PT/533/0124 (January 2024)

Assessment Schedule for the DN160 FABEKUN® Junction as manufactured by Funke Kunststoffe GmbH

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1. SCOPE

This schedule specifies the requirements for the DN160 FABEKUN® Junction as manufactured by Funke Kunststoffe GmbH for connecting laterals made of clay, solid wall plastics and structured wall plastics with concrete and reinforced concrete gravity sewer pipes of 30mm minimum wall thickness. Adapters are required for clay laterals.

2. PRODUCT DESCRIPTION

2.1 Introduction

The FABEKUN® Junction comprises an outer body and inner adjustable socket of PVC-U. The outer body locks into the sewer pipe and the inner adjustable socket connects the lateral. 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 the outer body, and a TPE seal is located between the sewer pipe and the outer body. The TPE seal is fixed to the outer body at the factory. This ensures the seal remains in position during the installation process.

The FABEKUN® Junction may be used for connecting laterals made of clay, solid wall plastics according to BS EN 1401-1:2019+A1:2023(1) and structured wall plastics according to BS EN 13476-2:2018+A1:2020(2) to concrete or reinforced concrete pipes – starting from a wall thickness of 30 mm – also for clay pipes. Adapters are required for clay 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 Applicable standards

The following standards are applicable to this product:

- BS EN 476:2022(3)
- BS EN 295-1:2013(4)
- BS EN 1401-1:2019+A1:2023
- BS EN 1916:2002(5)
- BS EN 681-1:1996(6)
- BS EN 13476-2:2018+A1:2020

2.3 Approval History

The FABEKUN® Junction was first awarded WRc Approved™ certification in 2003. The most recent re-approval was awarded in January 2019:

- PT/205/0203.
- PT/277/1208.
- PT/357/1213.
- PT/436/0119.

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3. REQUIREMENTS AND TESTING

3.1 General

The FABEKUN® Junction shall comply with the requirements of BS EN 476: 2022.

3.2 Materials and components

The FABEKUN® Junction shall be produced from:

- Elastomeric components to BS EN 681-1: 1996
- PVC-U components to BS EN 1401-1:2019+A1:2023 Clause 5

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

3.3 Type Testing

Mechanical/Physical: When tested in accordance with the test methods specified in Tables 13 and 15 of BS EN 1401-1:2019+A1:2023, the connection system shall have mechanical characteristics conforming to the requirements given in those tables.

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

Leaktightness: The leaktightness of elastomeric sealing ring joints shall comply with the test requirements set out in Table 16 of BS EN 1401-1:2019+A1:2023. These requirements have been summarised in Table 1 below.

Table 1 Plastics laterals leaktightness requirements from BS EN 1401-1:2019+A1:2023 Table 16

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	≤ -0.27bar
Pressure/ deflection	0.05 and 0.5bar at 2° deflection	No leakage
Vacuum/ deflection	-0.3bar 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. These 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 30mm deflection (per metre)	No leakage
Vacuum/ deflection	-0.05 and -0.5 bar at 30mm deflection (per metre)	No leakage
Pressure/ Shear	0.05bar and 0.5 bar with 25N/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

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.

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Table 3 Loading on connection with sewer pipe

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

4. Manufacture

To ensure the quality and performance of the FABEKUN® Junction, 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 the FABEKUN® Junction, and
- Fabrication and quality control of workmanship.

The production of the FABEKUN® Junction and related quality control procedures shall comply with requirements to ensure the stated performance of the product is reliably achieved.

5. Installation

When installed in accordance with the installation documentation(7), the FABEKUN® Junction shall be reasonably expected to perform as described.

6. APPROVAL

The FABEKUN® Junction has been audited and successfully met all the requirements stated within this assessment schedule.

Signed:

Valid until 31st December 2028

7. REFERENCES

1. BS EN 1401-1:2019+A1:2023 Plastics piping systems for non-pressure underground drainage and sewerage. Unplasticized poly(vinyl chloride) (PVC-U) - Specifications for pipes, fittings and the system.

2. BS EN 13476-2:2018+A1:2020 Plastics piping systems for non-pressure underground drainage and sewerage. Structured-wall piping systems of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) - Specifications for pipes and fittings with smooth internal and external surface and the system, Type A.

3. BS EN 476:2022 General requirements for components used in drains and sewers.

4. BS EN 295-1: 2013 Vitrified clay pipe systems for drains and sewers. Requirements for pipes, fittings and joints.

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5. BE EN 1916: 2002 Concrete pipes and fittings, unreinforced, steel fibre and reinforced.

6. BS EN 681-1: 1996 Elastomeric seals. Materials requirements for pipe joint seals used in water drainage applications – Vulcanised rubber.

7. FabeKun Installation Instructions January 2019.

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