PT/525/0124 (February 2024)

Assessment Schedule for the Nordiloc™ S spirally wound PVC lining system as manufactured by 5ELEM & Norditube Pipeline Technology (Shanghai) Co., Ltd.

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1. SCOPE

This schedule specifies requirements for the Nordiloc™ S spirally wound PVC lining system as manufactured by 5ELEM & Norditube Pipeline Technology (Shanghai) Co., Ltd. Its applicable to the renovation of both fully and partially deteriorated circular gravity sewers.

It is not applicable to:

- Watertightness of end seals; and
- Reconnection of laterals.

2. PRODUCT DESCRIPTION

2.1 Introduction

The Nordiloc™ S spirally wound PVC lining system consists of a PVC-U profile which is wound into a tubular configuration together with a hot melt seam sealant, and if required reinforced with steel, to a fixed diameter smaller than the host pipe.

The lining is wound along the host pipe to the target chamber and the annulus between the host pipe and lining is sealed and grouted with a low strength grout.

The profiles available include:

Profile	Diameter range (mm)
91-25S	800 – 2,500
126-20S	450 – 1,500

The Nordiloc™ S spirally wound PVC lining can be designed with 0.7mm, 0.9mm, or 1.2mm steel reinforcement based on the project requirements.

A degree of flowing water can be tolerated during installation. Any bends in the host pipe must not exceed 5 degrees.

2.2 Applicable standards

The following standards are applicable to this product:

- ASTM F1741-22[(1)]
- BS EN ISO 11296-7:2019[(2)]

Materials: Materials used shall comply with:

- ASTM D1784-20[(3)]
- AS/NZS 1595:1998[(4)]

2.3 Approval History

This is the first WRc Approved certification for the Nordiloc™ S spirally wound PVC lining system as manufactured by 5ELEM & Norditube Pipeline Technology (Shanghai) Co., Ltd.

3. REQUIREMENTS AND TESTING

3.1 Requirements

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

Steel is specified by the client and is typically stainless grade 304 or grade 316 in accordance with AS/NZS 1595:1998.

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Dimensions – Profiled strip shall be manufactured in accordance with ASTM F1741-22.

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

Mechanical resistance – Mechanical resistance shall be verified by calculation in accordance with ASTM F1741-22 for fully or partially deteriorated pipes.

3.2 Type Testing

Ring stiffness - Shall be not less than 0.5 kPa in accordance with BS EN ISO 11296-7: 2019 or in accordance with ASTM F1697-18, 6.1[(5)].

Creep ratio - Shall be not greater than 2.5 in accordance with BS EN ISO 11296-7:2019.

Watertightness – The Nordiloc™ S spirally wound PVC lining system shall comply with the internal pressure and vacuum requirements of ASTM 1741-22.

3.3 Manufacture

To ensure the quality and performance of the Nordiloc™ S spirally wound PVC 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 profiles;
- Records of dimensional verification and seam profile configuration;
- Detailed drawings for profile and steel reinforcement;
- Manufacture of the Nordiloc S system profile(s) and steel reinforcement;
- Inspection and maintenance of extrusion line;
- QC records during extrusion.

The production of the Nordiloc™ S spirally wound PVC lining system 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[(6)], the Nordiloc™ S spirally wound PVC lining system shall be reasonably expected to perform as described.

4. APPROVAL

The Nordiloc™ S spirally wound PVC lining system has been audited and successfully met all the requirements stated within this assessment schedule.

Signed:

Valid until 23rd January 2029

5. REFERENCES

1. ASTM F1741 - 22 Standard Practice for Installation of Machine Spiral Wound Poly (Vinyl Chloride) (PVC) Liner Pipe for Rehabilitation of Existing Sewers and Conduits.

 WRc Project Number: 2751926

2. 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.
3. ASTM D1784 - 20 Standard Classification System and Basis for Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
4. AS/NZS 1595:1998 Cold-rolled, unalloyed, steel sheet and strip (Reconfirmed 2016).
5. ASTM F1697: 2018 Standard Specification for Poly(Vinyl Chloride) (PVC) Profile Strip for Machine Spiral-Wound Liner Pipe Rehabilitation of Existing Sewers and Conduit
6. HL_NORDITUBE NordiLoc S _Installation Manual VS 3_EN 28.07.2023.

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