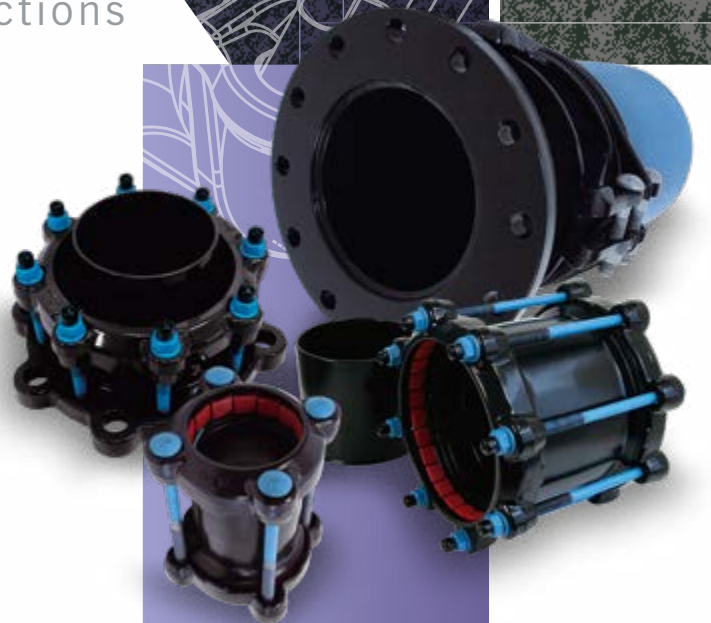


# AquaGrip®

Couplings & Flange Adaptors DN63 - DN225

For Polyethylene Pipe Connections

 **VIKING JOHNSON®**







## A High Performance Polyethylene Pipe Jointing System

The AquaGrip range was developed in response to demand for a simple, high performance end load restraint (Type 1) mechanical method of joining polyethylene pipe. AquaGrip products are designed to support and grip PE pipe to prevent pipe collapse and pullout.

### Easy & Safe to Fit

The range requires no special skills or complicated tools to fit, a suitably calibrated torque wrench is the only specialist tool required. The ability to rotate the flange bolt holes and the lightweight, compact design provide easier handling and quicker installation.

### On-the-spot Repairs

Another key benefit of the AquaGrip range is 'all-weather installation'. It can be installed under wet conditions without shelters, and even under water. It is ideal for on-the-spot repairs - no need for fusion joining equipment when unexpected problems arise!

### High Performance

Once fitted the product range offers axial restraint and is designed and tested to meet the full Type 1 performance requirements of IGN 4-01-02 (formally WIS 4-24-01) in all sizes up to 450mm. Full Type 2 performance is achieved on larger sizes. It is designed to equal or exceed the pressure capabilities of MDPE (PE80) and HDPE (PE100) pipe and has total corrosion protection with Rilsan Nylon coated body and clamp bands.



France - Marseille

## Martigues Thermal Power Plant

AquaGrip Flange Adaptor - DN350



Flange Adaptors  
OD 225mm & Larger

Flange Adaptors  
OD up to 180mm

Couplings OD 63mm to 180mm

Pipe Material



### Project

The Martigues power plant is located on the shores of the Mediterranean 30km from Marseille. The existing power plant comprises of 4 oil fired 250mw units. Two of these are to be transformed into state of the art gas fired combined cycle units.

### Client

EDF

### Contractor

Cari TP Nice

### Distributor

Aliaxis France



Crane BS&U are solely the provider of products and have no direct influence on, or take any responsibility for any working practices employed or depicted in the images enclosed to install such products.



# AquaGrip Couplings & Flange Adaptors up to 180mm

## Product Design Benefits

### Exceptional Grip

The combination of the acetal grippers and separate internal support liner gives AquaGrip an end load gripping capability of Type 1 to IGN 4-01-02 (formally WIS 4-24-01).

This means that the joint is stronger than the PE pipe itself.



