



RADIUS
Systems

SEWER SYSTEMS

Ultra Fortis

Gravity Sewer

4000 PSI

**WATER JETTING RESISTANT
SEWER SYSTEM**

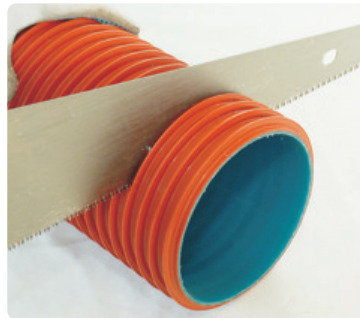
Installation guidance

Joining Ultra Fortis

Radius Systems' Ultra Fortis uses a simple spigot and socket (push fit) system with a high performance non handed rubber ring seal to provide a leak-tight joint. Once positioned between the 2nd and 3rd ribs, the ring seal is captive and displacement during jointing should not occur.



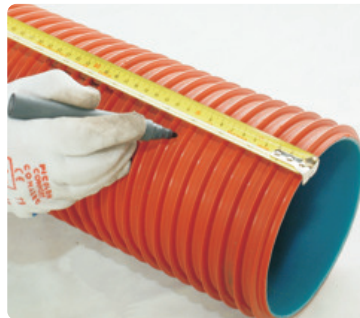
1. Ensure that the pipe is cut squarely between the 2 inner ribs before making the joint



2. Cut the pipe midway between the ribs using a general purpose 10 t.p.i hand saw. Chamfering the pipe spigot is not required



3. Remove the burr from the pipe end using a standard deburring tool



4. Where slip couplers are used, mark half a coupler length from the end of the pipe spigot



5. Place the sealing ring between the 2nd and 3rd ribs from the spigot end of the pipe. Ensure the sealing ring is not twisted



6. Apply a small amount of lubricant to the sealing ring



7. Prepare the second pipe following the above procedure



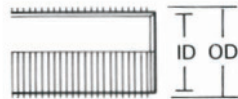
8. Push the coupler onto one pipe end. Using a block and bar if necessary, press the end of the 2nd pipe fully into the coupler or to the slip coupler marks

Important note

The Ultra Fortis sealing rings are specifically designed to fit the Ultra Fortis system. To maintain the integrity of the system, installers should not use other types of sealing rings other than those specified by Radius Systems.

Product range

Pipe

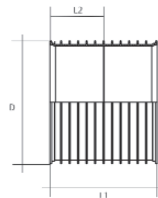


Size (mm)	Spigot dimensions (mm)		Product Code (based on 3m lengths)
	OD	ID	
150	170	147	6UF3S
225	250	219	9UF3S
300	335	296	12UF3S

Each 3m length of Ultra Fortis plain ended pipe is supplied with a coupler and sealing rings

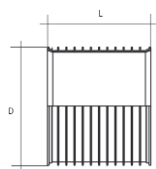
Fittings

Couplers - double socket (with central stop)



Size (mm)	Dimensions (mm)			Product Code
	D	L1	L2	
150	170	185	87	6UFD
225	250	239	113	9UFD
300	335	300	148	12UFD

Couplers - double socket (without central stop)



Size (mm)	Dimensions (mm)		Product Code
	D	L	
150	170	185	6UFDSC
225	250	240	9UFDSC
300	335	300	12UFDSC

Important note

All socketed fittings are supplied with Ultra Fortis sealing rings. These sealing rings are specifically designed to fit the Ultra Fortis system. To maintain the integrity of the system, installers should not use other types of sealing rings other than those specified by Radius Systems.

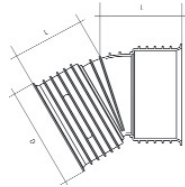
Radius Systems reserves the right to amend and change the specification and design of any product in this brochure without any prior warning.

