



RADIUS
Systems

Polyethylene pipes for gas applications

For new installations and pipe rehabilitation



October 2017



Polyethylene gas pipes by Radius Systems



Radius Systems’ polyethylene (PE) pipes are an innovative offering specifically engineered for the transportation of natural and suitable manufactured gases in buried pipeline applications. Since 1965, we have developed and manufactured a range of flexible and smart PE pipe solutions designed for new installations or for the replacement and rehabilitation of existing pipelines.

Innovative PE pipes for buried gas pipeline applications

Available in diameters 16 to 630 mm in PE80 or PE100, our gas pipes are supplied in a wide range of SDRs and pressure ratings to suit your system’s requirements and can be installed using open-cut or no-dig installation techniques. Our service and mains pipes are joined using industry standard butt-fusion or electrofusion welding methods by trained gas installers. For our service pipe relining solutions, electrofusion fittings and mechanical adaptors are used to effect the connection.

Manufactured in our ISO 9001:2008 accredited production facilities, our PE pipe solutions are approved to the most stringent national and international standards, to deliver a comprehensive service and mains pipe offering for all your gas pipeline network requirements.

As well as providing solid wall PE pipes for new installations and pipeline rehabilitation, Radius Systems have developed a range of solutions for metallic service pipe relining and a peelable pipe, ProFuse®, specially designed for use in no-dig installation techniques and open-cut installations. Below is a summary of our pipe range, their key application and techniques used for their installation.

Pipe type	Application and suitability
SC80 yellow	<ul style="list-style-type: none"> • Manufactured from PE80 with a black inner and a yellow outer • Used for new pipelines, network rehabilitation and pipe replacement • Installed using open-cut or no-dig techniques
SC100 orange	<ul style="list-style-type: none"> • Manufactured from PE100 with a black inner and an orange outer • Used for new pipelines, network rehabilitation and pipe replacement • Installed using open-cut or no-dig techniques
ProFuse® Peelable pipe	<ul style="list-style-type: none"> • A multi-layer pipe, manufactured from black PE100 and a yellow peelable polypropylene outer skin with stripes • Used for new pipelines, network rehabilitation and pipe replacement • Ideally suited for no-dig installation techniques and open-cut techniques
ServiFlex®	<ul style="list-style-type: none"> • Manufactured from yellow PE80 • Used for 1” steel pipe relining • Installed using the no-dig insertion technique
17.5 mm relining system	<ul style="list-style-type: none"> • Manufactured from PE80 with a black inner and a yellow outer • Used for ¾” metallic pipe relining • Installed using the no-dig insertion technique

SC80 and SC100 gas pipes

Our range of SC80 and SC100 are innovative solid wall polyethylene pipes developed as part of Radius Systems' continuous product improvement process. Manufactured using a specialist co-extrusion technology, the pipe is produced as a single pipe wall construction with a black inner and an integral colour coded yellow or orange outer, denoting the pipe's application.

Available in diameters 16 to 630 mm in a range of SDRs and pressure ratings to suit your pipeline requirements, SC pipe can be joined using standard electrofusion and butt-fusion welding techniques.

Approvals



SC80

- GIS PL2-2 for pipe SDRs 7 to 17.6, diameters 16 to 315 mm (KM 513530)
- EN 1555-2 for pipe SDRs 7 to 17.6, diameters 16 to 315 mm (KM 575728)

SC100

- GIS PL2-8 (KM 513620)
 - SDR11 pipe in diameters 63 to 630 mm
 - SDR17.6 pipe in diameters 90 to 315 mm
- EN 1555-2 (KM 575728)
 - SDR11 pipe in diameters 63 to 630 mm
 - SDR17.6 pipe in diameters 90 to 315 mm