### Designed to Last

The sleeve or body are fully coated in black Rilsan Nylon 11 which has excellent resistance to impact, abrasion, weathering and chemicals as well as good thermal stability and flexibility to accommodate for rough site handling. It is also WRAS listed.



### Unique Gasket

The EPDM gasket (Compound 80 IRHD Grade E) is suitable for water and sewage applications between a temperature range of -10°C to +40°C.

### Corrosion Resistance

Sheraplex coated nuts & bolts offer excellent corrosion resistance and eliminates galling of coating in threads allowing repeated dismantling and installation of products if required.



## Customer Benefits

- ▶ Slip-on coupling without centre stop or obstruction making it easier to make repairs to existing pipelines.
- ▶ No need to dismantle products to install.
- ▶ Same size bolt throughout range means just one torque wrench for all pipe sizes.
- ▶ Substantial axial pipe adjustment up to 50mm - ideal for making pipe and valve insertions into existing lines. No need for precise cutting of the pipes or for machined pipe ends.
- ▶ Versatile range. Straight couplings for simple, convenient repairs, or new lay connections. Flange adaptors to introduce valves and flanged fittings or connect to existing flanged pipework.
- ▶ Supplied complete with liners for PE pipes.
- ▶ AquaGrip has been tested and found to comply with the requirements of the Water Supply (Water Fittings) Regulations 1999 for England and Wales, the Water Byelaws 2000 Scotland and the Water Regulations Northern Ireland.
- ▶ Flange adaptors and straight couplings designed to the full Type 1 performance requirements of WIS 4-24-01.



Flange Adaptor

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# AquaGrip Flange Adaptors 225mm to 1600mm

## Product Design Benefits

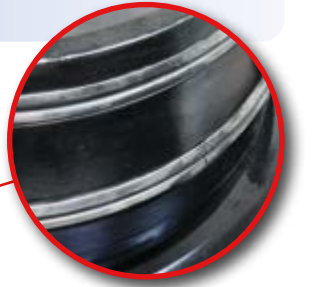
### Exceptional End Restraint

Uniquely designed clamp locks onto the anchoring shoulder, providing maximum end load restraint.



### Reliable Seal

The flanged body incorporates an internal support liner which carries the double ridged gasket(s) that seals on the inside of the PE pipe. The inside of the pipe is well protected from casual on-site damage, so the seal remains secured.



### Corrosion Resistance

Bolts, nuts and washers are plated in zinc, and then Grey Flurene® 177, a low friction coating which offers excellent corrosion resistance.

### External Coating

The body, clamp band and liner are fully coated in Black Rilsan Nylon 11 which has excellent resistance to impact, abrasion, weathering and chemicals as well as good thermal stability and flexibility to accommodate for rough site handling. It is WRAS listed.



## Customer Benefits

- ▶ Large size flange adaptors seal on the inside of the pipe ensuring a quick and reliable seal and greater customer confidence.
- ▶ Available in sizes up to 1600mm.
- ▶ Connects to other types of pipe via a flange connection, ideal for replacing damaged pipe lengths with new pipe or introducing flanged fittings, such as metal valves, into a polyethylene pipeline.
- ▶ AquaGrip is available with reduced bore flanges which can reduce valve fitting costs e.g. 315mm pipe OD x 250mm flange, 500mm pipe OD x 450mm flange.
- ▶ Ideal for structural lining in conjunction with mains refurbishment techniques such as Swage-Line® RollDown® and Die Draw®.
- ▶ Uniquely designed clamp bands lock onto the anchoring shoulder, providing maximum end restraint.
- ▶ Tackles problem of misshapen polyethylene pipe ends.
- ▶ Generous cutting tolerance can compensate for cutting inaccuracy (40mm minimum tolerance).
- ▶ UK Water Regulations Advisory Scheme (WRAS) approved and designed to meet the performance requirements of IGN 4-01-02 (formally WIS 4-24-01) Type 1 in sizes up to and including 450mm and Type 2 of sizes 500mm and above.

