

Next Generation  
**UltraGrip**  
Optimum Wide Tolerance & Full End Restraint



**NOW  
AVAILABLE  
UP TO  
DN600**



PIONEERS IN PIPE SOLUTIONS



# Get to grips with the **NEW DN600**



## Key Benefits

- Grips and seals on the most corroded pipes
- Increased diameter range and wide tolerance delivers a reduction in stock holding costs
- Reversible bolts for quick and easy installation
- Easy on site handling delivered through world leading intelligent carrier design
- New design based on proven technology with enhancements to deliver longevity, reliability and total peace of mind
- High performance in both water (uti DN600) and gas applications (uti DN400)
- Innovative progressive gripping design ensures ultimate end load performance



## Overview

### An Advanced Design, Exceptional Performance

Next Generation UltraGrip is designed to offer a solution to joining plain-ended pipes and contains an end load resistant mechanism that grips and seals onto a variety of pipe materials including Cast Iron, Ductile Iron, Steel, PVC and PE.

#### Bigger Sizes DN450 – DN600

Viking Johnson has extended the proven and successful UltraGrip range in sizes up to DN600. This will give the customer a single sealing and gripping product solution to cover the majority of the pipes installed in their underground water network. The larger sized UltraGrip has been methodologically engineered to support a progressive gripping mechanism through an enhanced design, which has a larger footprint to increase the area of actuation at the point of contact, resulting in an evenly distributed gripping function. It has also been designed to accommodate rough on-site handling through an intelligent carrier that maintains the gasket and grippers within the end ring, ensuring the fitting can be easily slid on to the pipe with no interference.

#### PE Solutions

Two solutions for connecting PE and rigid pipes are available. Choose from the UltraGrip range of couplings and adaptors or use the UltraGrip Pecat adaptor.

#### Repair Solutions

UltraGrip offers the ideal solution for repairing severely damaged, corroded or completely shattered pipes in difficult trench conditions. See page 16 for full details.

#### Pipe Materials



Asbestos Cement & GRP pipe materials should not be used with the gripping version of UltraGrip.

See pages 18-21 for use with PVC & PE



**\*Note:** Due to the flexible nature of the plastic pipes, a close fit Stainless Steel internal support liner is required when PE Pipe or thin walled PVC is used to make a repair to prevent excessive pipe deformation which can occur when UltraGrip is installed.

#### Industry Testing

Viking Johnson products undergo intensive performance testing to ensure the strength and integrity of all products meet industry standards.

- ▶ Accelerated Ageing Tests (AAT) to verify 50 year design life expectancy.
- ▶ UltraGrip has been tested on knurled and grooved pipe work to match typical pipe conditions found on many sites around the world.



Knurled and Grooved Pipe



**NOW AVAILABLE UP TO DN600**





# Next Generation UltraGrip

## Overview

## UltraGrip the Ultimate Gripping Technology

### Progressive Gripping

One of the key components of UltraGrip is the progressive gripping mechanism, which enhances its end-load restraint capabilities as the internal pressure in the pipe increases. A unique gripper system is suitable for all recommended pipe materials and combined with an engineered intelligent carrier which ensures maximum gripping strength around the full pipe circumference. This is achieved through uniform movement during installation and bolt-up.

In addition, the grippers are removable, allowing UltraGrip to be converted to a flexible product to allow for axial movement. The gripper and seal sub-assembly can accommodate diameter pipe outside variation up to 54mm, depending on nominal size.



Gripping product  
– to restrain axial loads



Flex product  
– remove grippers

### Ease of Installation

UltraGrip is easy to install on site. The product is pre-assembled to allow for quick positioning over the top and bottom tolerance pipe with reversible captive bolts requiring only a single spanner for tightening. An ideal product to choose when dealing with harsh site conditions such as confined spaces.



UltraGrip  
End Cap

UltraGrip  
Pecatadaptor

UltraGrip  
Flange Adaptor



UltraGrip  
Reducing Coupling

UltraGrip Coupling

### Hygienic Protective Caps

Protection caps have been introduced to keep the fitting clean and free from any contamination. The caps are made of recyclable material to minimise impact to the environment and ensure fittings are clean and ready for use on potable water (uti DN600) or gas (uti DN400) applications.



### Corrosion Protection

UltraGrip metal components are coated with Rilsan Nylon 11, which is WRAS approved for use with potable water. Rilsan benefits include long term corrosion protection and resistance to impact damage. Additionally, the nuts and bolts are stainless steel coated with Dacromet/dry film lubricant, which prevents galling and provides long term corrosion protection.

### Working Pressure & Temperature Ratings

Nominal Size	Gripping Product		Flex Product		Operating Temperature
	Gas	Water	Gas	Water	
DN40 to DN300	5bar	16bar	5bar	16bar	-20°C to +30°C
DN350 to DN400	5bar	10bar	5bar	10bar	
DN450 to DN600	N/A	10bar	N/A	10bar	

(Site Test Pressure – 1.5 times working pressure)

Germany – Bremen

# Valve Replacement on DN500 Cast Iron mains

UltraGrip Flange Adaptors – DN500



## Project

An quick and efficient method of replacement of valves using DN500 UltraGrip Flange Adaptors

## Client

Bremen – Germany

## Distributor

Friatec AG, Mannheim

## Contractor

STEHNKE Bauunternehmung GmbH & Co. Bremen



# Next Generation UltraGrip

## Features & Benefits

### Simple to Fit

- Captive, non-rotating bolts across whole range requiring a single spanner to install.
- Gasket/gripper are fully contained in the end ring housing, ensuring product slides easily over pipes
- Bolt orientation in couplings/reducing couplings can be reversed to suit site conditions.

### Progressive Gripping

- Progressive gripping technology, with increasing end load restraint capability as the internal pressure in the pipe increases.
- Uses grit and friction to mobilise end restraint forces, so will not damage the pipe surface.
- One gripper system suits all recommended pipe materials.
- Gripper has large footprint, reducing the load on the pipe surface.

