

# Polyethylene pipes for water applications

For new installations and pipe rehabilitation

DECEMBER 2018



# Polyethylene water pipes by Radius Systems

## Engineered pipe solutions for modern water pipeline networks

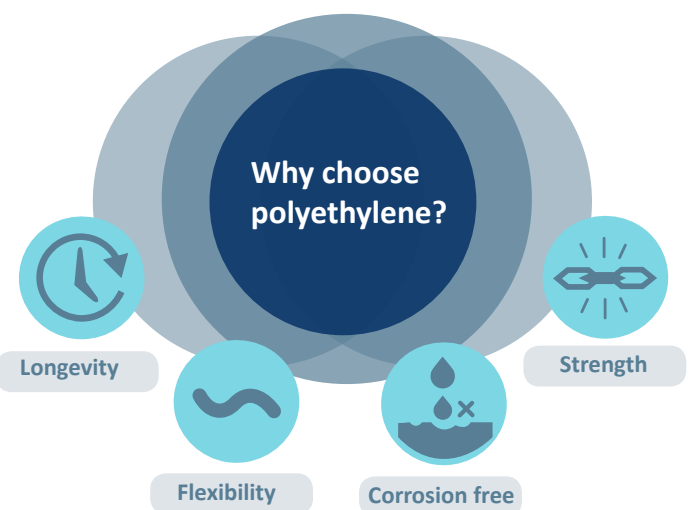
Radius Systems' polyethylene (PE) and multi-layer pipes are part of an innovative offering specifically engineered for the safe distribution of potable and non potable water for pipeline systems above and below ground. Since 1969, we've been developing a range of flexible and smart PE water pipe solutions that are designed for new installations and the rehabilitation or replacement of existing assets to last a lifetime.

Our pipe solutions are available in diameters 20 to 1200 mm in PE80 or PE100, or as a multi-layer construction, and are supplied in a wide range of SDRs and pressure ratings to suit your pipeline system's requirements. They are joined using industry standard butt-fusion and electrofusion welding methods or our innovative range of mechanical Redman™ fittings, and can be installed using open-cut or trenchless installation techniques.








Manufactured in our ISO 9001:2015 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 the construction of your water pipeline network.

**P**olyethylene is lightweight, does not corrode and is the ideal material for the construction of water pipelines. Polyethylene is inert and is resistant to bacterial growth; it can be successfully combined with other materials such as polypropylene or aluminium to form multi-layer pipes designed for specialist installation techniques or for the safe transportation of drinking water through contaminated land.

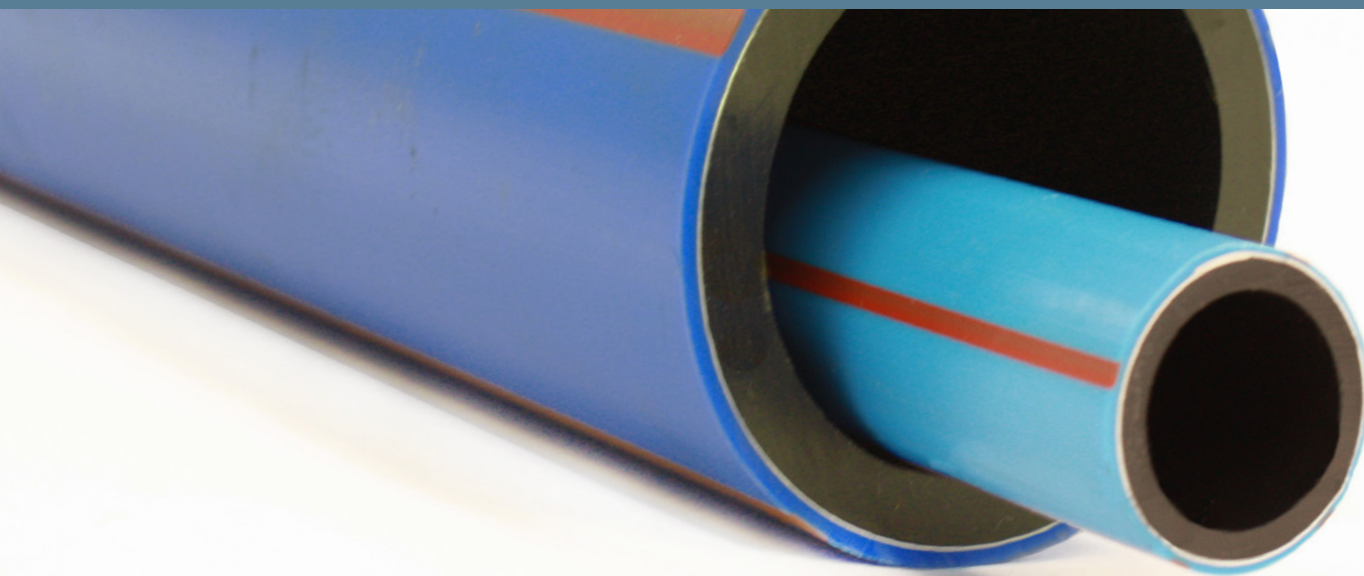
One of the many benefits of PE pipes is that they can be fused together in long lengths to form a fully welded one piece end load bearing pipeline. They can be installed in narrow trenches or inserted into an existing pipeline that needs renovating, bringing installation cost savings. The longevity and outstanding properties of PE materials, which include flexibility, durability, smooth internal bore which increases the hydraulic characteristics of pipes, have made it the material of choice for specifiers, water companies and contractors, for their drinking water and raw water pipeline projects.



As well as manufacturing solid wall PE pipes, Radius Systems have developed a state-of-the-art range of multi-layer pipes such as ProFuse®, a unique peelable pipe specially designed for maximum jointing integrity and ideally suited for no-dig installation techniques, and our Puriton® barrier pipe, which is part of an exclusive pipe system designed to protect drinking water through contaminated land.

Pipe type	Application and suitability	Page n°
<b>Puriton®</b> Barrier pipe 	<ul style="list-style-type: none"> <li>• Barrier pipe for use in contaminated land for the protection of drinking water</li> <li>• Below ground potable water use up to 16 bar</li> <li>• A multi-layer pipe manufactured from PE80 or PE100 with an aluminium barrier layer</li> <li>• Used for new pipelines, network rehabilitation and pipe replacement</li> <li>• Installed using open-cut or suitable no-dig installation techniques</li> </ul>	4 - 5
<b>ProFuse®</b> Peelable pipe 	<ul style="list-style-type: none"> <li>• A multi-layer pipe with a peelable outer skin for maximum jointing integrity and installation cost savings</li> <li>• Below ground potable water use up to 16 bar</li> <li>• Used for new pipelines, network rehabilitation and pipe replacement</li> <li>• Ideal for no-dig and open-cut installation techniques</li> </ul>	6 - 8
<b>CleanPipe®</b> Factory sealed coils 	<ul style="list-style-type: none"> <li>• Factory sealed coils to prevent pipe bore contamination</li> <li>• Manufactured from ProFuse® peelable pipe for maximum joint integrity</li> <li>• Below ground potable water use up to 10 bar</li> <li>• Ideal for no-dig and open-cut installation techniques</li> </ul>	10 - 11
<b>SC80 light blue</b> Service water pipe 	<ul style="list-style-type: none"> <li>• Service pipe offering manufactured from PE80 with a black inner and a light blue outer</li> <li>• Below ground potable water use up to 12.5 bar</li> <li>• Used for new pipelines, network rehabilitation and pipe replacement</li> <li>• Installed using open-cut or no-dig installation techniques</li> </ul>	12 - 13
<b>SC100 dark blue</b> Mains water pipe 	<ul style="list-style-type: none"> <li>• Mains pipe offering manufactured from PE100 with a black inner and a dark blue outer</li> <li>• Below ground potable water use up to 16 bar</li> <li>• Used for new pipelines, network rehabilitation and pipe replacement</li> <li>• Installed using open-cut or no-dig installation techniques</li> </ul>	14 - 15
<b>Universal black</b>  	<ul style="list-style-type: none"> <li>• A versatile pipe solution for hydroelectricity, geothermal, buried fire protection ring mains, drainage, sewerage systems and ducting for electricity cabling in renewable energy projects</li> <li>• Manufactured from high performance black PE100</li> <li>• Below ground non-potable water and above ground potable water uses up to 16 bar</li> <li>• Used for new pipelines, network rehabilitation and pipe replacement</li> <li>• Installed using open-cut or no-dig installation techniques</li> </ul>	16 - 19

Potable Raw water  
 water Non potable water  
 Drinking water Sewerage Hydroelectricity  
 Buried fire protection ring main



## Protecting your drinking water through contaminated land.

The barrier pipe system of choice for your new or replacement potable water supply, Puriton® is the cutting edge solution for the safe distribution of drinking water through contaminated land.

Designed to provide a high level of protection against soil contaminants commonly found in brownfield sites, Puriton® is a multi-layer composite structure pipe, combining the unique characteristics of polyethylene (PE) with the exceptional barrier properties of aluminium (Al).

Specifically designed to offer water companies and developers of new housing, warehouses and industrial buildings on brownfield sites an engineered pipe solution, Puriton® is lightweight, flexible, corrosion resistant and easy to install, without the need to post-wrap the finished joints. The pipe can be joined with our comprehensive range of approved electrofusion and mechanical fittings specifically developed for the Puriton® pipe, to give you the assurance of a safe and durable system that protects your drinking water.



## Features and Benefits

- Multi-layer pipe construction PE-Al-PE.
- Brown stripes denote a multi-layer construction.
- Full barrier pipe system.
- Combines the flexibility of polyethylene with the barrier properties of aluminium.
- Safeguards drinking water quality.
- Easy to handle, flexible and lightweight.
- End load resistant system.
- Installation cost savings - no requirement for thrust blocks.
- No requirement to post-wrap the joints.
- Suitable for most installation techniques.
- Suitable for new and replacement drinking water supply systems.



## Approvals

- Approved under regulation 31 of the Water Supply (Water Quality) Regulations 2000 for pipe diameters 90 to 180 mm.
- WRAS approved PE80 material for pipe diameters 25 to 63 mm.
- BS 8588:2017 for 25 to 180 mm pipe.
- WIS 4-32-19\* for 25 to 180 mm pipe.
- BS 8588 and WIS 4-32-19 Puriton® jointing methods:
  - Electrofusion fittings approved for use with Puriton® pipe.
  - Butt-fusion in accordance with WIS 4-32-08 with maximum aluminium removal according to Radius Systems' installation guidance.
  - Puriton® plastic mechanical fittings.
  - Puriton® gunmetal tapping tees.
  - Redman™ fittings.