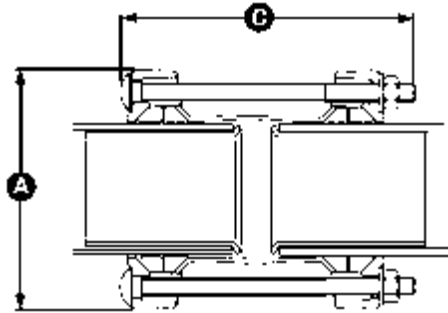
Please note that these products may require the use of heating mats. Please contact the Marketing Department on +44 (0) 1462 443322 for details.

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# AquaGrip Couplings & Flange Adaptors up to 180mm

Datasheet 1/2

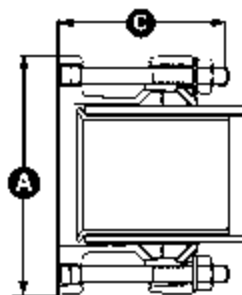
## Coupling



### AquaGrip Coupling Assembly (joins PE pipe to PE pipe)

Pipe OD	Dimensions (mm)		No. of Bolts	Bolts size (mm)	Gasket Mould No.	Weight (kg)
	A	C				
63	144	208	2	M12 x 200	6001	2.4
90	167.5	208	4	M12 x 200	1785	3.8
110	188	208	4	M12 x 200	1786	5.4
125	203	208	4	M12 x 200	1787	5.8
160	240	223	8	M12 x 215	1788	9.0
180	257.5	223	8	M12 x 215	1789	9.8

## Flange Adaptor



### AquaGrip Flange Adaptor Assembly (joins PE pipe to flanged equipment)

Pipe OD	Dimensions (mm)		No. of T-Bolts	T-Bolt size (mm)	Flange specification nom (mm)	Gasket Mould No.	Weight (kg)
	A	C					
63	200	123	2	M12 x 115	50/80 PN10/16	6001	3.6
90	200	123	4	M12 x 115	80 PN10/16	1785	3.8
110	220	123	4	M12 x 115	100 PN10 & 16	1786	4.2
125	220	123	4	M12 x 115	100 PN10 & 16	1787	4.3
160	285	129	8	M12 x 115	150 PN10 & 16	1788	8.1
180	285	129	8	M12 x 115	150 PN10 & 16	1789	8.5

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# AquaGrip Couplings & Flange Adaptor up to 180mm

Datasheet 2/2

## Technical Information

### Working Pressure Rating

Water 16 bar  
Gas not approved

### Vacuum Pressure

Capable of accommodating a vacuum pressure of -0.7 bar

### Site Test Pressure

1.5 times working pressure for short duration (2 hours)

### Pipe Material / Support Liner

AquaGrip can be used on the following pipe materials with a Viking Johnson support liner:-

- MDPE (PE80) and HPPE (PE100) in SDR ratings 11, 17, 17,6, & 21
- MDPE (PE80) and HPPE (PE100) in SDR26 is also available for 125mm and 160mm

### Angularity (in accordance with BS EN 12842)

Couplings 1.5° per end  
Flange Adaptors 1.5°

### Bolt Torque/Spanner

Torque 55-65Nm on every bolt  
Spanner size A/F 19mm

### Temperature Rating of Product

EPDM -20°C to +40°C

AquaGrip is not suitable for use on heating systems with fluctuating temperatures.

### End Load Due to Internal Pressure

AquaFast Fully restrained fitting, and has been designed to meet the performance requirements of BS EN 12842, ISO 178875 (supersedes ISO 12436.2) and ISO 4-01-02 Type 1 (formerly WIS 4-24-01).

### Approvals

The following water contact materials used in AquaGrip are approved for use with potable water:-

Rilsan Nylon 11:  
➤ WRAS, DVGW, W270, ACS & KIWA

EPDM Gaskets:

➤ WRAS

In addition to the above, AquaGrip as a finished product has KIWA certification verifying that the above products comply with the requirements of the Water Supply (Water Fittings) Regulations for England and Wales 1999, the Water Byelaws 2000, Scotland and the Water Regulations Northern Ireland.