### Enhanced Gasket Sealing

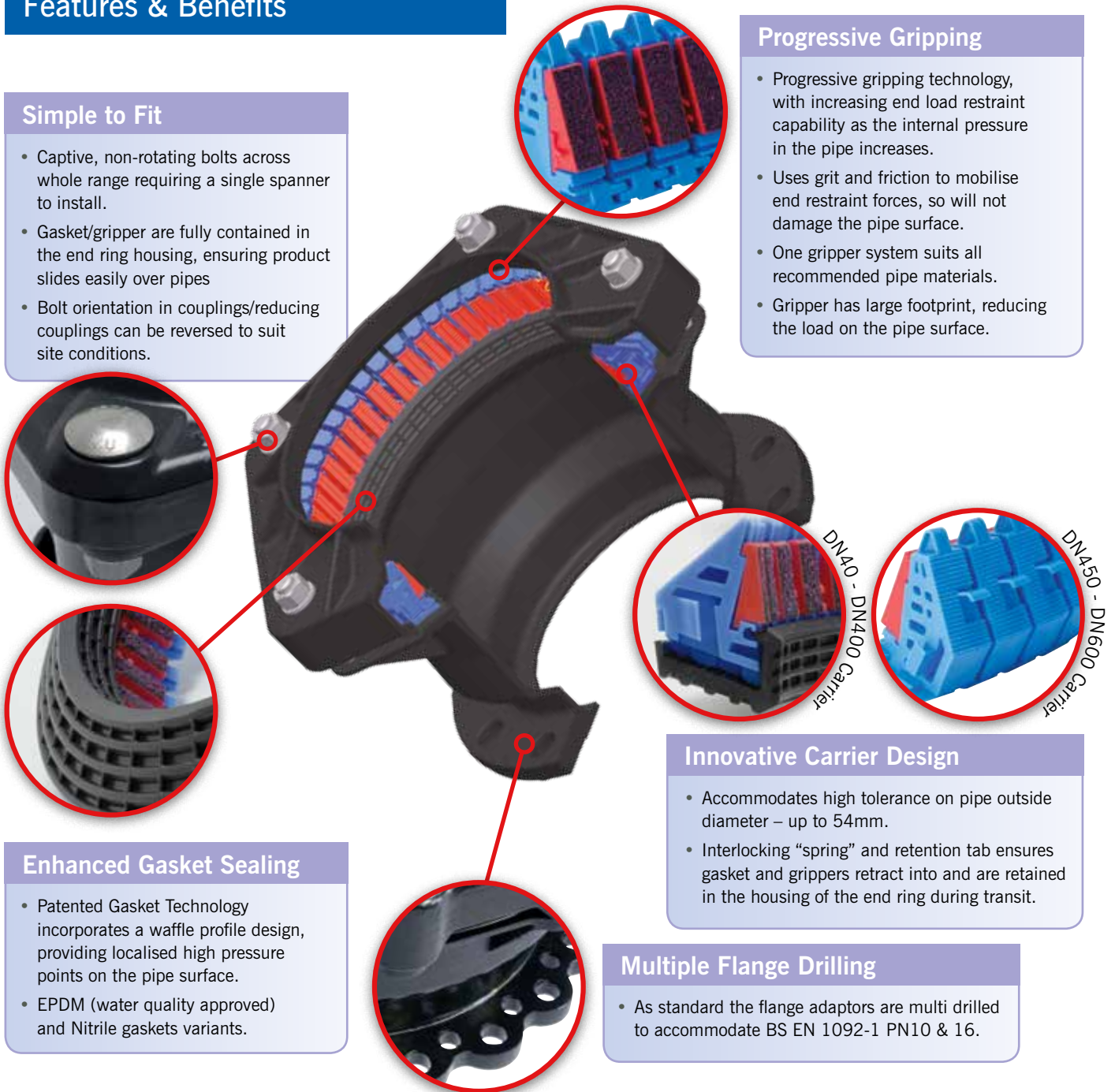
- Patented Gasket Technology incorporates a waffle profile design, providing localised high pressure points on the pipe surface.
- EPDM (water quality approved) and Nitrile gaskets variants.

### Innovative Carrier Design

- Accommodates high tolerance on pipe outside diameter – up to 54mm.
- Interlocking “spring” and retention tab ensures gasket and grippers retract into and are retained in the housing of the end ring during transit.

### Multiple Flange Drilling

- As standard the flange adaptors are multi drilled to accommodate BS EN 1092-1 PN10 & 16.



## Customer Benefits

- High performance in both water (uti DN600) and gas (uti DN400) applications verified through proven Accelerated Aging Tests (AAT).
- All water contact materials approved for use with potable water (WRAS).
- Full end load resistance capability at full angular deflection.
- Eliminates the need for using expensive thrust blocks through proven progressive mechanism that accommodates end load forces from internal pressure in the pipeline.
- Wide Tolerance offering “one size per nominal bore” up to DN400
- Fully pre-assembled product ensures simple and quick onsite installation with product easily sliding over pipe.
- Reversible bolts offer flexibility to operators to select best means of installing fittings in applications with restricted access.
- Rough on site handling is accommodated through Rilsan coating that withstands high levels of deformation / impact damage.
- Intelligent carrier design that ensures gasket and grippers are contained within the end ring, ensuring the product arrives on site ready for installation on top tolerance pipe.

# Next Generation UltraGrip: Pecadaptors & End Caps

## Features & Benefits

### Long length of PE pipe for fusion jointing

- 500mm long PE100 SDR11 PE pipe which is factory assembled and can accommodate two electrofusion connections.



### Reliable type 1 transition joint

- An integral Type 1 factory fitted connection between PE and UltraGrip end ready for fusion jointing into the network.
- The factory connection between PE and metal is stronger than the PE pipe.

## Customer Benefits

- A reliable factory fitted and transition jointing solution for metal to PE pipes for customers who do not intend to make an on-site transition.
- An integral and full end load bearing solution from Ultragrip end to PE pipe which ensures longevity of the joint as the Pecadaptor is stronger than the pipe itself.
- Fully pre-assembled product for simple on-site installation from metal to PE pipes.
- When making an electrofusion connection to the network, the length of the PE pipe on the Pecadaptor can accommodate two electrofusion connections, providing a second chance for correct installation.
- Reduced stock holding as the Ultragrip end can be fitted on a wide variety of pipe materials through the wide tolerance.

### Sheraplex Bolts

- The End Caps are supplied with Sheraplex coated steel bolts to BS EN ISO 898-1, which offers long term corrosion protection and resistance to impact damage. This allows flexibility for reuse.



### Connect to a threaded pipe

- The Ultragrip End Cap is designed with the option of a radial and axial boss in sizes ranging from 1/2" - 2" BSP outlets to act as an air inlet or air release points.

## Customer Benefits

- The end caps are designed to either blank off a pipe end or use as a test end.
- Options for drilled and tapped bosses are available
  - Axial - to act as an inlet/drainage point (Min= 1/2", Max=2", All sizes)
  - Radial - to act as air release/bleed hole (Min= 1/2", Max=2", depending on diameter)
- End caps supplied with Sheraplex coated steel bolts allow repeatable use without the need to lubricate threads.
- Option for stainless steel bolts available.



## Holland Enschede

City Mains - Connecting new PE  
by-pass pipeline to an existing  
asbestos cement pipe network

UltraGrip Coupling DN400

### Project

An installation in Enschede of two DN400 UltraGrips. Upgrade ensures that 'city water' after heavy rains can be transported away from key buildings and infrastructure.

### Client

Vitens

### Contractor

A.Hak

### Distributor

Imbema





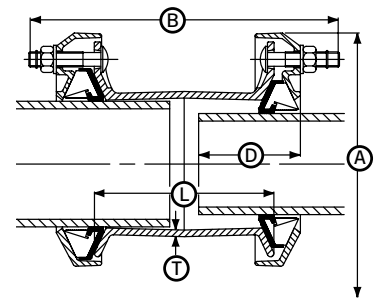
# Next Generation UltraGrip Couplings

## Specifications

### Couplings

► Up to 8° angular deflection

Nom Size	Size Range		Insertion Depth (D)		Dimensions				Bolts		Weight Kg
					Overall		Sleeve		No-size	Type	
	Min	Max	Min	Max	A	B	L	T			
40	43.5	63.5	65	95	168	262	144	7.0	6-M12x70	HRH	5.76
50	48.0	71.0	65	110	178	296	180	5.0	6-M12x70	CSX	6.13
65	63.0	83.7	65	95	189	262	144	7.0	6-M12x70	HRH	6.86
80	85.7	107.0	65	110	212	288	170	7.0	6-M12x70	HRH	8.54
100	107.0	133.2	90	125	280	342	180	7.0	6-M16x93	CSX	13.57
125	132.2	160.2	90	125	305	342	180	6.0	6-M16x93	CSX	14.51
150	158.2	192.2	90	135	339	386	213	6.5	8-M16x93	CSX	20.22
175	192.2	226.9	125	165	403	400	220	6.5	10-M16x93	CSX	33.22
200	218.1	256.0	125	165	432	400	220	6.5	10-M16x93	CSX	35.48
250	266.2	310.0	125	165	476	524	300	8.0	12-M16x120	CSX	52.88
300	315.0	356.0	125	200	522	524	300	8.0	16-M16x120	CSX	63.8
350	352.2	396.0	125	200	577	525	300	7.5	18-M16x120	CSX	74.58
400	398.2	442.0	125	200	623	525	300	7.5	20-M16x120	CSX	82.88
450	448.0	492.0	135	215	713	545	300	7.5	24-M16 x 140	HRH	139.03
500	498.0	552.0	155	215	803	565	300	7.5	18-M20 x 150	HRH	160.42
500	558.0	608.0	155	215	860	565	300	7.5	20-M20 x 150	HRH	175.02
600	604.0	648.0	195	255	900	565	300	7.5	24-M20 x 150	HRH	240.01
600	676.0	726.0	195	255	975	565	300	7.5	28-M20 x 150	HRH	267.38



### Working Pressure & Temperature Ratings

Nominal Size	Gripping Product		Flex Product		Operating Temperature
	Gas	Water	Gas	Water	
DN40 to DN300	5bar	16bar	5bar	16bar	-20°C to +30°C
DN350 to DN400	5bar	10bar	5bar	10bar	
DN450 to DN600	N/A	10bar	N/A	10bar	

#### Notes:

- 1) Site Test Pressure – 1.5 times working pressure.
- 2) Factory Test Pressure – The minimum requirement in European Standards is 1.5 times working pressure plus 5bar (e.g. 29bar for 16bar working pressure).
- 3) All water contact components are approved for use with Potable Water.

Bolt Torque	
	Nm
<b>M12</b>	55 - 70
<b>M16</b>	95 - 120
<b>M20</b>	200 - 225

## UltraGrip Product Notes

### Gripping product suitable for

Steel/Ductile iron/Grey cast iron/ PE/PVC

### Flex product suitable for

Steel/Ductile iron/Grey cast iron/ PVC/Asbestos cement

### Support liners – PE and PVC pipes

A close fit support liner is required when used on:

- All PE pipes
- Thin walled PVC pipes

When used on thick walled PVC pipes a support liner is not required.

Please contact Viking Johnson for further details.

### Use of restrained couplings on exposed pipework

Above ground exposed pipework is subject to both loads from the internal pressure and those from temperature changes / thermal expansion, which can be substantially higher than those from internal pressure and cannot always be safely determined. For this reason it is recommended that the use of UltraGrip be restricted to buried pipelines, valve chambers and above ground indoor applications and not exposed to direct sunlight or excessive temperature changes (e.g. pump houses).

## Materials & Relevant Standards

### End Rings, Sleeve

S.G. Iron to BS EN 1563 Symbol EN-GJS-450-10

### Gaskets

EPDM: EPDM Compound Grade E to

BS EN 681-1 WA KTW & DVGW approved

NBR: Nitrile Compound EN682 DVGW Approved

### Gripper and Carrier

Acetal Copolymer Grade M25 or equivalent

### Bolts/Nuts/Washers

Bolts - Stainless steel to BS EN 3506-1 Grade A2 Property Class 80 or 70

Nuts - Stainless Steel to BS EN 3506-2 Grade A4 Property Class 80

Washer - Stainless steel – BS1449:PT2 Grade 304 S15

### Coatings

Cast/Metal Components - Rilsan Nylon 11 (Black)

Bolts - Gleitmo Coated (Dry Film Lubricant)

Nuts - Geomet Coated

### Approvals

Rilsan Nylon 11 (Black):

WRAS approved for use with potable water

Gasket: WRAS as well as KTW, DVGW

& W270 approvals

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# Next Generation UltraGrip Flange Adaptors

## Specifications

### Flange Adaptors

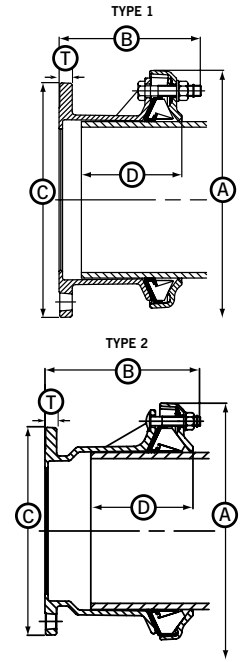
- Full flange sealing face can be used on wafer-type butterfly valves
- Up to 4° angular deflection

