

1. SCOPE

This schedule specifies characteristics for the Pipe Doctor cured-in-place Patch Repair System as supplied by S1E Limited for the renovation of straight sections of gravity drains and sewers with nominal diameters of 75mm, 100mm, 150mm or 225mm up to 5m deep.

It is applicable to repairs of lengths of 500mm and 1,000mm in kit form and up to 1,200mm in bulk form.

2. PRODUCT DESCRIPTION

2.1 Introduction

The Pipe Doctor Patch Repair System is an ambient-cure cured-in-place localised repair system which comprises a two-part silicate thermosetting resin and a glass fibre mat. The system is supplied with either a summer (s) or winter (w) resin depending on the ambient temperature and size of repair. The system is supplied either in kit or bulk form.

The repair kit for a specified pipe diameter comprises a pre-cut mat either 550mm or 1000mm in length, with factory measured volumes of the resin components for the size of mat, in a twin compartment bag and ancillary disposable items for installation.

In bulk form the mat is supplied on a roll to be cut to size to suit the diameter and length of each repair. The installer is responsible for calculating the required volumes of each of the resin components for the size of mat.

The resin components are mixed and then combined with the mat on site by the installer in accordance with the installation instructions. The wetted mat is placed around an inflatable packer. The packer is positioned inside the pipe at the defect, and the packer is then inflated with compressed

air which compresses the mat against the inside of the host pipe. The patch repair is then allowed to cure at ambient temperature. On completion of curing the packer is deflated and removed. The patch repair is then inspected.

2.2 Applicable standards

Performance: the following relevant standard was identified:

- Drain Repair Book, 4th edition⁽¹⁾.

Materials: Materials used shall comply with:

- Drain Repair Book, 4th edition.

2.3 Approval History

The Pipe Doctor Patch Repair System was originally awarded WRC Approved® certification in March 2011:

- PT/318/0311.
- PT/379/0316.
- PT/484/0421.

This is the third re-approval of this patch repair system.

3. REQUIREMENTS AND TESTING

3.1 General

Appearance: The internal surface of the repair shall be smooth, clean and free from scoring, cavities, wrinkling and other surface defects that would prevent the Pipe Doctor Patch Repair System from meeting the general fitness for purpose requirement.

3.2 Materials and components

Resin components shall be in accordance with the manufacturer's specification.

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

3.3 Type Testing

External long-term pressure resistance:

When tested in accordance with Appendix F of The Drain Repair Book the patch repair shall meet the infiltration requirements of CESWI 8th edition⁽²⁾ clause 7.8.2.

Note: This test is based on the test in WIS 4-34-06⁽³⁾ which has been adapted for repair of smaller diameter pipes.

Serviceability:

Resistance to High Pressure Water Jetting. When a section of the patch repair is tested in accordance with Appendix B of WIS 4-35-01⁽⁴⁾, the repair shall meet the requirements of clause 3.3 of that specification.

The interface between the patch repair and the host pipe at one end of the cured repair is tested in accordance with Appendix B of WIS 4-35-01 at a pressure of 180 bar, there shall be no visible de-bonding of the patch repair from the host pipe.

The repair and the adjacent unrepaired pipe sections shall be continuous in accordance with BS EN 476⁽⁵⁾ Clause 6.5.

Mechanical Characteristics:

When tested in accordance with BS EN ISO 11296-4⁽⁶⁾ the patch repair shall achieve the manufacturer's short-term declared values for the characteristics listed in Table 1.

Table 1 Pipe Doctor Patch Repair System mechanical characteristics

Characteristic	Declared value
Short-term flexural modulus	5,962 MPa
Short-term stress at first break	217 MPa
Strain at first break (%)	15 %

Wall thickness:

The patch repair shall meet the dimensional requirements of The Drain Repair Book, clause D4.5.

3.4 Manufacture

To ensure the quality and performance of the Pipe Doctor Patch Repair System, 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 Pipe Doctor Patch Repair System, and;
- Fabrication and quality control of workmanship.

The production of the Pipe Doctor Patch Repair System and related quality control procedures shall comply with requirements

PT/572/0426 - AS (April 2026)

Assessment Schedule for the Pipe Doctor Patch Repair System as manufactured by S1E Ltd.



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

3.5 Installation

When installed in accordance with the installation documentation⁽⁷⁾, the Pipe Doctor Patch Repair System shall be reasonably expected to perform as described.

4. APPROVAL

The Pipe Doctor Patch Repair System has been audited and successfully met all the requirements stated within this assessment schedule.

Signed:

A handwritten signature in black ink, consisting of the initials 'G.L.' followed by a horizontal line.

Valid until 31st March 2031

Appendix C Resistance to water jetting.

5. BS EN 476:2022: General requirements for components used in drains and sewers.
6. BS EN ISO 11296-4:2018+A1:2021: Plastics piping systems for renovation of underground non-pressure drainage and sewerage networks. Lining with cured-in-place pipes.
7. Information & Instruction Manual, Pipe Doctor Repair V007MAR2025.

5. REFERENCES

1. Drain Repair Book, 4th edition.
2. Civil Engineering Specification for the Water Industry (CEWSI), 8th Edition, 2023.
3. WIS 4-34-06:2010 Specification for localised sewer repairs using cured-in place systems with or without re-rounding.
4. WIS 4-35-01:2008 Issue 2: Specification for thermoplastics structured wall pipe - supplementary test requirement: