ISSUE 1

Product Directory

Mechanical Couplings & Flange Adaptors

Repair & Branch Solutions

Design Data

VIKING JOHNSON™

PIPE CONNECTIONS, REPAIR & FLOW CONTROL PRODUCTS FOR THE UTILITIES INDUSTRY

CRANE BUILDING SERVICES & UTILITIES

Introduction

Applications

- **Water Products**
- **Gas Products**
- **Industrial** Applications including:
  - Oil based & petroleum products
  - Chemicals
  - Sewage
  - General industrial processing

Pipe Materials

Ductile Iron, Cast Iron, Steel, Stainless Steel, PVC, PE, HEP30, GRP, ABS, Clay, Concrete, Asbestos Cement, Copper, Lead

Note: The choice of gasket material must be appropriate for each service to ensure successful operation (see pages 190-193 for further information)

Mechanical Couplings & Flange Adaptors

Dedicated

PE Solutions

Wide Tolerance

Repair & Branch Connections

Design Data

Our Heritage

Crane Building Services & Utilities forms part of the Fluid Handling Group within Crane Co., which was founded in 1855, and now is a multi-industry, New York Stock Exchange quoted company with a market capitalisation of $2.5bn.

Crane Limited was founded in 1919 making malleable iron fittings and valves and Crane Building Services & Utilities has been created as a result of Crane Ltd. acquiring Viking Johnson, Helden and WASK in 2003, and Hattersley in 2004. The most recent acquisition was Delta Fluid Products in 2008. Each of these companies has a long and distinguished history:

- Crane Limited founded in Ipswich in 1919
- Viking Johnson founded in Hitchin in the 1930's
- WASK founded in Keighley in 1888
- Delta Fluid Products founded in 1900

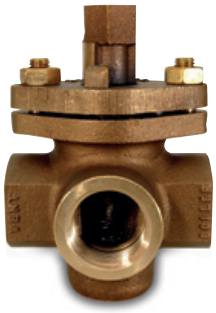
The name Crane speaks of who we are, what we stand for and how our customers perceive us: A company with history and tradition, but also a company that is innovative, quality minded and one which acts with integrity, still holding to the resolution of its founder.

Crane Co. was founded on 4th July 1855 by Richard Teller Crane who made the following resolution:

"I am resolved to conduct my business in the strictest honesty and fairness; to avoid all deception and trickery; to deal fairly with both customers and competitors; to be liberal and just towards employees; and to put my whole mind upon the business."

The essence of this resolution is the business policy of Crane Co. today.

Richard Teller Crane



Brownall Vent Cock

Hattersley Hook Up

NABIC Safety Relief Valve

Crane FS Balancing Valve

Brands & Products

Crane Building Services & Utilities comprises a portfolio of leading brands, for building services, famous names are - Crane Fluid Systems, Hattersley, NABIC, Brownall, Rhodes, Wade and IAT. For the utilities sector - Viking Johnson, WASK, Posiflex, Helden and Sperryn ensure a comprehensive product portfolio serving the water & gas industry.

Flow Control

The Viking Johnson range of flow control products includes fire hydrants, resilient seated gate valves, FlexCheck as well as HNH Milliken Eccentric Plug and MultiPort valves, providing a low maintenance and reliable performance across a wide range of applications.

Expansion Joints

Posiflex expansion joints provide stress relief in piping systems caused by thermal and mechanical vibration and/or movement and can also be utilised to overcome problems of noise. These flexible connectors are fabricated from a wide range of rubber compounds, open or filled, single or multiple arch and designed to accommodate the needs of individual pipe systems conveying materials as diverse as fluids, food stuffs, chemicals or crude oil.

Water & Gas Equipment

WASK is a market leader in the supply of pipe fittings and pipeline maintenance equipment for the global water and gas markets. Aquastop flow stopping equipment, provides an effective solution for temporarily stopping flow in an operating pipeline enabling repair and renovations to be carried out without disruption to the customer. Complementing Aquastop is Hydrant Wizard which enables replacement of defective fire hydrants without interruption of flow in the mains.

WASK Aquastop

Viking Johnson FlexCheck Valve

Posiflex Expansion Joint

VIKING JOHNSON™

Times Past

Viking Johnson's roots date back to the 1930's when Johnson couplings were made by the Victaulic Company Ltd, part of the Stewarts & Lloyd steel group. The package of S&L steel pipe and Johnson couplings was very successful and installed on many pipeline projects worldwide.

1967 saw nationalisation of the major steel companies, including S&L, and Viking Johnson became part of British Steel Corporation's Tubes Division. This Company continued until 1983 when, under Margaret Thatcher's conservative government, the non-steel making parts of BSC were privatised and Victaulic plc was formed through an employee buy-out. In 2003, Viking Johnson was one of several businesses bought by Crane Ltd.

Until 1980, the majority of Viking Johnson's output was concentrated on just a dedicated range of couplings. Since then, in each decade that followed important new products have been developed and the portfolio has greatly expanded.

Our Beginnings...