Ultra Fortis® 4000 psi jetting resistant sewer system

Product range

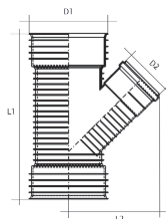
Fittings

Short radius bends



Angle	Size (mm)	Dimensions (mm)		Product Code
		D	L	
45°	150	170	138	6UF25D
45°	225	250	196	9UF25D
45°	300	335	285	12UF25D
30°	150	170	125	6UF27D
30°	225	250	205	9UF27D
30°	300	335	230	12UF27D
15°	150	170	114	6UF29D
15°	225	250	162	9UF29D
15°	300	335	200	12UF29D

45° Unequal junctions - all socket^b

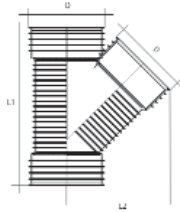


Size (mm)	Dimensions (mm)				Product Code
	D1	D2	L1	L2	
150 x 110 ^b	170	110	455	466	6UF4D33
150 x 160 ^b	170	160	455	350	6UF6D33
225 x 110 ^b	250	110	586	465	9UF4D33
225 x 150	250	170	586	461	9UF6JD
225 x 160 ^b	250	160	586	371	9UF6D33
300 x 110 ^b	335	110	798	549	12UF4D33
300 x 150	335	170	798	451	12UF6JD
300 x 160 ^b	335	160	798	433	12UF6D33
300 x 225	335	250	798	568	12UF9JD

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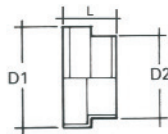
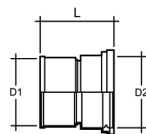
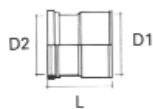
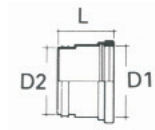
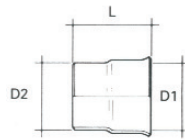
^b Some branches include a PVDC-u adaptor

45° Equal junctions - all socket



Size (mm)	Dimensions (mm)			Product Code
	D	L1	L2	
150	170	429	265	6UFJD
225	250	615	439	9UFJD
300	335	798	567	12UFJD

Adaptors ^c



Description	Size (mm)	Dimensions (mm)			Product Code
		D1	D2	L	
Adaptor with Ultra Fortis socket to BS EN 1401 spigot Push fit connection	150	170	160	180	6UF71
Adaptor 150mm Ultra Fortis spigot to 160mm BS EN 1401 socket Push fit connection	150	170	160	121	6UF72
Adaptor with Ultra Fortis socket to BS EN 1401 socket Push fit connection	150	170	160	177	6UF77
Adaptor with 150mm Ultra Fortis socket to 150mm Supersleve socket Push fit connection	150	170	178	193	6UF70SS
Adaptor to 150mm Densleeve socket	150	170	150	100	6UF70DS
Adaptor with Ultra Fortis socket to BS EN 1401 clay and concrete socket Mechanical connection	150 225 300	170 250 335	150 278 378	100 134 160	6UF70 9UF70 12UF70

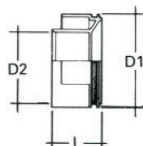
Important note

All socketed fittings are supplied with Ultra Fortis sealing rings. These sealing rings are specifically designed to fit the Ultra Fortis system. To maintain the integrity of the system, installers should not use other types of sealing rings other than those specified by Radius Systems.

^c Some of these fittings are manufactured from PVC-u

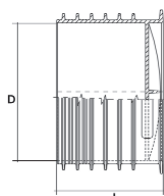
Ultra Fortis® 4000 psi jetting resistant sewer system

Level invert reducers ^d



Size (mm)	Dimensions (mm)			Product Code
	D1	D2	L	
150 x 110	170	110	112	6UF4T
225 x 150	250	170	145	9UF6T
300 x 225	335	250	153	12UF9T

End caps and Socket plugs



Description	Size (mm)	Dimensions (mm)		Product Code
		D	L	
End cap	150	170	181	6UF68
Socket plug	225	250	103	9UF68
	300	335	168	12UF68

Ancillaries

Testing plugs



Size (mm)	Pipe size range (mm)	Product Code
150	141 to 165	6UFTP
225	215 to 241	9UFTP
300	295 to 325	12UFTP

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^d These fittings are adapted to a BS EN 1401 socket outlet

Product range

Ancillaries

Sealing rings



Size (mm)	Product Code
150	6UF86
225	9UF86
300	12UF86

Important note

All socketed fittings are supplied with Ultra Fortis sealing rings. These sealing rings are specifically designed to fit the Ultra Fortis system. To maintain the integrity of the system, installers should not use other types of sealing rings other than those specified by Radius Systems.