Nom Size	Size Range		Flange Nom Size	Flange Drilling	Type	Insertion Depth (D)		Dimensions				Bolts		Weight Kg
	Min	Max				Min	Max	C	A	B	T	No-size	Type	
40	43.5	63.5	40	PN10,16	1	65	110	150	168	164	17.0	3-M12x70	HRH	4.4
40	43.5	63.5	50	PN10,16	1	65	110	165	168	164	17.0	3-M12x70	HRH	4.83
50	48.0	71.0	50	PN10,16	1	65	110	165	178	163	17.0	3-M12x70	CSX	4.83
65	63.0	83.7	60/65	PN10,16	1	65	110	185	189	162	17.0	3-M12x70	HRH	5.68
65	63.0	83.7	65	PN10,16	1	65	110	185	189	164	17.0	3-M12x70	HRH	5.87
80	85.7	107.0	80	PN10,16	1	65	110	200	212	164	17.0	3-M12x70	HRH	6.82
100	107.0	133.2	100	PN10,16	2	90	125	220	280	212	17.0	3-M16x90	HRH	10.17
125	132.2	160.2	125	PN10,16	1	90	135	257	305	193	17.0	3-M16x90	HRH	11.19
150	158.2	192.2	150	PN10,16	2	90	125	285	339	232	17.0	4-M16x90	HRH	14.72
175	192.2	226.9	200	PN10,16	2	125	165	340	403	263	18.0	5-M16x93	CSX	24.32
200	218.1	256.0	200	PN10,16	2	125	165	340	432	263	18.0	5-M16x93	CSX	25.75
250	266.2	310.0	250	PN10,16	2	125	165	404	476	323	20.0	6-M16x120	HRH	36.23
300	315.0	356.0	300	PN10,16	2	125	200	469	522	324	21.5	8-M16x120	HRH	44.5
350	352.2	396.0	350	PN10,16	2	125	200	520	577	333	21.5	9-M16x120	CSX	51.75
400	398.2	442.0	400	PN10,16	2	125	200	580	623	333	21.5	10-M16x120	CSX	58.46
450	448.0	492.0	400	PN10,16	2	135	215	580	713	413	24.0	12-M16 x 140	HRH	97.42
500	498.0	552.0	500	PN10,16	2	155	215	715	803	398	27.5	9-M20 x 150	HRH	115.78
500	558.0	608.0	500	PN10,16	2	155	215	715	860	448	27.5	10-M20 x 150	HRH	130.09
600	604.0	648.0	600	PN10,16	2	195	255	840	900	454	31.0	12-M20 x 150	HRH	170.97
600	676.0	726.0	600	PN10,16	2	195	255	840	975	454	31.0	14-M20 x 150	HRH	195.36

Flange Drilling - All flanges are drilled to BS EN 1092 (formerly BS 4504) 7005\* with the rating as per table

\* There are several parts to these standards to suit different flange materials:

1. BS EN 1092 PT1 2. BS EN 1092 PT2 3. BS EN 1092 PT3 4. BS EN 1092 PT4 5. ISO 7005-1 6. ISO 7005-2 7. ISO 7005-3



### Working Pressure & Temperature Ratings

Nominal Size	Gripping Product		Flex Product		Operating Temperature
	Gas	Water	Gas	Water	
DN40 to DN300	5bar	16bar	5bar	16bar	-20°C to +30°C
DN350 to DN400	5bar	10bar	5bar	10bar	
DN450 to DN600	N/A	10bar	N/A	10bar	

#### Notes:

- 1) Site Test Pressure – 1.5 times working pressure.
- 2) Factory Test Pressure – The minimum requirement in European Standards is 1.5 times working pressure plus 5bar (e.g. 29bar for 16bar working pressure).
- 3) All water contact components are approved for use with Potable Water.

Bolt Torque	
	Nm
<b>M12</b>	55 - 70
<b>M16</b>	95 - 120
<b>M20</b>	200 - 225

## UltraGrip Product Notes

### Gripping product suitable for

Steel/Ductile iron/Grey cast iron/ PE/PVC

### Flex product suitable for

Steel/Ductile iron/Grey cast iron/ PVC/Asbestos cement

### Support liners – PE and PVC pipes

A close fit support liner is required when used on:

- All PE pipes
- Thin walled PVC pipes

When used on thick walled PVC pipes a support liner is not required.

Please contact Viking Johnson for further details.

### Use of restrained couplings on exposed pipework

Above ground exposed pipework is subject to both loads from the internal pressure and those from temperature changes / thermal expansion, which can be substantially higher than those from internal pressure and cannot always be safely determined. For this reason it is recommended that the use of UltraGrip be restricted to buried pipelines, valve chambers and above ground indoor applications and not exposed to direct sunlight or excessive temperature changes (e.g. pump houses).

## Materials & Relevant Standards

### End Rings, Adaptor Body

S.G. Iron to BS EN 1563 Symbol EN-GJS-450-10

### Gaskets

EPDM: EPDM Compound Grade E to

BS EN 681-1 WA KTW & DVGW approved

NBR: Nitrile Compound EN682 DVGW Approved

### Gripper and Carrier

Acetal Copolymer Grade M25 or equivalent

### Bolts/Nuts/Washers

Bolts - Stainless steel to BS EN 3506-1 Grade A2 Property Class 80 or 70

Nuts - Stainless Steel to BS EN 3506-2 Grade A4 Property Class 80

Washer - Stainless steel – BS1449:PT2 Grade 304 S15

### Coatings

Cast/Metal Components - Rilsan Nylon 11 (Black)

Bolts - Gleitmo Coated (Dry Film Lubricant)

Nuts - Geomet Coated

### Approvals

Rilsan Nylon 11 (Black):

WRAS approved for use with potable water

Gasket: WRAS as well as KTW, DVGW

& W270 approvals

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## France Chessy City

# Repair of iron mains potable water network

UltraGrip DN600

### Project

UltraGrip DN600 was specified as ideal solution to repairing leaking ductile iron pipe in Chessy, a city on the eastern suburbs of Paris.

