

Joining Technology

Tooling and Suppliers.

Puriton barrier pipe has been developed by Radius Systems to offer a complete pipe and fittings system for the safe transportation of Drinking water through contaminated land.

This document is designed to give guidance on the Puriton Barrier pipes that Radius Systems offer and the various joining techniques that are available with those pipe types.

This document also details the tooling required and recommended, to carry out all joints correctly using 'Industry standard' best practice. There is a list of recommended tooling suppliers for Puriton specific scraping tooling, as well as other recommended equipment suppliers. The Puriton specific scraping tooling is available to purchase or hire.

Radius Systems offer full Technical Support and Training of the Puriton barrier Pipe system and joining techniques. Full details of all joining procedures and video demonstrations can be viewed or downloaded from the website www.radius-systems.com

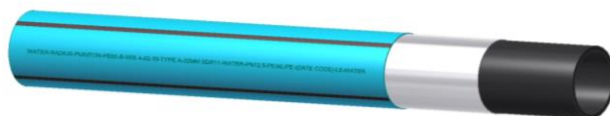
Otherwise, please contact Radius Systems on 01773 811112 and ask for technical support or email techsupport@radius-systems.com

Radius Systems Puriton Barrier Pipe range

Service Pipe - PuritonII

The Puriton service pipe in sizes 25mm, 32mm and 63mm comprises a PE80 black core pipe manufactured in accordance with BS EN12201-2 with an aluminium layer positioned between the black core pipe and an outer layer of Light Blue PE80 material. There are some adhesive layers on either side of the aluminium. The pipe has a brown stripe that identifies the pipe as a multi-layered composition. This is categorised as a Type A pipe under BS8588 and WIS4-32-19

The service pipe has WRAS Approval



Structure of Puriton 'Type A' service pipe

Service pipe sizes and Jointing

Nominal size mm	SDR	Pressure Rating (bar)	Jointing Technique
25	11	12.5	Mechanical Compression fitting
32	11	12.5	Mechanical Compression Fitting
63	11	12.5	Mechanical Compression Fitting Fluid Compression Fitting Mechanical Tapping Tee

Note: There is no requirement for any pipe surface preparation with the Jointing techniques quoted above, other than the pipe should be clean and free from damage.

To ensure that the barrier protection system is maintained, only Puriton fittings should be used with Puriton Pipe. The use of non Puriton fittings may compromise the barrier properties of the pipe.

Mains Pipe - PuritonII

The Puriton mains pipe is available in sizes from 90mm to 180mm, this comprises of a core black PE100 pipe in SDR11 and SDR17 (dimensionally sized to EN 12201-2 pipe) with an outer 'spiral wrapped' aluminium layer and then a further protective layer of PE100 material, which is dark blue. This is categorised as a 'Type A' pipe in BS8588 and WIS 4-32-19.

The mains pipe has Kitemark Approval



Nominal size mm	SDR	Pressure Rating (bar)	Joining Technique
90	11 & 17.0	16 & 10	Electrofusion Fitting
110	11 & 17.0	16 & 10	Butt-fusion jointing
125	11 & 17.0	16 & 10	Fluid Compression fitting
160	11 & 17.0	16 & 10	Mechanical Tapping Tee
180	11 & 17.0	16 & 10	

Note: For Electro-fusion and Butt-fusion jointing there is a requirement for pipe surface preparation which involves removal of the skin and barrier layers. A 2-pass scraping system has been developed by Radius Systems for this purpose and the tooling is available from the stockists listed.

Jointing Solutions

Mechanical Compression fitting

(25, 32 & 63mm service pipe only).

Tooling Required



C ring wrenches



Rubber Mallet

Fluid Compression fittings

(63mm Service pipe and all mains pipe sizes).

Tooling Required



Hydraulic hand pump



Hydraulic fluid



Mechanical Tapping Tee

(63mm Service pipe and all mains pipe sizes).



Tooling Required - For outlet connections, the tooling for Mechanical compression fitting is listed above.



19mm Spanners



3/8" T key



C Ring wrenches

Electrofusion Jointing

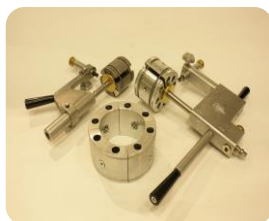
Mains sized pipes 90 – 180mm.



Tooling Required



Pipe Cutter,



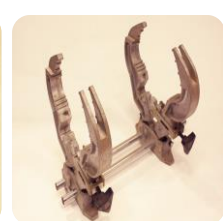
2-stage rotary scrapers,



Wire Cutters



40v Fusion box

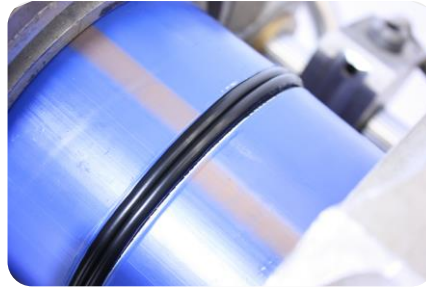


Alignment Clamps

Image not shown; Generator.

Butt-fusion Jointing

Mains sized pipes only.



Tooling Required: For surface preparation use the tooling as used for Electro-fusion preparation.



Butt-fusion machine



PuritonII Butt fusion bead gauge.

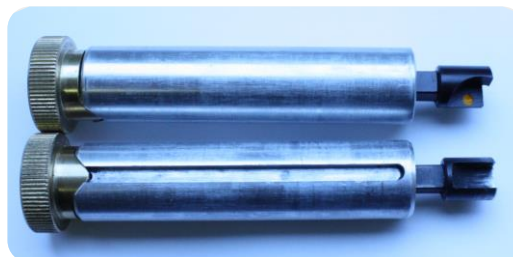


De-beading tool

PuritonII Mains pipe surface preparation tooling.