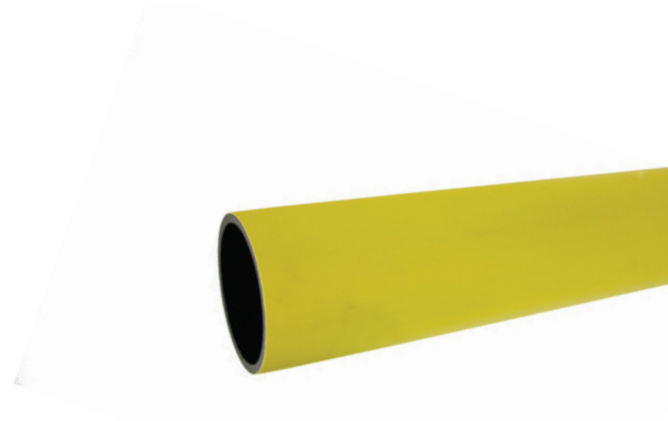
Features and Benefits

- Colour coded surface to easily identify the material and its application:
 - SC80: pipe with PE80 black inner and PE80 yellow outer
 - SC100: pipe with PE100 black inner and PE100 orange outer.
- Joined using conventional electrofusion and butt-fusion techniques.
- Simple pipe preparation for electrofusion jointing using rotary or hand scraping tools.
- Fully compatible with approved electrofusion and spigot fittings.
- Suitable for open-cut and no-dig installation techniques.
- Ideal for use in pipeline lining projects.



SC80 pipe

Our SC80 pipe is manufactured from PE80 materials and is easily identifiable by its yellow coloured outer surface. Manufactured in sizes 16 to 315 mm as standard, in straight or coiled pipe, SC80 pipe is available in SDR7, 9, 11, 13.6 and 17.6. For special projects requiring bespoke pipe diameters, SDRs and lengths, please contact Radius Systems.



Nominal diameter mm	SDR	Product code - straight pipe		Product code - coiled pipe					Weight kg/m
		6 m	12 m	50 m	100 m	150 m	250 m	500 m	
16	7	-	-	FA0008	-	-	-	-	0.1
20	9	-	-	FA0021	FA0022	-	-	-	0.2
25	11	FA0026	-	FA0028	FA0029	-	-	-	0.2
32	11	FA0033	-	FA0035	FA0036	-	-	-	0.3
40	11	-	-	-	FA0041	-	-	-	0.5
55	11	-	-	-	FA0064	-	-	-	0.9
63	11	FA0068	FA0069	FA0071	FA0072	FA0073	FA0074	FA0075	1.1
75	11	FA0092	-	FA0094	FA0096*	-	FA0098	FA0091	1.5
90	11	FA0125	FA0127	FA0128	FA0129	-	-	-	2.2
125	11	FA0287	FA0289	-	FA0291	-	-	-	4.3
180	11	FA0530	FA0532	-	FA0535	-	-	-	8.8
63	13.6	FA0076	-	FA0079	FA0080	FA0081	FA0082	FA0083	0.9
75	13.6	FA0100	-	-	FA0104*	-	FA0106	FA0107	1.3
90	17.6	FA0152	FA0154	FA0155	FA0156	FA0157	FA0158	FA0159	1.5
125	17.6	FA0314	FA0316	FA0317	FA0318	FA0319	-	-	2.8
140	17.6	FA0368	-	-	FA0372	-	-	-	3.5
180	17.6	FA0560	FA0562	FA0564	FA0565	-	-	-	5.8
250	17.6	FA0793	FA0796	-	-	-	-	-	11.1
315	17.6	FA1012	FA1014	-	-	-	-	-	17.7

* Supplied in 120 m coils

Pipe weights shown are for lifting and handling purposes. They are based on the maximum pipe diameter and wall thickness. For guidance on maximum operating pressures, please contact Radius Systems.

SC100 pipe

Our SC100 pipe is manufactured from PE100 materials and is easily identifiable by its orange coloured outer surface. Manufactured in sizes 63 to 630 mm in straight or coiled pipe, SC100 pipe is available in SDR11 and SDR17.6. For special projects requiring bespoke pipe diameters, SDRs and lengths, please contact Radius Systems.



Nominal diameter mm	SDR	Product code - straight pipe		Product code - coiled pipe	Weight kg/m
		6 m	12 m	100 m	
63	11	FC0068	-	FC0072	1.1
90	11	FC0125	FC0127	FC0129	2.3
125	11	FC0287	FC0289	FC0291	4.3
180	11	FC0530	FC0532	FC0535	8.9
250	11	FC0766	FC0769	-	17.1
315	11	FC0985	FC0988	-	27.1
355	11	FC1044	FC1047	-	34.5
400	11	FC1104	FC1107	-	43.7
450	11	FC1219	FC1221	-	55.2
500	11	FC1327	FC1329	-	68.2
560	11	FC1383	FC1385	-	85.8
630	11	FC1439	FC1441	-	108.7
90	17.6	-	FC0154	FC0156	1.5
125	17.6	-	FC0316	-	2.8
180	17.6	-	FC0562	-	5.9
250	17.6	-	FC0796	-	11.2
315	17.6	-	FC1015	-	17.7

Pipe weights shown are for lifting and handling purposes. They are based on the maximum pipe diameter and wall thickness. For guidance on maximum operating pressures, please contact Radius Systems.