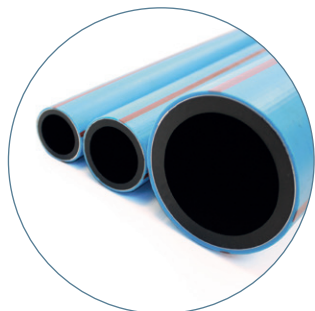
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\* WIS 4-32-19 is now superseded by BS 8588:2017

## Puriton® service pipe

A 'Type A' pipe, as defined in BS8588 and WIS 4-32-19\*.

Available in diameters 25 to 63 mm in coils or in straight lengths, our Puriton® service pipe is manufactured from a black PE80 core, an aluminium barrier layer and a light blue PE80 outer. Quick and easy to join without pipe surface preparation, the Puriton® service pipe uses our range of cutting edge mechanical fittings and Redman™ fittings for our 63 mm pipe.

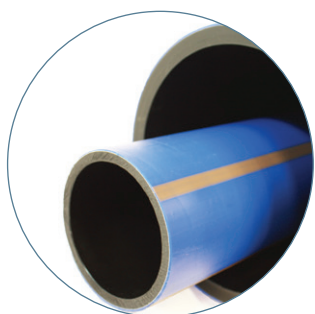


Pipe range								
Nominal diameter mm	SDR	Pressure rating bar	Product code straight pipe		Product code coiled pipe			Weight kg/m
			6 m	25 m	50 m	100 m		
25	11	12.5	-	-	XQ2528	-	0.3	
32	11	12.5	-	-	XQ2535	-	0.5	
63	11	12.5	XQ2568	XQ2570	XQ2571	XQ2572	1.5	

## Puriton® mains pipe

A 'Type A' pipe, as defined in BS8588 and WIS 4-32-19\*.

Available in diameters 90 to 180 mm in coils or in straight lengths, our Puriton® mains pipe is manufactured from a black PE100 core, an aluminium barrier layer and a dark blue PE100 outer. Our Puriton® mains pipes are joined using our state-of-the-art range of Redman™ fittings and approved electrofusion fittings, or the butt-fusion jointing technique.



Pipe range							
Nominal diameter mm	SDR	Pressure rating bar	Product code straight pipe		Product code coiled pipe		Weight kg/m
			6 m	12 m	50 m	100 m	
90	11	16	XQ0125	XQ0126	XQ0128	XQ0129	2.8
110	11	16	XQ0233	XQ0235	XQ0236	XQ0237	3.9
125	11	16	XQ0287	XQ0289	XQ0290	XQ0291	5.0
160	11	16	XQ0458	XQ0460	XQ0461	XQ0462	8.0
180	11	16	XQ0530	XQ0532	XQ0534	XQ0535	9.9

Pipe range							
Nominal diameter mm	SDR	Pressure rating bar	Product code straight pipe		Product code coiled pipe		Weight kg/m
			6 m	12 m	50 m	100 m	
90	17	10	XQ0143	XQ0145	XQ0146	XQ0147	2.1
110	17	10	XQ0251	XQ0253	XQ0254	XQ0255	2.9
125	17	10	XQ0305	XQ0307	XQ0308	XQ0309	3.6
160	17	10	XQ0476	XQ0478	XQ0479	XQ0480	5.7
180	17	10	XQ0550	XQ0552	XQ0554	XQ0555	7.1

Pipe weights shown are for lifting and handling purposes. They are based on the maximum diameter and pipe wall thicknesses as specified in BS 8588.

To ensure that the barrier properties of the Puriton® system are maintained, approved Puriton® fittings must be used with Puriton® pipe. The use of non Puriton® fittings may compromise the contamination resistance of the system. Please refer to our Puriton® brochure on how to join Puriton® pipe using our approved fittings. For more details, please contact our customer services team. e: [sales@radius-systems.com](mailto:sales@radius-systems.com) or visit our website [www.radius-systems.com](http://www.radius-systems.com).

\* WIS 4-32-19 is now superseded by BS 8588:2017



## Maximum jointing integrity for asset longevity and installation cost savings.

ProFuse® is a leading pipe innovation offering a high performance solution with optimum joint integrity, damage protection and reduced installation time and costs to asset owners.

Manufactured from high performance black PE100, ProFuse® has been designed with a unique peelable polypropylene skin that offers excellent abrasion resistance and protects the pipe during handling, transportation and installation. The skin, which is applied to the core pipe during the manufacturing process using melt on melt technology, is easily removed using our specially designed pipe exposure tool (PET). Once the skin is removed, the pipe surface is ready to be joined, without the need for further pipe preparation, using electrofusion and butt-fusion welding techniques, as well as our innovative range of Redman™ hydraulic compression fittings or other suitably approved mechanical fittings.

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

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



## Features and Benefits

- **Optimum joint integrity**  
The peelable skin protects the pipe surface from contamination. Once removed, the pipe surface is in pristine condition, ready for jointing. This provides a high joint quality and maintains the integrity of your asset.
- **Reduced installation time and cost**  
ProFuse® offers reduced pipe preparation time, as the peelable skin is quick and easy to remove when a connection is required - it provides substantial installation time and cost benefits compared to hand scraping, specifically on large diameter pipes.
- **Damage protection**  
Trenchless installation methods such as pipe bursting or directional drilling can often damage the surface of polyethylene pipes. The tough ProFuse® skin protects the core of the pipe offering outstanding abrasion resistance during installation.
- **Designer pipe**  
A variety of pipe sizes, SDRs, pressure ratings and lengths are available to meet your exact project requirements.



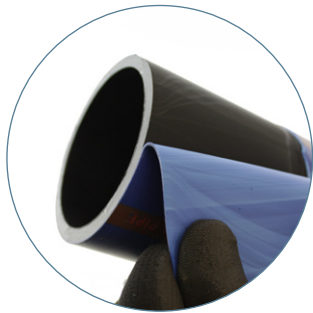
## Approvals

- Approved under regulation 31 of the Water Supply (Water Quality) Regulations 2000.
- BS EN 12201-2:2011+A1:2013.



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Manufactured in diameters 75 to 630 mm in straight or coiled format, ProFuse® is available in SDR11, SDR17 and SDR21 as standard. For special projects requiring bespoke pipe diameters, SDRs and lengths, please contact Radius Systems.



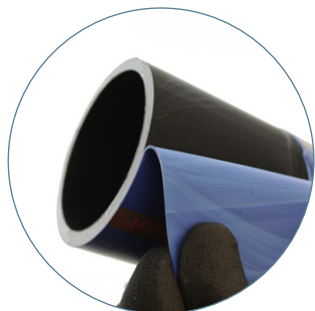
## Pipe range

Nominal diameter mm	SDR	Pressure rating bar	Product code straight pipe		Product code coiled pipe		Weight kg/m
			6 m	12 m	50 m	100 m	
90	11	16	VE0125	VE0127	VE0128	VE0129	2.7
110	11	16	VE0233	VE0235	VE0236	VE0237	3.8
125	11	16	VE0287	VE0289	VE0290	VE0291	4.9
160	11	16	VE0458	VE0460	VE0461	VE0462	7.7
180	11	16	VE0530	VE0532	VE0534	VE0535	9.7
200	11	16	VE0607	VE0609	-	-	11.8
225	11	16	VE0711	VE0713	-	-	14.9
250	11	16	VE0766	VE0769	-	-	18.1
280	11	16	VE0879	VE0881	-	-	22.6
315	11	16	VE0985	VE0988	-	-	28.4
355	11	16	VE1044	VE1047	-	-	35.9
400	11	16	VE1104	VE1107	-	-	45.3
450	11	16	VE1219	VE1221	-	-	57.1
500	11	16	VE1327	VE1329	-	-	70.2
560	11	16	VE1383	VE1385	-	-	87.5

## Pipe range

Nominal diameter mm	SDR	Pressure rating bar	Product code straight pipe		Product code coiled pipe		Weight kg/m
			6 m	12 m	50 m	100 m	
75	17	10	VE0108	VE0109	VE0110	VE0111	1.4
90	17	10	VE0143	VE0145	VE0146	VE0147	2.0
110	17	10	VE0251	VE0253	VE0254	VE0255	2.8
125	17	10	VE0305	VE0307	VE0308	VE0309	3.5
140	17	10	VE0359	VE0361	VE0362	VE0363	4.3
160	17	10	VE0476	VE0478	VE0479	VE0480	5.5
180	17	10	VE0550	VE0552	VE0554	VE0555	6.8
200	17	10	VE0621	VE0623	-	-	8.3
225	17	10	VE0725	VE0727	-	-	10.4
250	17	10	VE0784	VE0787	-	-	12.7
280	17	10	VE0895	VE0897	-	-	15.7
315	17	10	VE1003	VE1006	-	-	19.8
355	17	10	VE1062	VE1065	-	-	25.0
400	17	10	VE1122	VE1125	-	-	31.3
450	17	10	VE1235	VE1237	-	-	39.4
500	17	10	VE1343	VE1345	-	-	48.4
560	17	10	VE1399	VE1401	-	-	60.4
630	17	10	VE1455	VE1457	-	-	76.1

Pipe weights shown are for lifting and handling purposes. They are based on the maximum diameter and pipe wall thicknesses as specified in BS EN 12201.



Pipe weights shown are for lifting and handling purposes. They are based on the maximum diameter and pipe wall thicknesses as specified in BS EN 12201.

Pipe range					
Nominal diameter mm	SDR	Pressure rating bar	Product code straight pipe		Weight kg/m
			6 m	12 m	
225	21	8	VE0739	VE0741	8.7
250	21	8	VE0802	VE0805	10.5
280	21	8	VE0910	VE0912	13.1
315	21	8	VE1020	VE1023	16.3
355	21	8	VE1079	VE1082	20.5
400	21	8	VE1140	VE1143	26.0
450	21	8	VE1251	VE1253	32.6
500	21	8	VE1359	VE1361	39.9
560	21	8	VE1415	VE1417	49.6
630	21	8	VE1471	VE1473	62.3

## The 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 easy peeling from the pipe core.



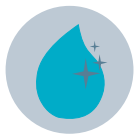
- **Single size tool** for all sizes of ProFuse pipe
- **Spring-loaded blade** to minimise damage to the tip of the blade
- **Direction marking** for clear and simple operation
- **Plastic body** lightweight and durable
- **Sculpted runners** for blade protection and precise one handed control



Product code: FT0648



*Our unique range of polyethylene pipes offers a corrosion resistant solution to safeguard drinking water quality.*



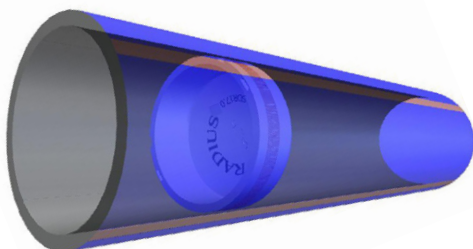
## Factory sealed coils for optimum cleanliness.

