

1. SCOPE

This schedule specifies requirements for the FABEKUN® Junction produced by Funke Kunststoffe GmbH which is a product for the in situ connection of DN160 (OD) laterals to concrete gravity sewers.

This Assessment Schedule applies to the use of the FABEKUN® Junction with concrete gravity sewer pipes of 30mm minimum wall thickness.

Note: The DN200 FABEKUN® Junction has been excluded from this approval.

2. PRODUCT DESCRIPTION

2.1 Introduction

The body of the FABEKUN® Junction comprises of upper and lower moulded PVC-U sections. The lower section locks into the sewer pipe and the upper section screws into the lower section. The angular adjustment of the socket ranges from 0° to 13° which allows up to 5° adjustment for deflection of the pipe and up to 8° to compensate for ground settlement.

EPDM seals are located between the lateral and upper section, upper section and lower section, and the sewer pipe and lower section. The latter seal is fixed to the lower section by adhesive at the factory. The adhesive ensures the seal remains in position during the installation process and does not serve any function after installation is complete.

The FABEKUN® Junction may be used for connecting laterals made of clay, solid wall plastics and structured wall plastics. Adapters are required for clay and structured wall plastics laterals.

The FABEKUN® Junction is locked to the concrete pipe using a PVC-U screw ring

and shaped collar. The space between the junction and the concrete pipe is filled with expanding polyurethane resin supplied with the junction. The filler ensures the junction is firmly positioned, increasing the shear load resistance. Additionally the filler serves to protect exposed reinforcement against corrosion.

2.2 Relevant Standards

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

- BS EN 476: 2011⁽¹⁾ General requirements for components used in drains and sewers.

Materials: Materials used shall comply with:

- BS EN 295-1: 2013⁽²⁾ Vitrified clay pipe systems for drains and sewers. Requirements for pipes, fittings and joints.
- BS EN 1401-1: 2009⁽³⁾ Plastic piping systems for non-pressure underground drainage and sewerage. Unplasticized poly(vinyl chloride) (PVC-U). Specifications for pipes, fittings and the system.
- BS EN 1916: 2002⁽⁴⁾ Concrete pipes and fittings, unreinforced, steel fibre and reinforced.

2.3 Approval History

The Fabekun® has been WRc Approved since February 2003

PT/205/0203 – 2003.

PT/277/1208 – 2008.

PT/357/1213 – 2013.

3. TESTING AND REQUIREMENTS

3.1 Type Testing

The Fabekun® shall comply with the following test requirements:

- BS EN 476: 2011.

Each category of lateral pipe material shall be tested with the connection system whilst fitted to a PVC-U pipe to BS EN 1401-1. Where an adapter is required, the tests shall be carried out with a typical adapter as recommended by Funke Kunststoffe GmbH.

Materials: The Fabekun® shall be produced from:

- Elastomeric components to BS EN 681-1:1996⁽⁵⁾.
- PVC-U components to Clause 4 BS EN 1401-1:2009.

The adhesive (used to fix the EDPM seal to the lower section) and filler (used to secure the junction and protect exposed steel reinforcement against corrosion) used shall not adversely affect the performance of the seal or the fitting.

Mechanical/Physical: When tested in accordance with the test methods specified in Tables 11 and 13 of BS EN 1401-1:2009, the connection system shall have mechanical characteristics conforming to the requirements given in those tables.

Tolerance: The manufactured connection system shall be of sufficient tolerance to ensure a correct fit in a hole of the specified diameter ± 1 mm.

Leaktightness: When tested for tightness of elastomeric sealing ring joints, in accordance with the test methods specified in Table 15 of BS EN 1401-1:2009,

connections to plastics laterals shall have leaktightness characteristics conforming to the requirements given in that table. The requirements have been summarised in Table 1 below.

Table 1 Plastics laterals leaktightness requirements from BS EN 1401-1:2009 Table 15

Test Type	Conditions	Requirement
Pressure/distortion	0.05 and 0.5 bar with 5% distortion	No leakage
Vacuum/distortion	-0.3 bar with 5% distortion	≤ -0.27 bar
Pressure/deflection	0.05 and 0.5 bar at 2° deflection	No leakage
Vacuum/deflection	-0.3 bar at 2° deflection	≤ -0.27 bar

When tested in accordance with the test methods specified in Clause 6.2.2 and 6.2.3 of BS EN 295-1:2013, connections to clay laterals shall have leaktightness characteristics conforming to the requirements given by those clauses. The requirements have been summarised in Table 2 below.

Table 2 Clay laterals water tightness requirements from BS EN 295-1:2013 Clause 6.2.2 and 6.2.3

Test Type	Conditions	Requirement
Pressure/deflection	0.05 and 0.5 bar at 30 mm deflection (per metre)	No leakage
Vacuum/deflection	-0.05 and -0.5 bar at 30 mm deflection (per metre)	No leakage
Pressure/Shear	0.05bar and 0.5 bar with 25 N/mm dia. load on pipe	No leakage
Vacuum Shear	-0.05 bar and 0.5 bar with 25 N/mm dia. load on pipe	No leakage

PT/436/0119 - AS (January 2019)

Assessment Schedule for the FABEKUN[®] as manufactured by Funke Kunststoffe GmbH, DN160 only



Independent certification of your products & services

When tested in accordance with the test methods specified in Clause 6.2.2 and 6.2.3 of BS EN 295-1:2013 the integrity of the junction fitted to concrete sewer pipe shall conform to the requirements given by those clauses. These requirements have been summarised in Table 3 below.

Table 3 Loading on connection with sewer pipe

Test Type	Conditions	Requirement
Pressure/ shear	0.5bar with 25N/mm pipe dia. shear	No leakage
Vacuum/ shear	-0.5bar with 25N/mm pipe dia. shear	No leakage

3.2 Product Design

The Fabekun[®] system shall be designed in accordance with those standards quoted in section 2.2.

3.3 Manufacture

To ensure the quality and performance of Fabekun[®], the manufacturing process shall include appropriate systems for:

- Verification of component materials received are to specification.
- Handling and storage of all component materials and finished units.
- Records of the Fabekun[®].
- Detailed drawings for the Fabekun[®].
- Inspection and maintenance of the Fabekun[®].
- Fabrication of bespoke sections and quality of workmanship.

The production of Fabekun[®] 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, the installation shall be practicable and suitable for conditions that could reasonably be expected on site.

4. APPROVAL

The Fabekun[®] has been audited and has successfully met all the requirements stated within this assessment schedule.

Signed:

A handwritten signature in black ink, appearing to read 'J V Bodge'.

Valid until January 2024

REFERENCES

- 1) BS EN 476:2011 General requirements for components used in drains and sewers. 2011.
- 2) BS EN 295-1:2013 Vitrified clay pipe systems for drains and sewers. Requirements for pipes, fittings and joints. 2013.
- 3) BS EN 1401-1:2009 Plastic piping systems for non-pressure underground drainage and sewerage. Unplasticized poly (vinyl chloride) (PVC-U). Specifications for pipes, fittings and the system. 2009.

PT/436/0119 - AS (January 2019)

**Assessment Schedule for the FABEKUN[®] as
manufactured by Funke Kunststoffe GmbH,
DN160 only**



Independent certification of your products & services

- 4) BS EN 1916: Concrete pipes and fittings, unreinforced, steel fibre and reinforced. 2002.
- 5) BS EN 681-1:1996 Elastomeric seals. Materials requirements for pipe joint seals used in water and drainage applications. Vulcanized rubber. 1996.
- 6) Fabekun[®] Installation manual.