

## SPR<sup>®</sup>ST

A HIGH STIFFNESS STRUCTURAL REINFORCED  
LINER FOR GRAVITY PIPELINES FROM  
DN 450 - 2500 mm (18 - 100 inch)



**RIBSTEEL<sup>®</sup>**

SPR<sup>®</sup>ST technology, incorporating  
RIBSTEEL<sup>®</sup> spirally wound system  
by RIB LOC<sup>®</sup>



# SEKISUI RIB LOC AUSTRALIA'S TECHNOLOGIES AND SERVICES

SEKISUI Rib Loc Australia Pty Ltd (SRLA) is the internationally recognised inventor of RIB LOC® spirally wound technologies. Owned since 2008 by SEKISUI Chemical Co., Ltd., one of Japan's largest global plastics developers and manufacturers, SRLA develops, manufactures and supports the delivery of its spiral pipe renewal technologies through its worldwide network of distributors and installation partners.

## Vision – Innovation for the Earth

SRLA's vision is to provide well-being and peace of mind to all current and future generations by contributing to the sustainability of the Earth and society by using the power of innovation that is in our people's DNA to continue opening new frontiers in social infrastructure.

## Mission

With customer satisfaction as a priority, our mission is to supply, educate and support stakeholders in the use of our innovative, high-quality pipe renewal technologies for the benefit of the environment and society.



### CORE CAPABILITIES

- Profiles - Design and Manufacture
- Equipment - Design and Manufacture
- Research and Development

### TECHNICAL SERVICES

- Project Management
- Engineering Support
- Training Services
- Site Support

### TRENCHLESS INFRASTRUCTURE SOLUTIONS

- SPR®EX / Expanda®
- SPR®RO / Rotaloc®
- SPR®TF
- SPR®ST / Ribsteel®
- SPR®PE / Ribline®
- SPR®

SRLA's innovative, patented and world renowned RIB LOC® spirally wound technologies are used the world over for the time and cost efficient means they offer for rehabilitating damaged pipes with minimum impact on the environment.

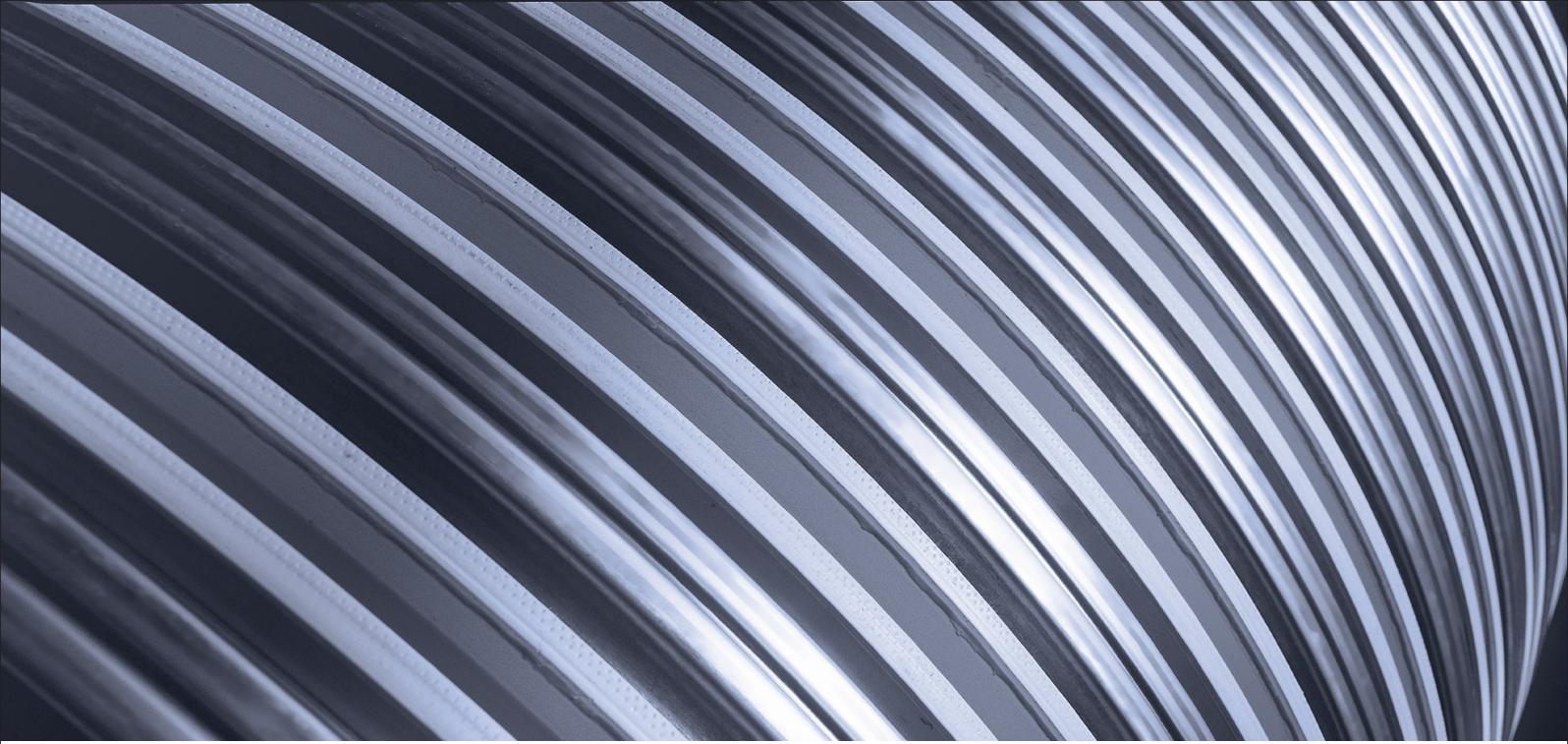
The spirally wound technologies for gravity pipelines are based on the principle of winding a continuous plastic strip into a liner directly within the deteriorated pipe. The plastic strip is spirally wound via a patented winding machine positioned in the base of an

