PURITON® BARRIER PIPE AND FITTINGS SYSTEM

RADIUS SYSTEMS

Protecting drinking water through contaminated land

10 2025

PROTECTING OUR DRINKING WATER WITH PURITON®

BUILDING NEW HOMES ON BROWNFIELD SITES

The push for the regeneration of land or premises - previously used for farming, industrial or commercial purposes - into housing, has been encouraged since 1998. These new developments, built on derelict or contaminated land, were promoted to protect the green belt, minimise urban sprawl and make better use of those disused areas.

With governments promoting the regeneration of brownfield sites for new homes, there is a need for a new polyethylene pipeline solution, that will ensure the protection of our drinking water against soil contaminants commonly found in brownfield sites.

Designed for new or replacement potable water supply, Puriton® is an engineered barrier pipe and fittings system.

Puriton® provides a cutting-edge solution for the distribution of drinking water which safeguards potable water against soil contaminants by incorporating permeation resistance with flexibility.

PURITON®
BARRIER PIPE

The 21st century pipe system for contaminated land.

With its multi-layer composite structure, Radius Systems Puriton® pipe brings together the unique flexibility of polyethylene (PE) with the exceptional barrier properties of aluminium (Al), giving you the assurance of a durable pipe solution for the safe distribution of drinking water through contaminated land.

Lightweight, flexible, corrosion resistant and easy to install our Puriton® pipe is joined using our range of approved mechanical, Redman™ or electrofusion fittings as well as the butt-fusion technique for Puriton® pipe 90mm and above, without the need to post-wrap the finished joint.

Puriton® is joined using the following methods as specified in BS8588 certificate KM672956

- Puriton® plastic mechanical fittings
- Redman™ fittings
- Puriton® electrofusion fittings
- Puriton® gunmetal tapping tees
- Butt-fusion in accordance with WIS 4-32-08 (see Radius Systems installation guidance page 52)

Features & Benefits

- Multi-layer pipe construction PE-Al-PE
- 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 new and replacement drinking water supply systems
- Brown stripes denote a multi-layer pipe construction

Approvals

- Puriton pipe in diameters 25 to 180mm (inclusive) is approved to Regulation 31(4) (a) of the Water Supply (Water Quality) Regulations 2016 (as amended).
- WRAS approved material PE80 for pipe diameters 25 to 63mm (Approval number 1610528)
- BS 8588:2017 approval for pipe diameters 25 to 180mm (Approval number KM 672956)

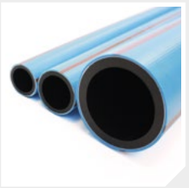
WRAS APPROVED MATERIAL

bsi KM 672956

Available in diameters 25 to 63 mm, our Puriton® service pipe is manufactured from a black PE80 core, an aluminium barrier layer and a light blue PE80 outer layer with brown stripes.

Our Puriton® service pipes are available in coils and also in straight lengths for the 63 mm pipe.

Puriton® service pipe

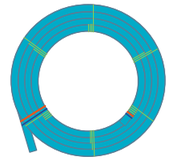


To ensure that the barrier properties of the system are maintained, only Puriton® fittings should be used to connect Puriton® pipe. The use of non Puriton® fittings may compromise the barrier properties of the Puriton® system. For more information see page 49.

Nominal diameter mm	Materials	SDR	Pressure rating bar	Core pipe external diameter mm	Core pipe wall thickness mm	Internal diameter mm	Overall external diameter mm	Pipe weight Kg/m	Pipe length m	Product code
25	PE80/Al	11	12.5	25.0 - 25.3	2.3 - 2.7	19.6 - 20.7	27.0 - 27.6	0.3	50	XQ2528
32	PE80/Al	11	12.5	32.0 - 32.3	3.0 - 3.4	25.2 - 26.3	34.0 - 34.6	0.5	50	XQ2535
63	PE80/Al	11	12.5	63.0 - 63.4	5.8 - 6.5	50.0 - 51.8	64.8 - 65.8	1.5	6 25 50 100	XQ2568 XQ2570 XQ2571 XQ2572

Nominal diameter mm	SDR	Pressure rating bar	Coil inner diameter mm	Coil outer diameter mm	Coil width mm	Coil banding sequence	Coil length m	Coil weight Kg
25	11	12.5	800	930	175	-	50	14.5
32	11	12.5	800	930	175	-	50	22.0
63	11	12.5	1275 1275 1275	1510 1815 1815	221 208 310	●	25 50 100	36.3 72.5 145.0

Puriton® service pipe coil dimensions



Pipe weights are for lifting and handling purposes. They are calculated on a per metre length and are based on a maximum diameter and pipe wall thickness.

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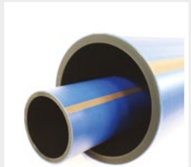
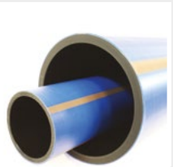
Puriton® mains pipe



Available in diameters 90 to 180 mm in SDR 11 and 17, our Puriton® mains pipe is manufactured with a black PE100 core, an aluminium barrier layer and a dark blue PE100 outer layer with brown stripes. A wide range pipes of pipe diameters are manufactured in lengths to suit the design requirements of your project.

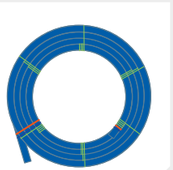
Nominal diameter mm	Materials	SDR	Pressure rating bar	Core pipe external diameter mm	Core pipe wall thickness mm	Internal diameter mm	Overall external diameter mm	Pipe weight Kg/m	Pipe length m	Product code
90	PE100/Al	11	16	90.0 - 90.6	8.2 - 9.2	71.6 - 74.2	92.2 - 93.8	2.8	6 12 50 100	XQ0125 XQ0126 XQ0128 XQ0129
90	PE100/Al	17	10	90.0 - 90.6	5.4 - 6.1	77.8 - 79.8	92.2 - 93.8	2.1	6 12 50 100	XQ0143 XQ0145 XQ0146 XQ0147
110	PE100/Al	11	16	110.0 - 110.7	10.0 - 11.1	87.8 - 90.7	112.2 - 113.9	3.9	6 12 50 100	XQ0233 XQ0235 XQ0236 XQ0237
110	PE100/Al	17	10	110.0 - 110.7	6.6 - 7.4	95.2 - 97.5	112.2 - 113.9	2.9	6 12 50 100	XQ0251 XQ0253 XQ0254 XQ0255
125	PE100/Al	11	16	125.0 - 125.8	11.4 - 12.7	99.6 - 103.0	127.2 - 129.0	5.0	6 12 50 100	XQ0287 XQ0289 XQ0290 XQ0291
125	PE100/Al	17	10	125.0 - 125.8	7.4 - 8.3	108.4 - 111.0	127.2 - 129.0	3.6	6 12 50 100	XQ0305 XQ0307 XQ0308 XQ0309
160	PE100/Al	11	16	160.0 - 161.0	14.6 - 16.2	127.6 - 131.8	162.2 - 164.2	8.0	6 12 50 100	XQ0458 XQ0460 XQ0461 XQ0462
160	PE100/Al	17	10	160.0 - 161.0	9.5 - 10.6	138.8 - 142.0	162.2 - 164.2	5.7	6 12 50 100	XQ0476 XQ0478 XQ0479 XQ0480
180	PE100/Al	11	16	180.0 - 181.1	16.4 - 18.2	143.6 - 148.3	182.2 - 184.3	9.9	6 12 50 100	XQ0530 XQ0532 XQ0534 XQ0535
180	PE100/Al	17	10	180.0 - 181.1	10.7 - 11.9	156.2 - 159.7	182.2 - 184.3	7.1	6 12 50 100	XQ0550 XQ0552 XQ0554 XQ0555

Puriton® mains pipe



To ensure that the barrier properties of the system are maintained, only Puriton® fittings should be used to connect Puriton® pipe. The use of non Puriton® fittings may compromise the barrier properties of the Puriton® system. For more information see page 49.

Puriton® mains pipe coil dimensions



Coiled pipes are supplied safely secured with pipe banding for ease of transportation and loading into suitable coil trailers, ready for safe dispensing on the site of works. Please release the pipe from the coils using industry best practice safety procedures

Pipe weights are for lifting and handling purposes. They are calculated on a per metre length and are based on a maximum diameter and pipe wall thickness.

90	11 11	16 16	50 100	1800 1800	2220 2440	320 410	•	137.9 275.7
90	17 17	10 10	50 100	2500 2500	2930 3000	320 410	•	102.7 205.4
110	11 11	16 16	50 100	2500 2500	3000 3200	400 500	•	197.1 394.1
110	17 17	10 10	50 100	2500 2500	3000 3200	400 500	•	145.7 291.4
125	11 11	16 16	50 100	2500 2500	3000 3200	450 600	•	251.0 502.0
125	17 17	10 10	50 100	2500 2500	3000 3200	450 600	•	181.6 363.1
160	11 11	16 16	50 100	3000 3000	3590 3850	530 700	•	397.6 795.2
160	17 17	10 10	50 100	3000 3000	3590 3850	530 700	•	284.4 568.8
180	11 11	16 16	50 100	3000 3000	3800 4000	630 800	•	496.3 992.6
180	17 17	10 10	50 100	3000 3000	3800 4000	630 800	•	353.0 706.0

MECHANICAL FITTINGS FOR PURITON® SERVICE PIPE

Fast and effective pipeline connection.

Quick and easy to install, our range of Puriton® mechanical fittings for service pipes are manufactured from polypropylene and supplied with integral inserts, grip rings and O-ring seals for maximum contamination protection.

