

**Assessment Schedule for the  
BLUeLiGHT® PAA-F Liner™ LED Cured-in-  
Place Pipe lining systems as  
manufactured by BLUeLiGHT® GmbH  
(Parent Group)**



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## 1. SCOPE

This schedule specifies the requirements for the BLUeLiGHT® PAA-F Liner™ LED Cured-in-Place Pipe lining system as manufactured by the BLUeLiGHT® GmbH (Parent Group).

This approval is not applicable to:

- Leak tightness of end seals;
- reconnection of laterals

## 2. PRODUCT DESCRIPTION

### 2.1 Introduction

The lining system is for the rehabilitation of gravity drains and sewers in diameters of between 100mm to 250mm.

PAA-F- LINER™ LED Liner for diameters of 100 mm to 250mm, where the system can accommodate a dimensional diameter change of up to 33% and a maximum bend of 90° with folding.

The PAA-F- LINER™ LED consists of a polyester sleeve with internal membrane (installed) and a styrene free vinylester resin.

The PAA-F- LINER™ LED can be installed with or without a PE-Preliner or a fabric reinforced PVC-Preliner in accordance with the BLUeLiGHT® installation manual(4).

The PAA-F- LINER™ LED can be supplied as either as a factory impregnated lining ready for site or as components where the sleeve and resin are combined on site in accordance with the BLUeLiGHT® installation manual(4).

The BLUeLiGHT® PAA-F LINER™ LED Liner is installed by inversion and curing is only by BLUeLiGHT® LED equipment.

### 2.2 Relevant standards

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

- BS EN ISO 11296-4:2018<sup>(1)</sup>  
Plastics piping systems for renovation of underground non-pressure drainage and sewerage networks

### 2.3 Approval History

This is the first approval of the BLUeLiGHT® PAA-F LINER™ LED Cured-in-Place Pipe lining systems.

## 3. REQUIREMENTS AND TESTING

### 3.1 General

The BLUeLiGHT® PAA-F LINER™ LED systems shall comply with the requirements of BS EN ISO 11296-4:2018.

### 3.2 Type Testing

#### Mechanical characteristics.

The BLUeLiGHT® PAA-F LINER™ LED shall comply with the test requirements based upon BS EN ISO 11296-4:2018 listed in Appendix A

#### Mechanical resistance.

The mechanical resistance shall be demonstrated by calculation in accordance with DWA-A143.2<sup>(2)</sup> or ASTM F1216-09<sup>(3)</sup>

PT/437/0519 - AS (May 2019)

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### 3.3 Manufacture

To ensure the quality and performance of the BLUeLiGHT® PAA-F LINER™ LED CIPP lining system, the manufacturing process shall include appropriate systems for:

- Verification component materials received are to specification.
- Handling and storage of all component materials.
- Records of manufacture
- Inspection and maintenance of manufacturing equipment

The production of the BLUeLiGHT® PAA-F LINER™ LED 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<sup>(4)</sup>, the installation shall be practicable and suitable for conditions that could reasonably be expected on site.

### 4. APPROVAL

The BLUeLiGHT® PAA-F LINER™ LED (Standard) lining system has been audited and successfully met all the requirements stated within this assessment schedule.

Signed: 

Valid until May 2024

### 5. REFERENCES

1. BS EN ISO 11296 Part 4 Plastic piping systems for renovation of underground non-pressure drainage and sewerage networks. Part 4 Cured-in-place-pipes, 2018
2. DWA-A 143-2- Rehabilitation of drainage systems outside buildings - Part 2: Static calculation for the rehabilitation of wastewater pipes and pipes with lining and assembly methods (July 2015)
3. ASTM F1216- 09 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing Installation Guide.
4. BLUeLiGHT® Installation manual, VH-PAA-F Procedure Manual PAA-F-Liner™ / LED (current version: Revision 1.6, valid from 04-2018)

## Appendix A

**Table 1 – Short-term mechanical characteristics of pipes (BS EN ISO 11296-4:2018; Table 5)**

Parameter	Requirement
Initial specific ring stiffness, $S_0$	Minimum: $\geq 0.25$ kPa Declared: 1.23 kPa
Short-term flexural modulus, $E_0$	Declared: 2400 MPa
Flexural stress at first break, $\sigma_{fb}$	Declared: 26 MPa
Flexural strain at first break, $\varepsilon_{fb}$	Minimum: $\geq 0.75\%$ Declared: 0.89 %

**Table 2 – Long-term mechanical characteristics of pipes (BS EN ISO 11296-4:2018; Table 6)**

Parameter	Requirement
Long-term flexural modulus under dry or wet conditions, $E_{x,wet\ or\ dry}$	Minimum: 300 MPa Declared: 714 MPa