SPR™

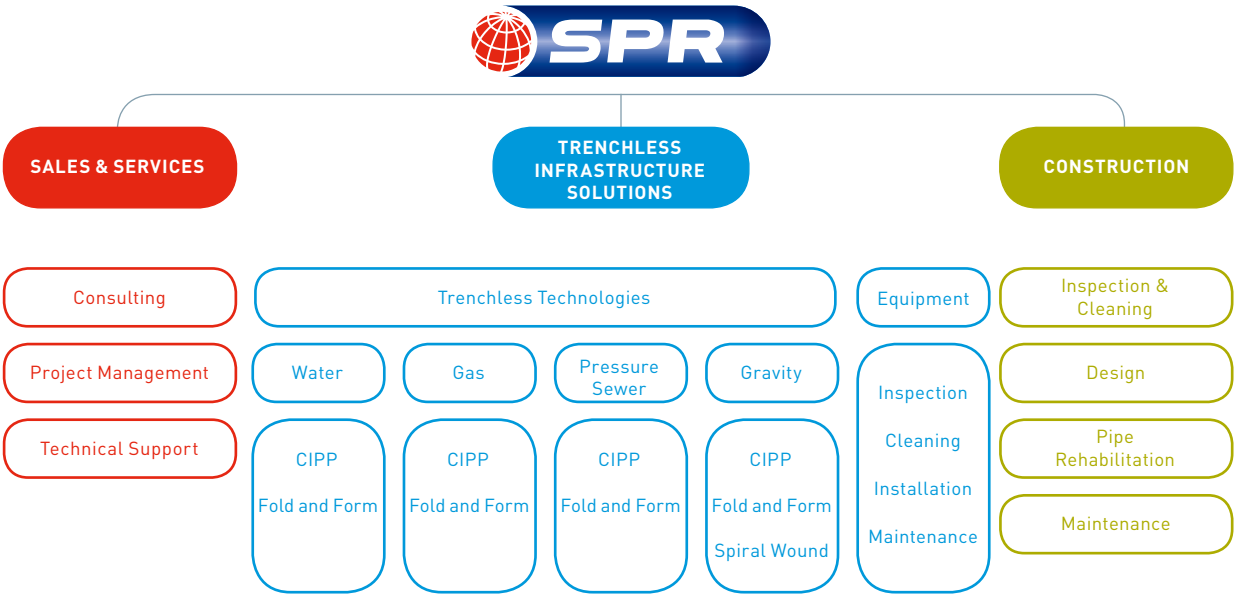
STRUCTURAL LINER FOR CIRCULAR AND NON-CIRCULAR GRAVITY PIPELINES FROM 800 mm TO 5500 mm

FORMING GLOBAL CONNECTIONS

SEKISUI SPR´S TECHNOLOGIES AND SERVICES

SEKISUI SPR Group is synonymous with superior solutions for underground infrastructure worldwide.

SEKISUI SPR offers outstanding and environmentally sustainable technologies and construction services for water supply and drainage through its global sales network.



SEKISUI SPR's innovative, patented, and world renowned spiral 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 spiral wound technologies for gravity are based on the principle of winding a continuous plastic strip into a liner directly into the deteriorated pipe. The plastic strip is spirally wound via a patented winding machine positioned in the base of an existing manhole 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 spiral wound rehabilitation of gravity pipes SEKISUI SPR offers five technology systems:

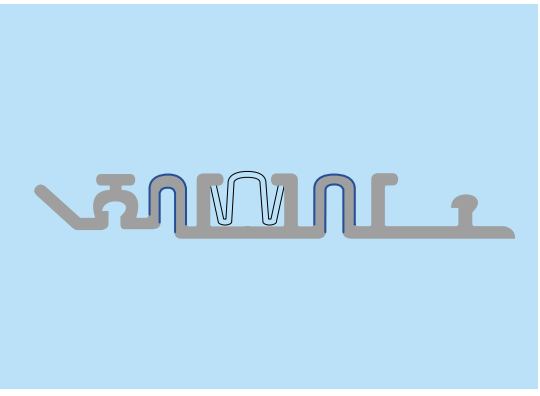
	SPR™	SPR™ PE	SPR™ EX	SPR™ ST	SPR™ RO
Diameter	800 – 5500 mm 32 – 217 in.	900 – 3000 mm 36 – 120 in.	150 – 1050 mm 6 – 42 in.	450 – 2500 mm 18 – 99 in.	800 – 1800 mm 32 – 72 in.
Material	PVC	HDPE	PVC	PVC	PVC
Shape	circular, non-circular, custom shape	circular	circular	circular	circular
Installation	fixed diameter	fixed diameter	close fit	fixed diameter	close fit

LARGE DIAMETER TRENCHLESS PIPE RENEWAL

SPR™ is a spiral wound trenchless pipeline renewal process designed for the rehabilitation of large diameter pipelines up to 5500 mm. SPR™ utilizes steel reinforced interlocking PVC profile strips grouted in place with a high strength grout. The installation equipment can be utilized via standard access points without site excavation. The Japanese SPR™ technology can also be installed in vertical applications such as wet wells, access shafts and other large diameter structures.

The SPR™ process is unique as it can provide a customized structural solution to aging pipelines. It can be engineered to correct hydraulic anomalies as well as restore the slope of the original pipe.

The interlocking edges of the profile create an impermeable mechanical lock that can withstand strong deformational forces. SPR™ liners have been tested in accordance with industry standards and meet or exceed the standards for machine spiral-wound liners, ASTM F 1697 and ASTM F 1741. It is also DIBt approved.