The joint is easy to make with no requirement for pipe surface preparation and no need to post-wrap the joint after installation.

To validate the permeation resistance of the Puriton® system components, tests have been undertaken on a representative range of fittings, in accordance with the requirements of BS 8588, giving you confidence of a full barrier pipe and fitting system.

Features and Benefits

- Specially designed fittings for Puriton® service pipe
- Manufactured from tough and durable polypropylene
- Simple installation process
- Captive O-rings for leak free joints
- No pipe preparation required
- No requirement for wrapping completed joints
- Extensive product range
- Adapters for transition to standard BSP thread sizes

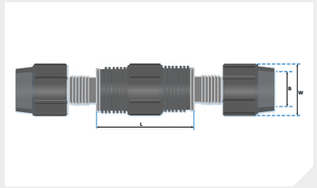
Approvals

- WRAS approved product (Approval number 1702333)
- Our Puriton® plastic mechanical fittings are a jointing method specified in BS8588 certificate KM672956

WRAS APPROVED PRODUCT

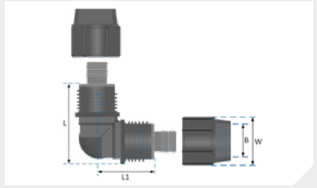
bsi KM 672956

Couplers



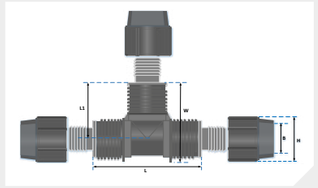
Diameter mm	B mm	W mm	L mm	Weight Kg	Product code
25	28.0	53.0	85.0	0.12	XR5244
32	36	63.0	96.0	0.20	XR5245
63	67.0	112.0	140.0	1.00	XR5251

90° elbows



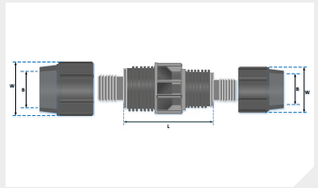
Diameter mm	B mm	W mm	L mm	L1 mm	Weight Kg	Product code
25	28.0	53.0	84.0	59.0	0.13	XR5249
32	36	63.0	96.0	69.0	0.21	XR5250
63	67.0	112.0	162.0	106.0	1.10	XR5252

Equal tees



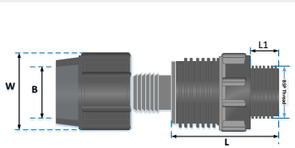
Diameter mm	B mm	W mm	L mm	L1 mm	H mm	Weight Kg	Product code
25	28.0	84.0	116.0	57.0	53.0	0.17	XR5247
32	36	100.0	137.0	69.0	63.0	0.27	XR5248
63	67.0	158.0	204.0	102.0	112.0	1.40	XR5253

Reducers



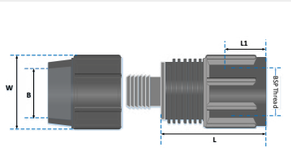
Diameter mm	B mm	W mm	L mm	Weight Kg	Product code
32 × 25	36 × 28.0	63.0 × 53.0	89.0	0.12	XR5246
63 × 25	67.0 × 28.0	112.0 × 53.0	125.0	0.19	XR5257
63 × 32	67.0 × 35.8	112.0 × 63.0	128.0	0.90	XR5254

Male adaptors



Diameter mm	B mm	W mm	L mm	L1 mm	Weight Kg	Product code
25 x ¾”	28.0	53.0	75.0	18.0	0.8	XR5235
32 x ¾”	36	63.0	81.0	18.0	0.14	XR5236
32 × 1”	36	63.0	83.0	20.0	0.14	XR5237
63 × 1½”	67.0	112.0	109.0	21.0	0.50	XR5258
63 × 2”	67.0	112.0	122.0	27.0	0.50	XR5259

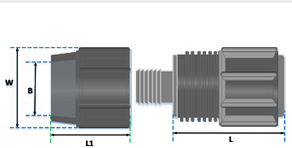
Female adaptors



Diameter mm	B mm	W mm	L mm	L1 mm	Weight Kg	Product code
25 x ¾”	28.0	53.0	67.5	12.0	0.07	XR5240
32 x ¾”	35.8	63.0	70.0	19.0	0.13	XR5241
32 × 1”	35.8	63.0	65.0	14.0	0.13	XR5242
63 × 2”	67.0	112.0	103.0	30.0	0.45	XR5260

End caps

Diameter mm	B mm	W mm	L mm	L1 mm	Weight Kg	Product code
25	28.0	53.0	87.0	46.0	0.08	XR5261
32	35.0	63.0	98.0	51.0	0.12	XR5262



C ring wrenches

Diameter mm	Product code
25-32	XR4998
63	XR4999

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REDMAN™ FITTINGS FOR PURITON® MAINS PIPE

The innovative jointing solution for Puriton® barrier pipe

Radius Systems' Redman™ fittings are a unique jointing solution to quickly and easily connect our Puriton® barrier pipe to deliver complete protection to drinking water when installed in brownfield sites. Simple to install with little pipe preparation, the Redman™ joint can be made in all weather conditions, even with water in the pipeline.

Available in diameters 63 to 180mm, our Redman™ fittings offer a robust, leak-free jointing solution. The joint is made by simply pressurising the outer shell of the fitting using a dedicated hydraulic pump; and once made, the Redman™ fitting provides a 'fit and forget', end-load-bearing and corrosion resistant joining solution.

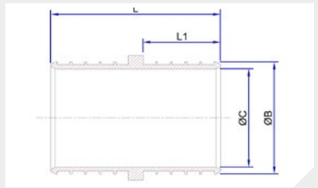
Features & Benefits

- Quick and easy to install
- Simple site-tolerant manual hydraulic pump for pressurisation
- No nuts, bolts or rubber seals
- A fit-and-forget jointing system
- Minimal pipe preparation required for jointing
- Ideal for pipe repair - can be installed in wet and submerged conditions
- End-load bearing jointing system
- Excellent chemical resistance
- Coated for increased corrosion protection
- Protects drinking / potable water in brownfield sites
- Biodegradable hydraulic oil used for joint pressurisation
- Rilsan® coated insert for the safe conveyance of potable water
- In house quality control pressure test carried out on all outer shells

Approvals

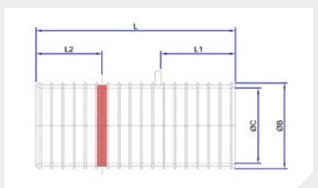
- WRAS approved product (Approval Number 1811317)
- KIWA UK approved product in compliance with UK Water Supply Regulations (certificate number 1811712)
- WRAS approved materials in contact with drinking water (Approval Number1910523)
- Our Redman™ fittings are a jointing method specified in BS8588 certificate KM672956

Couplers



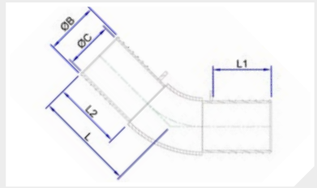
Nominal diameter mm	SDR	Insert dimensions mm				Weight kg	Product code
		L	ØB	ØC	L1		
63	11	82	50	43	36	1.9	RE0001
90	11	116	70	61	53	3.9	RE0002
110	11	141	86	74	60	6.6	RE0003
125	11	160	98	86	70	8.1	RE0004
180	11	210	142	125	95	17.4	RE0008
90	17	116	76	67	53	3.9	RE0009
110	17	141	94	81	60	6.6	RE0010
125	17	160	107	95	70	8.2	RE0005
160	17	180	137	122	80	12.4	RE0007
180	17	210	155	137	95	17.6	RE0047

Repair couplers



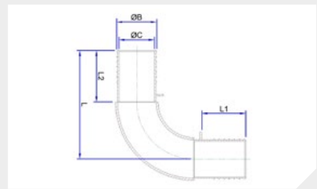
Nominal diameter mm	SDR	Insert dimensions mm					Weight kg	Product code
		L	ØB	ØC	L1	L2		
63	11	126	50	43	37	40	2.6	RE0065
90	11	178	70	61	56	59	4.1	RE0064
110	11	203	86	74	65	67	6.6	RE0066
90	17	178	76	67	56	59	4.2	RE0067
110	17	203	94	81	65	67	6.7	RE0069
125	17	236	107	95	75	78	8.3	RE0071
160	17	269	137	122	82	85	13.6	RE0078
180	17	319	155	137	107	110	18.2	RE0080

45° elbows



Nominal diameter mm	SDR	Insert dimensions mm					Weight kg	Product code
		L	ØB	ØC	L1	L2		
63	11	143	50	43	94	115	3.9	RE0032
90	11	169	70	61	103	124	6.6	RE0033
110	11	189	86	74	117	138	11.3	RE0035
90	17	169	76	67	103	124	6.7	RE0034
110	17	189	94	81	117	138	11.4	RE0036
125	17	202	107	95	117	138	12.7	RE0038
160	17	247	137	122	142	167	21.5	RE0040
180	17	272	155	137	164	192	27.8	RE0045