A leading-edge pipe innovation, CleanPipe™ is Radius Systems' special range of factory sealed coils designed to reduce the risk of contaminants entering the drinking water network.

CleanPipe™ is fitted with factory fused internal seals, which ensure that the pipe maintains its cleanliness from manufacture through to installation. The seals remove the need for chlorination before the pipe is installed, as they provide a tamper-proof, air and pressure-tight seal solution up to the pipe's point of connection.

CleanPipe™ is ideal for no-dig installation techniques, as the recessed electrofusion seals inserted at both ends of the pipe and fused in place during the manufacturing process, facilitate the use of towing heads for trenchless installation techniques.

CleanPipe™ is available in ProFuse® peelable pipe in diameters 90 to 180 mm for maximum damage protection to the core of the pipe.



## Features and Benefits

- Factory welded internal electrofusion seals**  
 Ensure the bore remains clean throughout storage, transportation, until the point of connection.
- Sealed until connection**  
 CleanPipe™ reduces the risk of contamination entering the water network.
- Pressure and air-tight**  
 CleanPipe™ eliminates the need for pre-chlorination before installation.
- Sealed at both ends**  
 The installer can pressure test the pipe directly after installation without the need for additional capping-off.
- 12 month shelf life**  
 The internal bore of the pipe remains sterile for 12 months.
- Ideal for trenchless techniques**  
 The external peelable skin offers maximum pipe protection, with the recessed seals giving the ability to use conventional towing heads.



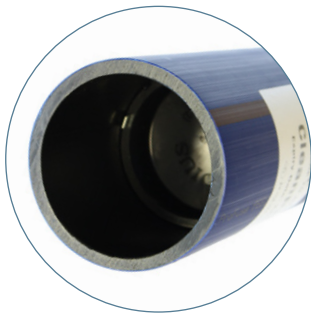
## Approvals

- Approved under regulation 31 of the Water Supply (Water Quality) Regulations 2000.
- BS EN 12201-2:2011+A1:2013.



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Manufactured using ProFuse® SDR17 pipe, CleanPipe™ is available in diameters 90 to 180 mm as standard, in 100 m coils for longer, joint free pipeline installation.



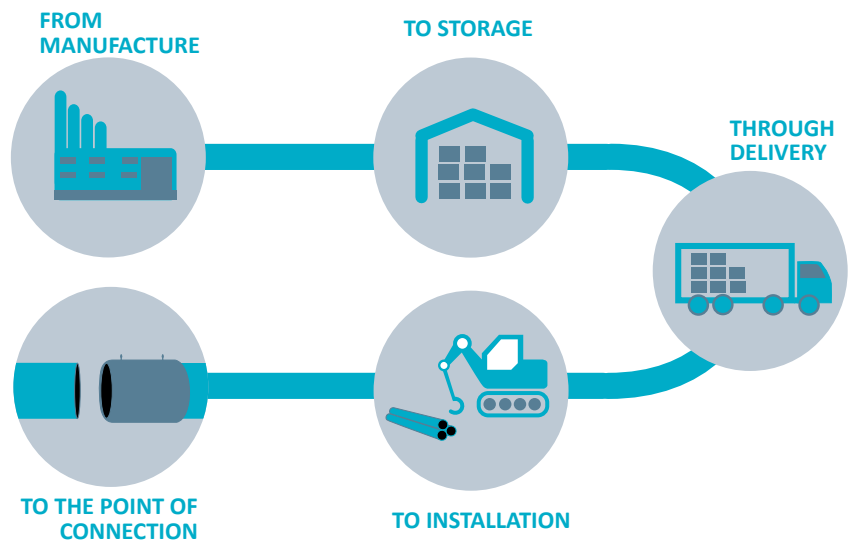
## Pipe range

Nominal diameter mm	SDR	Pressure rating bar	Product code coiled pipe 100 m	Weight kg/m
90	17	10	VF0147	2.0
125	17	10	VF0309	3.5
180	17	10	VF0555	6.8

Pipe weights shown are for lifting and handling purposes. They are based on the maximum diameter and pipe wall thicknesses as specified in BS EN 12201.

## Guaranteed cleanliness


- CleanPipe™ coils are sealed at both ends of the pipe.
- The internal electrofusion caps are fused during the pipe's manufacturing process in a factory environment.
- CleanPipe™ remains contamination free until the point of connection.
- CleanPipe™ is the ideal solution for use in trenchless pipe installations.



## CleanPipe™ shelf life

- CleanPipe's internal bore remains sterile for 12 months from the date of manufacture.
- The coils are individually coded with a month dependent coloured tape to indicate their shelf life. Operators should always check the expiry date shown on the CleanPipe™ label on the pipe coil end.
- If the expiry date passes, the CleanPipe™ seals can be removed and the pipe used as a standard ProFuse® pipe.
- Dated stock encourages good stock rotation.

Example of shelf life coloured tape

 Pioneers in PE Pipe Technologies	Factory Seal Expires in: <b>JULY</b> See Labels on Pipe Ends for Actual Expiry Date	CleanPipe
 Pioneers in PE Pipe Technologies	Factory Seal Expires in: <b>AUGUST</b> See Labels on Pipe Ends for Actual Expiry Date	CleanPipe
 Pioneers in PE Pipe Technologies	Factory Seal Expires in: <b>SEPTEMBER</b> See Labels on Pipe Ends for Actual Expiry Date	CleanPipe
 Pioneers in PE Pipe Technologies	Factory Seal Expires in: <b>OCTOBER</b> See Labels on Pipe Ends for Actual Expiry Date	CleanPipe
 Pioneers in PE Pipe Technologies	Factory Seal Expires in: <b>NOVEMBER</b> See Labels on Pipe Ends for Actual Expiry Date	CleanPipe



## The flexible service pipe solution for the distribution of drinking water.

Our SC80 (PE80) service pipes are solid wall polyethylene pipes developed as part of Radius Systems' continuous product improvement process.

Manufactured using a specialist co-extrusion technique, the pipes are produced as a single layer pipe wall construction with a black inner and an integral colour coded light blue outer, denoting the pipe's material and application.

Available in diameters 20 to 63 mm in SDR9 and SDR11, our SC80 pipes can be joined using standard electrofusion techniques as well as our unique and innovative range of Redman™ hydraulic compression fittings and suitable mechanical fittings.



## Features and Benefits

- Colour coded surface to easily identify the material and its application:
  - PE80 black inner
  - PE80 light blue outer
- Joined using electrofusion and approved mechanical jointing techniques.
- Simple pipe preparation using rotary or hand scraping tools for electrofusion jointing.
- Fully compatible with approved electrofusion, spigot, mechanical and Redman™ fittings.
- Standard and bespoke pipe sizes and SDRs available to meet your specific project requirements.
- Suitable for open-cut and no-dig installation techniques and for use in pipeline rehabilitation projects.
- All pipes supplied with end closures to protect the pipe from dust or rodent ingress from manufacturing to installation.

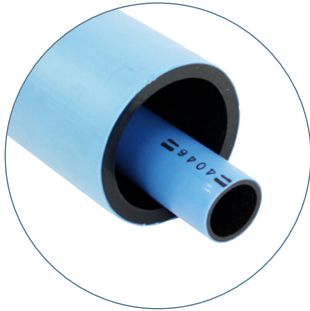


## Approvals

- WRAS approved PE80 materials.
- Approved under regulation 31 of the Water Supply (Water Quality) Regulations 2000.
- BS EN 12201-2:2011+A1:2013.