SC80 and SC100 coil pack quantity

Pipe diameter mm	Pack quantity 50 m	Total pack length	Pack quantity 100 m	Total pack length	Pack quantity 150 m	Total pack length	Pack quantity 250 m	Total pack length
16	11	550 m	-	-	-	-	-	-
20	9	450 m	9	900 m	-	-	-	-
25	8	400 m	7	700 m	-	-	-	-
32	8	400 m	4	400 m	-	-	-	-
40	-	-	6	600 m	-	-	-	-
55	-	-	5	500 m	-	-	-	-
63	6	300 m	4	400 m	3	450 m	2	500

ProFuse® peelable pipe

ProFuse® is a technologically advanced peelable pipe innovation for the transportation of natural and suitable manufactured gases in buried pipeline applications, offering a high performance solution with optimum joint integrity, damage protection and reduced installation time and costs to asset owners.

Manufactured from black PE100, ProFuse® has been designed with a unique polypropylene peelable skin, which is applied to the core pipe during the manufacturing process using melt on melt technology. The skin offers excellent abrasion resistance and protects the pipe during handling, transportation, installation and reinstatement. It is easily removed, using the pipe exposure tool (PET), revealing a pristine pipe surface, ready to be joined using electrofusion or butt-fusion welding techniques.

Ideal for open cut, dead or live insertion, horizontal directional drilling and pipe bursting installation techniques, ProFuse® is a superior pipe solution especially suited to no-dig installation techniques, as its tough protective skin absorbs damage normally associated with those installation methods.

Designed for maximum jointing integrity, ProFuse® is the perfect solution for reduced system lifetime costs and optimum installation quality and system reliability.

Approvals

- GIS PL2-2 (KM 513530)
 - SDR17.6 pipe in diameters 250 to 400 mm
 - SDR21 pipe in diameters 250 to 630 mm
- BS EN 1555-2 (KM 575728)
 - SDR17.6 pipe in diameters 180 to 400 mm
 - SDR21 in diameters 250 to 630 mm



Features and Benefits

- **Unique external skin**
Specifically developed with an external skin to minimise damage to the core pipe. The tough polypropylene skin offers excellent abrasion resistance to protect the pipe during handling, storage, transportation and installation.
- **Installation damage protection**
Ideally suited for trenchless installation techniques such as pipe insertion, pipe bursting and horizontal directional drilling.
- **Optimum joint integrity**
The ProFuse® peelable skin is removed locally with the PET tool, revealing a pipe surface in pristine condition, ready for jointing.
- **Reduced installation time**
The peelable skin is easily removed, reducing pipe surface preparation time for electrofusion jointing compared to conventional PE pipe.



'The ProFuse® skin is easily removed using the pipe exposure tool (PET)'



'The skin is peeled to reveal a pristine pipe surface ready to be fused'

ProFuse® pipe range

Nominal diameter mm	SDR	Product code - straight pipe		Weight kg/m
		6 m	12 m	
180*	17.6	-	FE0562	6.5
250*	17.6	-	FE0796	12.3
315*	17.6	-	FE1015	19.1
400*	17.6	-	FE1134	30.4
250	21	FE0802	FE0805	10.6
280	21	FE0910	FE0912	13.1
315	21	FE1020	FE1023	16.4
355	21	FE1079	FE1082	20.6
400	21	FE1140	FE1143	25.9
450	21	FE1251	FE1253	32.6
500	21	FE1359	FE1361	40.0
630	21	FE1471	FE1473	62.6

* Available and approved for Ireland customers only.

- Pipe weights shown are for lifting and handling purposes; they are based on the maximum pipe diameter and wall thickness.
- For special projects requiring bespoke pipe diameters, SDRs and lengths, please contact Radius Systems.
- For guidance on maximum operating pressures, please contact Radius Systems.

ProFuse® Pipe Exposure Tool (PET)

The only tool recommended for the quick, simple and safe removal of the ProFuse® skin. The hardened steel blade cuts the ProFuse® skin and lifts its edge to allow it to be easily peeled from the pipe core.