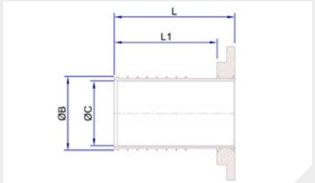
90° elbows



Nominal diameter mm	SDR	Insert dimensions mm					Weight kg	Product code
		L	ØB	ØC	L1	L2		
63	11	172	50	43	94	115	4.2	RE0011
90	11	219	70	61	103	124	7.3	RE0012
110	11	252	86	74	117	138	12.3	RE0014
90	17	219	76	67	103	124	7.4	RE0013
110	17	252	94	81	117	138	12.4	RE0015
125	17	290	107	95	117	138	15.1	RE0017
160	17	357	137	122	142	167	23.6	RE0019
180	17	382	155	137	164	192	30.8	RE0021

Flange adaptors

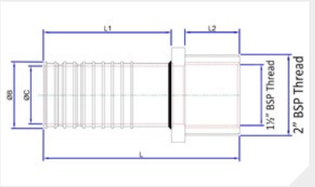
- Flange drilling BS EN1092 - NP16. Supplied with galvanised iron backing ring
- Nuts, bolts, washers and gaskets not supplied



Nominal diameter mm	SDR	Insert dimensions mm				Number of bolt holes	Backing ring OD mm	Flange PCD mm	Weight kg	Product code
		L	ØB	ØC	L1					
63 x DN50	11	115	50	43	97	4	165	125	3.9	RE0073
63 x DN80	11	115	50	43	97	8	200	160	5.1	RE0083
90 x DN80	11	124	70	61	106	8	200	160	6.2	RE0074
110 x DN100	11	138	86	74	120	8	220	180	8.5	RE0076
125 x DN100	11	138	98	86	120	8	220	180	9.1	RE0084
180 x DN150	11	192	142	125	170	8	285	240	18.4	RE0087
90 x DN80	17	124	76	67	106	8	200	160	6.3	RE0075
110 x DN100	17	138	94	81	120	8	220	180	8.5	RE0077
125 x DN100	17	138	107	95	120	8	220	180	9.1	RE0079
160 x DN150	17	167	137	122	145	8	285	240	15.4	RE0081
180 x DN150	17	192	155	137	170	8	285	240	18.4	RE0089

Adaptors

Nominal diameter mm	SDR	Insert dimensions mm					Weight kg	Product code
		L	ØB	ØC	L1	L2		
63 × 1 ½"BSPF / 2" BSPM	11	144	49	43	94	40	2.4	RE0123



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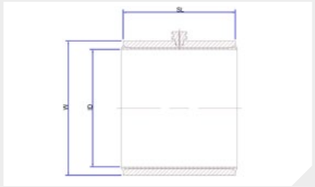
- Oil material safety data sheet available on request
- 2No MSDS data sheets for the oil available on the website
- Outer shells are not sold separately

Outer shell dimensions



Fitting type	Outer shell nominal diameter	63 mm	90 mm	110 mm	125 mm	160 mm	180 mm
Elbows Flanges	SL. Overall length	102	111	125	125	150	172
	W. Outside diameter	86	114	135	150	188	209
	ID. Internal diameter	67	95	115	131	166	188
Couplers	SL. Overall length	102	136	161	180	200	230
	W. Outside diameter	86	114	135	150	188	209
	ID. Internal diameter	67	95	115	131	166	188
Repair couplers	SL. Overall length	147	66	75	85	92	117
	W. Outside diameter	86	114	135	150	188	209
	ID. Internal diameter	67	95	115	131	166	188

Product description	Product code
Redman™ hydraulic pump*	XR0211
Biodegradable hydraulic oil for the Redman™ pump - 5 litre container**	XR0212

Redman™ hydraulic pump & oil

*Pump may differ from the one pictured

**Safety data sheets for the pressurisation biodegradable hydraulic oil and the quality control oil are available on our website at www.radius-systems.com.

Quality control oil is used during our in-house integrity pressure test carried out on all Redman™ shells. A residual amount of oil may still remain in the shells when the fittings are packaged and may seep out during installation.

ELECTROFUSION FITTINGS FOR PURITON® MAINS PIPE

High quality fitting solution

Manufactured from high strength PE100 material, our electrofusion fittings have been specifically designed for ease of assembly, maximum heat transfer and optimum efficiency during the construction of a pipeline network.

Ideal for joining our Puriton® pipe, our range of electrofusion fittings requires a 2-pass pipe surface preparation process. This ensures a high quality, leak-free fully welded system, without the need to post-wrap the joint.

To validate the permeation resistance of the Puriton® system components, tests have been undertaken on a representative range of fittings, in accordance with the requirements of BS 8588, giving you confidence of a full barrier pipe and fitting system,

Features & Benefits

- Manufactured from high strength polyethylene (PE100)
- Exposed wire technology for maximum heat transfer during the fusion process
- Simultaneous socket fusion for all fittings
- Barcode technology - for automatic temperature compensating fusion times and fitting traceability
- Manual fusion times on the body of the fitting
- Corrosion resistant
- End-load bearing jointing system
- No additional wrapping required
- Fully welded barrier pipe system
- 2-pass pipe surface preparation for high quality jointing
- 40V electrofusion fitting

Approvals

- BS EN12201-3 KM597648
- Manufactured from WRAS approved materials
- DVGW GW 335-B2
- MPA Darmstadt K1597 / 12.2014
- IIP Certification of Conformity to EN12201-3
- Our Puriton® electrofusion fittings are a jointing method specified in BS8588 certificate KM672956

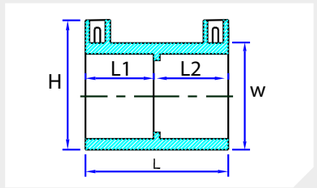
WRAS APPROVED MATERIAL

bsi KM 597648

DVGW DV-8601BN0126 DV-8601BN0127 DV-8611BN0627

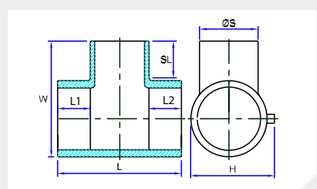
Pipe preparation is mandatory when joining our Puriton® pipe with electrofusion fittings. Please refer to the guidance within this brochure to ensure that the correct equipment is used to carry out the 2-pass pipe surface preparation process.

Couplers



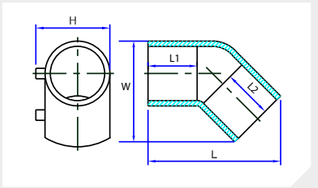
Nominal diameter mm	Dimensions mm					Fitting weight kg	Fuse time sec	Cool time min	Product code
	H	L	L1	L2	W				
90	131	125	62	62	109	0.39	90	10	WA0210
110	152	161	79	79	132	0.72	130	13	WA0211
125	168	157	77	77	151	0.88	120	15	WA0212
160	209	186	92	92	195	1.81	300	22	WA0214
180	229	207	102	102	215	2.25	220	12	WA0215

Equal tees - spigot off-take



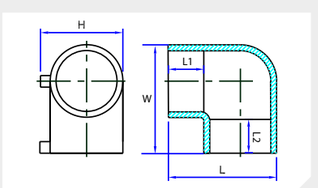
Nom dia mm	Dimensions mm							Fitting weight kg	Fuse time sec	Cool time min	Product code
	H	L	L1	L2	ØS	SL	W				
90	131	200	63	63	90	85	206	0.83	90	9	WA2210
110	155	251	80	80	110	135	282	1.85	180	13	WA2211
125	169	247	73	73	125	95	256	1.89	120	10	WA2212
160	217	342	101	101	160	110	350	4.39	300	21	WA2214
180	240	362	106	106	180	130	371	6.21	280	19	WA2215

45° elbows



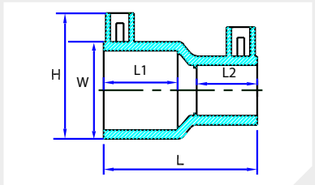
Nominal diameter mm	Dimensions mm					Fitting weight kg	Fuse time sec	Cool time min	Product code
	H	L	L1	L2	W				
90	132	222	77	77	176	0.82	80	9	WA3318
110	152	243	80	80	201	1.17	180	14	WA3319
125	175	269	82	82	228	1.84	90	7	WA3320
160	216	326	100	100	280	3.31	300	21	WA3322
180	240	350	101	101	308	4.11	260	16	WA3323

90° elbows



Nominal diameter mm	Dimensions mm					Fitting weight kg	Fuse time sec	Cool time min	Product code
	H	L	L1	L2	W				
90	133	195	77	77	195	0.98	80	9	WA3347
110	154	218	80	80	218	1.39	180	14	WA3348
125	178	246	82	82	246	2.14	90	7	WA3349
160	217	307	100	100	307	3.86	300	21	WA3351
180	240	329	101	101	329	5.16	260	16	WA3352

Reducers



Nominal diameter mm	Dimensions mm					Fitting weight kg	Fuse time sec	Cool time min	Product code
	H	L	L1	L2	W				
110 × 90	154	188	86	79	136	0.84	120	10	WA4286
125 × 90	170	180	89	75	155	1.04	120	18	WA4289
125 × 110	177	169	85	76	158	1.38	140	12	WA4291
160 × 110	218	231	96	85	197	1.84	180	18	WA4294
180 × 125	231	200	93	79	216	1.90	280	24	WA4297

To ensure that the barrier properties of the system are maintained, only Puriton® fittings should be used to connect Puriton® pipe. The use of non Puriton® fittings may compromise the barrier properties of the Puriton® system. For more information see page 49.

