.6 degrees Declared value: 13 degrees

PT/556/0425-AS (April 2025)

**Assessment Schedule for Type FA 150B
and Type FA 200B flexible saddles as
supplied by Fernco**



independent certification of your products & services

Thermal Cycling

When tested in accordance with clause 24.2 of BS EN 295-3⁽⁵⁾, the joint assemblies shall withstand a long-term thermal stability test for 7 days at 45°C, followed by a leaktightness 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 Appendix B of WIS 4-35-01⁽⁶⁾, 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.

3.3 Manufacture

To ensure the quality and performance of the Type FA 150B and Type FA 200B flexible saddles, the manufacturing process shall include appropriate systems for the:

- Specification of component materials;
- Verification component materials received are to specification;
- Handling and storage of all component materials and finished units;
- Detailed drawing / schedule for manufacture;
- Manufacture / assembly of Type FA 150B and Type FA 200B flexible saddles; and
- Fabrication and quality control of workmanship.

The production of the Type FA 150B and Type FA 200B flexible saddles and related quality control procedures shall comply

with requirements to ensure the stated performance of the product is reliably achieved.

3.4 Installation

When installed in accordance with the installation documentation⁽⁷⁾, the Type FA 150B and Type FA 200B flexible saddles shall be reasonably expected to perform as described.

4. APPROVAL

The Type FA 150B and Type FA 200B flexible saddles have been audited and successfully met all the requirements stated within this assessment schedule

Signed:

A handwritten signature in black ink, appearing to be 'G.L.' followed by a horizontal line.

Valid until 23rd April 2030

5. REFERENCES

1. BS EN 16397-1:2014 Flexible couplings. Performance requirements.
2. BS EN 681-1:1996 Elastomeric seals. Material requirements for pipe joint seals used in water and drainage applications. Vulcanized rubber.
3. BS EN 16397-2:2014 Flexible couplings. Characteristics and testing for metal banded flexible couplings, adaptors and bushes.

PT/556/0425-AS (April 2025)

**Assessment Schedule for Type FA 150B
and Type FA 200B flexible saddles as
supplied by Fernco**



independent certification of your products & services

4. BS EN 295-4:2013 Vitrified clay pipe systems for drains and sewers. Requirements for adaptors, connectors and flexible couplings.
5. BS EN 295-3:2012 Vitrified clay pipe systems for drains and sewers. Test methods.
6. WIS 4-35-01 Issue 2:2008 Specification for thermoplastics structured wall pipes – supplementary test requirements.
7. Saddles for Concrete & Clay Pipes datasheet, version number V015FEB24.