Product code: FT0648

- One tool for all sizes of ProFuse® pipe
- Spring-loaded blade to minimise damage to the tip of the blade
- Direction marking for clear and simple operation
- Plastic body lightweight and durable
- Sculpted runners for blade protection and precise one handed control



Service pipe relining solutions

Conventional PE pipes have been routinely used by utility companies as a relining solution to address their ageing metallic mains. Service pipes, often installed under footpaths and gardens have been a challenge to reline, due to the complexity of their layout, the changes in the pipe direction from the main to the gas meter and the numerous fittings used in the service pipe.

Working closely with our utility customers, we have developed a range of advanced PE pipeline solutions for the rehabilitation of 1" and ¾" metallic services using pipe insertion techniques. Unique to Radius Systems, our ServiFlex® pipe and 17.5 mm system are innovative pipe relining solutions specifically engineered to restore the leak-tightness of the host pipe, whilst limiting the pipe pressure loss from the main to the property.

Installed using no-dig pipe insertion techniques for minimal disruption to customers, our ServiFlex® pipe and 17.5 mm system are quick and easy to install and combined with our PE mains pipe offering, deliver a smart pipe rehabilitation alternative to traditional pipeline replacement, for the whole of your gas pipeline infrastructure.

Approvals

- 17.5 mm system
 - 17.5 mm pipe GIS PL2-2 (KM 513530)
 - Service head adaptor GIS PL3 (KM 539621)



Features and Benefits

- **Cutting-edge offering**
Unique engineered metallic service pipe relining solutions to maintain the integrity of the service pipe.
- **Optimum leak-tightness**
The host pipe provides structural stability, whilst the PE liner provides leak-tightness.
- **Reduced number of joints in the system**
The PE pipes are flexible and can accommodate changes in direction of the original service pipe without the need for additional fittings. ServiFlex® easily passes through 1" short radius bends and our 17.5 mm system can negotiate ¾" long radius bends.
- **Reduced disruption to customers**
The pipe lining solutions are installed using no-dig insertion techniques, reducing disruption to utility customers.
- **Designer pipe solutions**
Specifically designed to be inserted into 1" and ¾" metallic service pipes and negotiate bends without the need for additional fittings.



'ServiFlex is specifically designed for relining 1" steel services'

'ServiFlex can be easily inserted through short radius bends'

'17.5 mm system, the relining solution for ¾" service pipe'

ServiFlex® pipe

Unique to Radius Systems, ServiFlex® is a leading edge innovation consisting of a PE80 twin wall corrugated flexible pipe liner system specifically designed for the relining of 1" steel service pipes.

Quick and easy to install, ServiFlex® is a cost effective solution to service pipe lining, as excavations are kept to a minimum with little disruption to customers. Lightweight and flexible, ServiFlex® can be easily inserted through short radius bends during relining operations.

Outside diameter	MOP	Product code	Pipe weight
mm	millibar	50 m coil	kg/50 m coil
20	75	FA0017	2.2



17.5 mm system

Specially manufactured by Radius Systems, the 17.5 mm system has been designed to offer a smart and easy solution for relining ¾" metallic service pipes with long radius bends. Our House Entry and Road Crossing Kits are ideal for relining service pipes under gardens, footpaths and roads, as they minimise the requirement for service relays and are supplied with all the appropriate electrofusion fittings and service head adaptors for inside the property. Flexible and easy to install, our 17.5 mm relining kits reduce excavation requirements and the need for meter relocation.

Nominal diameter	Description	SDR	MOP	Product code	Pipe weight
mm			millibar	8 m pipe kit*	kg/m
17.5	House entry kit	9.7	75	GZ0037	0.1
17.5	Road crossing kit	9.7	75	GZ0029	0.1

* Pipe coil overall length: 8.4 m

- **House entry kit:** 8.4 m of 17.5 mm pipe coil with wire rope, one 17.5 mm x ¾" service head adaptor for inside the property, one 17.5 x 32 mm reducer for the garden connection
- **Road crossing kit:** 8.4 m of 17.5 mm pipe coil with wire rope, two 32 x 17.5 mm electrofusion reducers



Installation requirements

Radius Systems' ServiFlex® and 17.5 mm system are installed using specific insertion techniques; specialist tooling is required to carry out the installation.