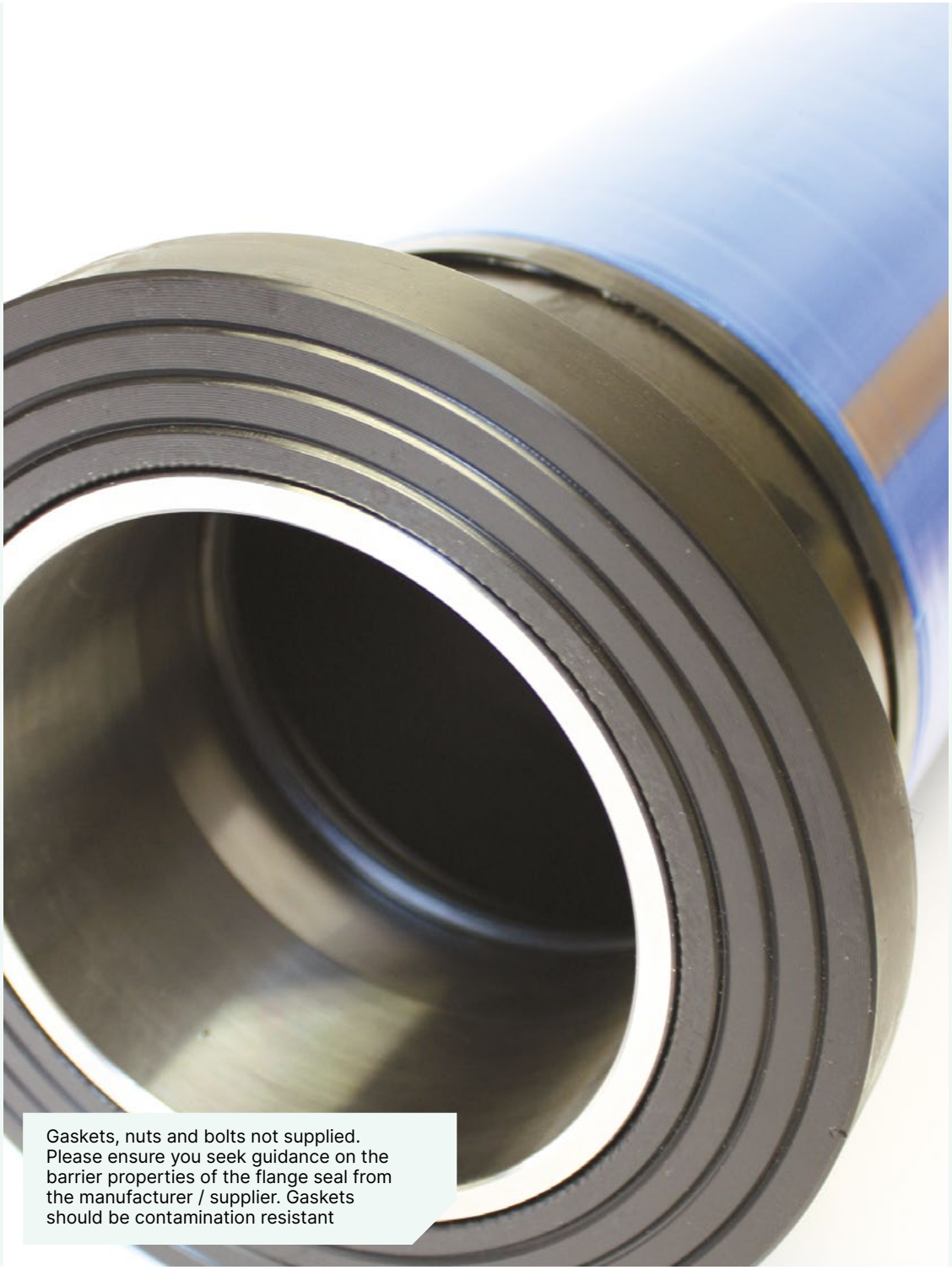
FLANGE ADAPTORS FOR PURITON® SERVICE AND MAINS PIPE

Metallic flange or valve connection for Puriton® barrier pipe

Specifically developed to maintain continuous protection to drinking water within our Puriton® pipeline system, our flange adaptors are designed to connect our Puriton® system to metallic flanged components.

Manufactured from a PE flange, factory-welded to a length of Puriton® barrier pipe, our flange adaptors are supplied with backing rings designed with mating dimensions, in accordance with BS EN1092-NP16, to ensure a trouble-free, direct connection to common flanges. In addition, our backing rings are supplied with Rilsan® coating for maximum corrosion protection*.

Our range of Redman™ flange adaptors offer an alternative solution to our PE flange connections, available in diameters from 63 to 180 mm. Please refer to page 14 for our full range.



Gaskets, nuts and bolts not supplied. Please ensure you seek guidance on the barrier properties of the flange seal from the manufacturer / supplier. Gaskets should be contamination resistant

Features & Benefits

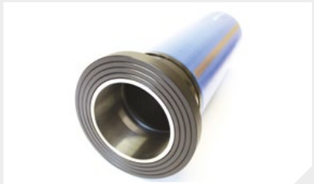
- Quick and easy connection using electrofusion or butt-fusion jointing
- Unique stainless steel insert to provide barrier properties when connected to metallic components
- Manufactured from Puriton® barrier pipe and stub flange assembly
- Specific Puriton® flange to maintain barrier properties when connecting metallic flange components
- Can be joined using electrofusion, butt fusion or Redman™ jointing
- Flanges sized for suitability of connecting to our range of Puriton pipes: Ensures a continuous PE pipeline to the point of pipeline termination:

Approvals

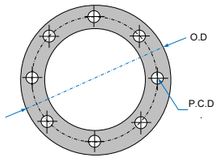
- Factory pupped in accordance with WIS 4-32-08
- Puriton® pipe component approved to BS8588
- PE flange approved to BS EN-12201/3
- Backing ring mating dimensions to BS EN1092-NP16

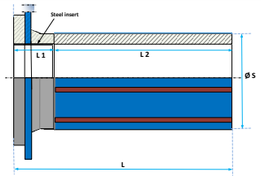
KM 672956

Flange adaptors



To ensure that the barrier properties of the system are maintained, only Puriton® fittings should be used to connect Puriton® pipe. The use of non Puriton® fittings may compromise the barrier properties of the Puriton® system. For more information see page 49.





Diameter mm ODxDN	SDR	Flange x backing ring thickness mm	Total length mm	Flange part length mm	Pipe stub length mm	Backing Ring mm		No. of Holes	Bolt torque (Nm)	Weight Kg	Product code
		W	L	L1	L2	PCD	OD				
63 × 80	11	22	410	60	350	160	200	8	30	2.4	XR0290
90 × 80	11	23	395	45	350	160	200	8	30	3.7	XR0291
110 × 100	11	30	425	75	350	180	220	8	40	4.6	XR0310
125 × 100	11	37	425	75	350	180	220	8	40	5.0	XR0311
160 × 150	11	37	440	90	350	240	285	8	70	7.7	XR0312
180 × 150	11	42	530	80	350	240	285	8	70	9.0	XR0313
90 × 80	17	23	395	45	350	160	200	8	30	3.2	XR0300
110 × 100	17	30	425	75	350	180	220	8	40	4.0	XR0303
125 × 100	17	37	425	75	350	180	220	8	40	4.3	XR0301
160 × 150	17	37	440	90	350	240	285	8	70	6.7	XR0304
180 × 150	17	42	530	80	350	240	285	8	70	7.4	XR0302

A FULLY PROTECTIVE BARRIER PIPE SYSTEM

CONNECTIONS FOR PURITON® SERVICE AND MAINS PIPE

Simple, time-saving connections for Puriton® barrier pipe

Radius Systems offer a dedicated range of ferrule adaptors and gun metal tapping tees, specifically designed to carry out connections to Puriton® barrier pipe.

For a safe mains to service pipe connection, our tapping tees incorporate a unique sleeve, which, as part of the tapping operation, is 'swaged' into the pipe wall, sealing the aluminium barrier layer from contact with the water supply.

To validate the permeation resistance of the Puriton® system components, tests have been undertaken on a representative range of fittings, in accordance with the requirements of BS 8588, giving you confidence of a full barrier pipe and fitting system.

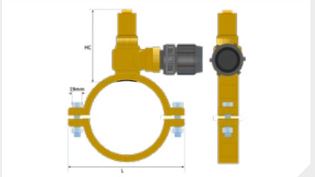
Features & Benefits

- Corrosion resistant gunmetal tapping tees for robust connection to Puriton® barrier pipe
- Suitable for both SDR11 & SDR17 pipes
- Quick and easy bolted installation with O-ring seal at stack base
- Mechanical compression outlet to facilitate service pipe connection
- Easy commissioning process
- Cutter with sleeve technology to maintain protection to drinking water

Approvals

- KIWA UK approved product in compliance with UK Water Supply Regulations (Certificate Number 1707717)
- Our Puriton® gunmetal tapping tees are a jointing method specified in BS8588 certificate KM672956

Tapping tees



To ensure that the barrier properties of the system are maintained, only Puriton® fittings should be used to connect Puriton® pipe. The use of non Puriton® fittings may compromise the barrier properties of the Puriton® system. For more information see page 49.