## Materials & Relevant Standards

### End Rings & Flange Adaptor Body

SG iron to BS EN 1563 Symbol EN-GJS-450-10.

### Centre Sleeve/Liners

Mild steel to BS EN 10025 Grade S 275

### Gasket

EPDM compound 80 IRHD Grade 'E' to BS EN 681-1 Type WA.

### Coating

Flange Adaptor Body, Centre Sleeve & End Rings:

- Rilsan Nylon 11 to WIS 4-52-01

Bolts:

- Blue Sheraplex followed by dry film lubricant (Ilex).

### Bolts

To BS EN ISO 898-1 Property Class 4.8.

### Nuts

To BS 4190 Grade 4.

### Washers

Stainless steel - BS 1449: PT2 Grade 304 S 15

### Gripper

Acetal copolymer Grade M90 or equivalent.

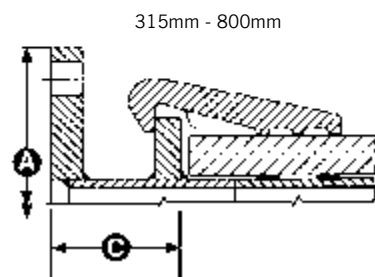
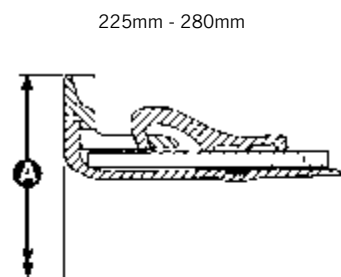
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# AquaGrip Flange Adaptors 225mm to 1600mm

Datasheet 1/2

## Flange Adaptor



Note:  
 \*SDR = Standard Dimensional Ratio  
 = Pipe OD  
 Wall Thickness

\*\* The chart introduces the popular flange drillings. Other drillings may be possible - contact Viking Johnson for further details

## AquaGrip Flange Adaptors (joins PE pipe to flanged equipment)

Pipe OD	SDR Rating *				Flange Drilling **	Pressure Rating	Dimensions		No. of Bolts	Bolt Size	Weight (kg) (approx)	Gasket - 13022/			
	11	17/17.6	21	26/33			A (mm)	C (mm)				11	17/17.6	21	26/33
225	✓	✓	✓	✓	200	PN16	340	-	4	M16 x 130	15	1763	1685	1685	1685
250	✓	✓	✗	✓	200	PN16	340	-	4	M16 x 130	24	1655	1686	1686	1686
250	✓	✓	✓	✓	250	PN16	405	-	4	M16 x 130	23	1685	1686	1686	1686
280	✓	✓	✓	✓	250	PN16	405	-	4	M16 x 130	32	1686	1713	1713	1687
315	✓	✓	✓	✓	250	PN16	405	170	4	M20 x 120	48	4	24	6	6
355	✓	✓	✓	✓	300	PN16	460	138	6	M20 x 120	65	6	32	34	8
355	✓	✓	✓	✓	350	PN16	520	138	6	M20 x 120	65	6	32	34	8
400	✓	✓	✓	✓	400	PN16	580	134	9	M20 x 120	95	34	9	25	25
450	✓	✓	✓	✓	400	PN16	580	134	9	M27 x 150	160	25	11	12	12
450	✓	✓	✓	✓	450	PN16	640	134	9	M27 x 150	186	25	11	12	12
500	✓	✓	✓	✓	400	PN16	580	175	9	M27 x 150	169	11	26	27	13
500	✓	✓	✓	✓	450	PN16	640	134	9	M27 x 150	169	11	26	27	13
500	✓	✓	✓	✓	500	PN16	715	134	9	M27 x 150	199	11	26	27	13
560	✓	✓	✓	✓	450	PN16	640	235	12	M27 x 150	200	27	28	14	14
560	✓	✓	✓	✓	500	PN16	715	180	12	M27 x 150	248	27	28	14	14
630	✓	✓	✓	✓	600	PN16	840	220	12	M27 x 150	311	14	15	15	29
710	✗	✓	✓	✓	700	PN16	910	310	12	M27 x 150	311	-	16	35	35/36
800	✗	✓	✓	✓	700	PN16	910	270	15	M27 x 150	470	-	31	18	19
800	✗	✓	✓	✓	800	PN16	1025	270	15	M27 x 150	497	-	31	18	19
900	✗	✓	✓	✓	900	PN16	1125		15	M33 x 160	800	-	36	20	37
1000	✗	✓	✓	✓	1000	PN16	1255	Contact Viking Johnson	18	M33 x 160	1107	-	20	20	20
1200	✗	✗	✗	✓	1200	PN16	1485	Contact Viking Johnson	18	M33 x 180	1127	-	-	-	22
1400	✗	✗	✗	✓	1400	PN16	1685	Contact Viking Johnson	18	M33 x 180	1582	-	-	-	23
1600	✗	✗	✗	✓	1600	PN16	1930	Contact Viking Johnson	24	M33 x 180	1808	-	-	-	-