The 2-stage scraping system developed by Radius Systems uses mechanical scraping tooling manufactured by Calderdale Technology. The 1st-stage rotary scrape is completed using a PuritonII blade in the carrier cartridge. This is identified with the yellow spot on the blade, as seen below... When used correctly this removes the outer skin PE layer and the Aluminium barrier layer from the outside wall of the pipe.

This Puriton cartridge is then removed and replaced with a cartridge containing a standard scraper blade which removes a normal 0.2-0.4mm from the core pipe wall (including any aluminium deposits and adhesive) to leave a pristine, clean finish on the pipe upon which the fusion joint is made.



The PuritonII blade cartridge and the Standard blade cartridge.

This Pipe surface preparation is also used to prepare the pipe ends for Butt fusion Jointing. The distance that the skin layers are removed too, is controlled by the PuritonII Butt-fusion gauge, which

has been specially designed to assist the operator minimise the skin removal and trimming distance. This ensures the integrity of the pipe systems remains, without any need for post joint wrapping.

The scraping tooling for PuritonII pipes comprises of two kits sized for pipes 90-110mm and for 125 - 180mm. The full list of tooling including conversion kits to convert existing barrier pipe tooling is listed below.

PuritonII Rotary scraping tooling kits and accessories

The codes listed below are for direct purchase of PuritonII scraping tooling from Caldervale Technology.

When hiring equipment from the listed suppliers included in this document, the description should be used to identify your particular requirements.

	<u>Code</u>	<u>Description</u>	<u>Contents</u>
1	01-07-190	Surprep Puriton Kit 90-110mm (red case)	1 Scraper, 1 Expanding Mandrel, 1 Puriton Cartridge, 1 Standard Cartridge.
2	01-07-191	Surprep Puriton Kit 125-160-180mm (blue case)	1 Scraper, 1 Expanding Mandrel (160,180 shells), 1 Puriton Cartridge, 1 Standard Cartridge, 1 Extension piece.
3	01-07-192	Surprep Puriton Blade only	Puriton blade (spotted).
4	01-07-193	Surprep Puriton Kit 90-110mm conversion kit	1 Puriton cartridge, 1 Standard cartridge.
5	01-07-194	Surprep Puriton Kit 125-160-180mm conversion kit	1 Puriton cartridge, 1 Standard cartridge, 1 Extension piece.
6	01-07-195	Surprep Puriton 125-160-180mm Extension only	1 Extension piece.
7	01-07-196	Surprep Puriton 90-110mm Cartridge only	1 Cartridge
8	01-07-197	Surprep Puriton 125-160-180mm Cartridge only	1 Cartridge
9	01-07-043	Surprep Standard Blade only Ø11mm	1 Standard blade

Contact Details for Tooling Suppliers / Hire services.

Supplier	Address & Contact Details	Equipment Supplied
<p>Caldervale Technology</p> <p>www.caldertech.co.uk</p>	<p>Bretfield Court</p> <p>Dewsbury</p> <p>WF12 9DB</p> <p>TEL: 01924 469571</p>	<ul style="list-style-type: none"> ○ PuritonII Scraping Tooling ○ Electro-fusion Control Boxes ○ Re-rounding Clamps ○ Alignment Clamps ○ Generators ○ PE Welding accessories
<p>MCA Fusion Hire</p> <p>www.mcafusionhire.co.uk</p>	<p>Smeckley Wood close</p> <p>Chesterfield Trading Estate</p> <p>Chesterfield</p> <p>S41 9PZ</p> <p>TEL: 01246 263434</p>	<ul style="list-style-type: none"> ○ PuritonII Scraping Tooling ○ Electro-fusion Control Boxes ○ Re-rounding Clamps ○ Alignment Clamps ○ Redman Pump & hydraulic oil ○ Butt-fusion equipment ○ PE Welding accessories
<p>Sunbelt Rentals</p> <p>(Formerly PSS Hire)</p> <p>www.sunbeltrentals.co.uk</p>	<p>Unit 9-10</p> <p>Watery Lane Industrial Estate</p> <p>Watery Lane</p> <p>Wolverhampton</p> <p>WV13 3SU</p> <p>TEL: 01902 634688</p>	<ul style="list-style-type: none"> ○ PuritonII Scraping Tooling ○ Electro-fusion Control Boxes ○ Re-rounding Clamps ○ Alignment Clamps ○ Redman Pump & hydraulic oil ○ Butt-fusion equipment ○ PE Welding accessories
<p>Hy-ram</p> <p>www.hyram.com</p>	<p>Pelham Street</p> <p>Mansfield</p> <p>NG18 2EY</p> <p>TEL: 01623 422982</p>	<ul style="list-style-type: none"> ○ PuritonII Scraping Tooling ○ Electro-fusion Control Boxes ○ Re-rounding Clamps ○ Alignment Clamps ○ Redman Pump & hydraulic oil ○ Butt-fusion equipment ○ PE Welding accessories
<p>U mole Limited</p>	<p>Unit 11</p> <p>Hardwick Industrial Estate</p>	<ul style="list-style-type: none"> ○ Distributor of Reed rotary PE cutting tools ○ Small & Large Diameter pipe cutting equipment

www.umole.com	Great Gransden Cambs. SG19 3BJ TEL: 01767 677503	<ul style="list-style-type: none">○ Pipe coil trailers○ Utility Equipment suppliers
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Please email techsupport@radius-systems.co.uk for any further support.