Typical SPR™ profile for bends (>5d)

Installation process – minimal impact on the environment

Inspection and Calibration: Prior to the SPR™ winding process the host pipe is inspected and cleaned. Then a 3D Laserscan measures the exact cross section which allows to design the optimal SPR™ liner.

Winding process: SPR™ profile is fed through the manhole into the winding machine placed in the host pipe. The winding machine winds the PVC profile to the requested form and interlocks the PVC strips to form a new watertight liner. Due to the forward motion the winding machine moves to the next access chamber.

Bracing system: After the winding process is completed the bracing system is installed. The bracing material is lowered through standard manhole openings. In the next step the bracing system is set up to provide structural support during the grouting process and positions the SPR™ liner in the host pipe according to engineering specifications.

Grouting: A special high strength grout is injected into the annular space between the host pipe and the spirally wound PVC profile and cured.
After completion the bracing system is dismantled and the rehabilitated pipe is ready for service.

STEEL-REINFORCED PROFILE FOR NON-CIRCULAR SHAPES

Flow advantages
- Flow efficient, smooth bore cross section.
- No ripples or wrinkles even when host pipe joints are offset.
- Winds smoothly around large radius pipeline bends.
- Can offer greater hydraulic capacity than the host pipe.

A strong lining solution
- Designed as a structural liner. A range of profiles with varying steel reinforcement is available to meet design requirements.
- Structurally efficient cross section – even when the host pipe is misaligned.
- No heating, stress cracking, shrinkage or stretching.
- Machine installed. 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.
- Uses existing access chambers. No need to excavate launch pits.
- No on-site pipe storage required.
- Small support vehicles – less disruption of traffic.
- Can operate with some flow in the existing pipe.
- Installation possible from difficult to reach access chambers - support vehicles and equipment can be placed remotely.

Rehabilitation of bends

Rehabilitation of custom shape

Benefits of SPR™ at a glance

- Rehabilitation of large diameter pipes (800-5500 mm)
- Rehabilitation of circular, non-circular and custom shapes
- Truly trenchless – requires only standard manhole entry
- Designed for installation in live flow conditions
- Negotiate curves and bends
- Improved flow with smooth PVC material
- Environmental-friendly installation and application
- Over 400 km successfully installed worldwide

Proven pipe material

- Made from similar grade of PVC as new sewer and drainage pipe.
- Minimum cell classification of 12344 in accordance with ASTM D 1784.
- Profile sealing materials are tested to confirm suitability in high ambient temperature sewer environments.
- Factory manufactured, with consistent material properties.

Plastic profiles

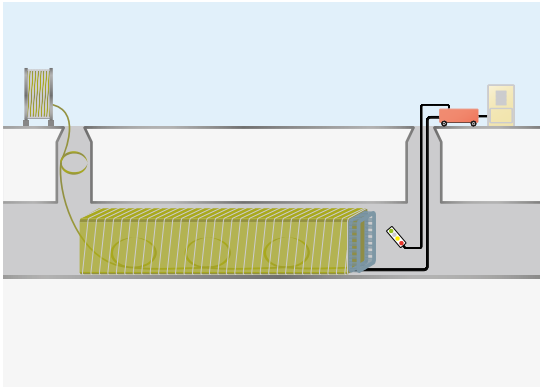
The profile that forms the liner is provided in a number of different configurations, from which the appropriate configuration is selected to meet the requirements of the project.

Design

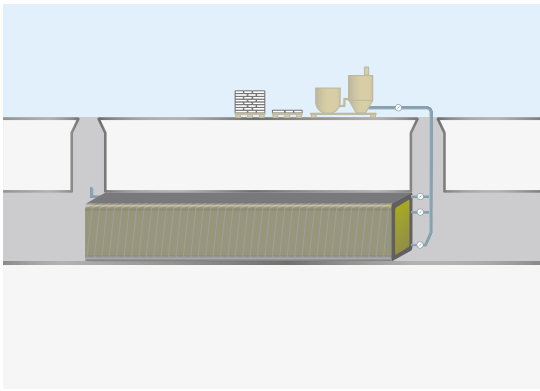
Numerous industry specifications provide information relating to design methods applicable to SPR™, including:

- ASTM F 1741: "Standard Practice for Installation of Machine Spiral Wound PVC Liner Pipe for Rehabilitation of Existing Sewers and Conduit"
- ASTM F 1697: "Standard Specification for Poly Vinyl Chloride Profile Strip for Machine Spiral-Wound Liner Pipe Rehabilitation of Existing Sewers and Conduit"

SPR™ is designed in accordance with the principles of reinforced concrete design according to the local applicable Standards.



The SPR™ profile is fed into the winding machine, which forms the liner by joining the profile's double locking mechanism



SPR™ is installed through standard manholes. After winding the annular space is filled with high strength grout

04/14

MAKE YOUR CONNECTION

SEKISUI SPR SALES EUROPE
Bruckbachweg 23
4203 Altenberg bei Linz
Austria

T +43 (0)7230 86 87 0

SEKISUI SPR SALES ASIA
#12-306 The Plaza
7500A Beach Road
Singapore 199591

T +65 629 637 88

SEKISUI SPR SALES AUSTRALIA
587 Grand Junction Road
Gepps Cross, SA 5094
Australia

T +61 8 8260 8000

SEKISUI SPR SALES AMERICA
4125 Welcome All Rd Suite 100
Atlanta, GA 30349
USA

T +1 678 510 1820

info@sekisuispr.com
www.sekisuispr.com

SEKISUI

FORMING GLOBAL CONNECTIONS

TECHNOLOGY SALES & SERVICES CONSTRUCTION

SPR