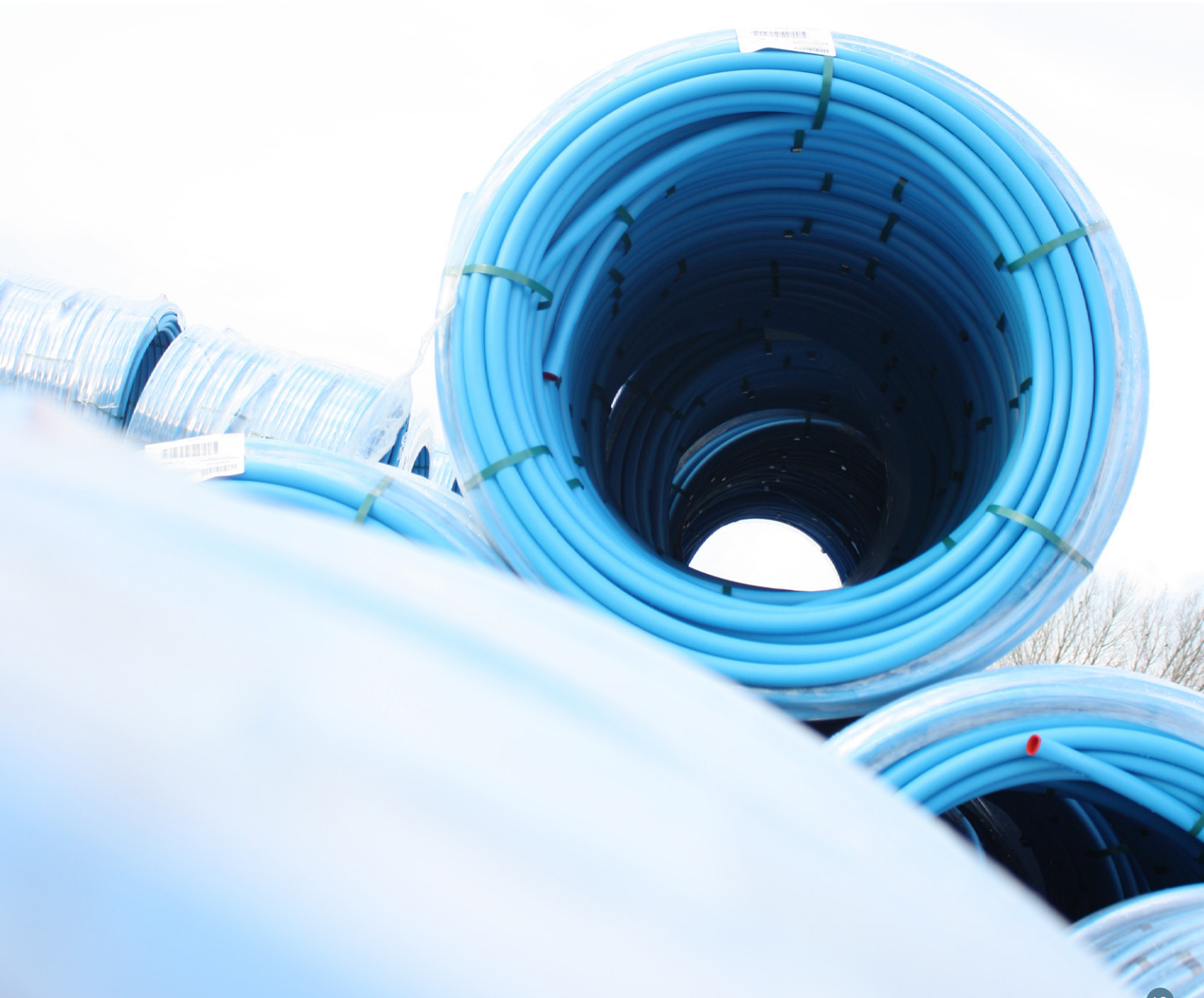
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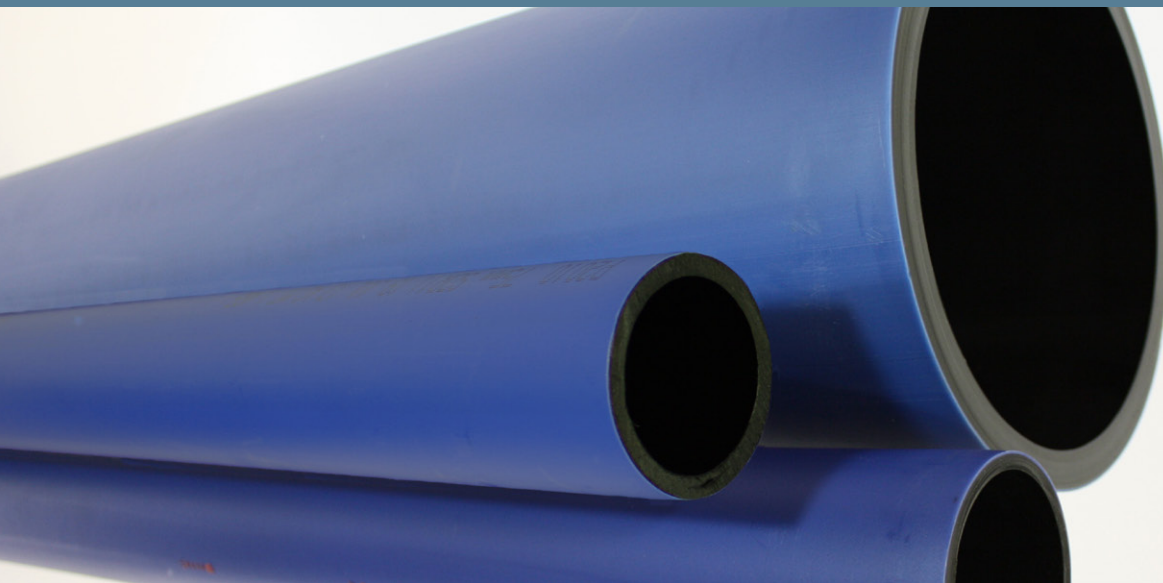


Pipe weights shown are for lifting and handling purposes. They are based on the maximum diameter and pipe wall thicknesses as specified in BS EN 12201.

## Pipe range

Nominal diameter mm	SDR	Pressure rating bar	Product code straight pipe 6 m	Product code coiled pipe				Weight kg/m
				25 m	50 m	100 m	150 m	
20	9	12.5	-	VA0020	VA0021	VA0022	VA0023	0.2
25	11	12.5	VA0026	VA0027	VA0028	VA0029	VA0030	0.2
32	11	12.5	VA0033	VA0034	VA0035	VA0036	VA0037	0.3
40	11	12.5	VA0039	-	-	VA0041	VA0042	0.5
50	11	12.5	VA0049	VA0054	VA0051	VA0052	VA0053	0.7
63	11	12.5	VA0068	VA0070	VA0071	VA0072	VA0073	1.1





## The high performance polyethylene mains pipe offering by Radius.

Our SC100 mains pipes are solid wall polyethylene pipes developed as part of Radius Systems' continuous product improvement process.

Manufactured from high performance PE100 materials using a specialist co-extrusion technique, the pipes are produced as a single layer pipe wall construction with a black inner and an integral colour coded dark blue outer, denoting the pipe's material and application.

Available in diameters 90 to 630mm for water pipeline pressure up to 16 bar, our SC100 pipes can be joined using standard electrofusion and butt-fusion welding techniques as well as our unique and innovative range of Redman™ hydraulic compression fittings and suitable mechanical fittings.



## Features and Benefits

- Manufactured from high performance PE100 material.
- Colour coded surface to easily identify the material and its application:
  - PE100 black inner
  - PE100 dark blue outer
- Joined using conventional electrofusion and butt-fusion techniques.
- Simple pipe preparation using rotary or hand scraping tools for electrofusion jointing.
- Fully compatible with approved electrofusion, spigot, mechanical and Redman™ fittings.
- Standard and bespoke pipe sizes and SDRs available to meet your specific project requirements.
- Suitable for open-cut and no-dig installation techniques and for use in pipeline rehabilitation projects.
- All pipes supplied with end closures to protect the pipe from dust or rodent ingress from manufacturing to installation.

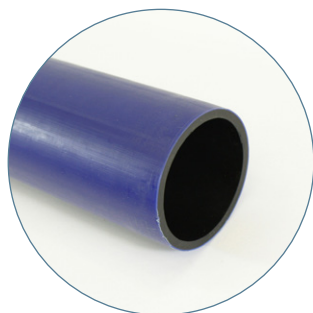


## Approvals

- Approved under regulation 31 of the Water Supply (Water Quality) Regulations 2000.
- BS EN 12201-2:2011+A1:2013.
- DVGW - DW-8143CR0347



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## Pipe range

Nominal diameter mm	SDR	Pressure rating bar	Product code straight pipe			Product code coiled pipe		Weight kg/m
			6 m	12 m	13.5 m	50 m	100 m	
90	11	16	VC0125	VC0127	-	VC0128	VC0129	2.3
110	11	16	VC0233	VC0235	-	VC0236	VC0237	3.3
125	11	16	VC0287	VC0289	-	VC0290	VC0291	4.3
160	11	16	VC0458	VC0460	-	VC0461	VC0462	7.1
180	11	16	VC0530	VC0532	-	VC0534	VC0535	9.0
200	11	16	VC0607	VC0609	VC0610	-	-	11.0
225	11	16	VC0711	VC0713	VC0714	-	-	14.0
250	11	16	VC0766	VC0769	VC0770	-	-	17.2
280	11	16	VC0879	VC0881	VC0882	-	-	21.5
315	11	16	VC0985	VC0988	VC0989	-	-	27.2
355	11	16	VC1044	VC1047	VC1048	-	-	34.5
400	11	16	VC1104	VC1107	VC1108	-	-	43.8
450	11	16	VC1219	VC1221	VC1222	-	-	55.5
500	11	16	VC1327	VC1329	VC1330	-	-	68.4
560	11	16	VC1383	VC1385	-	-	-	85.7

## Pipe range

Nominal diameter mm	SDR	Pressure rating bar	Product code straight pipe			Product code coiled pipe		Weight kg/m
			6 m	12 m	13.5 m	50 m	100 m	
90	17	10	VC0143	VC0145	-	VC0146	VC0147	1.6
110	17	10	VC0251	VC0253	-	VC0254	VC0255	2.3
125	17	10	VC0305	VC0307	-	VC0308	VC0309	3.0
160	17	10	VC0476	VC0478	-	VC0479	VC0480	4.8
180	17	10	VC0550	VC0552	VC0558	VC0554	VC0555	6.1
200	17	10	VC0621	VC0623	VC0624	-	-	7.5
225	17	10	VC0725	VC0727	VC0728	-	-	9.5
250	17	10	VC0784	VC0787	VC0788	-	-	11.6
280	17	10	VC0895	VC0897	VC0898	-	-	14.6
315	17	10	VC1003	VC1006	VC1007	-	-	18.5
355	17	10	VC1062	VC1065	VC1066	-	-	23.6
400	17	10	VC1122	VC1125	VC1126	-	-	29.7
450	17	10	VC1235	VC1237	VC1238	-	-	37.7
500	17	10	VC1343	VC1345	VC1346	-	-	46.5
560	17	10	VC1399	VC1401	VC1402	-	-	58.3
630	17	10	VC1455	VC1457	-	-	-	73.8

Pipe weights shown are for lifting and handling purposes. They are based on the maximum diameter and pipe wall thicknesses as specified in BS EN 12201.



## The versatile pipe solution for above and below ground water applications.

Radius Systems' universal black PE100 pipes are the most versatile and widest pipe offering for non potable and potable water pipeline projects. Manufactured from high performance polyethylene, with a solid wall construction, our universal black pipes are available in diameters 20 to 1200 mm in a range of SDRs and pressure ratings, and can be tailored to fit the most challenging pipeline projects.

The versatility of our black pipes means that they can be used above ground for potable water<sup>(\*)</sup>, and below ground in a diverse range of applications:

- ✓ **Hydroelectricity schemes**
- ✓ **Geothermal pipework**
- ✓ **Buried fire protection ring mains**
- ✓ **Sewerage systems**
- ✓ **Rainwater drainage**
- ✓ **Fish farming (cage frames)**
- ✓ **Marine outfall**
- ✓ **Irrigation systems**
- ✓ **Ducting for electricity cabling in renewable energy projects**

Easily joined using industry standard electrofusion and butt-fusion welding techniques, as well as our unique and innovative range of Redman™ hydraulic compression fittings and suitable mechanical fittings, our universal black PE pipes are the solution for all your water pipeline requirements.