1919 The Victory Pipe Joint Company was formed shortly after World War 1

1927 Company name was changed to Victualic Company Ltd. Stewarts & Lloyds steel producers acquired 70% stake in the same year

1930 Original Johnson Couplings made by The Victaulic Company Ltd. (part of Stewarts & Lloyds group)

Johnson Couplings sold all over the world with Stewarts & Lloyds steel pipe

1942 Victaulic moved to ten acre green field site in Hitchin

1980s Introduction of many new products - MaxiFit, FlexLock, EasiClamp

1990s AquaGrip, HandiClamp, Juno, MegaFit, LinerGrip

2000s UltraGrip, AquaFast

2010 Next Generation UltraGrip, Remote Repair Clamp Through-Bore Hydrant

The Great Man Made River, Libya
Couplings & Flange Adaptors - DN4000

World Leaders in what we do...

Viking Johnson is a leading brand of Crane Building Services & Utilities and is a world leader in the manufacture and supply of couplings, flange adaptors, and pipe repair solutions for the international water, wastewater, gas and industrial markets. Products are suitable for dedicated and wide tolerance applications ranging from 15mm to 5000mm in diameter, and can be used to connect or repair many types of pipe material.

The product portfolio is extensive, with many thousands of individual items to choose from and of course bespoke solutions can be manufactured to customers' specific requirements.

Haweswater, Cumbria, UK
Large Diameter Couplings - DN1200

Quality

Viking Johnson operates a quality management system accredited to ISO 9001 combined with an environmental policy accredited to ISO 14001. In addition, some product ranges have been approved by 3rd party organisations, for marine - Lloyds Register, Bureau Veritas and ABS; for potable water - WBS, NSF, ACS and Belgaqua; for specific regions - GOST-R, Bulgarkontrola, Belarus Technical Approval and many others, giving customers complete peace of mind.

ISO 14001
EMS 51874

ISO 9001
FM 00311


Remote EasiClamp
water dragons
SBWWI 2010
Best Product Innovation

People Make Innovations Happen...

Viking Johnson has, for more than 80 years, been an industry innovator committed to enhancing existing products and creating new ones. The success of the product development programme has been recognised, not only by its customers but by success in winning awards.

The most recent winner is the Remote EasiClamp for the prestigious Best Product Innovation Award promoted by the Society of British Water & Wastewater Industries (SBWWI) for 2010. Launched in 2009, the Remote EasiClamp offers a quick, safe and permanent repair to a damaged pipe at full operational pressure without having to enter the trench and with minimal excavation. Since its launch, all UK water utilities have approved the Remote EasiClamp, for use in the field. Operators using the product have acknowledged the benefits with respect to ease of installation and health and safety. The product will revolutionize the industry, helping utility companies reach water leakage targets set by Ofwat.

Developed for Gas & Industrial Applications

Many of Viking Johnson's products can also be used for gas projects, they include FlexLock, HandiRange, MaxiFit, MegaFit & UltraGrip. Size range is from DN40 to DN600 and gas pressures up to 5 bar.

FlexLock is available with nitrile gaskets for ductile iron & steel applications ideal for natural gas, petroleum & low aromatic fuels.

HandiRange is a repair product, ideal for corroded and cracked pipe work.

MaxiFit and MegaFit are universal pipe fittings for use on a wide range of pipe materials up to 5 bar.

UltraGrip has been specially designed with a unique profiled gasket for use on even badly corroded pipe surfaces for leaking ferrous gas mains.

Dismantling Joints, Large Diameter, QuickFit and Marine ranges are suitable for industrial applications. They are approved for use with oil-based and petroleum products, chemicals, sewage and other general industrial processing.

See the relevant product pages for full information.

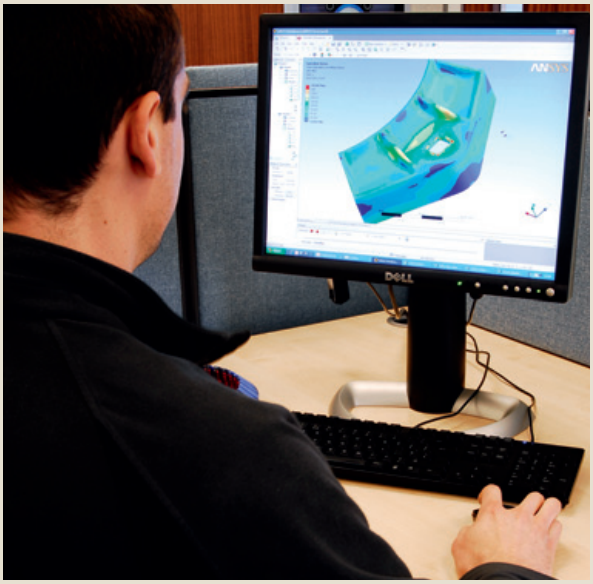
Stadtwerke, Bielefeld, Germany
MegaFit - DN300

Manufacturing

Viking Johnson has a 14 acre manufacturing facility based in Hitchin and customers can choose from a comprehensive range of 7000 product lines. Many products are manufactured on site by a skilled and experienced workforce taking raw materials through fabrication, coating and finishing.

Investment

The UK manufacturing facility has been continuously upgraded and enhanced with a multi-million pound investment programme. There are of course a number of benefits, but most importantly customer lead times will be improved even further especially on large diameter products.



