

Rolldown®

Pipe Lining Technique

RADIUS SUBTERRA

Specialist Pipeline Engineering

radius-subterra.com

What is Rolldown®?

RollDown™ is a proven trenchless rehabilitation solution that uses close-fit polyethylene (PE) liners to renew ageing pressure pipelines.

Suitable for water, wastewater, gas and industrial applications, the system delivers a corrosion-resistant, long-life pipeline with minimal excavation and disruption.

The PE liner is roller-reduced by approximately 10% before insertion into the host pipe and then reverted using water pressure to form a tight-fitting internal pipe. This creates a continuous, pressure-rated liner that provides reliable structural performance while maintaining hydraulic capacity.



Learn more about Rolldown® and other Pipe Lining techniques

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Rolldown® range of applications

Host pipe nominal bore	SDR11	SDR17	SDR21	SDR26	SDR33
104mm / 4″	●	●	X	X	X
110mm/ 4″	●	●	X	X	X
125mm / 5″	●	●	X	X	X
155mm / 6″	●	●	●	●	X
160mm / 6″	●	●	●	●	X
180mm / 7″	●	●	●	●	X
200mm / 8″	●	●	●	●	X
205mm / 8″	●	●	●	●	X
213mm 8″	●	●	●	●	X
225mm / 9″	●	●	●	●	X
250mm / 10″	●	●	●	●	X
260mm / 10″	●	●	●	●	X
268mm / 10″	●	●	●	●	X
302mm / 12″	●	●	●	●	●
315mm / 12″	●	●	●	●	●
355mm / 14″	●	●	●	●	●
400mm / 16″	●	●	●	●	●
450mm /18″	●	●	●	●	●
469mm / 18″	●	●	●	●	●
500mm / 20″	●	●	●	●	●

The projects

Water Services

Client	Location	Pipe size	Project length
South East Water	Hindhead	160mm SDR17	900m
Tronox	Grimsby	400mm SDR17	400m
Severn Trent Water	Leicester	500mm SDR21	1100m
Severn Trent Water	Stafford	315mm SDR21	200m
Southern Water	East Grinstead	500mm SDR26	200m

Gas Services

Client	Location	Pipe size	Project length
Northern Gas Networks	Castleford	450mm SDR21	450m
Southern Gas Networks	Didcot	315mm SDR21	1000m
Northern Gas Networks	Keighley	155mm SDR21	250m

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The facts

- We have rehabilitated **over 5,000 km** of pipelines in the last **35 years**, using Rolldown® and Subline®.
- Today, modern PE pipes have a minimum lifetime of 100+ years.
- All new pipes are approved to either **GIS PL2** and **EN1555** for gas or **EN 12201** for water.
- Rolldown® can be used on pipes from **100mm to 500mm** with a minimum SDR of 11.
- We are not only the installer of the Rolldown® system, but we are also the pipe supplier, which means that we can offer a cradle to grave approach.
- Rolldown® is used with standard PE resins and SDRs across the full range.
- The Rolldown® technique uses **no-dig installation** to insert the pipe liner.
- The installation site uses a **small footprint** area.
- The technique uses butt-fusion welding and as is normal practice, the pipe has to be debeaded.
- PE pipes are butt-welded together into a long string to facilitate installation. The string length will depend on site restrictions.
- Rolldown® cannot negotiate sharp bends. These need to be removed before installation of the pipe.
- We recommend that CCTV inspection of the main is carried out before using Rolldown® to check the location of bends and service connections. Obstructions will need to be removed before pipe liner installation.
- With good planning, pipe lengths can be joined while the Rolldown® process is underway, as this can only be carried out within a short time window. This is not standard practice and we do not recommend it. However, it can be used in a last resort situation.
- We have a **full range** of service and branch saddle connections available that are sized to fit rolled-down pipe. Standard fittings that are stocked at your stores are used to carry out connections to the pipe liner.

Features and benefits

Designed to help you achieve greater efficiency, improve user experiences, and maximise the value of your technology investment.

Rolldown® combines powerful features with practical benefits that support day-to-day operations while enabling long-term business success. By bringing together innovative functionality, ease of use, and reliable performance, it helps streamline processes, reduce complexity, and enhance productivity across the organisation. The following features and benefits demonstrate how these capabilities translate into measurable outcomes and lasting value.

Pipe Rehabilitation Process

+ Utilises the existing pipeline as a conduit.
+ Extends asset life with minimal disruption.

Minimum-Dig Installation

+ Minimises excavation, environmental impact and social disruption.
+ Reduces landfill waste and imported reinstatement materials.
+ Small site footprint with less impact on infrastructure.

Low Installation Forces

+ Minimises liner elongation and residual stresses.
+ Supports longer installation lengths, with single pulls of up to 800m achieved.

No Mechanical Restraint Required

+ Reduced diameter is maintained without external restraint.
+ Installation operates similarly to sliplining, requiring only friction-overcoming winch loads.

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Proven PE Liner Material

+ Manufactured from standard PE resins already approved for potable water and gas applications.
+ Produced under established quality assurance processes.

Structural or Semi-Structural Close-Fit Liner

+ Creates an effectively new pipeline within the existing asset.
+ Maximises flow capacity while optimising material use and installation costs.
+ No grouting required.

Rolldown® Processing Technology

+ Pipe is temporarily reduced in diameter for easy insertion and reverts to a close-fit condition after installation.
+ Maintains the performance characteristics of virgin PE pipe.

Easy Insertion Through Existing Pipelines

+ Reduced diameter enables efficient installation through host pipes.
+ Can accommodate pipeline bends and alignment variations.

Flexible Stop/Start Installation

+ Provides greater on-site operational flexibility.
+ Installation can be paused and restarted without affecting performance.