### Client

Val d'Europe Agglomération

### Contractor

SAUR secteur Val d'Europe /  
Magny Le Hongre

### Distributor

ALIAxis Utilities & Industry France

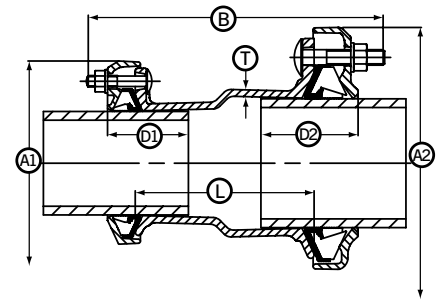






# Next Generation UltraGrip Reducing Couplings

## Specifications



### Reducing Couplings

► Up to 8° angular deflection

Nom Size		Size Range				Insertion Depth				Dimensions					Bolts				Weight Kg
Small End	Large End	Small End		Large End		Small End (D1)		Large End (D2)		Overall			Sleeve		Small End		Large End		
		Min	Max	Min	Max	Min	Max	Min	Max	A1	A2	B	L	T	Size	Type	Size	Type	
32	40	36.0	46.0	43.5	63.5	65	95	65	95	153	168	266	150	5.0	3-M12x70	CSX	3-M12x70	CSX	5.16
80	100	85.7	107.0	107.0	133.2	65	95	90	125	212	280	325	185	7.5	3-M12x70	HRH	3-M16x93	CSX	11.42
100	125	107.0	133.2	132.2	160.2	90	125	90	115	280	305	352	190	7.5	3-M16x93	CSX	3-M16x93	CSX	14.97
100	150	107.0	133.2	158.2	192.2	90	115	90	135	280	339	375	216	7.5	3-M16x93	CSX	4-M16x93	CSX	17.94
125	150	132.2	160.2	158.2	192.2	90	115	90	135	305	339	366	207	7.5	3-M16x93	CSX	4-M16x93	CSX	18.37
150	175	158.2	192.2	192.2	226.9	90	125	125	165	339	403	393	220	7.0	4-M16x93	CSX	5-M16x93	CSX	27.25
175	200	192.2	226.9	218.1	256.0	125	155	125	165	403	432	393	220	7.0	5-M16x93	CSX	5-M16x93	CSX	34.78
200	250	218.1	256.0	266.2	310.0	125	165	125	165	432	476	479	280	7.0	5-M16x93	CSX	6-M16x120	CSX	44.59
250	300	266.2	310.0	315.0	356.0	125	165	125	200	476	522	524	300	9.0	6-M16x120	CSX	8-M16x120	CSX	58.43
400	450	398.0	442.0	448.0	492.0	125	200	135	215	623	713	575	330	7.5	10-M16x120	CDX	12-M16x140	HRH	117.82
500	500	498.0	552.0	558.0	608.0	155	215	155	215	803	860	595	330	7.5	9-M20x150	HRH	9-M20x150	HRH	167.21
600	600	604.0	648.0	676.0	726.0	195	255	195	255	900	975	595	330	7.5	10-M20x150	HRH	10-M20x150	HRH	259.03

### Working Pressure & Temperature Ratings

Nominal Size	Gripping Product		Flex Product		Operating Temperature
	Gas	Water	Gas	Water	
DN40 to DN300	5bar	16bar	5bar	16bar	-20°C to +30°C
DN350 to DN400	5bar	10bar	5bar	10bar	
DN450 to DN600	N/A	10bar	N/A	10bar	

#### Notes:

- 1) Site Test Pressure – 1.5 times working pressure.
- 2) Factory Test Pressure – The minimum requirement in European Standards is 1.5 times working pressure plus 5bar (e.g. 29bar for 16bar working pressure).
- 3) All water contact components are approved for use with Potable Water.

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## Materials & Relevant Standards

### End Rings, Sleeve

S.G. Iron to BS EN 1563 Symbol EN-GJS-450-10

### Gaskets

EPDM: EPDM Compound Grade E to

BS EN 681-1 WA KTW & DVGW approved

NBR: Nitrile Compound EN682 DVGW Approved

### Gripper and Carrier

Acetal Copolymer Grade M25 or equivalent

### Bolts/Nuts/Washers

Bolts - Stainless steel to BS EN 3506-1 Grade A2 Property Class 80 or 70

Nuts - Stainless Steel to BS EN 3506-2 Grade A4 Property Class 80

Washer - Stainless steel – BS1449:PT2 Grade 304 S15

### Coatings

Cast/Metal Components - Rilsan Nylon 11 (Black)

Bolts - Gleitmo Coated (Dry Film Lubricant)

Nuts - Geomet Coated

### Approvals

Rilsan Nylon 11 (Black):

WRAS approved for use with potable water

Gasket: WRAS as well as KTW, DVGW & W270 approvals

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# Next Generation UltraGrip Pecatadaptors & End Caps

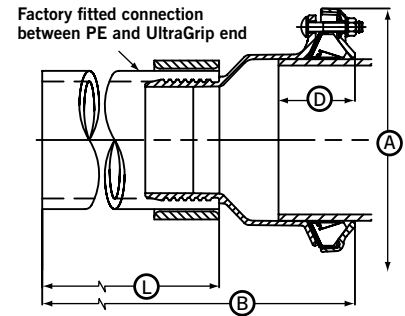
## Specifications

### Pecatadaptors

► Length of PE will accommodate two electrofusion connections

► Up to 4° angular deflection on UltraGrip end

Nom Size	Size Range		PE		Insertion Depth (D)		Dimensions			Bolts		Weight Kg
							Overall		PE Pipe End	Size	Type	
	Min	Max	Size	Sdr	Min	Max	A	B	L			
80	85.7	107.0	90	11	65	95	212	682	496	3-M12x70	HRH	7.43
100	107.0	133.2	110	11	90	115	280	708	496	3-M16x93	CSX	12.23
100	107.0	133.2	125	11	90	115	280	701	496	3-M16x93	CSX	12.92
125	132.2	160.2	110	11	90	115	305	727	496	3-M16x93	CSX	13.84
125	132.2	160.2	125	11	90	115	305	721	496	3-M16x93	CSX	14.56
150	158.2	192.2	160	11	90	125	339	730	496	4-M16x93	CSX	20.7
150	158.2	192.2	180	11	90	125	339	727	496	4-M16x93	CSX	23.27
200	218.1	256.0	225	11	125	165	432	751	496	5-M16x93	CSX	36.22



### End Caps

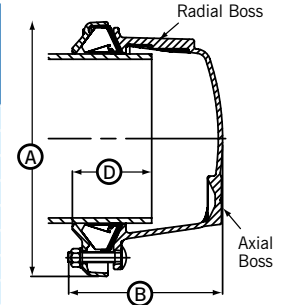
► Optional - drilled and tapped bosses available:

- Axial – to act as inlet/drainage point (Min=1/2", Max=2" - all sizes)
- Radial – to act as air release/bleed hole (Min=1/2", Max=2" - depending on diameter)

► Up to 4° angular deflection

► End caps supplied with Sheraplex coated steel bolts to allow repeated use without the need to lubricate threads. Stainless steel bolts are optional

Nom Size	Size Range		Insertion Depth (D)		Boss				Dimensions		Bolts		Weight Kg
					Axial		Radial		A	B	No-size	Type	
	Min	Max	Min	Max	Min BSP	Max BSP	Min BSP	Max BSP					
40	43.5	63.5	65	95	1/2"	2"	1/2"	3/4"	168	150	3-M12x70	CSX	3.34
65	63.0	83.7	65	95	1/2"	2"	1/2"	3/4"	189	150	3-M12x70	CSX	3.97
80	85.7	107.0	65	110	1/2"	2"	1/2"	3/4"	212	166	3-M12x70	CSX	4.84
100	107.0	133.2	90	125	1/2"	2"	1/2"	1"	280	197	3-M16x93	CSX	8.44
125	132.2	160.2	90	135	1/2"	2"	1/2"	1"	305	215	3-M16x93	CSX	10.12
150	158.2	192.2	90	135	1/2"	2"	1/2"	1"	339	219	4-M16x93	CSX	12.6
175	192.2	226.9	125	165	1/2"	2"	1/2"	1"	403	235	5-M16x93	CSX	19.54
200	218.1	256.0	125	165	1/2"	2"	1/2"	1 1/2"	432	237	5-M16x93	CSX	21.4
250	266.2	310.0	125	165	1/2"	2"	1/2"	2"	476	309	6-M16x120	CSX	32.46
300	315.0	356.0	125	200	1/2"	2"	1/2"	2"	522	310	8-M16x120	CSX	39.21



### Working Pressure & Temperature Ratings

Nominal Size	Gripping Product		Flex Product		Operating Temperature
	Gas	Water	Gas	Water	
DN40 to DN300	5bar	16bar	5bar	16bar	-20°C to +30°C
DN350 to DN400	5bar	10bar	5bar	10bar	
DN450 to DN600	N/A	10bar	N/A	10bar	

#### Notes:

- 1) Site Test Pressure – 1.5 times working pressure.
- 2) Factory Test Pressure – The minimum requirement in European Standards is 1.5 times working pressure plus 5bar (e.g. 29bar for 16bar working pressure).
- 3) All water contact components are approved for use with Potable Water.