Maximum operating pressure 12.5 bar

Diameter mm	L mm	W mm	HC mm	SL mm	Weight kg	Product code
63 × 25	126	54	96	33	1.40	XR5111
90 × 25	153	54	96	33	1.41	XR5112
110 × 25	173	54	96	33	1.41	XR5113
125 × 25	188	54	96	33	1.42	XR5114
160 × 25	223	54	96	33	1.42	XR5115
180 × 25	243	54	96	33	1.43	XR5116
63 × 32	126	64	98	33	1.41	XR5117
90 × 32	153	64	98	33	1.42	XR5118
110 × 32	173	64	98	33	1.42	XR5119
125 × 32	188	64	98	33	1.43	XR5120
160 × 32	223	64	98	33	1.43	XR5121
180 × 32	243	64	98	33	1.44	XR5122

Diameter mm	Product code
25 x ¾”	XR5055

Ferrule adaptors

For Puriton® service pipe connection to ductile or cast iron water pipelines

Description	Product code
3/8” T key for SDR 11	XR0220
3/8” T Key for SDR 17	XR0215

Tapping tee T key

*T Key product supplied may differ from the one pictured

PRODUCT GUIDANCE

Coil banding for safe handling & dispensing




Minimum recommended personal protection equipment (PPE)

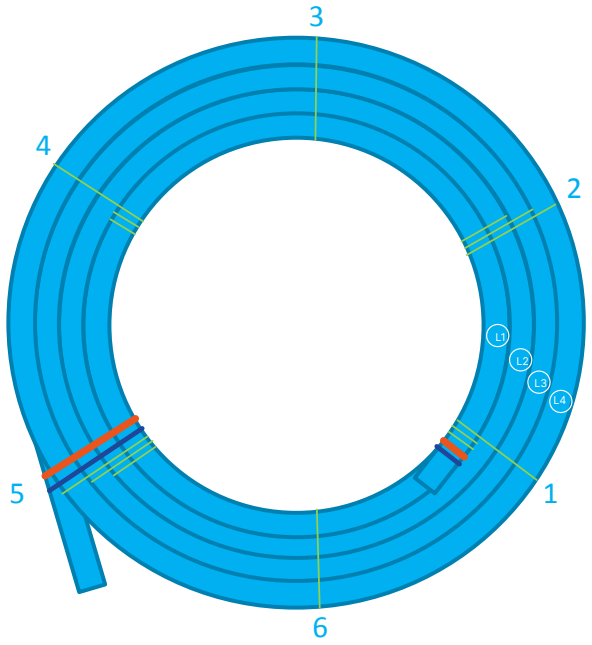
- Always wear the minimum PPE or the recommended PPE as identified by the risk assessment.
- Restrict the work area to essential personnel only.
- Always dispense coils from a coil dispenser.
- Take care when cutting the straps to release the pipe.
- Always ensure the tail ends of the coil are released 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.

When pipes are packaged into coils, Radius Systems use specialist straps, fitted at different positions around the turns and layers of pipe that form the coils. Coils in diameters 63 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.

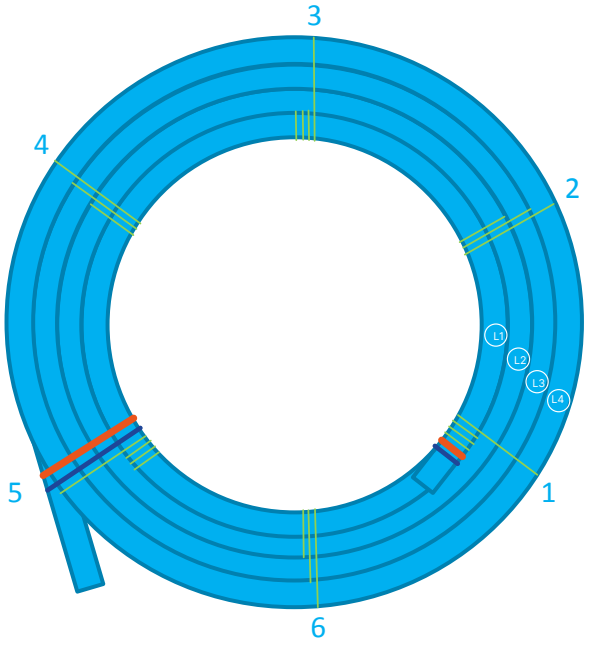
When the coil is ready to be dispensed, the straps are removed in sequence, ensuring that the energy contained in the coil is released in a controlled and safe manner, allowing the safe handling and dispensing of coils (See diagrams opposite).
To ensure a safe working environment during the installation 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 handing 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.

● For coils with inner diameter ≤ 1.8 m



● For coils with inner diameter ≥ 2.5 m



Welded polyester strap

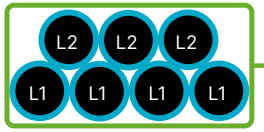
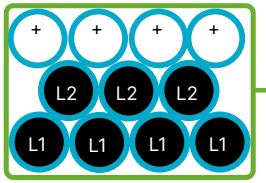
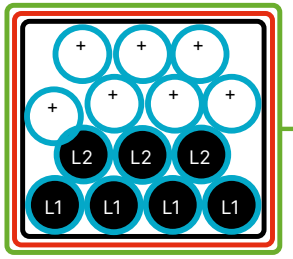
Steel security band

Coil length & caution tape

Illustrations showing the banding positions on a 4 layer coil

Coil banding
Banding position for coils 63 to 180 mm

Coils will 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 ≤ 1.8 m	• Coil internal diameter ≥ 2.5 m
Layer 1 (L1) 	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
	Not applicable	Polyester strap around turns T1 & T2 of L1 Positions 1, 3 & 5
	Polyester strap around turns T1, T2 & T3 of L1 Positions 1 & 4	Polyester strap around turns T1, T2 & T3 of L1 Positions 1, 3 & 5
	Additional turns on L1 follow the same banding sequence as above	Additional turns on L1 follow the same banding sequence as above
Additional layers 	Once layer 2 (L2) is completed Polyester straps are applied around L1 and L2 Positions 2 & 5	Once layer 2 (L2) is completed Polyester straps are applied around L1 and L2 Positions 2, 4 & 6
	Additional layers follow the same banding sequence as above	Additional layers follow the same banding sequence as above
Final layer 	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.
Coil length + caution tape applied to 75mm+

Jointing safety and best practice

Minimum recommended personal protection equipment (PPE)

Recommended best practice for all jointing methods

- PPE MUST be worn during the whole jointing process
- Make sure the pipe surface to be joined is clean from dirt or debris and protect the joint from contaminants where possible
- Re-round the pipe to correct the ovality where required
- Use the correct tools as specified
- Remove and dispose of all pipe shavings or scrapings responsibly – as part of good housekeeping

Electrofusion

Before carrying out an electrofusion joint

- The inside and outside of the pipe must be completely dry
- Visually check all electrical components including the generator, electrofusion control box and all cables to ensure that they are in good working order and fit for use. Follow the supplier's recommendations
- Do not use the electrofusion fitting if the electrical terminal connections are damaged

After carrying out an electrofusion joint

- The fitting will remain hot to the touch beyond the prescribed cool time

Butt-fusion

- Only use approved fully automatic butt-fusion equipment and follow Radius Systems Puriton® and Industry Best Guidance when joining pipes
- 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

Redman™ Fittings

- A calibrated Redman™ hydraulic pump must be used for pressurisation of the joint
- The pump must be filled with the recommended Biodegradable hydraulic oil for pressurisation
- Operate the pump at a safe distance away from the joint, using the full length of the hose
- Do not touch the fitting or the pipe during the pressurisation and de-pressurisation processes
- Material safety data sheets are available on the Radius Systems website

Jointing methods guidance

The Puriton® pipe system has been developed for ease of jointing with a range of fittings specifically designed to suit the pipe type. Minimal pipe surface preparation is required when using our mechanical or Redman™ fittings. However, pipe surface preparation is mandatory when joining Puriton® pipe using the electrofusion or butt-fusion techniques.

Pipe jointing methods and pipe surface preparation requirements

Pipe diameter (mm)		25	32	63	90	110	125	160	180
Mechanical compression fittings	SDR11	•	•	•					
Redman™ hydraulic fittings	SDR11			•	•	•	•	•	•
	SDR17			•	•	•	•	•	•
Electrofusion	SDR11 SDR17				•	•	•	•	•
Butt-fusion	SDR11 SDR17				•	•	•	•	•
Gunmetal tapping tee	SDR11 SDR17			•	•	•	•	•	•

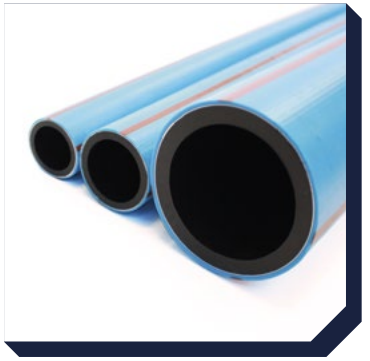
● No pipe surface preparation required. Ensure the pipe outer surface is clean and free from damage

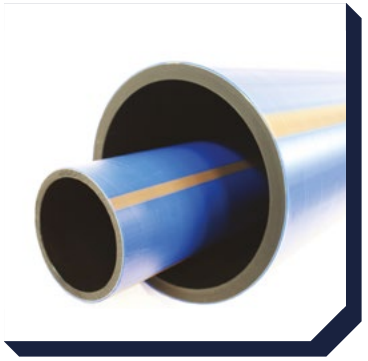
● Pipe surface preparation mandatory

Connecting Puriton® to an existing pipeline or an alternative pipeline components

To ensure that the barrier properties of the system are maintained, only Puriton® fittings should be used to connect Puriton® pipe. The use of non Puriton® fittings may compromise the barrier properties of the Puriton® system.