existing maintenance hole or access chamber. The edges of the strip interlock as it is spirally wound to form a continuous watertight liner inside the host pipe.

For the spirally wound rehabilitation of gravity pipes SRLA offers six systems:

	SPR®EX Expanda®	SPR®RO Rotaloc®	SPR®TF	SPR®ST Ribsteel®	SPR®PE Ribline®	SPR®
Diameter	150 - 1050 mm 6 - 42 inch	800 - 1800 mm 32 - 72 inch	1050 - 1650 mm 42 - 66 inch	450 - 2500 mm 18 - 100 inch	900 - 3000 mm 36 - 120 inch	800 - 5500 mm 32 - 220 inch
Material *	PVC	PVC	PVC	PVC	HDPE	PVC
Shape	Circular	Circular	Circular	Circular	Circular	Circular, non-circular, custom shape
Installation	Close fit	Close fit	Close fit	Fixed diameter	Fixed diameter	Fixed diameter

\* Steel reinforcement used in selected profiles



# A STEEL REINFORCED FLEXIBLE LINER

SPR®ST technology, incorporating RIBSTEEL® spirally wound system by RIB LOC®, is a unique process for restoring the hydraulic efficiency, reliability and integrity of aging sewers, storm drains and culverts.

Where required for greater stiffness, the liner can be reinforced by simultaneously winding a profiled strip of steel under the tees of the PVC profile.

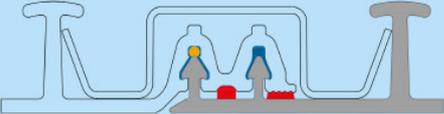
SPR®ST / Ribsteel® liners can structurally rehabilitate brick, concrete, glass reinforced plastic or corrugated metal sanitary and stormwater pipelines with diameters from 450 - 2500 mm (18 - 100 inch).

The plastic profile 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 the design requirements for the project. Profiles may be reinforced with steel for high loading applications, maximizing liner stiffness whilst minimizing loss of cross section.

### Project experience

SPR®ST / Ribsteel® has been used to rehabilitate sewers, stormwater lines and culverts around the world. 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.

### PVC Profile and Sealant Materials



- HOT MELT
- O-RING

Cross-section of a typical profile, showing the mechanism that locks together successive wraps of profile, overlaid with steel reinforcement

### Safe work sites and low noise

The deteriorated pipeline is first cleared of debris and obstructions, cleaned and inspected, the diameter measured and then proved.

The SPR®ST / Ribsteel® winding machine is lowered to the base of the access chamber through standard maintenance hole openings. The PVC profile and steel is fed into the machine from above ground. The winding machine then winds the PVC profile to form a liner. If required, a continuous strip of steel can be locked under the PVC profile tees by

the winding machine. The process continues until the liner wound by the SPR®ST / Ribsteel® winding machine reaches the end of the pipeline length to be rehabilitated.

The ends of the liner at both access chambers are sealed and rendered to make them smooth with the host pipe.

The annulus between the fixed diameter liner and the host pipe can be filled with cementitious grout immediately after winding is completed.

## HIGH STIFFNESS TO MEET THE STRICTEST REQUIREMENTS

### Flow advantages

- Diameter can be varied with adjustable winding cages to maximise liner diameter.
- Hydraulically efficient, smooth bore with circular cross section.
- Usually greater hydraulic capacity than the host pipe.
- No ripples or wrinkles even when host pipe joints are offset.
- Winds smoothly around large radius pipeline bends.

### A strong flexible liner

- Can be designed as a structural liner. A range of PVC and steel combinations are available to meet design requirements.
- Structurally efficient circular cross section - even when the host pipe is misaligned.
- Constant wall thickness even when negotiating voids in the host pipe.
- Machine installed. Liner installation does not depend on the standard of workmanship in difficult conditions.

### Fast installation with minimum community disruption

- Rapid set up, safe work sites and low noise during construction.
- No need to excavate launch pits or store pipes on-site.
- Oval cages in many cases conform to invert and minimise benching removal.
- Small support vehicles - less disruption of traffic.
- Can operate with some flow in the existing pipe, up to 25% subject to velocity and safety considerations.
- Installation possible from difficult to reach access chambers - support vehicles and equipment can be placed remotely.