Enhanced Product Integrity

Viking Johnson is one of the few manufacturers, that utilises the Flash Butt Welding technique for joining sleeves and rings together to ensure that the product will stand the test of time. Flash welding is a type of resistance welding that involves pressing two ends together, while simultaneously running a current between them. This has the effect of forming a seamless joint between the two metals that is free of oxides. The process has many advantages, it consistently delivers a quality weld, offering the best solution with regard to weld penetration, and cleanliness of the interfaces. Furthermore, the post welding cold expansion process creates dimensionally stable rings of repeatable quality, essential for the consistent compression of the annular gasket. The benefit to customers is a first class coupling with a 'solid state weld' which will meet the required design life.

Engineering

Viking Johnson has its own design engineers and extensive in-house test cell facilities. The latest engineering software is used to ensure state of the art design and stress analysis. In order to maintain the policy of a 50 year design life the Company undertakes accelerated ageing tests in-house to establish that products will stand the test of time.

Mechanical Couplings & Flange Adaptors

Dedicated

The range comprises couplings, stepped couplings, flange adaptors and dismantling joints for all sizes and working pressures. Ideal for new lay pipe schemes, dedicated products, in sizes up to DN5000, offer a cost effective solution for connecting plain ended pipes or to flanged equipment.

PE Solutions

A range of mechanical couplings and flange adaptors for all weather and site conditions providing a quick, easy way of joining or repairing PE pipe materials.

They offer full end restraint, removing the need for expensive thrust blocks. Specialist products are also available as end termination systems for pipelines rehabilitated with thin walled PE pipe.

Wide Tolerance

A range of couplings, reducing couplings and flange adaptors designed to accommodate plain ended pipe with differing outside diameters. One size covers a number of different pipe materials, making them ideal for repair and maintenance work and they reduce the need for a large stock holding.

Wide tolerance products include both flexible fittings, that allow for expansion, contraction and movement, and fully restrained versions, that remove the need for expensive thrust blocks to accommodate forces due to internal pressure in the pipes.

Repair & Branch Connections

A range of repair clamps and under pressure tapping products, available in both iron and stainless steel.

These products feature wide tolerances for repair and branch connections for pipes manufactured from a variety of materials. The range can be installed under pressure, removing the requirement for costly mains shut downs.