When connecting Puriton® to an existing pipeline or an alternative pipeline component, it is important to ensure that the barrier properties of the system are maintained*. Radius Systems recommend that connections and terminations to and from the Puriton® system are made using approved Puriton® fittings:





For Puriton® pipes in diameters 25, 32 and 63mm

- Radius Systems recommend the use of their range of BSP threaded adaptors from the Puriton® mechanical fittings range

For Puriton® pipes in diameters 63mm and above

- Radius Systems recommend the use of their range of Puriton® flange adaptors, with the option of either Redman™ flange adaptors or polyethylene stub flange assemblies.

* Please seek guidance on the barrier properties of the existing pipeline or alternative pipeline components.

Jointing overview - pipe surface preparation tools

Rotary pipe surface preparation tools for electrofusion and butt-fusion jointing

Pipe surface preparation is mandatory when joining Puriton® pipe in diameters 90 to 180 mm using the electrofusion or butt-fusion jointing techniques. Dedicated equipment has been designed to locally remove the outer polyethylene and aluminium barrier layers.

- In partnership with tooling suppliers, Radius Systems have developed their 2-pass rotary pipe preparation process.
- The 2-pass process fully removes the aluminium and outer PE Layers
- When completed correctly the PE core pipe surface is free from contamination and provides a pristine surface for electrofusion or butt-fusion jointing
- Pipe preparation is minimised to the depth of the electrofusion socket to maximise the barrier properties of the pipe

Puriton® first pass scraping blade with distinctive profiled head and 'domino' spot for identification. A standard blade is used for the second pass

This equipment is available for sale or hire from the suppliers below:

www.caldertech.co.uk

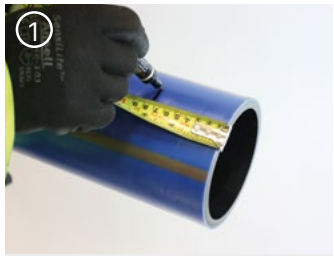
www.sunbeltrentals.co.uk

www.hyram.com

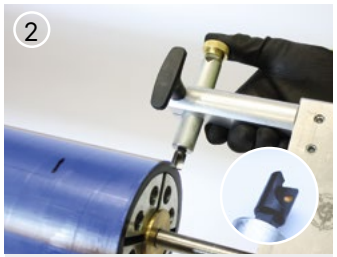
www.mcafusionhire.co.uk

Jointing overview - electrofusion

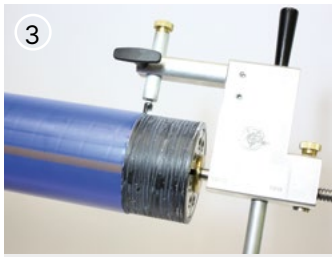
Pipe preparation is mandatory before carrying out an electrofusion joint. A 2-pass pipe surface preparation process is required for jointing Puriton® pipes.



Ensure the pipe surface is clean and free from damage. Re-round if necessary. Measure and mark the fitting insertion depth on the pipe.



First pass
Select the correct size tooling and 'domino' spot cutting blade and carry out the first pass of the pipe surface preparation.



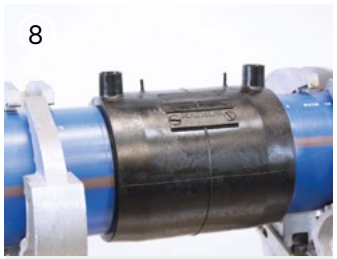
Rotate the tool anti-clockwise to remove the outer PE and aluminium layers up to the fitting insertion depth mark.

Second pass
Select the standard pipe preparation blade to carry out the second pass of the pipe surface preparation.

Rotate tool continuously in an anti-clockwise direction. This removes a continuous layer of polyethylene swarf. Keep the environment clean, removing all pipe shavings and offcuts and dispose of them responsibly.

Place the fitting on the pipe end as shown. To avoid contamination, keep the fitting in its packaging until you are ready to insert the second pipe

Repeat the pipe surface preparation for the second pipe to be joined and fully insert into the fitting.



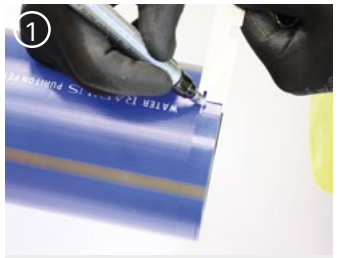
Fit alignment clamps and follow industry best practice to fuse the fitting. There is no requirement to wrap the finished joint.

Important note
The pipe's prepared surface should be equal to the socket insertion depth.

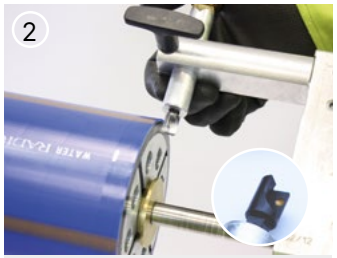
DO NOT scrape beyond the fitting's socket insertion depth.

Jointing overview - butt-fusion

Pipe preparation is mandatory before carrying out a butt-fusion joint. A 2-pass pipe surface preparation process is required for jointing Puriton® pipes.

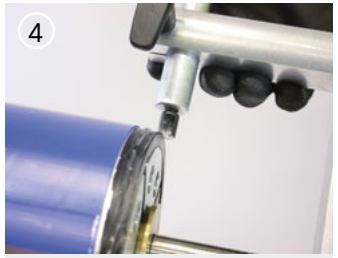


Ensure the pipe surface is clean and free from damage. Re-round if necessary. Mark the minimum pipe preparation distance using the Puriton® butt-fusion gauge*.

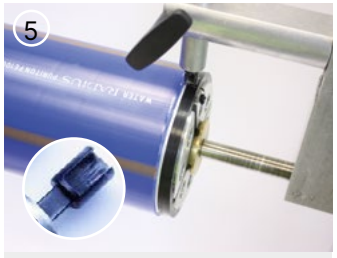


First pass
Select the correct size tooling and 'domino' spot cutting blade and carry out the first pass of the pipe surface preparation.

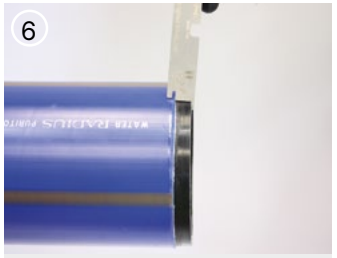
Rotate the tool anti-clockwise, to remove the outer PE and aluminium layers up to depth mark.



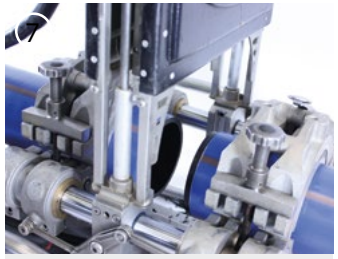
Second pass
Select the standard pipe preparation blade to carry out the second pass of the pipe surface preparation.



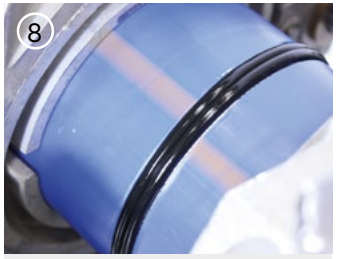
Rotate the tool continuously in an anti-clockwise direction. This will remove a continuous layer of polyethylene swarf. Please keep the environment clean, by removing all pipe shavings and offcuts and dispose of them responsibly.



Check the correct pipe surface distance using the Puriton® butt-fusion gauge. Prepare the second pipe following steps 1 to 5.



Follow the water industry standard butt-fusion procedure. Program the butt-fusion unit with the correct pipe parameters.



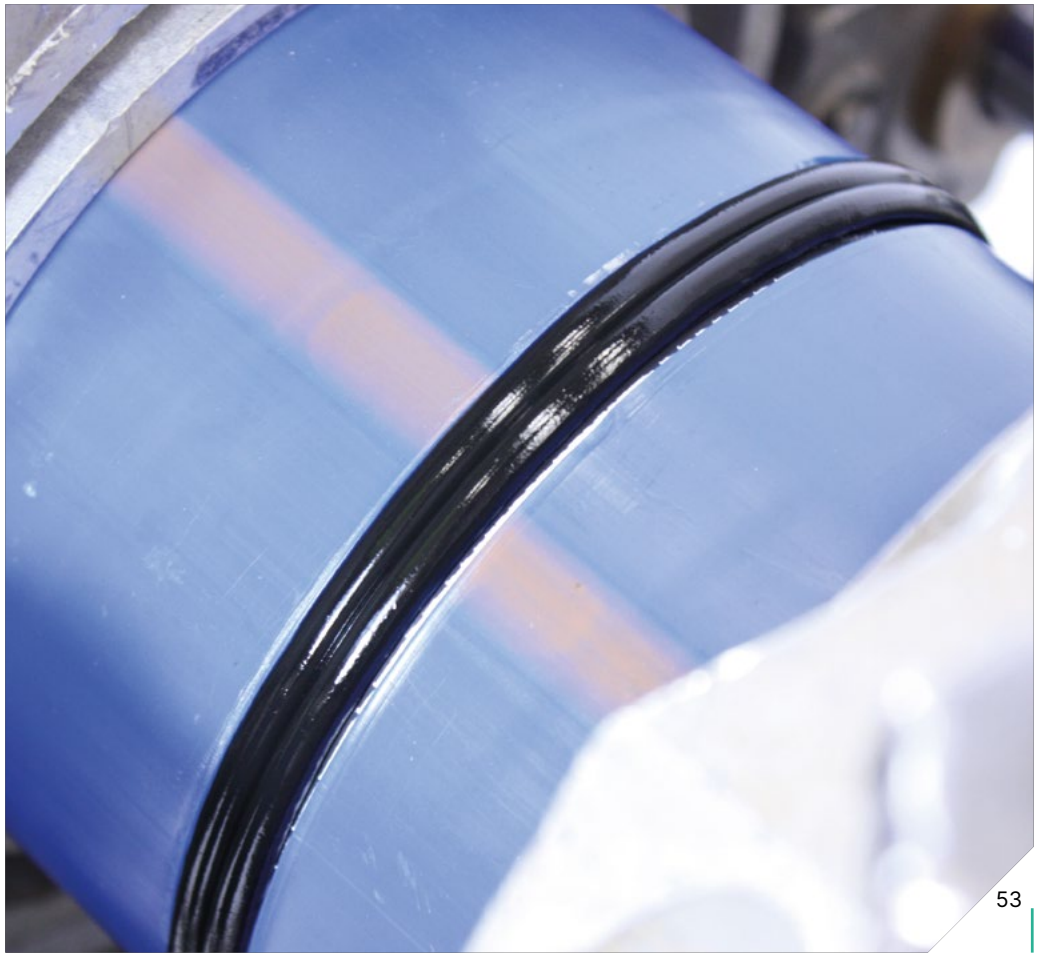
Finished joint. Remove external bead and perform a bend back test to assess joint quality. There is no requirement to wrap the finished joint.

