

1. SCOPE

This schedule specifies characteristics for the iPlus® Glass UV cured liner as manufactured by Insituform Linings Ltd. It is applicable to the renovation of circular gravity drains and sewers with dimensions as specified in Table 1.

Table 1 Dimensions of the iPlus® Glass UV liner

Dimension	Range
Diameter	150-1200mm
Wall thickness	3-12mm
Length	20-400m

The approval is not applicable to:

- The installation or reconnection of laterals.
- Performance of the liner end seals.

2. PRODUCT DESCRIPTION

2.1 Introduction

The iPlus® Glass UV liner comprises of an ECR glass fibre reinforced woven sleeve which is factory impregnated with an ultra-violet (UV) light curing polyester or vinyl ester thermosetting resin.

The factory impregnated lining is transported to site and winched into the host pipe, typically with a thermoplastic glide foil. The lining is inflated with compressed air and cured by pulling a UV light-train through the lining at a speed determined by the lining diameter/thickness and UV light power output.

When installed and cured this forms a full length cured-in-place structural liner within the host pipe. The liner can negotiate bends in the host pipe up to 15°.

2.2 Applicable Standards

The following relevant standard was identified for cured-in-place pipe liners:

- BS EN ISO 11296-4:2018+A1:2021⁽¹⁾

2.3 Approval History

This is the first WRc Approved certification for the Insituform iPlus® Glass UV liner.

3. REQUIREMENTS AND TESTING

3.1 Requirements

Appearance: The internal surface of the liner shall be smooth, clean and free from scoring, cavities, wrinkling and other surface defects that would prevent the iPlus® Glass UV liner from meeting the general fitness for purpose requirement.

3.2 Type Testing

The iPlus® Glass UV liner shall comply with the declared values for the mechanical characteristic testing requirements within BS EN ISO 11296-4 listed in Table 2.

**Table 2 Mechanical Characteristics of
the iPlus® Glass UV Liner**

Characteristic	Declared Value
Short-term flexural modulus	13,400 MPa
Long-term flexural modulus	9,570 MPa
Short-term flexural stress at first break	300 MPa
Short-term flexural strain at first break	2.68%
Short-term flexural strength	200 MPa
Long-term flexural stress	140 MPa
Reduction factor after 10,000 hrs (dry)	1.4
Initial longitudinal tensile strength	152 MPa
Initial longitudinal tensile strain at first break	3.73%
Long-term strain corrosion or flexural strength (acid)*	0.50 (1,000 hour results)

* Final results expected Summer 2027.

Retained samples are taken each day or from each batch of impregnated lining, cured and QA testing undertaken.

3.3 Product Design

The iPlus® Glass UV liner shall be designed in accordance with DWA-A143-2⁽²⁾, ASTM F1216-24a⁽³⁾ or ASTEE 3R 2014 2.0⁽⁴⁾.

3.4 Manufacture

To ensure the quality and performance of the iPlus® Glass UV lining, the manufacturing process shall include appropriate systems for the:

- Specification of component materials.
- Verification that component materials received are to specification.
- Handling and storage of all component materials and finished linings.
- Detailed drawing / schedule for manufacture.
- Manufacture / assembly of the iPlus® Glass UV lining, and;
- Fabrication and quality control of workmanship.

The production of the iPlus® Glass UV lining and related quality control procedures shall comply with requirements to ensure the stated performance of the product is reliably achieved.

3.5 Installation

When installed in accordance with the installation documentation⁽⁵⁾, the iPlus® Glass UV liner shall be reasonably expected to perform as described.

PT/582/0726-AS (July 2026)

**Assessment Schedule for the iPlus®
Glass UV cured full-length liner as
manufactured by Insituform Linings Ltd.**



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4. APPROVAL

The iPlus® Glass UV liner has been audited and successfully met all the requirements stated within this assessment schedule.

Signed:

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

Valid until 14th July 2031.

5. REFERENCES

1. BS EN ISO 11296-4:2018+A1:2021
Plastics piping systems for renovation of underground non-pressure drainage and sewerage networks. Part 4: Lining with cured-in-place-pipes.
2. DWA-A143-2 Rehabilitation of drainage systems outside of buildings, part 2: static design for rehabilitation of sewers and culverts, with CIPP and assembly method; July 2015.
3. ASTM F1216-24a Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube.
4. ASTEE Logiciel 3R 2014 2.0.
5. Installation manual for the IPlus® Glass liner UV-Curing, LQ523 Rev – 5, 09 Nov./22.