Madison Avenue, New York, USA, LinerGrip

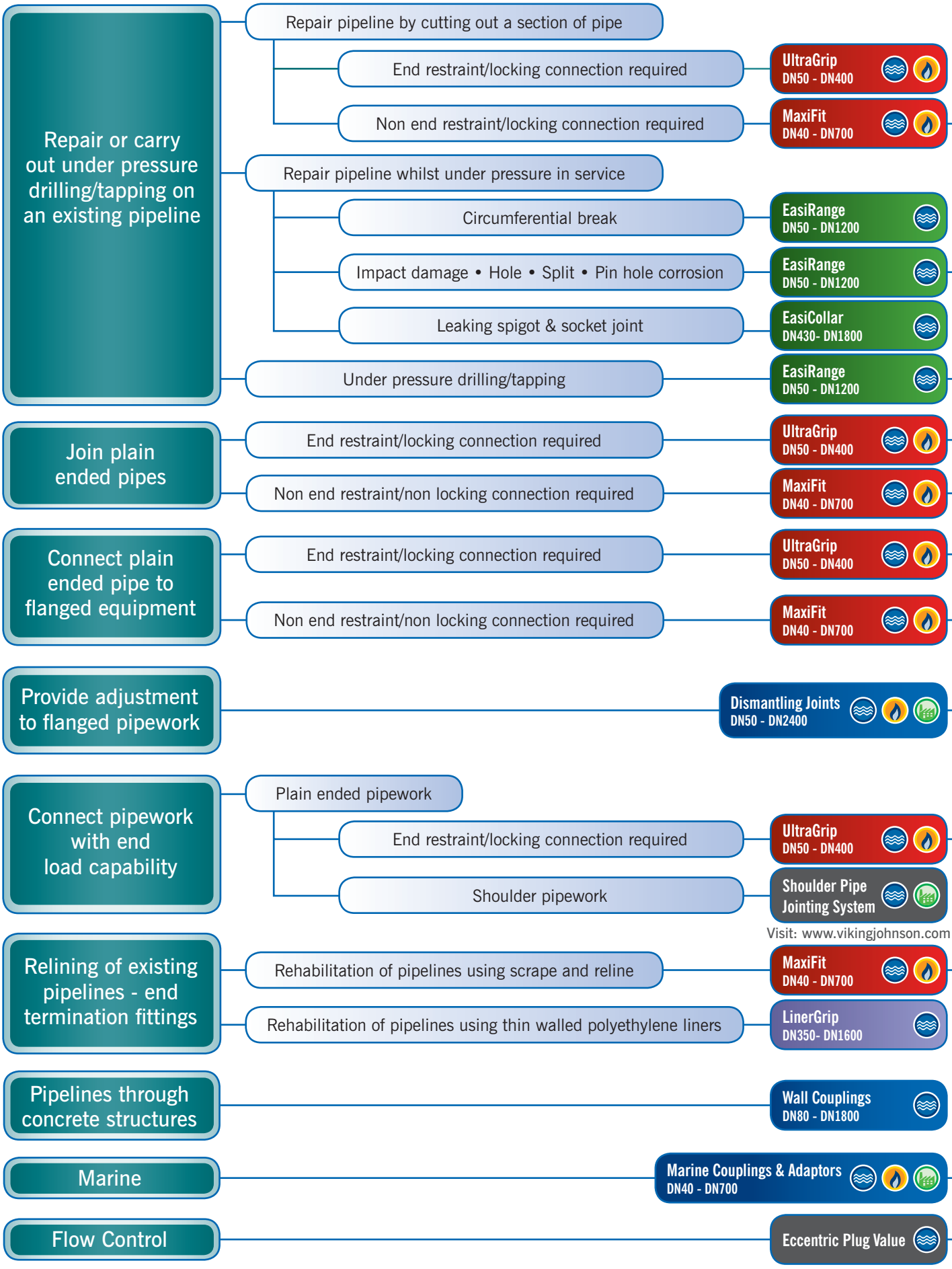
Anglesey, UK, MattSeal EasiTee

Codelco Salvador Mine, Chile, Large Diameter

Martigues Power Plant, France, Marseille, AquaGrip

We Operate Around the World

Typical Applications Selector



MegaFit DN50 - DN300 — **Large Diameter** DN350 - DN5000

HandiRange DN15 - DN750

HandiRange DN15 - DN750

FlexLock DN50 - DN300 — **AquaFast** DN63 - DN315 — **AquaGrip** DN63 - DN1600

QuickFit DN40 - DN300 — **Large Diameter** DN350 - DN5000 — **MegaFit** DN50 - DN300

FlexLock DN50 - DN300 — **AquaFast** DN63 - DN315 — **AquaGrip** DN63 - DN1600

QuickFit DN40 - DN300 — **Large Diameter** DN350 - DN5000 — **MegaFit** DN50 - DN300

QuickFit DN40 - DN300 — **Large Diameter** DN350 - DN5000 — **Posiflex**

Visit: www.posiflex.com

FlexLock DN50 - DN300 — **AquaFast** DN63 - DN315 — **AquaGrip** DN63 - DN1600

MegaFit DN50 - DN300

Large Diameter DN350 - DN5000

FlexCheck Value — **MultiPort Valve** — **Resilient Seated Gate Valves** — **Through Bore Hydrant**

For product pipe material and size compatibility refer to the Product Pipe Material Selector on page 21

Applications

- **Water Products**
- **Gas Products**
- **Industrial**
  Applications including:
  Oil based & petroleum products
  Chemicals
  Sewage
  General industrial processing

Note: The choice of gasket material must be appropriate for each service to ensure successful operation (see pages 190-193 for further information)

Pipe Materials

Ductile Iron, Cast Iron, Steel, Stainless Steel, PVC, PE, HEP30, GRP, ABS, Clay, Concrete, Asbestos Cement, Copper, Lead