## Features and Benefits

- A versatile black PE pipe offering suitable for a wide range of applications.
- Joined using conventional electrofusion and butt-fusion techniques.
- Simple pipe preparation using rotary or hand scraping tools for electrofusion jointing.
- Fully compatible with approved electrofusion, spigot, mechanical and Redman™ fittings.
- Standard and bespoke pipe sizes and SDRs available to meet your specific project requirements.
- Suitable for open-cut and no-dig installation techniques and for use in pipeline rehabilitation projects.



## Approvals

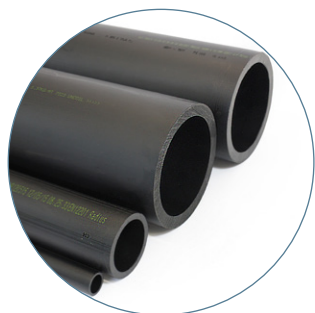
- Approved under regulation 31 of the Water Supply (Water Quality) Regulations 2000.
- BS EN 12201-2: 2011+A1:2013.



KM 83015

<sup>(\*)</sup> Approval should be sought from the water undertaker before installing PE black pipe above ground for potable water use.



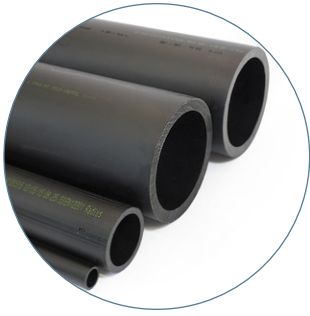


## Pipe range

Nominal diameter mm	SDR	Pressure rating bar	Product code straight pipe			Product code coiled pipe				Weight kg/m
			6 m	12 m	13.5 m	25 m	50 m	100 m	150 m	
20	9	16	-	-	-	VC2520	VC2521	VC2522	VC2523	0.2
25	11	16	-	-	-	VC2527	VC2528	VC2529	VC2530	0.2
32	11	16	-	-	-	VC2534	VC2535	VC2536	VC2537	0.3
50	11	16	-	-	-	VC2554	VC2551	VC2552	VC2553	0.7
63	11	16	VC2568	-	-	VC2570	VC2571	VC2572	VC2573	1.1
90	11	16	VC2625	VC2627	-	-	VC2628	VC2629	-	2.3
110	11	16	VC2733	VC2735	-	-	VC2736	VC2737	-	3.3
125	11	16	VC2787	VC2789	-	-	VC2790	VC2791	-	4.3
140	11	16	-	VC2843	-	-	-	-	-	5.4
160	11	16	VC2958	VC2960	-	-	VC2961	VC2962	-	7.1
180	11	16	VC3030	VC3032	-	-	VC3034	VC3035	-	9.0
200	11	16	VC3107	VC3109	-	-	-	-	-	11.0
225	11	16	VC3211	VC3213	VC3216	-	-	-	-	14.0
250	11	16	VC3266	VC3269	VC3270	-	-	-	-	17.1
280	11	16	-	VC3381	-	-	-	-	-	21.5
315	11	16	VC3485	VC3488	VC3489	-	-	-	-	27.2
355	11	16	VC3544	VC3547	VC3548	-	-	-	-	34.5
400	11	16	-	VC3607	-	-	-	-	-	43.8
450	11	16	VC3719	VC3721	VC3722	-	-	-	-	55.5
500	11	16	-	VC3829	VC3830	-	-	-	-	68.4
560	11	16	-	VC3885	VC3886	-	-	-	-	85.7

Pipe weights shown are for lifting and handling purposes. They are based on the maximum diameter and pipe wall thicknesses as specified in BS EN 12201.

# Universal black PE100 pipe range

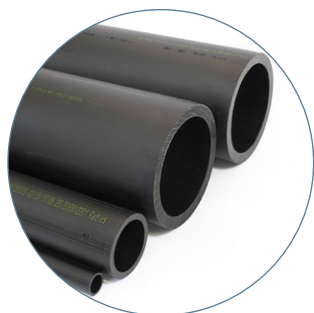


## Pipe range

Nominal diameter mm	SDR	Pressure rating bar	Product code straight pipe			Product code coiled pipe		Weight kg/m
			6 m	12 m	13.5 m	50 m	100 m	
90	17	10	VC2643	VC2645	-	VC2646	VC2647	1.6
110	17	10	VC2751	VC2753	-	VC2754	VC2755	2.3
125	17	10	VC2805	VC2807	-	VC2808	VC2809	3.0
160	17	10	VC2976	VC2978	-	VC2979	VC2980	4.8
180	17	10	VC3050	VC3052	-	VC3054	VC3055	6.1
200	17	10	VC3121	VC3123	VC3126	-	-	7.5
225	17	10	VC3225	VC3227	VC3228	-	-	9.5
250	17	10	VC3284	VC3287	VC3288	-	-	11.6
280	17	10	VC3395	VC3397	VC3398	-	-	14.6
315	17	10	VC3503	VC3506	VC3507	-	-	18.5
355	17	10	VC3562	VC3565	VC3566	-	-	23.6
400	17	10	VC3622	VC3625	VC3626	-	-	29.7
450	17	10	VC3735	VC3737	VC3738	-	-	37.7
500	17	10	VC3843	VC3845	VC3846	-	-	46.5
560	17	10	VC3899	VC3901	VC3902	-	-	58.3
630	17	10	VC3955	VC3957	-	-	-	73.8
710	17	10	VC4011	VC4013	-	-	-	94.0
800	17	10	-	VC4069	-	-	-	119.1

## Pipe range

Nominal diameter mm	SDR	Pressure rating bar	Product code straight pipe	Weight kg/m
			13.5 m	
315	21	8	VC3524	15.0
400	21	8	VC3644	24.4
450	21	8	VC3754	30.8
500	21	8	VC3862	38.0
560	21	8	VC3918	47.5
630	21	8	VC3974	60.0
710	21	8	VC4030	72.8
800	21	8	VC4086	97.1
900	21	8	VC4142	122.8
1000	21	8	VC4190	151.6



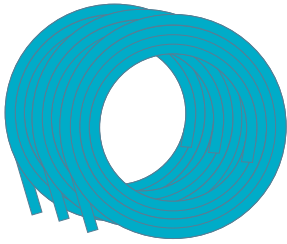
Pipe range				
Nominal diameter mm	SDR	Pressure rating bar	Product code straight pipe 13.5 m	Weight kg/m
315	26	6	VC3532	12.4
355	26	6	VC3592	15.6
400	26	6	VC3653	19.8
450	26	6	VC3762	25.0
500	26	6	VC3870	30.8
560	26	6	VC3926	38.6
630	26	6	VC3982	48.9
710	26	6	VC4038	62.3
800	26	6	VC4094	78.9
900	26	6	VC4150	100.5
1000	26	6	VC4198	128.0
1100	26	6	VC4254	148.0
1200	26	6	VC4310	177.1

Pipe weights shown are for lifting and handling purposes. They are based on the maximum diameter and pipe wall thicknesses as specified in BS EN 12201.



# Coil pack quantity and dimensions

## Puriton®, SC80 and universal black PE100 coil pack quantity



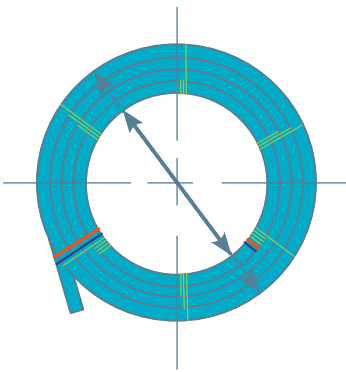
### Puriton® pipe

Pipe nominal diameter mm	Pack quantity 25 m	Total pack length m	Pack quantity 50 m	Total pack length m	Pack quantity 100 m	Total pack length m
25	-	-	6	300	-	-
32	-	-	6	300	-	-
63	6	150	6	300	4	400

### SC80 and universal black PE100

Pipe nominal diameter mm	Pack quantity 25 m	Total pack length m	Pack quantity 50 m	Total pack length m	Pack quantity 100 m	Total pack length m	Pack quantity 150 m	Total pack length m
20	9	225	9	450	9	900	7	1050
25	10	250	8	400	7	700	5	750
32	8	200	8	400	4	400	4	600
40	-	-	-	-	6	600	5	750
50	9	225	5	250	5	500	4	600
63	9	225	6	300	4	400	3	450

## Puriton® coil dimensions



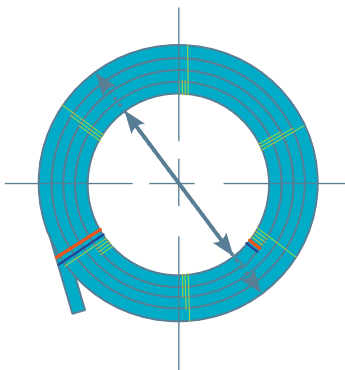
### Coil dimensions

Pipe nominal diameter mm	SDR	Coil length m	Coil outer diameter mm	Coil inner diameter mm	Coil width mm	Coil banding sequence	Coil weight kg
25	11	50	965	785	175	-	14.5
32	11	50	1015	785	175	-	22.0
63	11	25	1510	1275	230	●	36.3
63	11	50	1815	1275	208	●	72.5
63	11	100	1815	1275	310	●	145.0
90	11	50	2220	1800	320	●	137.9
90	11	100	2440	1800	410	●	275.7
90	17	50	2930	2500	320	●	102.7
90	17	100	3000	2500	410	●	205.4
110	11	50	3000	2500	320	●	197.1
110	11	100	3200	2500	410	●	394.1
110	17	50	3000	2500	400	●	145.7
110	17	100	3200	2500	500	●	291.4
125	11	50	3000	2500	450	●	251.0
125	11	100	3200	2500	600	●	502.0
125	17	50	3000	2500	450	●	181.6
125	17	100	3200	2500	600	●	363.1
160	11	50	3590	3000	530	●	397.6
160	11	100	3850	3000	700	●	795.2
160	17	50	3590	3000	530	●	284.4
160	17	100	3850	3000	700	●	568.8
180	11	50	3800	3000	630	●	496.3
180	11	100	4000	3000	800	●	992.6
180	17	50	3800	3000	630	●	353.0
180	17	100	4000	3000	800	●	706.0

The coil banding sequence can be found within this brochure.

As part of Radius Systems' commitment to ongoing product development, pipe coil dimensions may be subject to change.

