

Rotaloc[®]
Structural Lining for
Large Diameter Pipelines



Rotaloc®

Rotaloc is a full-bore structural liner that restores the efficiency, reliability and integrity of aging sewers, storm drains and culverts. It is suitable for pipe diameters from 800mm to 1800mm.

The Rotaloc liner comprises a continuous profiled strip of PVC that is progressively wound into the existing pipeline by the Rotaloc machine. The edges of the PVC strip are interlocked by the winding machine as it rotates and moves along inside the deteriorated pipeline.

The winding machine alters diameter as it traverses the pipeline to produce a liner that fits tightly against the wall of the deteriorated host pipe, even if the existing pipe diameter changes along the length of pipeline. The PVC liner provides a smooth circular bore so the hydraulic efficiency of the pipe is restored.

Rotaloc can structurally rehabilitate brick, concrete, glass reinforced plastic or corrugated metal sewer, culverts and stormwater pipelines.

Rotaloc Installation

- 1) The deteriorated pipeline is cleared of debris and obstructions, cleaned and inspected.
- 2) The Rotaloc winding machine is lowered to the base of the access chamber. The PVC profile strip is fed into the machine from an above-ground spool.
- 3) Winding commences as the Rotaloc machine rotates, helically locking the edges of the profile strip together as it moves along inside the deteriorated pipe. The Rotaloc machine is fitted with hydraulic rams which can adjust the diameter at which the liner is wound to ensure it fits tightly against the wall of the host pipe.
- 4) The winding process continues until the Rotaloc winding machine has reached the end of the length of pipeline to be renewed. The progress of the installation is controlled and monitored remotely by an operator above ground.
- 5) The ends of the liner at both access chambers are sealed and rendered smooth to the host pipe using structural epoxy.
- 6) Where specified, cementitious grout can be pumped behind the liner to fill voids in the deteriorated host pipe.

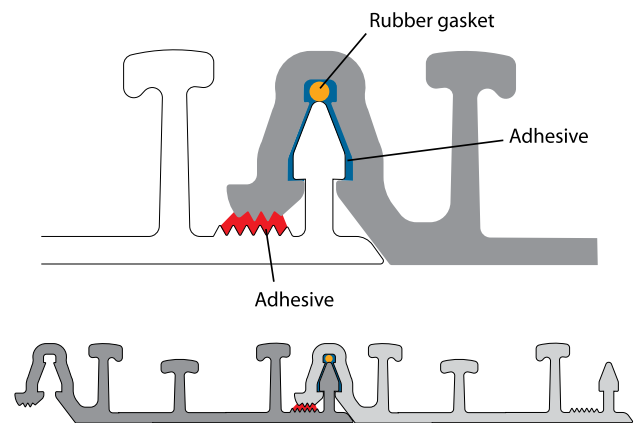


Liner diameter adjustment can be made during winding to ensure the liner is installed tightly against the host pipe.

Structural Properties

Rotaloc can be designed as a stand-alone structural liner to withstand all applied loads assuming the host pipe has no remaining strength. Design methods detailed in industry Specifications applicable to Rotaloc include AS/NZS 2566.1: 1998, WRC Type 2 Liner, ASTM F 1697 and ASTM F 1741.

The plastic profile strip that forms the liner is provided in a range of sizes and thicknesses. The appropriate profile is selected to provide a liner with sufficient stiffness to meet specific design requirements.



Cross-section of typical Rotaloc profile, showing the mechanism that locks together successive wraps of profile.

Strong Flexible Liner

Rotaloc offers a strong flexible liner that

- can line even the worst pipes – including those with missing inverts or wall sections
- provides a structurally efficient cross section – even when the host pipe is misaligned
- maintains a wall thickness; the wall will not 'balloon' and thin in unsupported areas
- is made from similar grades of thermoplastics as new sewer and drainage pipe.
- winds smoothly around larger radius pipe bends.

Flow Advantages

Rotaloc is installed to fit tightly against the existing pipe wall so the internal diameter of the liner is always maximised. The liner does not ripple or wrinkle when lining through offset joints in the host pipe. The smooth bore circular cross-section is flow efficient. Lining the deteriorated pipe with Rotaloc usually increases the flow capacity of the original pipe.

Experience

Rotaloc® was developed in Australia by Rib Loc, Interflow's technology partner. It was released into the market in 2000 and has been used to renew sewer and stormwater pipelines around the world.

Interflow has been installing Rotaloc since 2003 and has lined over 25,000m of pipeline with Rotaloc throughout Australia and in New Zealand. It has proven capable of providing a structural liner for severely deteriorated pipelines and has been installed under difficult site conditions with minimal community disruption.



Testing

The Rotaloc liner is made from similar grades of thermoplastics as new sewer and drainage pipe. PVC is a proven and internationally accepted sewer and drainage pipe material as evidenced by the popularity of new pipe products made from PVC. PVC is resistant to chemicals, gas attack, and abrasion and has a smooth surface finish which results in improved flow capacity compared to pipes made of concrete or vitreous clay.

The material, structural, sealing, and hydraulic properties of Rotaloc have been comprehensively tested to confirm the suitability of Rotaloc for long term performance in sewer environments.

Some of the standards Rotaloc has been tested to include:

- Strength tested to EN ISO 9969 Determination of Ring Stiffness
- Long-term strength tested to EN ISO 9967 Determination of Creep Ratio
- Hydrostatic Internal Pressure Testing to confirm the sealing properties of the liner
- Reagent testing to ASTM D543 Resistance to Plastics Chemical Reagents

Independent testing confirms that flow resistance coefficients applicable to new PVC sewer pipe also apply to Rotaloc liner.

Rotaloc has been tried and tested in the lab and in the field so you can be confident that you are renewing your assets with a low risk high quality product.



Interflow®
Leaders in Pipeline Renewal

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The Environment

Rotaloc® improves the environment by restoring the structural integrity of deteriorated pipes in a trenchless, non-disruptive manner.

There is no need to excavate launch pits and because the installation process is mechanical there are no resins, no styrene vapours, no curing and no heating required.

Rotaloc can usually be installed in live flow conditions so the need for bypass pumping is minimised and the installation risks are reduced.



Community

Rotaloc ensures minimal community disruption;

- The liner is delivered to site on spools so there is no on-site pipe storage and with smaller support vehicles the size of the site foot print is reduced so there is less disruption to local traffic.
- The process is quieter as there are no noisy boilers.
- No waiting for curing or heat treatment so installation is faster.

Safety

Interflow strongly encourages safe work practices and protecting the safety of the community and our workers is paramount.

Rotaloc is a safer process;

- No need to work inside the deteriorated pipeline; the liner winding is controlled and monitored remotely above ground.
- Less excavation means less heavy machinery and less disruption.
- Less risk of overflow. Installation equipment can be rapidly removed from the pipe and flow capacity restored in the event of sudden flow increases.



Rotaloc®

Structural Lining for Large Diameter Pipelines from the Leaders in Pipeline Renewal