- ✓ Product installation requires heating mats at all temperatures.
- ✓ Product installation requires heating mats if temperature of bore to the pipe falls below +5°C.
- ✗ PE pipe wall too thick – do not have a product.

For confirmation of other sizes please contact our Marketing Department.

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# AquaGrip Flange Adaptors 225mm to 1600mm

Datasheet 2/2

## Technical Information

### Working Pressure Rating

Water 16 bar  
 Gas not approved

### Vacuum Pressure

Capable of accommodating a vacuum pressure of -0.7 bar

### Site Test Pressure

1.5 times working pressure for short duration (2 hours)

### Pipe Material / Support Liner

AquaGrip can be used on both MDPE (PE80) and HDPE (PE100) with SDR ratings as defined in the table on the previous page.

### Angularity (in accordance with BS EN 12842)

Flange Adaptors 1.5°

### Bolt Torque/Spanner

Successful installation of LD AquaGrip flange adaptors requires the following bolt torque to be achieved on all clamp band bolts:-

- M16 bolts 95 - 110Nm
- M20 bolts 190 - 215Nm
- M27 bolts 350 - 405Nm
- M33 bolts 675 - 750Nm

### Temperature Rating of Product

EPDM -20°C to +40°C

AquaGrip is not suitable for use on heating systems with fluctuating temperatures.

### End Load Due to Internal Pressure

AquaFast Fully restrained fitting, and has been designed to meet the performance requirements of BS EN 12842, ISO 178875 (supersedes ISO 12436.2) and ISO 4-01-02 (formerly WIS 4-24-01) Type 1 for sizes up to and including 450mm, Type 2 for sizes 500mm and above.

### Approvals

The following water contact materials used in AquaGrip are approved for use with potable water:-

- Rilsan Nylon 11:
- WRAS, DVGW, W270, ACS & KIWA
- EPDM Gaskets:
- WRAS

In addition to the above, AquaGrip as a finished product has KIWA certification verifying that the above products comply with the requirements of the Water Supply (Water Fittings) Regulations for England and Wales 1999, the Water Byelaws 2000, Scotland and the Water Regulations Northern Ireland.

## Materials & Relevant Standards

### Flange adaptor body

280mm and below: SG iron to BS EN 1563  
 Symbol EN-GJS-450-10.

315mm and above: mild steel to BS EN10025 Grade S275.

### Clamp band

SG iron (225mm to 800mm) to BS EN 1563  
 Symbol EN-GJS-450-10.

Mild steel to BS EN10025 Grade S275 (900mm to 1600mm).

### Liner

(225 -280mm sizes): aluminium to BS1490 Grade LM 27M.