*Please contact Radius Systems for more information

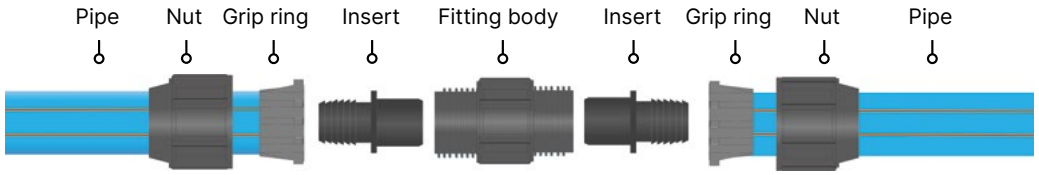
Minimum pipe preparation distance

Butt fusion guidance without Radius Systems pipe preparation gauges, the table below provides measurements to enable correct pipe preparation prior to butt fusion welding.

Nominal pipe O.D. mm	Skin removal tolerance ±1mm	Exposed core pipe length after trim ±1mm	Final bead width tolerance min - max
90	11	7	8 - 18
110	11	7	9 - 16
125	13	8	9 - 16
160	14	9	9 - 16
180	15	10	10 - 17



Jointing overview - mechanical fittings



Ensure the pipe is cut square and is damage free. Re-round if necessary. Slide the nut and grip ring on the pipe.

Using a rubber mallet, gently tap the insert fully into the pipe end.

Push the pipe with the insert fully into the body of the fitting.

Slide the grip ring so it is flush with the pipe insert.

Hand tighten the nut onto the body of the fitting.

Repeat steps 1 to 5 for the second pipe to be joined.

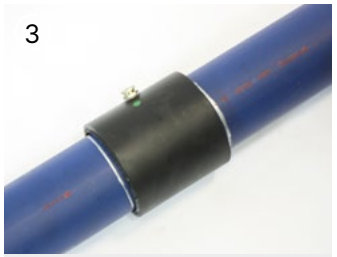
Using C ring wrenches fully tighten the nuts onto the body of the fitting.

The joint is complete. Carry out a water industry approved joint pressure test to check for leak-tightness. There is no requirement to wrap the finished joint.

Jointing overview - Redman™ coupler

Mark half the insert length on both pipe ends. Slide the outer shell over the pipe and fit the insert inside the pipe up to the centre stop

Push the second pipe fully over the insert up to the centre stop



Slide shell across pipes so it is positioned between the marks. The joint is ready to be pressurised. Follow joint pressurisation procedure on page 58*.

Jointing overview - Redman™ elbow

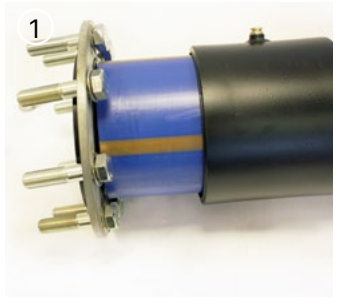
Mark the shell length on both pipe ends. Slide the shells over the pipe ends

Push the pipes up to the stops on the insert

Slide the shells up to the insert stops. The joints are ready to be pressurised. Follow the joint pressurisation procedure on page 58*.

*Only use the recommended Redman hydraulic pump when pressurising the Redman fitting. Ensure the pump is calibrated and in good condition. Ensure the pump unit is full with the recommended biodegradable oil before starting the jointing process

Jointing overview - Redman™ stub flange



Important: when constructing a Redman™ flange adaptor joint, ensure the bolts (with washers) are assembled through the backing ring, as shown in 1, before making the joint. The final position of the Redman™ shell must allow clearance for bolt tightening, as seen in 2.

Jointing overview - Redman™ Repair coupler jointing overview for tie-ins and pipe repair

1

1. Cut out the damaged pipe section and cut a repair section as per the table of dimensions below (Table 1).
2. Lay out the fittings and mark the shell length on all pipe ends

For 63 mm pipeline repair
Only 1 long shell per joint is used
Follow step 1 above and mark a distance of 50 mm on all pipe ends

2

1. Position the shells over the pipe.
2. Push the long section of the inserts inside the repair section up to the pipe stops.
3. Ensure the shells are positioned up to the pipe ends

For 63 mm pipeline repair
Position the shells on the existing pipes, then follow step 2 above

3

1. Position the repair section centrally between the 2 existing pipe ends.
2. Slide the 2 inserts across and centralise between the pipes on each side.
3. Ensure the exposed insert section is between the peg and the brown tape.
4. The joints are ready to be pressurised. Follow the joint pressurisation procedure on page 58*.

For 63 mm pipeline repair
Follow steps 1 and 2 above. The profiled inserts must be positioned into the pipe ends. Slide the shell in position centrally between the marks (see coupler jointing instructions).

*Only use the recommended Redman hydraulic pump when pressurising the Redman fitting. Ensure the pump is calibrated and in good condition. Ensure the pump unit is full with the recommended biodegradable oil before starting the jointing process

Table 1 [Pipe repair length] = [Pipe cut-out length] - [X value]

Pipe Diameter	Minimum cut-out length	'X' value
63 mm	300 mm	94 mm
90 mm	420 mm	126 mm
110 mm	460 mm	144 mm
125 mm	540 mm	166 mm
160 mm	620 mm	204 mm
180 mm	740 mm	228 mm

Example - 90 mm pipe

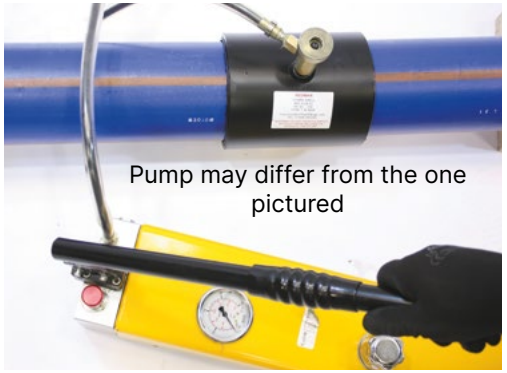
Cut-out length = 500 mm
'X' value = 126 mm
Repair length
= [Cut-out length] - [X value]
= (500 mm - 126 mm)
= 374 mm

One of the benefits of the Puriton repair fittings is their suitability for tie-in joints. Tie-in joints are used when two pipes installed at opposing ends need to be joined at the position where they meet or overlap to form one pipeline.

The Redman™ repair shells should first be positioned over the two pipes to be joined. The insert can then be inserted into one pipe spigot, while the second pipe is cut to length, with some allowance (refer to the insert dimension, L2 in the Redman repair fitting's dimension table) to allow installer to slide the insert into the spigot of the second pipe. Slide and position the repair shells on the pipe ends before carrying out the joint pressurisation.

Jointing overview - Redman™ Joint pressurisation - procedure for all Redman™ fittings

Only use the Redman™ pump when pressurising the Redman™ fitting. To ensure the pump is calibrated and regularly maintained



Pump may differ from the one pictured

Redman™ fittings will contain a residual volume of oil from the manufacturing quality control pressurisation test*.

1. Loosen the thumb wheel on the connector and slide the connector onto the fitting nipple. Re-tighten the thumb wheel. Caution: do not attempt to remove the fitting's pressurisation nipple whilst the fitting is pressurised
2. Operate the pump until the pressure reaches 260 bar. The relief valve will engage to prevent over-pressurisation
3. Allow the pressure to settle for 20 seconds and re-pressurise to 260 bar
4. Repeat the pressurisation for a third time
5. The joint is now complete
6. After 1 minute, de-pressurise the pump by pressing and holding the red button beside the pump handle
7. Ensure that the pressure gauge stabilises at zero before attempting to remove the pump connection from the fitting. Depress the red button to remove the connector removal process
8. Loosen the thumb wheel on the connector and slide it off the fitting's nipple. Be cautious of any oil leakage

* Safety data sheet for quality control oil available on the website

Safety data sheet fo Biodegradable hydraulic oil for pressurisation available on request

Redman™ fitting pressurisation oil use

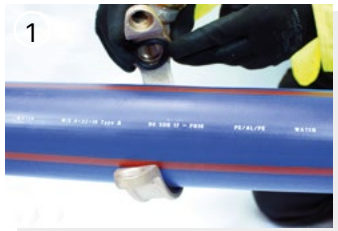
Fitting diameter	Number of fittings pressurised per 1 litre of Redman™ oil*
63 mm	15 - 20
90 mm	8 - 10
110 mm	5 - 7
125 mm	3 - 5
160 mm	1 - 2
180 mm	1

* Figures are for guidance only.