Lubricant



Description	Product Code
500g tub	LUB500



Richard Hennessey

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DE55 5JD

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Our ref
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5 August 2009

Ultra Fortis pipes - acceptability by Thames Water

Dear Richard

I am happy to confirm the following:

Ultra Fortis pipes satisfy Thames Water's requirements for acceptance as public sewers and lateral drains in the size range 150-300mm.

For structured walled plastic pipes, Thames Water requires that pipes have a jetting resistance of at least 4000psi when tested in accordance with Clause 6.10 and Appendix C of WIS 4.35.01. It is noted that Ultra Fortis has been externally verified to meet this requirement by BSI.

This requirement will be reviewed in April 2010 when the new technical standard for sewers and lateral drains is published..

Yours sincerely

A handwritten signature in blue ink, appearing to read "Don Ridgers".

Don Ridgers

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FAO – Developers, Contractors and Purchasers

Re – Ultra Fortis Pipe and Fittings Gravity Sewer System – Product Approval.

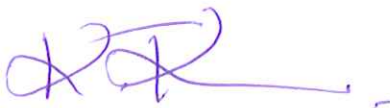
Date 23 June 2009

Dear Sir,

Anglian Water Services Limited gives full acceptance for the installation of the Ultra Fortis pipe and fittings gravity sewer system within its operational boundaries and confirms the product has been approved by BSI and awarded the Kitemark in accordance with WIS 04-35-01 against licence number KM 78365.

All Ultra Fortis pipe and fittings gravity sewer system installation's comply with sewers for adoption 6th edition and will therefore be classed as suitable for adoption.

Yours Faithfully,



Karen Thompson
Water Materials Senior Buyer
Anglian Water Services Ltd.

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Mr R Hennessy
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PO Box 1
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Derbyshire
DE55 5JD

Your Ref

Our Ref
BNL/New products

Date
13th August 2009

Contact
Tel 01903 272081
Fax 01903 272010

Dear Mr Hennessy

Radius Systems – Ultra-Fortis

Southern Water's requirements for structured wall plastic pipes are as follows:

- Pipes $\leq 300\text{mm}$ must have a jetting resistance of at least 4000psi when tested in accordance with WIS 4-35-01
- Pipes $> 300\text{mm}$ and $\leq 900\text{mm}$ must have a jetting resistance of at least 2600psi when tested in accordance with WIS 4-35-01
- All pipes must conform to all other requirements of WIS 4-35-01

Following the recent provision of independent test certificates demonstrating compliance with these requirements, approval is given to the use of 150mm, 225mm and 300mm diameter Ultra-Fortis pipes and fittings.

Approval of the use of any structured wall plastic pipe is dependent on suppliers providing adequate training to contractors to ensure that pipes are handled, stored and laid correctly.

Yours sincerely

A handwritten signature in black ink, appearing to read "B N Luck".

B N Luck
Sewerage Strategy Manager



Installation & Training

Prior to installing the Radius Systems' Ultra Fortis sewer system for the first time, it is recommended that training on the correct method of installation should be carried out by all installers. Radius Systems provide a bespoke training course on Ultra Fortis system installation. For further details, please contact our Training Business Department on **01773 811112**.

Technical support

We offer full technical support for all our products. All our technical information, including Installation and Maintenance guidelines on Ultra Fortis, is available to download from our website.

Please visit our website for more details: www.radius-systems.com

How to order Ultra Fortis

Ultra Fortis is available to order through Radius Systems' sales and logistics provider WT Burden Group.

Please contact WT Burden on **T: 01293 872400, F: 01293 518791** or visit www.burdens.co.uk for your nearest depot.