Bolt Torque	
	Nm
<b>M12</b>	55 - 70
<b>M16</b>	95 - 120
<b>M20</b>	200 - 225

## UltraGrip Product Notes

### Gripping product suitable for

Steel/Ductile iron/Grey cast iron/ PE/PVC

### Flex product suitable for

Steel/Ductile iron/Grey cast iron/ PVC/Asbestos cement

### Support liners – PE and PVC pipes

A close fit support liner is required when used on:

- All PE pipes
- Thin walled PVC pipes

## Materials & Relevant Standards

### End Rings, Pecatadaptor Body, End Cap

S.G. Iron to BS EN 1563 Symbol EN-GJS-450-10

### Gaskets

EPDM: EPDM Compound Grade E to

BS EN 681-1 WA KTW & DVGW approved

NBR: Nitrile Compound EN682 DVGW Approved

### Gripper and Carrier

Acetal Copolymer Grade M25 or equivalent

### Bolts/Nuts/Washers

Bolts - Stainless steel to BS EN 3506-1 Grade A2 Property Class 80 or 70

Nuts - Stainless Steel to BS EN 3506-2 Grade A4 Property Class 80 Steel to BS EN 20898-2 Property Class 8.0

Washer - Stainless steel – BS1449:PT2 Grade 304 S15

### Completion Sleeve to Pecatadaptor

Mild Steel Tube to DIN1629 Grade ST52 or ST37-2

### PE Pipe for Pecatadaptor

Pipe used for Pecatadaptor is black PE100 SDR 11

### Coatings

Cast/Metal Components - Rilsan Nylon 11 (Black)

Bolts - Gleitmo Coated (Dry Film Lubricant)

Nuts - Geomet Coated

### Approvals

Rilsan Nylon 11 (Black):

WRAS approved for use with potable water

Gasket: WRAS as well as KTW, DVGW

& W270 approvals

When used on thick walled PVC pipes a support liner is not required. Please contact Viking Johnson for further details.

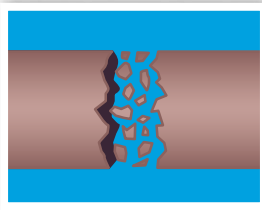
### Use of restrained couplings on exposed pipework

Above ground exposed pipework is subject to both loads from the internal pressure and those from temperature changes / thermal expansion, which can be substantially higher than those from internal pressure and cannot always be safely determined. For this reason it is recommended that the use of UltraGrip be restricted to buried pipelines, valve chambers and above ground indoor applications and not exposed to direct sunlight or excessive temperature changes (e.g. pump houses).



# The Perfect Partner for Difficult Repairs

UltraGrip products are designed to offer a solution to joining plain-ended pipes and contain an end load resistant mechanism, that grips and seals onto a variety of pipe materials including Cast Iron, Ductile Iron, Steel, PVC and PE. UltraGrip is now available in sizes up to DN600.



Suitable for Shattered Pipe

### Flexible Fit

UltraGrip offers the ideal solution for repairing severely damaged, corroded or completely shattered pipes in difficult trench conditions. In repair situations where a pipe section needs to be cut out, the UltraGrip range offers a versatile repair solution for a variety of different pipe sizes and pipe material as a result of the wide tolerance capability of UltraGrip products. Only a few strategic sizes need to be kept in stock to cover many repair or emergency situations.

### Ease of Installation

UltraGrip is easy to install on site. The product is pre-assembled to allow for quick positioning over the top and bottom tolerance pipe with reversible captive bolts requiring only a single spanner for tightening. An ideal product to choose when dealing with tricky site conditions such as confined spaces.



### Pipe Materials



Asbestos Cement & GRP pipe materials should not be used with the gripping version of UltraGrip.



**\*Note:** Due to the flexible nature of the plastic pipes, a close fit Stainless Steel internal support liner is required when PE Pipe or thin walled PVC is used to make a repair to prevent excessive pipe deformation which can occur when UltraGrip is installed.