For information on all Flow Control products visit: www.vikingjohnson.com

Standard Outside Diameter Chart

STANDARD OUTSIDE DIAMETER

NOMINAL BORE mm / inches	IMPERIAL CAST IRON & ASBESTOS CEMENT (TURNED END) BS1211 (1981) (UTI 27" NB) BS78 (1981) BS486 (1966)			STEEL ISO/4200 (1991)				BS1387 (1990)	BS3600 (1997) & BS3601(1993) (pipe ends to BS534 1990)	API 5L (2000) & BS1600 (2000) UTI 36" NB	BS3505 (1998)	BS3506 (1969)	PVC-U BS5391 (1976)	ABS BS EN 545 (2002), BS EN 598 (1995) BS4772 (1988) DIN 28601, 28602, 28603, 28605	DUCTILE IRON BS5480 (1990) (Typical UK sizes)		GRP	METRIC ASBESTOS CEMENT (TURNED END) BS486 (1990)
	CLASS AB ONLY	CLASS CD ONLY	NON STD	SER1	SER2	SER3	SER3									CLASS 15	CLASS 20	CLASS 25
15 0.5				21.3				21.3	21.4	21.4	21.4	21.4	21.4					
20 0.75				26.9	25.0	25.4		26.9	26.8	26.7	26.8	26.8	26.8					
25 1				33.7	32.0	30.0	35.0	33.7	33.6	33.4	33.6	33.6	33.6					
32 1.25				42.4	40.0	44.5		42.4	42.3	42.2	42.3	42.3	42.3					
40 1.5	55.9 2.20	55.9 2.20	57.0 2.25	48.3	57.0	54.0		48.3	48.3	48.3	48.3	48.3	48.3	56				
50 2	69.1 2.72	69.1 2.72		60.3	63.5			60.3	60.4	60.3	60.4	60.4	60.4	66				69
65 2.5	82.3 3.24	82.3 3.24	82.5 3.25	76.1	70.0	73.0		76.1	76.1	73.0		75.2		82				
80 3	95.5 3.76	95.5 3.76		88.9		82.5		88.9	88.9	88.9	88.9	88.9	88.8	98				96
90 3.5					101.6				101.6	101.6								
100 4	121.9 4.80	121.9 4.80		114.3	127.0	108.0		114.3	114.3	114.3	114.3	114.3	114.3	118				122
125 5	149.9 5.90	149.9 5.90		139.7	133.0	141.3	152.4	139.7	139.7	141.3	140.2	140.2		144				
150 6	177.3 6.98	177.3 6.98		168.3		159.0	177.8	165.1	168.3	168.3	168.3	168.3	168.3	170		177		177
175 7	204.7 8.06	204.7 8.06				193.7			193.7			193.8						
200 8	232.2 9.14	232.2 9.14		219.1					219.1	219.1	219.1	219.1	219.1	222	220	232	232	240
225 9	259.1 10.20	259.1 10.20				244.5			244.5			244.5				259	259	268
250 10	286.0 11.26	286.0 11.26		273.0					273.0	273.1	273.0	273.0		274	272	286	286	295
300 12	333.8 13.14	345.4 13.60		323.9					323.9	323.9	323.9	323.9		326	324	334	345	356
350 14	387.0 15.22	399.3 15.72		355.6					355.6	355.6	355.6	355.5		378	376	392	405	419
375 15	413.0 16.26	426.2 16.78																
400 16	439.0 17.30	453.1 17.84		406.4					406.4	406.4	406.4	406.4		429	427	448	463	478
450 18	492.0 19.38	506.9 19.96		457.0					457.0	457.2	457.2	457.2		480	478	498	515	532
500 20	545.0 21.46	560.3 22.06		508.0					508.0	508.0	508.0	508.0		532	530	568	586	605
525 21	572.0 22.50	587.2 23.12																
550 22	598.0 23.54	613.7 24.16				559.0			559.0	559.0		558.8						
600 24	650.0 25.60	667.0 26.26		610.0					610.0	609.6	609.6	609.6		635	633	654	672	691
650 26	703.0 27.66	720.3 28.36				660.0			660.0	660.4								
675 27	729.0 28.70	746.8 29.40																
700 28	755.0 29.72	773.2 30.44		711.0					711.0	711.2				738	718	761	780	801
750 30	807.0 31.78	826.0 32.52			762.0				762.0	762.0						808	830	852
800 32	860.0 33.84	879.3 34.62		813.0					813.0	812.8				842	820	882	904	915
825 33	886.0 34.88	905.8 35.66																
850 34	912.0 35.92					864.0			864.0	863.6						927	952	977
900 36	964.0 37.96	984.5 38.76		914.0					914.0	914.4				945	924	970	996	1024
1000 40	1068.0 42.06	1090.2 42.92		1016.0					1016.0	1016.0				1048	1027			
1050 42	1121.0 44.12	1143.0 45.00		1067.0	1168.0				1067.0	1066.8								
1100 44	1172.0 46.16			1118.0						1117.6				1152	1144			
1200 48	1277.0 50.26	1300.5 51.20		1219.0					1219.0	1219.2				1255	1228			
1300 52					1321.0					1320.8					1350			
1400 56				1422.0					1422.0	1422.4				1462	1449			
1600 64				1626.0					1626.0	1625.6				1668	1640			
1800 72				1829.0					1829.0	1828.8				1875	1844			
2000 80				2032.0					2032.0	2032.0				2082	2048			

PVC-U & POLYETHYLENE (METRIC) BS ISO 11922-1 (1997)	METRIC PVC-U & PE HAVE A DESIGNATED NOMINAL BORE WHICH IS USUALLY THE SAME AS THE OUTSIDE DIAMETER. QUOTE PIPE CLASS, RATING OR WALL THICKNESS ON ENQUIRIES.																													
	16	20	25	32	40	50	63	75	90	110	125	140	160	180	200	225	250	280	315	355	400	450	500	560	630	710	800	900	1000	1200	1400	1600