Ambient Temperature Reversion

+ No heating or pipe reforming required.
+ Simple, efficient reversion to a close-fit liner.

Simple, Proven Equipment

+ Suitable for PE pipe diameters from 100mm to 500mm.
+ Straightforward equipment requirements simplify project delivery.

Standard PE Jointing & Fittings

+ Supports conventional buttfusion, electrofusion and mechanical fittings.
+ Compatible with standard PE pipeline components and ancillaries.

FAQs

+ **Why should we look at using Rolldown® and when?**
  When the host pipe is no longer fit for service, has no or very little structural strength left, or it has come to the end of its service life or is badly corroded. But these pipes can still be used as an access point to insert a standalone pressure bearing pipeline using Rolldown®. These rolled-down pipes also have the ability to cope with gap spanning, hole and axial cracking within the host main. They also restore the structural strength of the host main and as the liner is a PE pipe, they offer a smooth bore, restoring maximum flow capacity within the main.

+ **How does the liner deal with pipe bore variation? Does it rely on being expanded by the pressure to maintain a close-fit? What happens in vacuum conditions?**
  The pipe diameter is reduced by around 10% before it is inserted in the host main. We then fill the pipe with water then pressurise it, which expands the pipe to form a close-fit against the host. During expansion, bore variations are accounted for and the pipe does not need to be under pressure to maintain a close-fit.

+ **What method do you use for cleaning the main and do you do any condition assessment prior to lining?**
  See the latest Water Industry Standard & Information & Guidance Note documents for details of cleaning methods. Condition assessment should be carried out by the asset owner/contractor. But if required we can clean the mains as part of our operation.

+ **What is the largest pipe diameter and longest pull length undertaken using Rolldown®? Do winch loads increase significantly with this technique?**
  The largest PE pipe liner installed using Rolldown® is 500 mm, with the longest pull length being 800m to date. Winch loads would be determined by the pipe size and topography, but would not significantly increase load on the winch.

+ **Does rolling the pipe down put too much stress onto the PE pipe?**
  PE possesses memory properties and PE pipes will change shape when force is applied to the material and will return to its original shape, when the external force is removed and internal pressure is applied.

+ **When should we look to use this technique?**
  The Rolldown® technique is ideal for problematic mains, when replacement using open cut is not possible. As a no-dig installation technique, it is ideal for pipelines running under lakes, rivers or environmentally sensitive areas.

+ **What pressure is required to revert the PE pipe liner back to its original diameter?**
  This is dependent on the SDR of the installed liner and the ambient temperature. In most cases only 20 bar pressure is required.

+ **How long does it take to revert the PE liner to its original diameter?**
  This will depend on the pipe length, temperature, diameter and SDR. We can provide information based on details supplied.

+ **What do you use to revert the pipe liner? Is it water? If so, who supplies the water?**
  Yes, we use water at ambient temperature for the reversion process. If required, we can supply and dispose of the water after the operation.

Accreditations, Innovation & Sustainability

Driven by quality, shaped by innovation, committed to safe and sustainable delivery.

Radius Subterra operates within a rigorous quality, health, safety and environmental framework, supported by extensive industry accreditations and group-wide governance.

We maintain certification to ISO 9001, ISO 14001 and ISO 45001, alongside sector-specific accreditations such as Constructionline, Achilles, SafeContractor, GIRS, IGEM and EUSR, providing assurance of safe, compliant and technically robust delivery.

Our innovation culture is underpinned by access to advanced PE products, specialist technologies and in-house testing capability across the wider Radius Group.

Sustainability is central to how we work, with methods that reduce excavation, minimise waste, lower carbon output and support responsible construction practices throughout the pipeline lifecycle.

Why work with Radius Subterra

Trusted expertise, engineered delivery and a commitment to safe, efficient and low-disruption pipeline solutions.

With decades of specialist experience, Radius Subterra combines technical depth, manufacturing heritage and a problem-solving mindset to deliver safe, compliant and reliable outcomes across planned works, live operations and complex project environments.

+ Decades of specialist expertise

Deep experience across gas, water, biogas and rehabilitation projects, supported by Radius Group heritage, ensures safe, compliant and technically robust delivery on every pipeline intervention.

+ Uncompromising safety and quality

All work follows rigorous standards and procedures, using accredited techniques and specialist equipment to ensure consistent quality, reduced risk and reliable outcomes.

+ Minimised disruption

Under-pressure connections, flowstopping and trenchless rehabilitation maintain supply, reduce excavation, protect highways and communities, and enable faster, lower-impact project delivery.

+ Innovative, engineered solutions

From bespoke branch saddles to tailored fittings, we design solutions for challenging sites, materials and conditions, enabling safer, faster and cost-effective outcomes

+ Safety and sustainability built-in

Low-impact methods reduce carbon, excavation, waste and disruption while modern equipment and ongoing training support safe, environmentally responsible delivery.

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Who we work with

Trusted by operators, developers and contractors across essential infrastructure sectors.

Radius Subterra supports a broad range of organisations responsible for delivering, maintaining and upgrading vital pipeline infrastructure. We work with utility providers, energy networks, industrial operators, contractors and developers, delivering safe, efficient and technically assured services across planned works, complex interventions and live operational environments.

With capabilities spanning gas, water, biogas and rehabilitation, as well as specialist support across wider infrastructure sectors, we provide dependable engineering solutions tailored to diverse asset, regulatory and project demands.



Gas

Water

Biogas

Pipeline Rehab

Other sectors we support

Beyond our core utility and energy work, Radius Subterra also supports a range of specialist infrastructure sectors that require safe, precise and technically assured pipeline engineering.

Fire protection

Geothermal

Waste Water

Nuclear

Hydroelectric

Oil & Petrol



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