**UltraGrip grips and seals on the most corroded pipes  
with a design life expectancy of 50 years.**



### Pipe Materials



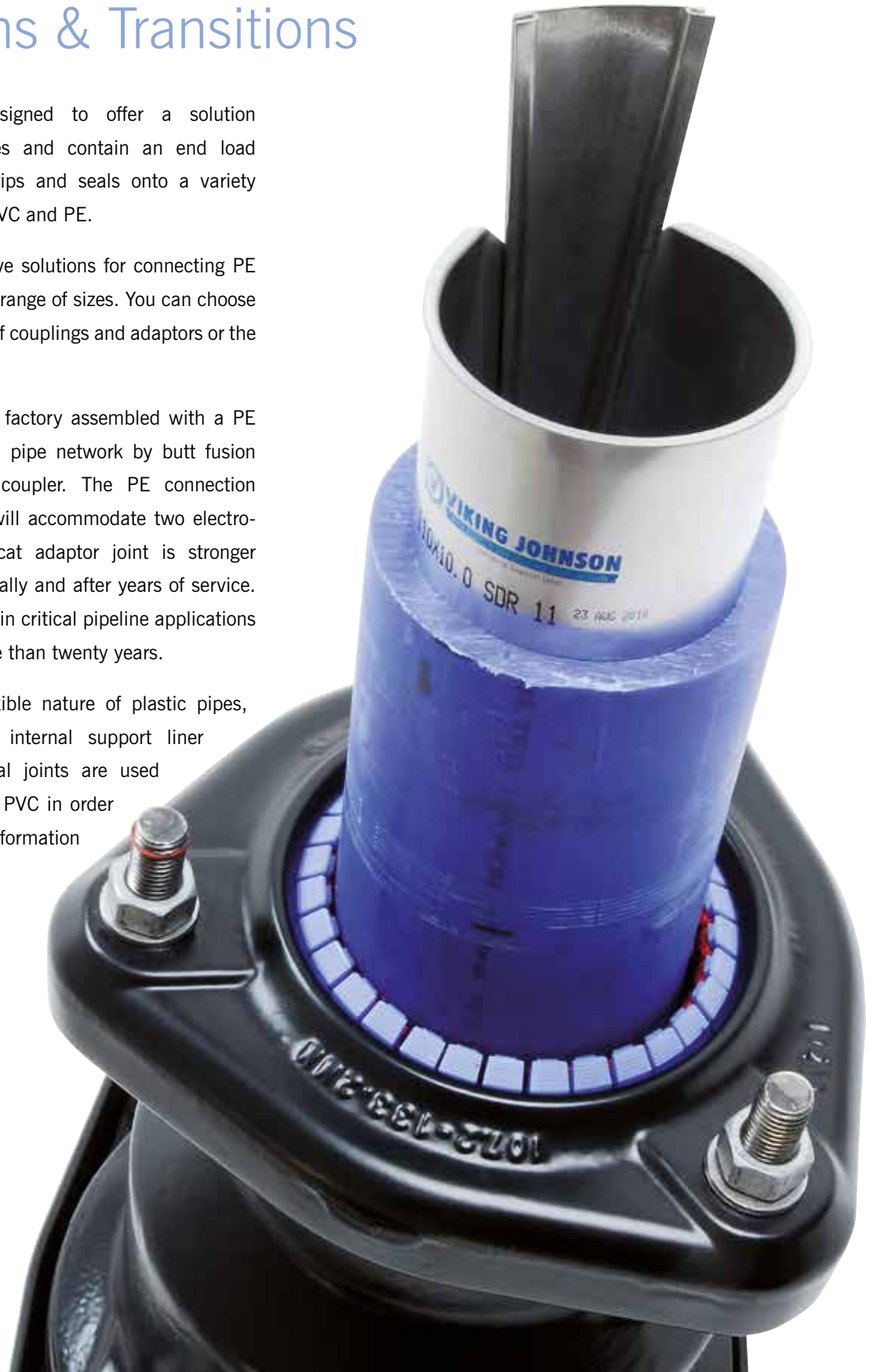
## Ideal for PE & PVC Pipe Connections & Transitions

UltraGrip products are designed to offer a solution for joining plain-ended pipes and contain an end load resistant mechanism that grips and seals onto a variety of pipe materials, including PVC and PE.

UltraGrip offers two alternative solutions for connecting PE and rigid pipes across a wide range of sizes. You can choose between the UltraGrip range of couplings and adaptors or the UltraGrip Pecat adaptor.

UltraGrip Pecat adaptors are factory assembled with a PE tail, ready for jointing into a pipe network by butt fusion or using an electro-fusion coupler. The PE connection is 500mm in length which will accommodate two electro-fusion connections. The Pecat adaptor joint is stronger than the pipe itself, both initially and after years of service. Pecat fittings have been used in critical pipeline applications throughout the world for more than twenty years.

Please note that due to flexible nature of plastic pipes, a close fit Stainless Steel internal support liner is required when mechanical joints are used on PE pipes and thin walled PVC in order to prevent excessive pipe deformation which can occur.



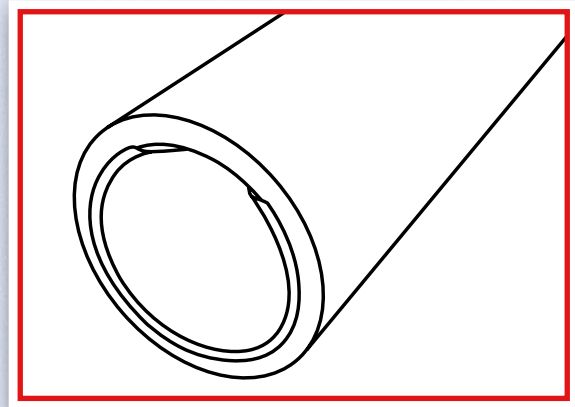


# UltraGrip Support Liner For PE & PVC Pipes

Easy to use in 4 Simple Steps

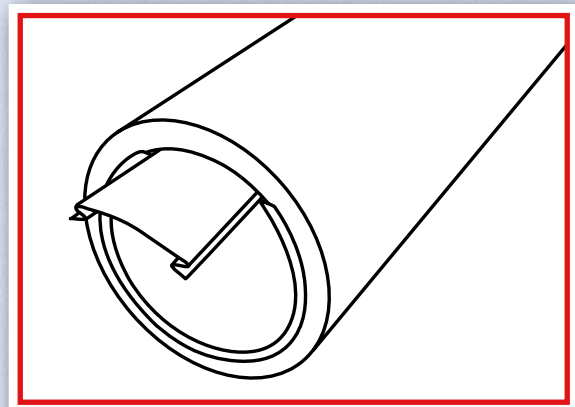
## Step 1

Place insert in to pipe.



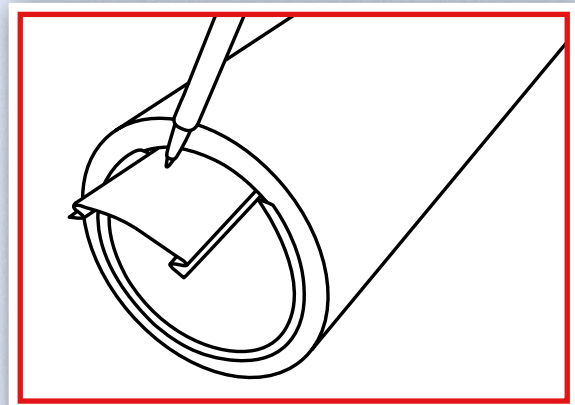
## Step 2

Slide insert until its collar contacts pipe end.



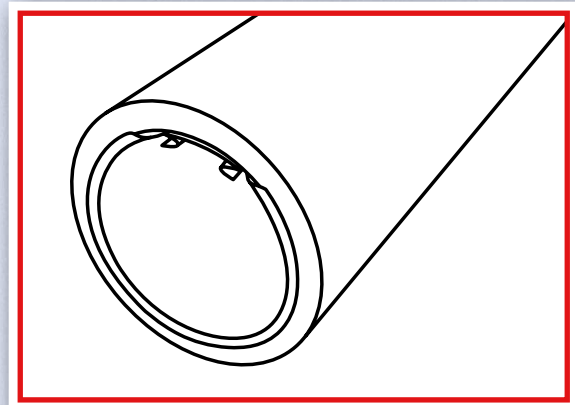
## Step 3

Tap in the wedge until insert is in full circumferential contact with inside surface of pipe. Do not use wedge to expand the pipe.



## Step 4

Remove excess wedge.





Germany - Memmingen

# Maintenance on Water Pipe Network

Next Generation UltraGrip  
Reducing Coupling - DN80/DN110 HDPE



## Project

In Germany, many utility companies use HDPE pipe material for daily repair and renewal of existing pipe network.