Note: More details available on request

Pipe Materials Product Selector

Product Groups		Nominal Size Range (mm)	Ductile Iron	Cast Iron	Steel	Stainless Steel	PVC	HEP30	Polypropylene	MDPE/PE80	HDPE/PE100	GRP	ABS	Clay	Concrete	Asbestos Cement	Copper	Lead
Dedicated																		
FlexLock (A, B)	Coupling	50 - 300	●		●													
	Flange Adaptor	50 - 300	●		●													
QuickFit (A, C)	Coupling	40 - 300	●	●	●	●	●	●				6	●		●	1	●	
	Flange Adaptor	40 - 300	●	●	●	●	●	●				6	●		●	1	●	
Large Diameter Unfitted (A, C)	Coupling	350 & greater	●	●	●	●	●	●				6	●		●	1		
	Flange Adaptor	350 & greater	●	●	●	●	●	●				6	●		●	1		
	Step Coupling	350 & greater	●	●	●	●	●	●				6	●		●	1		
Dismantling Joints (A, B)		50 & greater	●	●	●	●				●	●	●						
Wall Couplings (A, B, C)		80 & greater	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
PE Solutions																		
AquaFast (A, B)	Coupling	63 - 315					●	●	●	●	●							
	Flange Adaptor	63 - 315					●	●	●	●	●							
AquaGrip (A, B)	Coupling	63 - 180							●	●	●							
	Flange Adaptor	63 - 180							●	●	●							
	Flange Adaptor	225 - 800								●	●							
	Flange Adaptor	900 & greater								●	●							
LinerGrip (A, D)	Flange Adaptor	350 - 1600							●	●	●							
Wide Tolerance																		
MaxiFit (A, C)	Coupling	40 - 700	●	●	●	●	●	●	8	8	8	6	●	1	●	6	●	1
	Flange Adaptor	40 - 700	●	●	●	●	●	●	8	8	8	6	●	1	●	6	●	1
	Step Coupling	40 - 700	●	●	●	●	●	●	8	8	8	6	●	1	●	6	●	1
MegaFit (A, C)	Coupling	50 - 300	●	●	●	●	●	●				6	●	1	●	6	●	1
	Flange Adaptor	50 - 300	●	●	●	●	●	●				6	●	1	●	6	●	1
	Step Coupling	50 - 300	●	●	●	●	●	●				6	●	1	●	6	●	1
UltraGrip (A, B)	Coupling	50 - 400	●	●	●		●	●	3	3	3	2				2		
	Flange Adaptor	50 - 400	●	●	●		●	●	3	3	3	2				2		
	Reducers	50 - 300	●	●	●		●	●	3	3	3	2				2		
	End Caps	50 - 300	●	●	●		●	●	3	3	3	2				2		
Repair & Branch Connections																		
EasiRange (A)	EasiClamp / Tap	50 - 600	●	●	●		4	4	4	4	4				5			
	Universal EasiTee	80 - 300	●	●	●													
	Matt Seal EasiTee	350 - 600	●	●	●													
	Ring Seal EasiTee	350 - 1200	●	●	●													
	EasiCollar	300 - 1200	●	●											●	●		
HandiRange (A)	HandiBand	15 - 50			●		●	●					●				●	
	HandiClamp / Tee	50 - 600	●	●	●	●	●	●	7	7	7	●	●		●	●	●	

Note: A Viking Johnson product is suitable up to a stated working pressure rating for a given pipe material

(A) Pipe material is suitable within Viking Johnson product OD tolerance range
(B) Restrained Products - Accommodate end load forces due to internal pressure in pipe
(C) Flexible Products - Do not accommodate end load and adequate external support must be provided
(D) Restrained Products - Accommodate end load forces in accordance with PE liner unrestrained pressure capability

(1) Please contact Viking Johnson Marketing department for further details.
(2) Only as Flex Version.
(3) Only as Gripping version.
(4) Available up to DN200 (limited performance).
(5) Available up to DN300.
(6) May require reduced bolt torque - Contact Viking Johnson.
(7) Limited performance
(8) Short length up to and including 1m of PE

Russia - Ural

Ekaterinburg

Large Diameter Couplings
Stepped Couplings
Flange Adaptors
Dismantling Joints

Project
Repair of existing pipeline to prevent water losses which are estimated at 30%.

Client
Water Utility Ekaterinburg.

Contractor
Renessance

Flexible

Dismantling Joint Range

Fully Restrained Double Flanged Fitting

Dismantling Joint

Overview

Developed for Complete Versatility

The Dismantling Joint range was developed to provide greater versatility for the designer at the planning stage and the engineer in the installation stage of flanged pipe work systems and to allow for simple maintenance programmes.

Allows for Adjustment

The Dismantling Joints are double flanged fittings that accommodate up to 100mm (4") longitudinal adjustment and can be locked at the required length with the tie bars supplied. Not only does this system allow for fast, easy maintenance of valves, pumps or meters, it simplifies future pipe work modifications and reduces downtime when changes need to be made.

Easy to Install

The installation is also straightforward using just a spanner and torque wrench to tighten the high tensile steel or stainless steel tie bars. With fewer tie bars than flange holes and the tie bars acting as flange jointing bolts the process is speeded up but still offers a secure, rigid, fully end load resistant system with a pressure rating equal to that of the flange.

The Range

A comprehensive range is available from DN40 (1½") to DN2400 (80") with virtually any flange drilling or pressure rating supplied, although larger sizes and custom made Dismantling Joints can be designed and built on request.