## SC80, SC100 universal black PE100 and ProFuse® coil dimensions

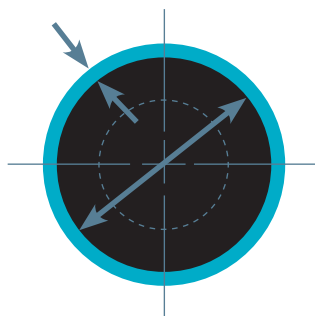


Coil dimensions									
Pipe nominal diameter	SDR	Coil length	Coil outer diameter	Coil inner diameter	Coil width	Coil banding sequence	Coil weight SC80 pipe	Coil weight SC100 PE100 pipe	Coil weight ProFuse® pipe
mm		m	mm	mm	mm		kg	kg	kg
20	9	25	710	600	100	-	3.5	3.5	-
20	9	50	780	600	100	-	7.0	7.0	-
20	9	100	885	600	120	-	14.0	14.0	-
20	9	150	885	600	180	-	21.0	21.0	-
25	11	25	740	600	150	-	4.5	4.5	-
25	11	50	780	600	150	-	9.0	9.0	-
25	11	100	910	600	175	-	18.0	18.0	-
25	11	150	910	600	225	-	27.0	27.0	-
32	11	25	875	700	145	-	7.3	7.5	-
32	11	50	990	700	145	-	14.5	15.0	-
32	11	100	990	700	275	-	29.0	30.0	-
32	11	150	1100	700	275	-	43.5	45.0	-
40	11	100	1800	1275	170	-	45.0	-	-
40	11	150	1780	1275	220	-	67.5	-	-
50	11	25	1600	1275	160	●	17.5	17.8	-
50	11	50	1800	1275	220	●	35.0	35.6	-
50	11	100	1880	1275	210	●	70.0	71.2	-
50	11	150	1880	1275	270	●	105.0	106.8	-
63	11	25	1740	1275	130	●	27.5	28.0	-
63	11	50	1815	1275	195	●	55.0	56.0	-
63	11	100	1810	1275	300	●	110.0	112.0	-
63	11	150	2035	1275	345	●	165.0	168.0	-
75	17	50	2220	1800	255	●	-	-	70.0
75	17	100	2220	1800	350	●	-	-	140.0
90	11	50	2220	1800	320	●	-	113.0	135.0
90	11	100	2440	1800	410	●	-	226.0	270.0
90	17	50	2930	2500	320	●	-	77.5	100.0
90	17	100	3000	2500	410	●	-	145.0	200.0
110	11	50	3000	2500	400	●	-	166.5	190.0
110	11	100	3200	2500	500	●	-	333.0	380.0
110	17	50	3000	2500	400	●	-	115.5	140.0
110	17	100	3200	2500	550	●	-	131.0	280.0
125	11	50	3000	2500	450	●	-	216.5	245.0
125	11	100	3200	2500	600	●	-	433.0	490.0
125	17	50	3000	2500	450	●	-	147.0	175.0
125	17	100	3200	2500	600	●	-	294.0	350.0
140	17	50	3530	3000	420	●	-	-	215.0
140	17	100	3700	3000	690	●	-	-	430.0
160	11	50	3590	3000	530	●	-	354.0	385.0
160	11	100	3850	3000	700	●	-	708.0	870.0
160	17	50	3590	3000	530	●	-	241.0	275.0
160	17	100	3850	3000	700	●	-	482.0	550.0
180	11	50	3800	3000	630	●	-	447.0	485.0
180	11	100	4000	3000	800	●	-	894.0	970.0
180	17	50	3800	3000	630	●	-	304.0	340.0
180	17	100	4000	3000	800	●	-	608.0	780.0

The coil banding sequence can be found within this brochure.

As part of Radius Systems' commitment to ongoing product development, pipe coil dimensions may be subject to change.

## SC80, SC100 universal black PE100 and ProFuse®\* pipe dimensions



### Pipe dimensions

Nominal diameter mm	SDR	Outside diameter		Wall thickness		Internal diameter	
		Minimum mm	Maximum mm	Minimum mm	Maximum mm	Minimum mm	Maximum mm
20	9	20.0	20.3	2.3	2.7	14.6	15.7
25	11	25.0	25.3	2.3	2.7	19.6	20.7
32	11	32.0	32.3	3.0	3.4	25.2	26.3
40	11	40.0	40.4	3.7	4.2	31.6	33.0
50	11	50.0	50.4	4.6	5.2	39.6	41.2
63	11	63.0	63.4	5.8	6.5	50.0	51.8
75	11	75.0	75.5	6.8	7.6	59.8	61.9
90	11	90.0	90.6	8.2	9.2	71.6	74.2
110	11	110.0	110.7	10.0	11.1	87.8	90.7
125	11	125.0	125.8	11.4	12.7	99.6	103.0
140	11	140.0	140.9	12.7	14.1	111.8	115.5
160	11	160.0	161.0	14.6	16.2	127.6	131.8
180	11	180.0	181.1	16.4	18.2	143.6	148.3
200	11	200.0	201.2	18.2	20.2	159.6	164.8
225	11	225.0	226.4	20.5	22.7	179.6	185.4
250	11	250.0	251.5	22.7	25.1	199.8	206.1
280	11	280.0	281.7	25.4	28.1	223.8	230.9
315	11	315.0	316.9	28.6	31.6	251.8	259.7
355	11	355.0	357.2	32.2	35.6	283.8	292.8
400	11	400.0	402.4	36.3	40.1	319.8	329.8
450	11	450.0	452.7	40.9	45.1	359.8	370.9
500	11	500.0	503.0	45.4	50.1	399.8	412.2
560	11	560.0	563.4	50.8	56.0	448.0	461.8
75	17	75.0	75.5	4.5	5.1	64.8	66.5
90	17	90.0	90.6	5.4	6.1	77.8	79.8
110	17	110.0	110.7	6.6	7.4	95.2	97.5
125	17	125.0	125.8	7.4	8.3	108.4	111.0
140	17	140.0	140.9	8.3	9.3	121.4	124.3
160	17	160.0	161.0	9.5	10.6	138.8	142.0
180	17	180.0	181.1	10.7	11.9	156.2	159.7
200	17	200.0	201.2	11.9	13.2	173.6	177.4
225	17	225.0	226.4	13.4	14.9	195.2	199.6
250	17	250.0	251.5	14.8	16.4	217.2	221.9
280	17	280.0	281.7	16.6	18.4	243.2	248.5
315	17	315.0	316.9	18.7	20.7	273.6	279.5
355	17	355.0	357.2	21.1	23.4	308.2	315.0
400	17	400.0	402.4	23.7	26.2	347.6	355.0
450	17	450.0	452.7	26.7	29.5	391.0	399.3
500	17	500.0	503.0	29.7	32.8	434.4	443.6
560	17	560.0	563.4	33.2	36.7	486.6	497.0
630	17	630.0	633.8	37.4	41.3	547.4	559.0
710	17	710.0	716.4	42.1	46.5	617.0	632.2
800	17	800.0	807.2	47.4	52.3	695.4	712.4

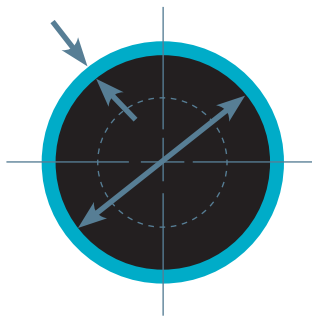
Pipe dimensions based on the PE water pipe specification BS EN 12201:2 are provided for guidance only.

**\* Note**

For ProFuse® pipe, the dimensions within the table only relate to the PE100 core pipe and do not include the outer polypropylene skin. The thickness of the skin ranges between 0.6 and 1.2 mm across the range of pipe diameters.

<sup>1</sup> Dimensions based on in-house specification.

(cont'd...)



Pipe dimensions based on the PE water pipe specification BS EN 12201:2 are provided for guidance only.

**\* Note**

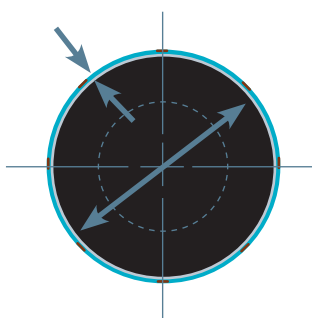
For ProFuse® pipe, the dimensions within the table only relate to the PE100 core pipe and do not include the outer polypropylene skin. The thickness of the skin ranges between 0.6 and 1.2 mm across the range of pipe diameters.

<sup>1</sup> Dimensions based on in-house specification.

## Pipe dimensions

Nominal diameter mm	SDR	Outside diameter		Wall thickness		Internal diameter	
		Minimum mm	Maximum mm	Minimum mm	Maximum mm	Minimum mm	Maximum mm
225	21	225.0	226.4	10.8	12.0	201.0	204.8
250	21	250.0	251.5	11.9	13.2	223.6	227.7
280	21	280.0	281.7	13.4	14.9	250.2	254.9
315	21	315.0	316.9	15.0	16.6	281.8	286.9
355	21	355.0	357.2	16.9	18.7	317.6	323.4
400	21	400.0	402.4	19.1	21.2	357.6	364.2
450	21	450.0	452.7	21.5	23.8	402.4	409.7
500	21	500.0	503.0	23.9	26.4	447.2	455.2
560	21	560.0	563.4	26.7	29.5	501.0	510.0
630	21	630.0	633.8	30.0	33.1	563.8	573.8
710	21	710.0	716.4	33.9	37.4	635.2	648.6
800	21	800.0	807.2	38.1	42.1	715.8	731.0
900	21	900.0	908.1	42.9	47.3	805.4	822.3
1000	21	1000.0	1009.0	47.7	52.6	894.8	913.6
315	26	315.0	316.9	12.1	13.5	288.0	292.7
355	26	355.0	357.2	13.6	15.1	324.8	330.0
400	26	400.0	402.4	15.3	17.0	366.0	371.8
450	26	450.0	452.7	17.2	19.1	411.8	418.3
500	26	500.0	503.0	19.1	21.2	457.6	464.8
630	26	630.0	633.8	24.1	26.7	576.6	585.6
710	26	710.0	716.4	27.2	30.1	649.8	662.0
800	26	800.0	807.2	30.6	33.8	732.4	746.0
900	26	900.0	908.1	34.4	38.3	823.4	839.3
1000	26	1000.0	1009.0	38.2	42.2	915.6	932.6
1100 <sup>1</sup>	26	1100.0	1109.9	42.3	46.6	1006.6	1025.3
1200	26	1200.0	1210.8	45.9	50.6	1098.8	1119.0

## Puriton® pipe dimensions



The Puriton® core pipe dimensions are based on the PE water pipe specification BS EN 12201:2 and are provided for guidance only. They do not include the outer aluminium and PE layers.

