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Product: Sumo XXL
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RECOMMENDED APPLICATIONS

Sumoline is used where full structural renewal is required in gravity infrastructure assets, including:

► Large-diameter sewer mains

Commonly affected by ovalisation, cracking, joint failure, and loss of structural capacity due to age, corrosion, and sustained external loading from soil and traffic.

► Large-diameter stormwater pipelines

Typically experience deformation, cracking, and collapse caused by traffic loads, voiding, scour, or inadequate original design for modern loading conditions.

► Road and rail infrastructure crossings

Subject to high live loads, vibration, and cyclic fatigue, often resulting in progressive structural failure where the host pipe can no longer safely carry imposed loads.

► Manholes and access chambers

Frequently degrade from chemical attack, corrosion, groundwater ingress, and structural cracking, leading to leakage, loss of integrity, and safety risks.

► Non-circular and irregular profiles (ovoid, box, arch)

Often suffer from stress concentration, deformation, and localised cracking where geometry and loading are poorly accommodated by traditional repair methods.

► Assets with limited or no excavation access

Typically located beneath critical infrastructure where open-cut replacement is impractical, requiring a fully structural liner capable of independent load-bearing performance.

HOST PIPE MATERIALS

Suitable for rehabilitation of a wide range of host materials, including:

- Reinforced and unreinforced concrete
- Brick and masonry structures
- Clay and earthenware pipes
- Cast iron and ductile iron
- Steel and composite structures

APPROVALS, CERTIFICATIONS & SPECIFICATIONS

- AS/NZS 2566.1
- ASTM F1216
- ASTM F1743



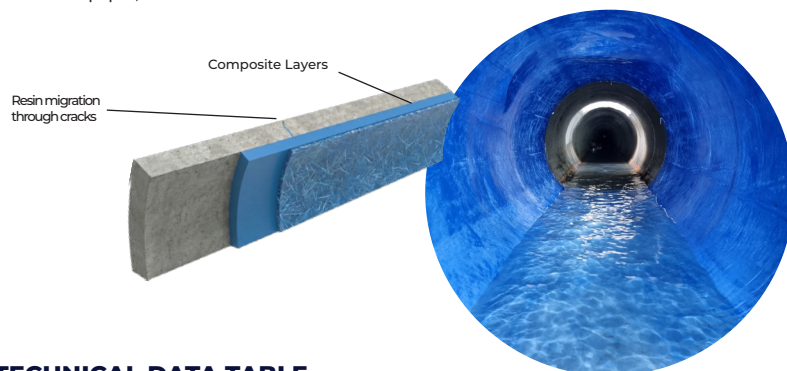
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TECHNICAL DATA SHEET

SUMOLINE - SUMO XXL LINER

Sumoline is Nuflow's fully structural cured-in-place pipe (CIPP) lining system designed for the rehabilitation of non-pressurised, load-bearing pipelines and structures where the host asset has suffered significant structural degradation or no longer meets current loading requirements.

The system forms a new, continuous structural pipe within the existing asset, capable of carrying external ground and live loads independently of the host pipe, without the need for excavation.



TECHNICAL DATA TABLE

TYPICAL PROPERTIES	VALUE
Substrate	Sumo XXL - Polypropylene/ glass fibre composite, saturated & cured with BlueLine Standard Part A & BlueLine Standard Slow
Wall Thickness	11mm (+/- 0.5)
Diameter Range	DN750 ~ DN1200
E-Module Short Term ISO 178 / ASTM D790	7500 MPa
E-Module Long Term ISO 178 / ASTM D790 / 50-years	3750 MPa
Flexural Strength ISO 178 / ASTM D790	160 MPa
Tensile Strength ISO 527-4/5 / ASTM D3039	120 MPa
Max Service Temp	55°C with Standard BlueLine Resin 140°C with HTAR Resin (see HTAR TDS)
Min application temp	5°C
Max application temp (°C)	45°C
Chemical Resistance	Suitable for typical sanitary sewer flows (PH1 – PH12) Trade Waste when in use with HTAR (see HTAR TDS)
Hazen Williams Coefficient	140 (c)
Manning's Roughness Coefficient	0.010 - 0.012 (n)
Product Warranty	Up to 25 years Subject to Terms & Conditions.

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Structural Performance

Sumoline is a fully structural lining system designed to carry external ground loads, live loads, and hydrostatic pressures independently of the host pipe.

Structural characteristics include:

- ▶ High flexural modulus achieved through advanced composite fibre architecture
- ▶ Engineered wall thickness based on project-specific loading conditions
- ▶ Continuous structural liner eliminating joints and discontinuities
- ▶ Load-sharing or stand-alone performance depending on host pipe condition

Structural performance is governed by:

- ▶ Host pipe condition and geometry
- ▶ Liner thickness and composite design
- ▶ Length of liner or patch
- ▶ Applicable design standards and safety factors

Liner thickness and design classification (structural or semi-structural) are determined on a project-specific basis using recognised design methodologies.



Hydraulic Performance

The cured liner provides a smooth, continuous internal surface that typically maintains or improves hydraulic capacity compared to the deteriorated host structure.

Hydraulic benefits include:

- ▶ Reduced surface roughness
- ▶ Elimination of offsets, joint intrusions, and surface defects
- ▶ Improved flow efficiency and reduced sediment accumulation

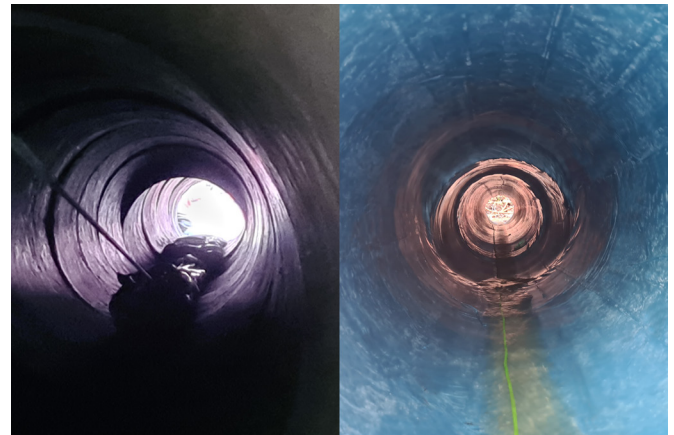
Any reduction in internal diameter is accounted for during hydraulic assessment and is generally offset by improved surface characteristics.

Durability and Service Life

Sumoline liners are designed for long-term performance in aggressive wastewater and stormwater environments.

- ▶ Resistance to corrosion, chemical attack, and abrasion
- ▶ High tolerance to moisture and groundwater during installation
- ▶ Immunity to root intrusion and joint-related failure mechanisms

When designed and installed in accordance with specification, Sumoline systems provide a design life of up to 50 years, supported by manufacturer warranty and documented quality assurance.



BEFORE

AFTER

Installation Performance

Sumoline is installed using trenchless CIPP techniques via existing access points, significantly reducing surface disruption and construction risk.

- ▶ Pull-in installation with controlled curing
- ▶ Capability to rehabilitate circular and non-circular profiles
- ▶ Ability to negotiate bends, transitions, and varying geometries
- ▶ Suitability for installation in the presence of groundwater (project dependent)
- ▶ Rapid return to service following cure and final inspection

Installations allow critical defects to be addressed quickly and efficiently, making Sumoline suitable for reactive repairs, condition-based maintenance programs, and staged rehabilitation strategies.