A project in Memmingen, FriaGrip (UltraGrip) reducing coupling with a stainless steel support liner was installed to connect a cast iron pipe sized at DN80 to a new 110mm HDPE pipe.

## Client

Stadtwerke Memmingen

## Distributor

Friatec AG, Mannheim





# UltraGrip Support Liner For PE & PVC Pipes

## Specifications

### Support Liner - Standard - 1mm thickness

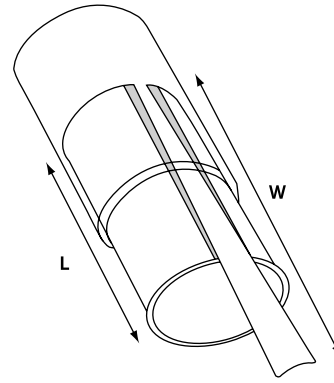
Pipe OD	Insert length L (mm)	SDR Rating	Wedge Length W (mm)
63	130	SDR 13, 6	220
75	130	SDR 11	220
90	130	SDR 17	220
90	130	SDR 13, 6	220
90	130	SDR 11	220
110	150	SDR 17	220
110	150	SDR 13, 6	220
110	150	SDR 11	220
125	150	SDR 17	220
125	150	SDR 11	220
140	150	SDR 11	220
160	175	SDR 17	220
160	175	SDR 13, 6	220
160	175	SDR 11	220
180	175	SDR 17	220
180	175	SDR 11	220

### Support Liner - Standard - 2mm thickness

Pipe OD	Insert length L (mm)	SDR Rating	Wedge Length W (mm)
200	180	SDR 17	220
200	180	SDR 11	220
225	180	SDR 17	220
225	180	SDR 11	220
250	180	SDR 11	220
280	200	SDR 17	220
280	200	SDR 13, 6	220
280	200	SDR 11	220
315	200	SDR 17	220
315	200	SDR 11	220
355	200	SDR 17	220
355	200	SDR 11	220
400	200	SDR 11	220
400	200	SDR 17	220

### Support Liner - Standard - 3mm thickness

Pipe OD	Insert length L (mm)	SDR Rating	Wedge Length W (mm)
450	240	SDR 11	300
450	240	SDR 17	300
500	240	SDR 11	300
500	240	SDR 17	300
560	240	SDR 11	300
560	240	SDR 17	300
630	240	SDR 11	300
630	240	SDR 17	300
710	240	SDR 11	300
710	240	SDR 17	300

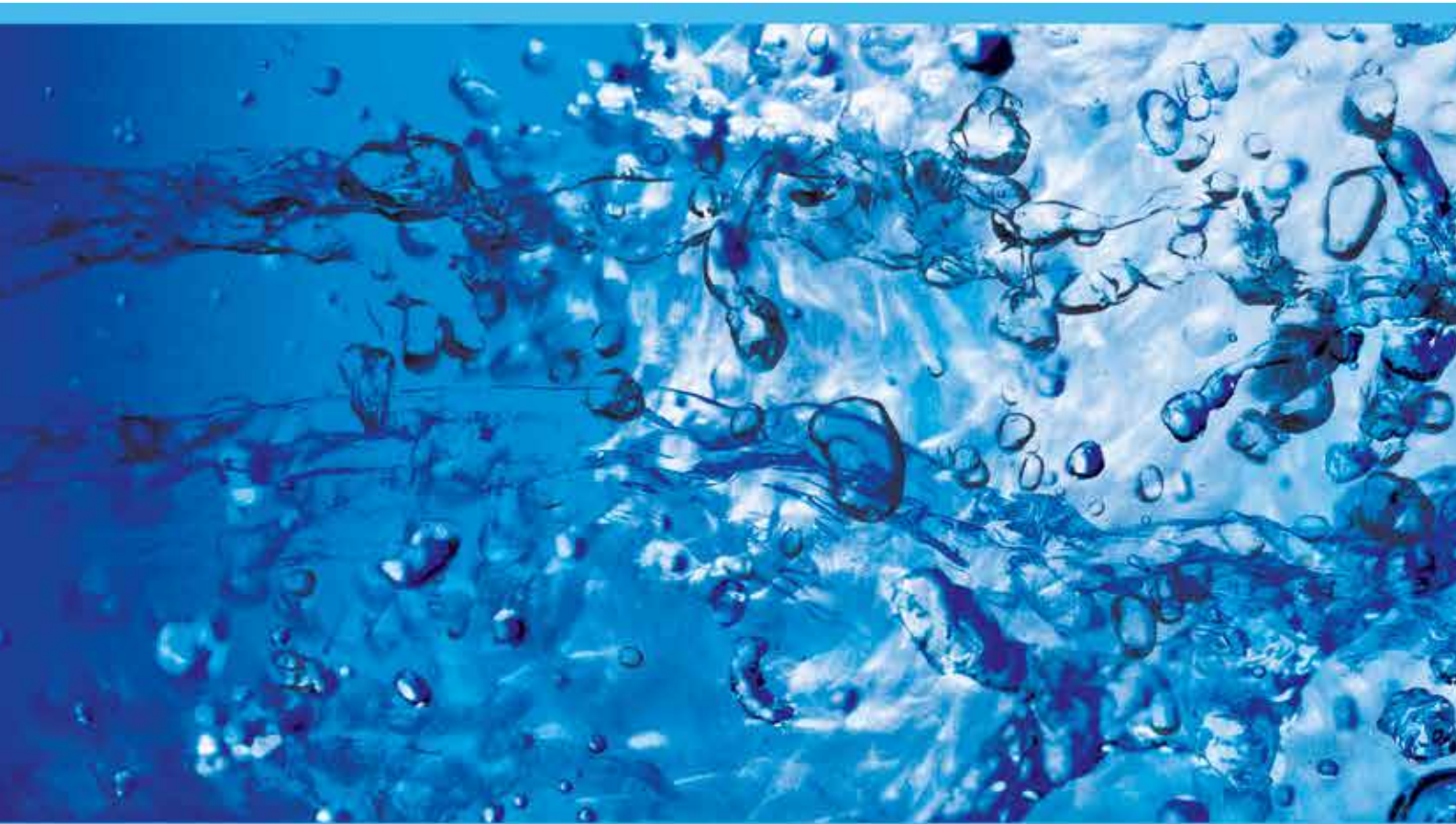


## Materials

### Stainless steel

ASTM, AISI 304

**Note:** The use of UltraGrip on PVC pipes with wall thickness above Class 4 of DIN8062 does not require the use of a support liner. However, for all other classes of PVC pipes, please contact the Viking Johnson Technical Department with details on your pipe Outside Diameter and wall thickness to receive availability of the liner. Minimum order quantities may apply. To negate the use of a support liner, AquaFast can be used for metric PVC pipe connections.



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