## Pipe dimensions

Nominal diameter mm	SDR	Core pipe outside diameter		Core pipe wall thickness		Overall external diameter		Internal diameter	
		Min. mm	Max. mm	Min. mm	Max. mm	Min. mm	Max. mm	Min. mm	Max. mm
25	11	25.0	25.3	2.3	2.7	27.0	27.6	19.6	20.7
32	11	32.0	32.3	3.0	3.4	34.0	34.6	25.2	26.3
63	11	63.0	63.4	5.8	6.5	64.8	65.8	50.0	51.8
90	11	90.0	90.6	8.2	9.2	92.2	93.8	71.6	74.2
110	11	110.0	110.7	10.0	11.1	112.2	113.9	87.8	90.7
125	11	125.0	125.8	11.4	12.4	127.2	129.0	99.6	103.0
160	11	160.0	161.0	14.6	16.2	162.2	164.2	127.6	131.8
180	11	180.0	181.1	16.4	18.2	182.2	184.3	143.6	148.3
90	17	90.0	90.6	5.4	6.1	92.2	93.8	77.8	79.8
110	17	110.0	110.7	6.6	7.4	112.2	113.9	95.2	97.5
125	17	125.0	125.8	7.4	8.3	127.2	129.0	108.4	111.0
160	17	160.0	161.0	9.5	10.6	162.2	164.2	138.8	142.0
180	17	180.0	181.1	10.7	11.9	182.2	184.3	156.2	159.7

# Coil banding for safe handling & dispensing

When pipes are packaged into coils, Radius Systems use restraining straps around the pipe to retain the pipe's coil shape. Coils in diameters 75 to 180 mm contain a considerable amount of stored energy, which could potentially cause injury to personnel, if the coils are not handled and dispensed correctly. To allow the safe handling and dispensing of coils, Radius Systems use specialist straps, fitted at different positions around the turns and layers of pipe that form the coils. When the coil is ready to be dispensed, the straps are removed in sequence, ensuring that the energy contained in the coil is released in a controlled and safe manner. (See diagrams below and opposite).

To ensure a safe working environment during the installation of pipe coils, these should only be dispensed from specially designed coil dispensers, supplied by a reputable manufacturer.

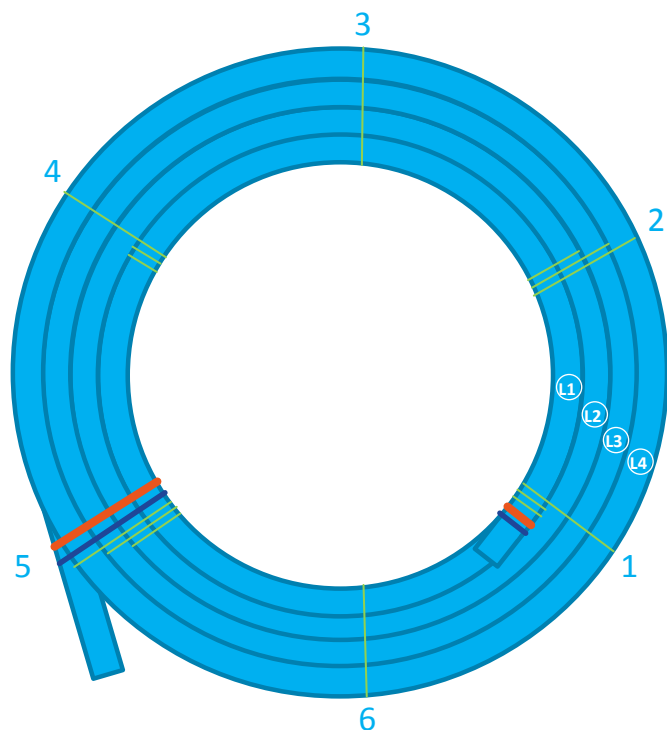
Radius Systems recommend that personnel involved in the handling and dispensing of pipe coils are adequately trained for this operation. Courses in the safe and correct handling and dispensing of pipe coils are available from industry bodies.



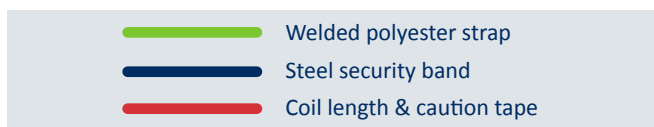
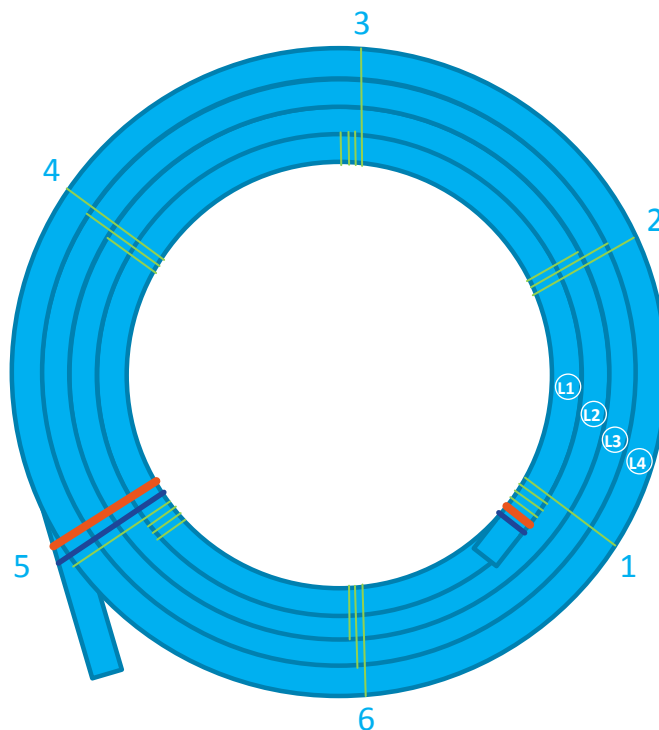
Minimum recommended personal protection equipment (PPE)

- Always wear the minimum PPE or the recommended PPE as identified by the risk assessment.
- Restrict the work area to essential personnel only.
- Always dispense coils from a coil dispenser.
- Take care when cutting the straps to release the pipe.
- Always ensure the tail ends of the coil are released in a restrained and controlled manner.
- Only use a suitable round-nosed cutting tool to cut the strap to prevent the pipe from being damaged.
- Never cut all of the restraining straps at once. Only cut the number of straps to allow the required pipe length to be dispensed.
- Ensure the tail ends of a part used coil are secured before transporting it from the site.
- Do not transport coiled pipes containing water.

● For coils with inner diameter  $\leq 1.8$  m



● For coils with inner diameter  $\geq 2.5$  m





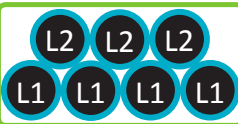
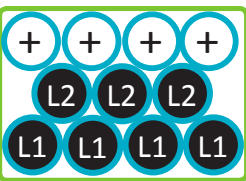
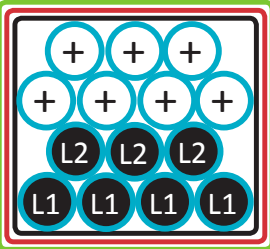


Illustrations showing the banding positions on a 4 layer coil



## Banding position for coils 63 to 180 mm

Coils consist of a minimum of 2 layers and the number of layers and turns in a coil will depend on its length and may exceed the ones shown below. If the coil consists of only 2 layers, the banding sequence for the 'final layer' applies to the coil.

	• Coil internal diameter $\geq 2.5$ m	• Coil internal diameter $\leq 1.8$ m
<b>• Layer 1 (L1)</b> 	Steel security band* and length & caution tape are applied around turns T1 & T2 of layer 1 (L1) Position 1	Steel security band* and length & caution tape are applied around turns T1 & T2 of layer 1 (L1) Position 1
	Polyester strap around turns T1 & T2 of L1 Positions 1, 3 & 5	Not applicable
	Polyester strap around turns T1, T2 & T3 of L1 Positions 1, 3 & 5	Polyester strap Around turns T1, T2 & T3 of L1 Positions 1 & 4
	Additional turns on L1 follow the same banding sequence as above	Additional turns on L1 follow the same banding sequence as above
<b>• Additional layers</b> 	Once layer 2 (L2) is completed Polyester straps are applied around L1 and L2 Positions 2, 4 & 6	Once layer 2 (L2) is completed Polyester straps are applied around L1 and L2 Positions 2 & 5
	Additional layers follow the same banding sequence as above	Additional layers follow the same banding sequence as above
<b>• Final layer</b> 	Steel security band* and coil length & caution tape are applied to the coil end. Polyester straps are applied at all positions.	Steel security band* and coil length & caution tape are applied to the coil end. Polyester straps are applied at all positions.

\* Steel security bands are applied to coils 75 mm and above.

## Solid wall PE pipe surface preparation for electrofusion joining (SC80, SC100 and universal black PE100 pipes)



Our SC80, SC100 pipes are a conventional range of single layer pipe manufactured from co-extruded polyethylene materials. The outer surface is coloured for easy identification of the pipes material and its application.



Minimum recommended personal protective equipment (PPE)



When preparing SC pipe for electrofusion joining, 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. A suitably approved pen should be used for marking the pipe.



Our universal black PE100 pipes are conventional solid wall pipes and should be prepared using approved tooling and industry best practice. A suitably approved pen should be used for marking the pipe.

### Using socket fittings



1 Ensure the pipes to be joined are free from damage and are cut square. Using an approved marker pen, mark the fitting's insertion depth + 25 mm.



2 Mark the pipe surface area to prepare.



3 Prepare the pipe surface using an industry approved pipe surface preparation tool.



4 Treat the pipe as a conventional PE pipe. **DO NOT** remove all of the blue outer surface as this may lead to a poor quality joint.



5 Immediately place the fitting on the pipe up to the insertion stop. Repeat steps 1 to 3 for the second pipe to be joined. Follow industry best practice when making the joint.

### Using saddle fittings



1 Ensure the pipe surface area where the joint is to be made is free from damage. Using an approved marker pen, mark the fitting's outline on the pipe + 25 mm.



