PT/561/0725-AS (July 2025)

Assessment Schedule for the SPR®ST / RIBSTEEL® lining system for gravity pipe renovation as manufactured by SEKISUI Rib Loc Australia Pty Ltd.

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1. SCOPE

This schedule specifies requirements for the SPR®ST technology, incorporating RIBSTEEL® spirally wound system by RIB LOC®, as manufactured by SEKISUI Rib Loc Australia Pty Ltd.

It is applicable to the renovation of both fully and partially deteriorated circular gravity pipes with diameters 450 mm to 4000 mm.

This schedule does not cover:

- Jetting resistance at pressures above 138 bar (2,000 psi) at the pump.
- Watertightness of end seals; and
- Reconnection of laterals.

2. PRODUCT DESCRIPTION

2.1 Introduction

The SPR®ST technology, incorporating RIBSTEEL® spirally wound system by RIB LOC®, comprises:

- A continuous profiled strip of PVC-U plastic (profiles 91-25ST, 126-15ST and 126-20ST) that is supplied in one of a range of different profiles depending on the diameter of pipe to be rehabilitated; and
- A profiled strip of stainless steel that can be optionally wound into the profiles of the PVC-U strip at installation to provide reinforcement.

The strip(s) is fed into the gravity pipe using a machine sited in the insertion chamber. The machine winds and interlocks the strip into a tubular configuration. The liner is pushed along the host pipe to the target chamber as it is wound.

The annulus between the host pipe and the liner is sealed and grouted.

2.2 Applicable standards

Performance: The following standards were identified:

- ASTM F1741-25[1].
- ASTM F1697-24[2].
- BS EN ISO 11296-7:2019[3].
- WIS 4-35-01[4].

Materials: Materials used shall comply with:

- ASTM D1784-20[5].
- BS EN 10088-1[6].

2.3 Approval History

The SPR®ST / RIBSTEEL® lining system has been awarded the following WRc Approved® certification:

- PT/304/0710.
- PT/374/0715.
- PT/464/0720.

This is the third re-approval of the SPR®ST / RIBSTEEL® lining system.

3. REQUIREMENTS AND TESTING

3.1 Requirements

Materials requirements: PVC-U shall be manufactured to cell classification 13354 in accordance with ASTM D1784-20.

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Steel shall be 1.4301 (304) or 1.4401 (316) stainless steel in accordance with BS EN 10088-1 or galvanised mild steel, as customer requirements demand.

Dimensions: Profiled strip shall be manufactured in accordance with ASTM F1697-24.

Mechanical resistance: Mechanical resistance shall be verified by type testing and calculation in accordance with ASTM F1741-25 for fully or partially deteriorated pipes.

Alternatively, as the long-term leak-tightness of the helical interlock has been demonstrated the SPR®ST / RIBSTEEL® lining system can be designed in accordance with the WRc Sewerage Rehabilitation Manual[7] (SRM) Type II structural design.

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

3.2 Type Testing

Testing as stated in BS EN ISO 11296-7:2019 shall meet the following requirements:

- Ring stiffness shall be not less than 0.5 kPa.
- Creep ratio shall be not greater than 2.5.

Serviceability: The SPR®ST / RIBSTEEL® lining system shall comply with the requirements for jetting resistance in accordance with WIS 4-35-01 up to a pressure of 2,000psi (138bar) at the pump.

Watertightness: The SPR®ST technology, incorporating RIBSTEEL® spirally wound system by RIB LOC®, shall comply with the internal pressure and vacuum requirements of ASTM F1697-24.

The long-term leaktightness of the helical seam shall be demonstrated in accordance with WRc requirements.

4. Manufacture

To ensure the quality and performance of the SPR®ST / RIBSTEEL® lining 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 profile manufacture;
- Manufacture / assembly of the SPR®ST / RIBSTEEL® lining system; and
- Fabrication and quality control of workmanship.

The production of the SPR®ST / RIBSTEEL® lining system 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 SPR®ST technology, incorporating RIBSTEEL® spirally wound system by RIB LOC®, shall be reasonably expected to perform as described.

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6. APPROVAL

The SPR®ST technology, incorporating RIBSTEEL® spirally wound system by RIB LOC®, has been audited and successfully met all the requirements stated within this assessment schedule.

Signed:

Valid until 30 July 2030.

7. REFERENCES

1. ASTM F1741 - 25 Standard Practice for Installation of Machine Spiral Wound Poly (Vinyl Chloride) (PVC) Liner Pipe for Rehabilitation of Existing Sewers and Conduits.

2. ASTM F1697-24 Standard Specification for Poly(Vinyl Chloride) (PVC) Profile Strip for Machine Spiral-Wound Liner Pipe Rehabilitation of Existing Sewers and Conduit.

3. BS EN ISO 11296-7:2019 Plastics piping systems for renovation of underground non-pressure drainage and sewerage networks Part 7: Lining with spirally wound pipes.

4. WIS 4-35-01 Specification for thermoplastics structured wall pipes, joints and couplers with a smooth bore for gravity sewers for the size range 150-900 inclusive. Second edition October 2008.

5. ASTM D1784 - 20 Standard Classification System and Basis for Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.

6. BS EN 10088-1:2023 Stainless steels. List of stainless steels.

7. WRc Sewerage Rehabilitation Manual, 7th Edition, 2025.

8. SPR®ST / RIBSTEEL® Installation Method Issue 1, 01/10/2025.

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