

PT/532/0124 (January 2024)

Assessment Schedule for the CONNEX-Junction as manufactured by Funke Kunststoffe GmbH



independent certification of your products & services

1 SCOPE

This schedule specifies the requirements for the CONNEX-Junction as manufactured by Funke Kunststoffe GmbH for connecting DN160 and DN200 (OD) laterals made of clay, solid wall plastics and structured wall plastics.

Connection can be made to solid wall plastics, gravity sewers and other materials of suitable wall thickness, such as glass reinforced plastics (GRP) and ductile iron (DI).

This Assessment Schedule applies to the use of the CONNEX-Junction with plastic sewer pipes of stiffness SN2 (SDR51) to SN8 (SDR34).

2 PRODUCT DESCRIPTION

2.1 Introduction

The body of the CONNEX-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 11° which allows up to 5° adjustment for deflection of the pipe and up to 6° 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 CONNEX-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⁾. Adapters are required for clay laterals. The wall thickness of the sewer pipe must be between 3.0mm and 31.8mm.

During installation, the lower section is held in place by retention clips before being locked to the sewer pipe using a PVC-U screw ring and shaped spacer ring.

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 681-1:1996⁽⁵⁾
- BS EN ISO 13264:2017⁽⁶⁾
- BS EN 13598-1:2020⁽⁷⁾
- BS EN 13476-2: 2018

2.3 Approval History

The CONNEX-Junction was originally awarded WRC Approved™ certification in 2003. The most recent re-approval was awarded in January 2019:

- PT/206/0203.
- PT/276/1208.
- PT/357/1213.

- PT/435/0119.

3 REQUIREMENTS AND TESTING

3.1 General

The CONNEX-Junction shall comply with the requirements of BS EN 476: 2022.

3.2 Materials and components

The Connex 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 EDPM seal to the lower section of the fitting 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.

When tested in accordance with the test methods specified in Table 2 of BS EN 13598-1:2020 the connection system shall conform to the following requirements:

- Resistance to vertical load.
- Mechanical strength of saddle assembled to pipe.
- Tightness under deformation.

Tolerance: The manufactured connection system shall be of sufficient tolerance to ensure a correct fit in a hole of the specified diameter $\pm 1\text{mm}$.

Leaktightness: When tested for tightness of elastomeric sealing ring joints, in accordance with the test methods specified in Table 16 of BS EN 1401-1:2019+A1:2023, 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 1401-1:2019+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	$\leq -0.27\text{bar}$
Pressure/deflection	0.05 and 0.5 bar at 2° deflection	No leakage
Vacuum/deflection	-0.3 bar at 2° deflection	$\leq -0.27\text{bar}$

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

PT/532/0124 (January 2024)

Assessment Schedule for the CONNEX-Junction as manufactured by Funke Kunststoffe GmbH



independent certification of your products & services

Vacuum/deflection	-0.05 and -0.5 bar at 30 mm deflection (per metre)	No leakage
Pressure/Shear	0.05 bar 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

Pressure + displacement	0.5bar and displacement as per BS EN ISO 13264:2017 ⁽⁵⁾	No leakage
-------------------------	--------------------------------------------------------------------	------------

When tested in accordance with the test methods specified in Table 16 of BS EN 1401-1:2019+A1:2023 (tightness of elastomeric sealing ring joints), Clause 6.2.2 and 6.2.3 of BS EN 295-1:2013 and a combination of the latter with the mechanical strength test as specified in Table 13 of BS EN 1401-1:2019+A1:2023. The integrity of the junction fitted to plastics sewer pipe shall conform to the requirements given in those tables and clauses. These requirements have been summarised in Table 3 below.

Table 3 Loading on connection with sewer pipe

Test Type	Conditions	Requirement
Pressure/distortion of sewer	0.5bar and 10% distortion of sewer pipe at junction	No leakage
Vacuum/distortion of sewer	-0.3bar and 10% distortion of sewer pipe at junction	No leakage
Pressure/shear	0.5bar with 25N/mm pipe dia. shear	No leakage
Vacuum/shear	-0.5bar with 25N/mm pipe dia. shear	No leakage
Vacuum + displacement	-0.3bar and displacement as per BS EN ISO 13264:2017 ⁽⁵⁾	No leakage

4 Manufacture

To ensure the quality and performance of the CONNEX-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 CONNEX-Junction, and;
- Fabrication and quality control of workmanship.

The production of the CONNEX-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⁽⁸⁾, the CONNEX-Junction shall be reasonably expected to perform as described.

PT/532/0124 (January 2024)

Assessment Schedule for the CONNEX-Junction as manufactured by Funke Kunststoffe GmbH



independent certification of your products & services

6 APPROVAL

The CONNEX-Junction has 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.' with a horizontal line extending to the right.

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 Vitriified clay pipe systems for drains and sewers. Requirements for pipes, fittings and joints.
5. BS EN 681-1: 1996 Elastomeric seals. Materials requirements for pipe joint seals used in water drainage applications – Vulcanised rubber.
6. BS EN ISO 13264:2017 Thermoplastic piping systems for non-pressure underground and sewerage – Thermoplastics fittings – Test methods for mechanical strength or flexibility of fabricated fittings.
7. BS EN 13598-1:2020, Plastics piping systems for non-pressure underground drainage and sewerage – Unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) Part 1: Specifications for ancillary fittings and shallow chambers.
8. Connex Installation Documentation, September 2022.