2 Mark the pipe surface area to prepare.



3 Prepare the pipe surface using an industry approved hand scraping tool.



4 Treat the pipe as a conventional PE pipe. **DO NOT** remove all of the blue outer surface as this may lead to a poor quality joint.



5 Immediately secure the saddle fitting in place. Follow industry best practice when making the joint.

## Solid wall PE pipe butt-fusion joining overview (SC80, SC100 and universal black PE100 pipes)



Only use approved fully automatic butt-fusion equipment and follow industry best practice when joining SC80, SC100 and universal black PE100 pipes.



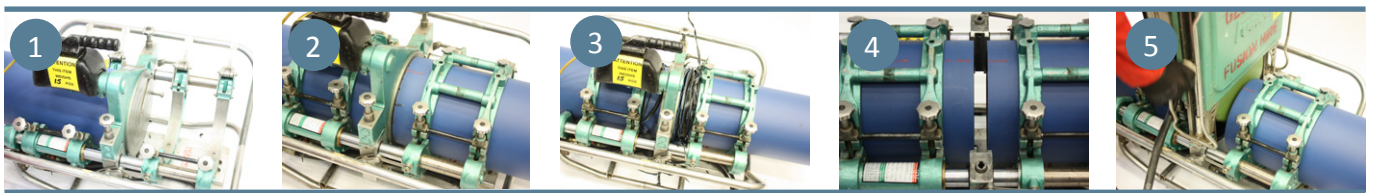
Minimum recommended personal protective equipment (PPE)



Ensure that the print-line on the two pipes are in line to minimise pipe misalignment.



To minimise contamination of the joint, the butt-fusion operation should be carried out in a suitable welding shelter.



## ProFuse® peelable pipe preparation

### Using electrofusion or mechanical fittings



The unique ProFuse® external skin has been specifically engineered to protect the core pipe during handling, transport and installation. When making a mechanical, electrofusion or butt-fusion joint, the skin must be removed locally with the PET™ as the joint must be made to the core pipe. Once the skin is removed, the pipe is ready for jointing, without the need for further pipe preparation. If the pipe surface becomes contaminated when using electrofusion jointing, prepare the pipe like a conventional PE pipe using industry approved tooling.



Minimum recommended personal protective equipment (PPE)



The ProFuse® PET™ is the only tool recommended for the safe removal of the ProFuse® skin.



For socket electrofusion or mechanical fittings, the skin is removed locally to suit the fitting's insertion depth + 25 mm.



For saddle electrofusion fittings, a rectangular area of the skin around the fitting's base + 25 mm is removed.



ProFuse PET™

### Using electrofusion socket fittings

<p>1</p> <p>Ensure the pipes to be joined are free from damage and are cut square.</p>	<p>2</p> <p>Using an approved marker pen, mark the fitting's insertion depth + 25 mm.</p>	<p>3</p> <p>Using the ProFuse® pipe exposure tool (PET™), score the external skin around the circumference of the pipe.</p>	<p>4</p> <p>Rotate the PET™ 90° and score the external skin longitudinally towards the pipe end.</p>	<p>5</p> <p>Lift the edge of the skin as shown above and peel the skin away from the core pipe.</p>
<p>6</p> <p>Remove the skin carefully in one continuous process.</p>	<p>7</p> <p>Skin removed. If the pipe surface becomes contaminated after skin removal, re-prepare the pipe using industry approved pipe surface preparation tools.</p>	<p>8</p> <p>Immediately place the fitting on the pipe end up to the insertion stop.</p>	<p>9</p> <p>Repeat steps 1 to 6 for the second pipe to be joined.</p>	<p>10</p> <p>Follow industry best practice when making the electrofusion joint.</p>

## Using saddle fittings



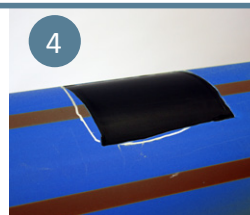
1 Using an approved marker pen, mark the fitting's outline on the pipe + 25 mm.



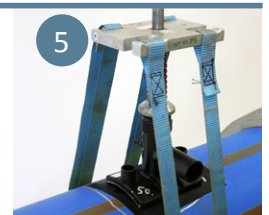
2 Using the ProFuse pipe exposure tool (PET™), score the external skin around the marked area.



3 Lift the edge of the skin as shown above and peel the skin away from the pipe's surface.



4 Skin removed.

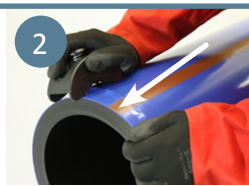


5 Immediately secure the saddle fitting in place. Follow industry best practice when making the joint.

## ProFuse® peelable pipe preparation for butt-fusion jointing



1 Mark a minimum of 25 mm around the pipe's circumference and score the skin as shown above using the ProFuse® PET.



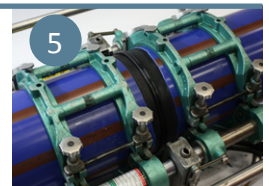
2 Rotate the PET™ 90° and score the external skin longitudinally towards the pipe end.



3 Lift the edge of the skin as shown above and peel the skin away from the core pipe.



4 Skin removed. Repeat steps 1 to 3 for the second pipe to be joined.



5 Follow industry best practice when making the butt-fusion joint.

## Using CleanPipe™ in trenchless installations



1 Attach the towing head directly to the leading end of the pipe coil. This operation is undertaken without removing the CleanPipe™ seals, located internally, a short distance from the pipe ends.



2 The pipe remains sealed throughout the whole installation procedure. Contamination from the installation process remains outside the factory seal.



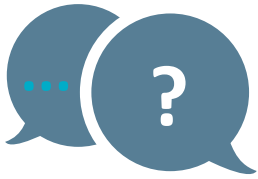
3 After the installation is complete, CleanPipe™ can be pressure tested without the need to fit end caps. De-pressurise the pipeline before cutting the pipe ends.



4 Cut the pipe ends beyond the arrows which identify the cutting position on the label. This removes the seals, ready for the pipe to be joined using Radius Systems' fittings.



5 Prepare the pipe ends following the ProFuse® pipe preparation for electrofusion jointing above. Follow industry best practice and water industry procedures to make the joint and cleanse and test the pipeline.



**? Are SC80 and SC100 multi-layer pipes and should they have external stripes to identify their multi-layer construction?**

SC80 and SC100 pipes are single layer solid wall pipes. They are therefore not multi-layer pipes and do not require external longitudinal stripes.

**? Should I completely remove the coloured outer when preparing SC80 and SC100 pipes for electrofusion jointing?**

No. The light blue or dark blue PE outer is not a 'scrape to' guide and should not be completely removed. Removing too much pipe material may lead to joint failure.

**? What equipment is recommended to prepare SC80 and SC100 pipe surface for electrofusion jointing?**

For socket fittings, the preferred tool for pipe surface preparation is an industry approved mechanical rotary tool as it removes a continuous and uniform ribbon of material. For saddle fittings, industry approved hand scraping tools should be used.

**? How should I prepare the pipe surface for solid wall SC80 and SC100 pipes when using Redman™ mechanical fittings?**

There is no requirement for any pipe surface preparation when joining SC80 or SC100 pipes. The pipe should be cut square

and free from damage before making a joint.

**? What is the thickness of SC80 light blue outer and SC100 dark blue outer and does it differ for each pipe diameter?**

The PE80 light blue outer and PE100 dark blue outer thickness ranges from 0.7 to 1.2 mm. It does not differ through the pipe diameter range.

**? Why do ProFuse® pipes have external stripes?**

Stripes identify the pipe as multi-layer. ProFuse® is manufactured from a PE100 core and an outer polypropylene skin.

**? Does the ProFuse® skin add to the pipe's pressure rating?**

The external polypropylene skin applied to the ProFuse® pipe does not add to the pipe's pressure rating. It is a sacrificial layer and identifies the pipe's application and structure and is specifically designed to protect the core pipe from potential damage during handling, transportation and installation.

**? Should I remove the external skin when joining ProFuse® pipe using mechanical fittings?**

Yes, the external polypropylene skin must be locally removed when joining ProFuse® using mechanical fittings,

electrofusion fittings or the butt-fusion welding technique. Follow the pipe preparation overview within this brochure.

**? What should I do if the ProFuse® pipe surface becomes contaminated after removing the peelable skin in preparation for electrofusion jointing?**

If the ProFuse® pipe surface becomes contaminated after removing the peelable skin, prepare the pipe surface in the same way as a conventional PE pipe, using industry approved pipe surface preparation tools (rotary or hand scraping tools).

**? Why do the pipe dimensions for ProFuse® and Puriton® only cover the black core of the pipes?**

ProFuse® and Puriton® are classed as multi-layer pipes and are manufactured in accordance with the PE water pipe specification BS EN 12201. The specification only provides dimensions for the pressure bearing structure of PE pipes. For ProFuse® and Puriton® pipes, the black PE core is the only pressure bearing structure within the pipe construction. The dimensions for the outer layers are therefore not included within the water specification.

**? Who can I contact if I have additional queries on Radius Systems' water pipes?**

For additional queries relating to our water pipes, please contact Radius Systems' Sales or Technical Support teams via telephone or email:

**Sales:**  
t: +44 (0)1773 811112  
e: Sales@radius-systems.com

**Technical support:**  
t: +44 (0)1773 811112  
e: Techsupport@radius-systems.com



# Radius Systems

Radius Systems are a market leader in the innovation and manufacture of plastic pipe systems for the utilities and construction industries. With extensive research and development at the heart of our products and systems, we take care of the entire pipe life cycle - from design and manufacture through to installation, repair and rehabilitation. We strive to improve industry practices, with good health and safety policies at the forefront of our philosophy of 'getting it right first time'. Our continuous customer inspired research and development, combined with successful customer partnerships represent our total dedication to the plastic piping industry.

- **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 provision**

Our comprehensive range of services is designed to fit the variable demands of our clients' developments in pipes, fittings, training and support services.

- **Reliability and safety**

With over 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](http://www.radius-systems.com).

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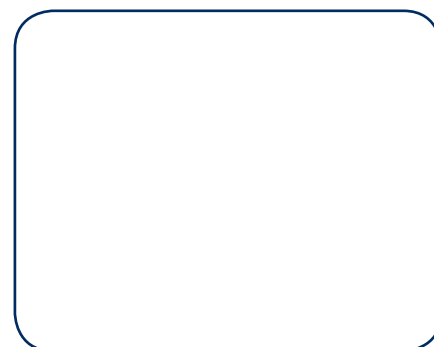
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