Hydraulic pumps and recommended hydraulic oil are available direct from Radius Systems.

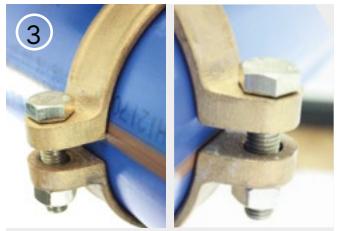
For further guidance on jointing our Redman™ fittings range, please contact Radius Systems t: +44 (0) 1773 811112

Jointing overview - tapping tees



Ensure pipe surface is clean and free from damage. Re-round the pipe where required. Place the O-ring seal into the recess of the tapping tee base and place the fitting onto the main.

Equally tighten the nuts on both sides of the tapping tee.



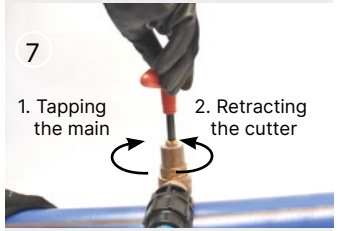
Ensure the distances between the 'lugs' are identical and parallel on both sides.

Carry out the service pipe connection to the tapping tee outlet, following the jointing overview in this brochure.

Using C ring wrenches fully tighten the nuts onto the tapping tee outlet.

Carry out a water industry approved joint pressure test to check for leak-tightness.

Using a 3/8" T key, remove the tapping tee dust cap and seal.



1. Tapping the main
Use a hexagonal 3/8" T key and turn in a clockwise direction. The cutter must come to a definite stop.

2. Retracting the cutter
Turn the T key in an anti-clockwise direction. The cutter will come to a definite stop at the top of the tapping tee stack

Replace the dust cap and tighten. The connection is complete. Visually check for leak-tightness. There is no requirement to wrap the finished joint.

FAQS

Why are there 2 different polyethylene pipe materials used within the range of Puriton® pipes?

To maintain the current industry convention that PE80 materials are used for small diameter service pipes and PE100 materials are used for mains pipes:

- Puriton® pipes in diameters 25, 32 and 63 mm are manufactured from a PE80 black core and a PE80 light blue outer
- Puriton® pipes in diameters 90 to 180 mm are manufactured from a PE100 black core and a PE100 dark blue outer.

When referring to barrier pipe systems, what does the term 'Type A' refer to?

Radius Systems' Puriton® pipe is a multi-layer composite structure 'Type A' pipe, as defined in British Standard BS 8588 ('Polyethylene pressure pipe with an aluminium layer and associated fittings for potable water supply in contaminated land').

'Type A' Puriton® pipes are multi-layer pipes, where the black PE core is designed to accommodate the internal pressure and where the aluminium layer and the outer PE layer are respectively, the barrier and protection layers. Both outer layers do not contribute to the pipe's overall pressure rating.

The introduction of BS 8588 outlines the material and mechanical performance requirements for barrier pipe systems. Importantly, it also specifies their capability to protect the water quality when installed as part of a potable water supply system in contaminated ground. One of the key performance tests required by BS 8588 is the pipe system's resistance to the permeation of soil contaminants. Radius Systems' products evaluated in accordance with the permeation requirements, have been successfully tested without the need for external protective wrapping of the joint.

Are the dimensions of Puriton® pipes the same as those of conventional SDR11 and SDR17 pipes?

The dimensions of the Puriton black core pipe meet the requirements of BS EN12201 (SDR11 & SDR17), both the aluminimum and protective outer polyethylene layer are additional protective layers which increase the overall wall thickness and pipe outer diameter

What are the pressure ratings of Puriton® pipes?

Puriton® pipe maximum operating pressures:

- PE80 SDR11 service pipe 25 to 63 mm: 12.5 bar
- PE100 SDR11 mains pipe 90 to 180 mm: 16 bar
- PE100 SDR17 mains pipe 90 to 180 mm: 10 bar

Where can I find detailed jointing instructions for the system?

Jointing instructions in PDF format and videos are available to download from the Radius Systems' website:

Jointing instructions for the mechanical fittings, Redman™ fittings and the tapping tees are also included in the fittings' packaging.

How do I connect 90 mm Puriton® pipe to 63 mm Puriton® pipe?

63 mm and 90 mm Puriton® pipes are joined together using 63 x DN80 and

90 x DN80 Redman™ flange adaptors.

When I have made a joint or connection onto Puriton® pipe using Puriton® fittings and following Radius Systems' Puriton® jointing guidance, do I need to wrap the joint with an additional aluminium or protective barrier tape?

Once the joint is made, there is no requirement to wrap the Puriton® joint with additional aluminium or protective barrier tape.

Radius Systems has evaluated the Puriton® jointing system without the use of additional aluminium or protective barrier tape.

Can I use fittings from other manufacturers with Puriton® pipe?

Radius Systems only recommend the use of Puriton® fittings with Puriton® pipe, to ensure that the barrier properties of the Puriton® system are maintained. The use of non Puriton® fittings may compromise the barrier properties of the system.

Follow guidance on page 29 within this brochure

What are the recommended installation techniques for Puriton® pipe?

Puriton® pipe is typically installed using the open-cut technique. However, alternative techniques like 'slip lining' and 'horizontal directional drilling' can be used. Particular care must be taken to ensure that the outer polyethylene layer is not damaged to an extent that the aluminium barrier is exposed. This will compromise the barrier properties of the pipe.

When installing a Puriton® pipe, what should I do if the outer polyethylene layer becomes damaged and the aluminium layer is exposed?

To maintain the integrity of the aluminium layer and the barrier properties of the system, we recommend that the damaged section of the pipe is removed and replaced with undamaged pipe.

Do I need to use a PTFE thread tape for the male threaded connection when using mechanical fittings and the Redman™ 63 × 1½" BSPF/2" BSPM fitting?

To ensure that the system is leak-tight, only WRAS approved PTFE thread tape should be used.

Is the pressure applied to make a Redman™ fitting joint dependent on the fitting size?

No, all Redman™ shells irrespective of size, should be pressurised to 260 bar to make the joint.

How do I know if the correct pressure has been applied to the Redman™ fitting?

All Redman™ pumps are set to 260 bar pressure. The Redman™ pump should be operated in a continuous process until it reaches the required pressure indicated on the gauge. When 260 bar is reached, there is a pressure relief valve that will activate to prevent over pressurisation of the joint. The instructions contained in this brochure detail that the pump process should be carried out 3 times, to ensure the correct pressure has been applied.

When making a Redman™ joint, is there a problem if oil leaks from the connector?

There should be no leakage from the connector during pressurisation. A small oil leak is not problematic as long as the correct joint pressure is achieved.

It is recommended that if the connector is leaking, cease pumping and take the following actions: de-pressurise the outer shell by pressing the pressure release button (red); examine the connector for any problem, report if a problem is found. Re-make the connection if no fault is found.

If the connector continues to leak during pressurisation, report the problem.

What advantages does Redman™ jointing have over other jointing methods?

Redman™ fittings are a robust mechanical alternative to other fittings. There is no requirement for pipe surface preparation and they are not reliant on a clean and dry environment. Joints can be made if the pipes are submerged in water, which makes the Redman™ fitting suitable for difficult repair situations.

Why is there a requirement to use an insert with Redman™ fittings?

The Redman™ jointing process uses a compression technique to lock the PE pipe in place. The outer shell contracts radially reducing the internal diameter of the shell which compresses the pipe onto the Redman™ fittings insert. The ribs formed on the pipe provide an increased grip which gives the joint its end load resistant strength.

Is it possible to join SDR17 to SDR11 pipe with a Redman™ fitting?

No, Redman™ fittings come with a single insert for a single pipe thickness. They can only be used if the SDR of the pipes to be joined are identical.

When making a Redman™ joint where should I stand relative to the fitting?

The Redman™ jointing process is a high pressure process. Radius Systems recommend that during the fitting pressurisation process, the operator stands at a safe distance away from the pump, using the full length of the hose. Do not hold the fitting or the pressurisation connection during the pressurisation process. Do not remove the pump hose connector from the fitting before the full jointing process is complete and the pump pressure relief valve is depressed. Ensure that the pump pressure gauge registers zero pressure before the connector is removed from the fitting.

Can I use an alternative fluid to pressurise the Redman™ fitting?

No. Only use Redman™ Biodegradable Hydraulic Oil with Redman™ fittings. MSDS data sheets available on the website

Can I mix and match shell and insert types?

No the outer shell and insert are designed to be used together. Shells from one fitting should not be used with another fitting type.

After the fitting has been pressurised and the joint made, oil weeps from the fitting, causing loss of pressure in the fitting. Is this classed as a failure? – Do I need to top up the fitting's pressure?

No. Once the joint is correctly made, the pressure within the Redman™ fitting will naturally subside, this is normal. There is no requirement to repeatedly pressurise the fitting once the full jointing procedure is complete and the joint is made.

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 is 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, valves, training 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.

- Great 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.

RADIUS SYSTEMS

UK Head Office

Radius Systems Ltd
Radius House, Berristow Lane
South Normanton, Alfreton
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)28 4066 9999
e: info@radius-systems.com

Find us on

www.radius-systems.com