### Gaskets

70 IRHD EPDM to BS EN 681-1 Type WA. WRAS listed.

### Coatings

Flange Adaptor Body, Clamp Bands & Liners:

- Rilsan Nylon 11 (Black), WRAS listed.
- Bolts, Nuts & Washers:
- Zinc plated followed by Grey Flurene® 177.

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## CASE STUDY

# Weston Villages Development - AquaGrip

The Weston Villages development in Somerset represents a significant expansion of housing and infrastructure to support growing regional demand. Located near Weston-super-Mare, this scheme includes the creation of several new communities, such as Haywood & Parklands Village, aimed at delivering 5000 to 6000 new homes over the next decade. A critical component of this ambitious project is the installation of a new 4.5km rising main to service the northwest (NW) housing schemes. This main will support these two new communities with a working pressure of 3 bar but has been tested to 9 bar to allow for future expansion.

Viking Johnson supplied AquaGrip flange adaptors for the new rising main. They are a mechanical fitting, easy to install and provide a high-end load restraint. AquaGrip enables the PE pipeline to be connected to ductile iron pipework allowing for the installation of multiple air valves along the network. Air valves are essential in maintaining the rising main's functionality by regulating the air pressure within the pipes. These valves prevent airlocks, which can obstruct the flow of wastewater, and minimize the risk of pipe bursts by allowing excess air to escape, ensuring a smooth and efficient system.

Viking Johnson has been working closely on this project with their key channel partner Jewson Civils Frazer, Envolve Infrastructure, the main contractor on site, and with the client, Wessex Water.



“ AquaGrip is a class one rated fitting. From a pressure testing point of view, it gives us confidence that it will cope with the pressures we are going to put on it. Also because we get movement on the end of the joint it allows us to level out the pipe and keep the flows in the right direction. ”

**Alastair Lloyds**  
Envolve Senior Project Manager



“ It is beneficial because AquaGrip helps us connect two different pipe materials together in an economical and efficient way. It is a good engineering solution because it is robust and has thrust restraint, so deals with pressures that we are delivering and enables air valve structures to go on top, so provides a lot of flexibility. ”