Dismantling Joints

Flanged Pipe Materials

Dismantling Joint

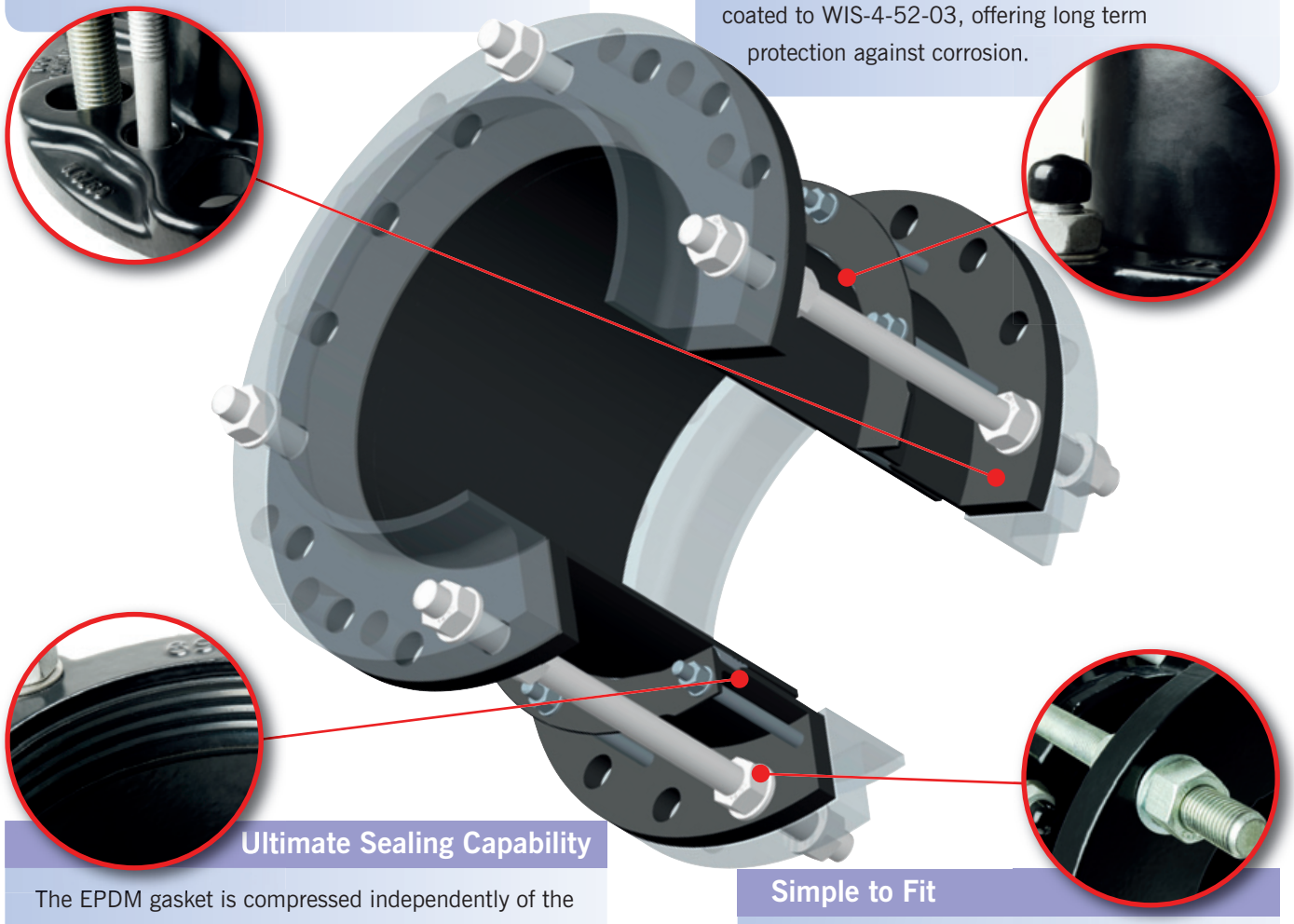
Product Design Benefits

Full Flange Sealing

For applications where a full-face flange is required, i.e. wafer and butterfly valves, the flange of the spigot piece provides a full flange sealing area.

Excellent Corrosion Protection

The flange adaptor and flange spigot are coated with WRAS approved Rilsan Nylon 11 providing excellent protection from transport, storage, site and corrosion damage. The tie bars are Zn³ Zinc Plated as standard with other coatings, grades and finishes available on request. The nuts and bolts are Sheraplex coated to WIS-4-52-03, offering long term protection against corrosion.



Ultimate Sealing Capability

The EPDM gasket is compressed independently of the tie bars with the sealing capability secured as soon as the fasteners reach required torque.

Simple to Fit

Harnessing is accommodated within the bolt circle, eliminating other complex anchoring systems and reducing space requirements.

