PT/530/1223-AS (December 2023)

Assessment Schedule for the Smart Lock repair system for the rehabilitation of gravity sewers and drains as utilised by Smart Lock Group Pty Ltd. Australia

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1. SCOPE

This schedule specifies requirements for the Smart Lock repair as utilised by Smart Lock Group Pty Ltd. Australia for renovation of gravity drains and sewers of diameters between 100mm and 900mm in lengths up to 400mm.

It is applicable to the renovation of drains and sewers where the host pipe is still structurally sound to a depth of 5m.

2. PRODUCT DESCRIPTION

2.1 Introduction

The Smart Lock repair is a local mechanical repair system consisting of a rolled stainless steel sleeve core with a cured-in-place (CIP) resin impregnated mat rolled around the steel sleeve.

The mechanical sleeve and mat is positioned over the defect in the host pipe. The steel sleeve is expanded by use of an inflatable packer compressing the resin impregnated mat between the sleeve and host pipe. The steel sleeve incorporates a uni-directional locking mechanism.

Smart Lock repairs in the range DN100 through to DN225 are available in two lengths 235mm and 400mm. Smart Lock repairs in the range DN300 through to DN900 are only available in a length of 400mm.

The steel sleeve provides the structural form of the repair; the CIP mat provides strength and leak-tightness.

The repair is supplied in kit form with steel sleeve, CIP mat, resin and consumables.

2.2 Applicable standards

The following standard is appropriate for the Smart Lock repair:

- ASTM F3110-14(2018)[1].

2.3 Approval History

The Smart Lock repair was originally awarded WRc Approved™ certification in December 2018:

- PT/432/1218.

This is the first reapproval for this repair system.

3. REQUIREMENTS AND TESTING

3.1 Materials and components

The materials shall meet the following requirements:

Steel sleeve and locking mechanism: Stainless steel grade 1.4571 or 316 to BS EN 10088-1[2] and BS EN 10088-4[3].

The Fibreglass Matting is Advantex® E-CR fibreglass and is compliant with ASTM D578/D578M[4].

The resin is an ambient curing resin, Easy Pur, a specific proprietary silicate resin provided with 3 components delivered batched by volume and mix ratio specific to a mat size.

3.2 Type Testing

Mechanical Resistance: The Smart Lock repair system shall resist the imposed loads without structural failure.

Appearance: The internal surface of the repair shall be smooth, clean and free from scoring, cavities and other surface defects

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that would prevent the Smart Lock repair from meeting the general fitness for purpose requirement.

Leak-tightness: When tested in accordance with Appendix D of WIS 4-34-06[5] the infiltration rate shall meet the requirements of BS EN 1610[6].

Serviceability: When the Smart Lock repair system is installed in a pipe, the invert of the repaired and adjacent unrepaired sections shall be continuous in accordance with BS EN 476:2022[7] Clause 6.5.

The locking mechanism shall be wholly contained in the upper quarter of the circumference of the pipe.

The repair shall remain in the installed position when subjected to maintenance operations as defined in WIS 4-35-01[8] Appendix C.

3.3 Manufacture

To ensure the quality and performance of the Smart Lock repair, 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 Smart Lock repair, and;
- Fabrication and quality control of workmanship.

The manufacture of the Smart Lock repair 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[9], the Smart Lock repair shall be reasonably expected to perform as described.

4. APPROVAL

The Smart Lock repair has been audited and successfully met all the requirements stated within this assessment schedule.

Signed:

Valid until 30th December 2028

5. REFERENCES

1. ASTM F3110-14(2018) Standard Practice for Proper Use of Mechanical Trenchless Point Repair Sleeve with Locking Gear Mechanism for Pipes of Varying Inner Diameter and Offset Joints.
2. BS EN 10088-1:2014 Stainless steels: List of stainless steels.
3. BS EN 10088-4:2009: Stainless steels. Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for construction purposes.
4. ASTM D578/D578M-23 Standard Specification for Glass Fiber Strands.

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5. WIS 4-34-06 November 2010 Specification for localised sewer repairs using cured-in-place systems with or without re-rounding.
6. BS EN 1610:2015 Construction and testing of drains and sewers.
7. BS EN 476:2022 General requirements for components used in drains and sewers.
8. WIS 4-35-01 2008 Specification for Thermoplastics Structured Wall Pipes – Supplementary Test Requirements.
9. iSMT7880 Smart Lock Installation Instructions Brochure v8.1, 25th March 2020.

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