**Jude Sira**  
Network Technical Manager – Wessex Water

### SECTOR

Infrastructure new rising main

### LOCATION

Somerset

### CLIENT / END USER

Wessex Water

### CONTRACTOR

Envolve Infrastructure

### DISTRIBUTOR

Jewson Civils Frazer

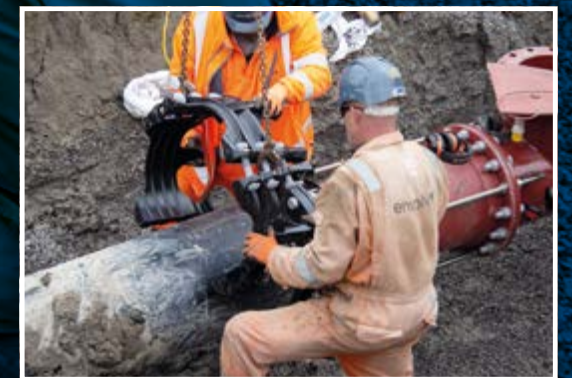
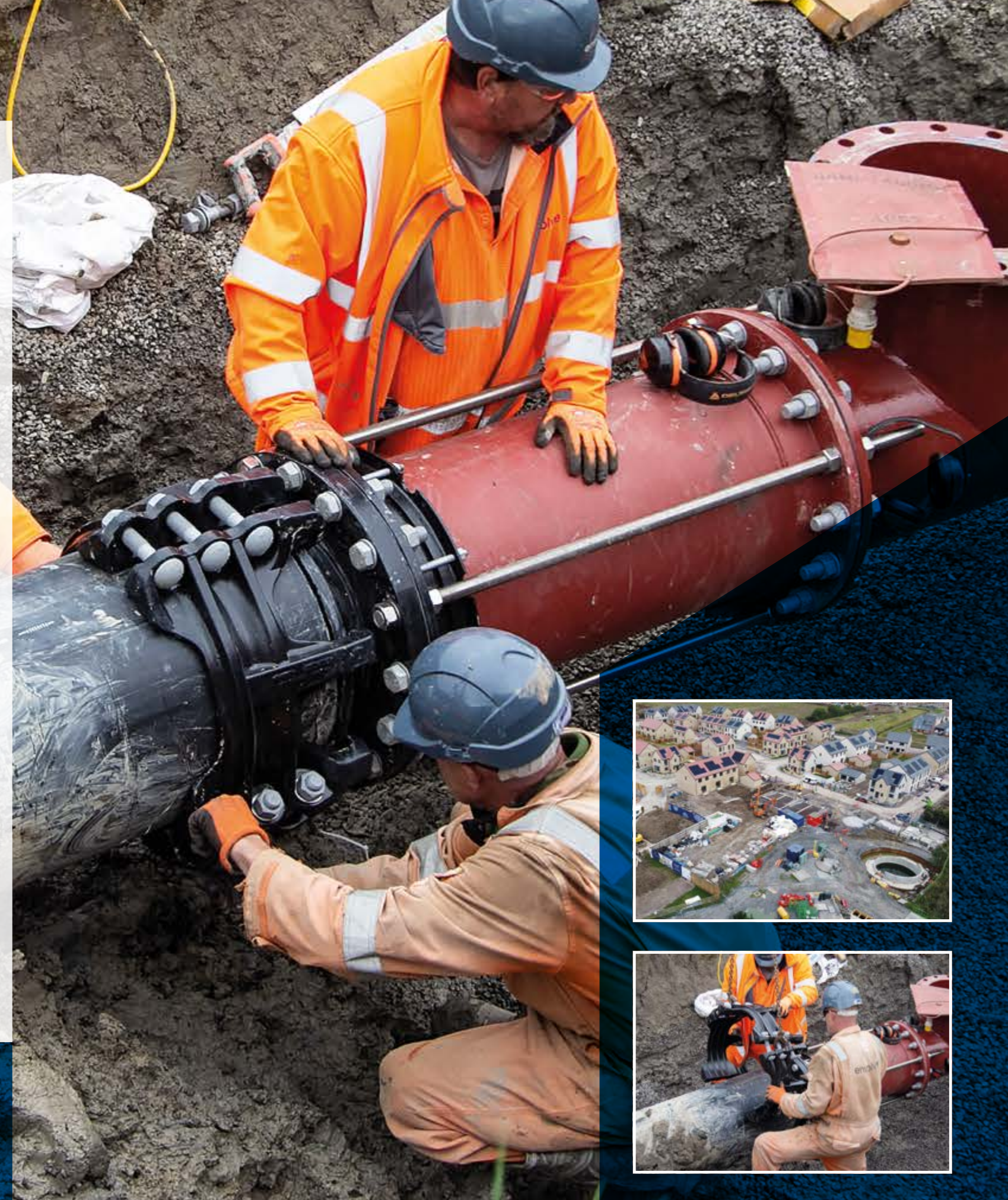
### SPECIFICATION

AquaGrip Flange Adaptors (400mm & 450mm)  
Large Diameter Flange Adaptors  
FlexLock  
UltraGrip

**AquaGrip**



**FRAZER**



Viking Johnson (part of Crane BS &U) manufactures couplings, flange adaptors and associated fittings for the Utilities industries. Viking Johnson cannot make recommendations regarding the pipeline design, which includes all components, intended operational substances, introduced chemical species and materials. Any comments made by Viking Johnson regarding product compatibility apply only to Viking Johnson's product range.



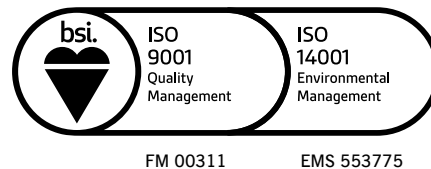


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