Training must be undertaken before carrying out the installation of ServiFlex® and 17.5 mm relining systems. Please contact Radius Systems for more information on t:+44 (0)1773 811112 or e: sales@radius-systems.com.





SC and ProFuse® pipes compatible fittings

Radius Systems' SC and ProFuse® pipes can be joined using a range of suitably approved electrofusion and butt-fusion fittings.

Radius Systems offer an extensive range of black PE100 electrofusion fittings, specifically designed for pipeline longevity and integrity, whilst providing maximum efficiency during the installation process. We also offer a range of spigot fittings, fabricated in our ISO 9001:2008 accredited butt-fusion facilities. For special fabrications, our site services division, RadiusPLUS, provides a bespoke offering to suit your pipeline requirements.

For our full range of fittings, please contact Radius Systems or visit our website www.radius-systems.com.

Fitting type	Electrofusion fitting	Spigot fitting
Couplers	✓	
Reducers	✓	✓
Tapping tees	✓	
End caps	✓	✓
Elbows	✓	✓
Formed bends		✓
Equal tees	✓	✓
Unequal tees	✓	✓
PurgeTee™ (purge and by-pass tee)	✓	
Branch saddles	✓	
Transition fittings	✓	
Flange adaptors		✓
Special fabrications		✓

Jointing overview for SC and ProFuse® pipes

SC pipe

- SC pipe is a conventional solid wall pipe with a coloured outer surface for easy identification of the pipe material and its application.
- When preparing SC pipe for electrofusion jointing, treat the pipe as a conventional PE pipe by using an approved rotary or hand scraping tool. **Do NOT remove** all of the coloured outer surface when preparing the pipe.

Treat SC pipe as a conventional PE pipe. **DO NOT** remove all of the coloured outer surface

Electrofusion jointing overview



Butt-fusion jointing overview



ProFuse®

- The ProFuse® pipe's unique external skin has been designed to protect the core pipe during handling, transport and installation. When jointing ProFuse® using electrofusion or butt-fusion welding techniques, the skin is removed locally with the PET tool to effect the joint. Once the skin is removed, the pipe is ready for jointing, without the need for further pipe preparation.
- For socket electrofusion fittings, the skin is removed locally to suit the fitting's insertion depth. For saddle electrofusion fittings, a rectangular area of the skin, slightly larger than the fitting's base, is removed. For butt-fusion jointing, a strip of skin, which is wide enough to enable the use of a de-beading tool to remove the weld bead, should be removed.

Removing the ProFuse® skin before jointing



For full jointing procedures and video overviews, please visit our website www.radius-systems.com.

Radius Systems

50 years of innovative plastic pipeline solutions

Since 1965 we have developed and manufactured innovative plastic pipeline solutions for the gas industry and these solutions are now commonly used in the water, wastewater, energy & power, district heating and telecoms sectors. We work closely with our customers to develop tailored solutions to meet the demanding needs of today's construction and utility industries, with safety and quality at the top of our priorities to deliver products for today and tomorrow's pipeline challenges.

- **Manufacturing facilities**
With 2 production sites in the UK, we have complete control over quality and the ability to meet our customers' expectations
- **Innovative approach**
We are leaders in our field with a history of research and new product development. Practicality, durability and adaptability are all high on our agenda to meet our clients' needs
- **Flexible product and service**
Our comprehensive range of services is designed to fit the changing demands of our clients' requirements in pipes, fittings and support services
- **Reliability and safety**
With 50 years experience in pipe design and manufacture, our clients know that they can count on us to meet not just their product and service needs, but also their delivery and safety requirements
- **Outstanding customer service**
We have a dedicated Customer Services team to answer queries from our customers in the UK and overseas. Our service is not just about the delivery of products - contact our team if you have a product or installation enquiry or a post-delivery query



For more information please visit our website:
www.radius-systems.com or contact us:

UK Head Office

Radius Systems Ltd
Radius House
Berristow Lane
South Normanton, Alferton
Derbyshire
DE55 2JJ, UK
t: +44 (0)1773 811112
e: sales@radius-systems.com

Northern Ireland and Republic of Ireland sales

Radius Systems
Halfpenny Valley Industrial Estate
Parkview Street
Portadown Road
Lurgan
Co Armagh
BT66 8TP, UK
t: +44 (0)2838 446060
e: info@radius-systems.com

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