Quality assured profile extrusion



Stiffness testing of SPR®ST / Ribsteel® liners

### Proven pipe material

- Made from similar grade of PVC as new sewer and drainage pipe.
- Cell Classification of 13354 in accordance with ASTM D1784.
- Profile sealing materials are tested to confirm suitability in high ambient temperature sewer environments.
- Factory manufactured, with consistent material properties. The pipe strength does not rely on curing in uncertain conditions.

### Plastic and steel profiles

The plastic profile that forms the liner is provided in one of three sizes.

The appropriate profile and steel section is selected to provide a liner with sufficient stiffness to meet the design requirements for the project.

### Design

Numerous industry specifications provide design methods applicable to SPR®ST / Ribsteel®, including:

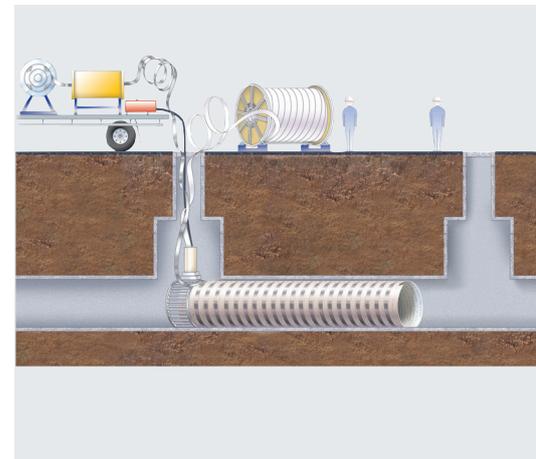
- ASTM F1741 "Standard Practice for Installation of Machine Spiral Wound Poly (Vinyl Chloride) (PVC) Liner Pipe for Rehabilitation of Existing Sewers and Conduits".
- Australian Water Authority Specifications, usually based on Australian Standard AS/NZS 2566.1 "Buried Flexible Pipelines,

### The benefits of SPR®ST / Ribsteel® at a glance

- High stiffness structural liner.
- Fixed diameter.
- Diameters from 450 - 2500 mm (18 - 100 inch) using three profile types.
- Manufactured from pipe grade PVC with steel stiffening ribs.
- Suitable for gravity flow sanitary sewer and stormwater applications.
- Cell Classification of 13354 in accordance with ASTM D1784.
- WRc Approved® (PT/464/0720).

Section Properties of Typical SPR®ST / Ribsteel® Profiles

PROFILE	HEIGHT	TYPICAL PIPE DIAMETER	
91 - 25RS	25	900 - 2500	mm
91 - 25RS	1.0	36 - 100	inch
126 - 15 RS	15	450 - 1200	mm
126 - 15 RS	0.6	18 - 48	inch
126 - 20 RS	20	450 - 1500	mm
126 - 20 RS	0.8	18 - 60	inch



On-site setup for SPR®ST / Ribsteel® installation



The winding machine winds the PVC profile to form a liner

Web: [www.sekisuiribloc.com](http://www.sekisuiribloc.com)  
Email: [enquiries@sekisuiribloc.com](mailto:enquiries@sekisuiribloc.com)

#### **AUSTRALIA AND NEW ZEALAND**

SEKISUI Rib Loc Australia Pty Ltd  
587 Grand Junction Road  
Gepps Cross, SA, 5094 Australia  
Phone: +61 (8) 8260 8000  
Email: [enquiries@sekisuiribloc.com](mailto:enquiries@sekisuiribloc.com)

#### **SEKISUI HEADQUARTERS**

SEKISUI CHEMICAL CO., LTD.  
(Tokyo Head Office) 2-10-4 Toranomom, Minato-ku  
Tokyo 105-8566 Japan  
Phone: +81 3 6748 6493

#### **ASIA**

SEKISUI Singapore Pte Ltd  
7500A Beach Road #12-306  
The Plaza, Singapore 199591  
Phone: +65 6296 3788  
Contact: <https://www.sekisuichemical.com/sekisuisingapore/>

#### **USA AND CANADA**

SEKISUI SPR Americas, LLC  
5000 Austell-Powder Springs Road, Suite 138  
Austell, Georgia 30106 USA  
Phone: +1 866 627 7772  
Email: [sekisui.info@sekisui-spr.com](mailto:sekisui.info@sekisui-spr.com)

#### **EUROPE AND SOUTH AMERICA**

SEKISUI CHEMICAL GmbH  
Roßstraße 92, 40476 Düsseldorf Germany  
Phone: +49 (0) 211 36977 0  
Email: [info@sekisui.de](mailto:info@sekisui.de)

#### **REST OF WORLD**

SEKISUI Rib Loc Australia Pty Ltd  
587 Grand Junction Road  
Gepps Cross, SA, 5094 Australia  
Phone: +61 (8) 8260 8000  
Email: [enquiries@sekisuiribloc.com](mailto:enquiries@sekisuiribloc.com)

**SEKISUI**  
**SEKISUI RIB LOC**