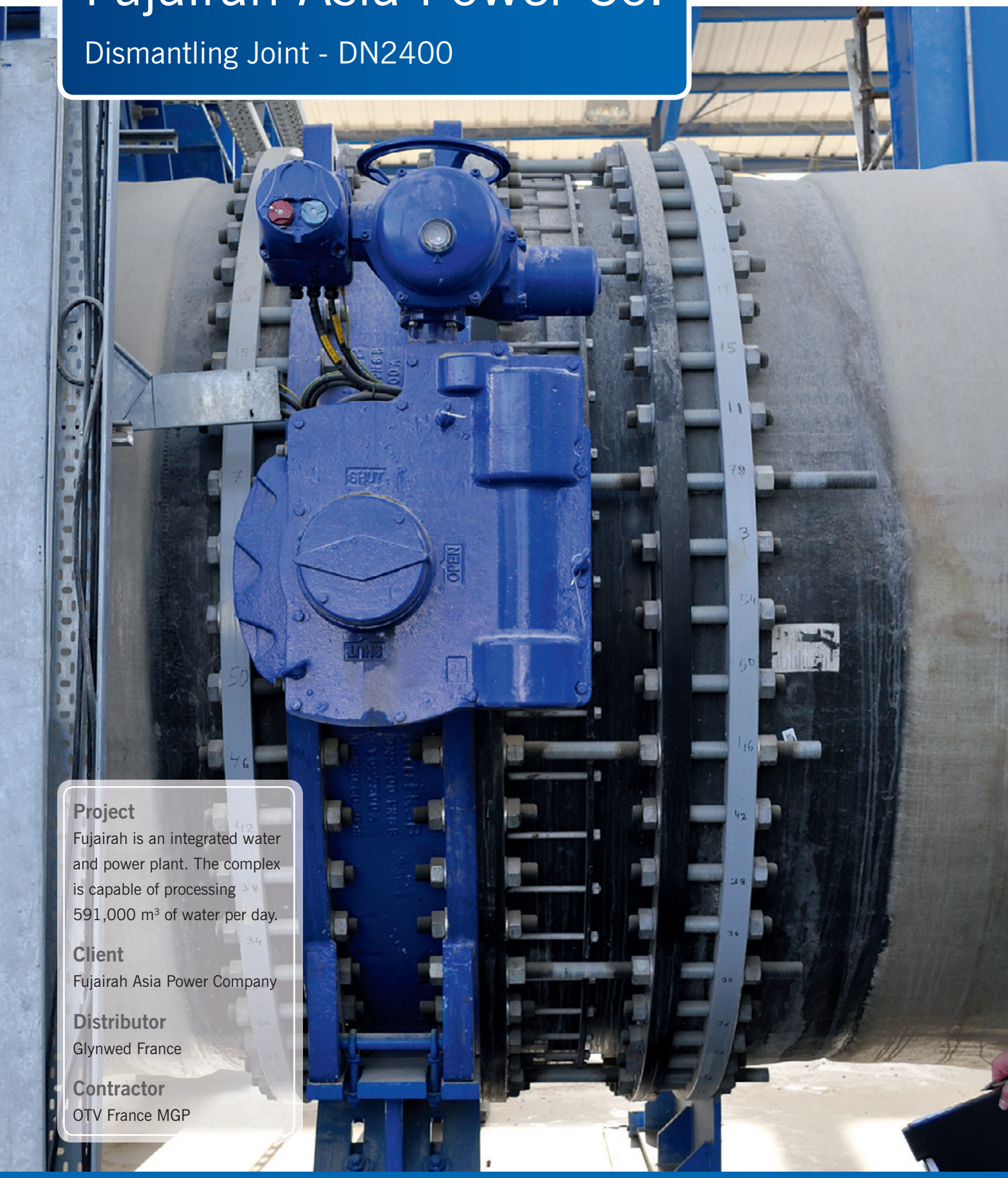
Customer Benefits

- Viking Johnson's Dismantling Joints are particularly suitable for simplifying the installation and removal of isolation valves, control valves, check valves, non-return valves, flow metering valves, pump sets, pressure reducing valves, flanged pipe and fittings.
- Designed and manufactured to BS EN ISO 9001: 2008 and tested to the most exacting requirements of WRAS (Water Regulatory Advisory Scheme) for use with potable water.
- The simplicity and versatility of the fittings make them suitable for many applications including pumping stations, water treatment works, sewage treatment works, plant rooms, meter chambers, power generation equipment, gas distribution stations.

United Arab Emirates - UAE

Fujairah Asia Power Co.

Dismantling Joint - DN2400



Project
Fujairah is an integrated water and power plant. The complex is capable of processing 591,000 m^3 of water per day.

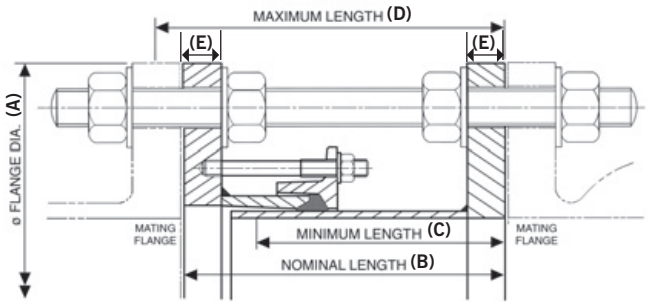
Client
Fujairah Asia Power Company

Distributor
Glynwed France

Contractor
OTV France MGP

Dismantling Joint DN40 to DN300 (PN2.5*,6*,10,16,25,40,64*)

Specifications



Dismantling Joint

Flange Details					Flange to Flange Details			Tie Rod Details					Flange Adaptor Method of Construction Cast / Fabricated
Nom	Drilling	Flange Thickness		Flange OD	Nominal Length	Minimum Length	Maximum Length	Tie Rod Dia x Length (mm)	H.T Zinc Plated Steel H.T Steel BS4882 Grade MB7 Yield 725N/mm²		Stainless Steel Class 70 Yield 450N/mm²		
		Flange Adaptor E (mm)	Spigot E (mm)	A (mm)	B (mm)	C (mm)	D (mm)		No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)	
40	PN10,16,25,40	18	18	150	187	167	207	M16 x 300	4	7.8	4	7.8	Fabricated
50	PN10,16,25,40	17	18	165	194	175	213	M16 x 300	4	8.2	4	8.2	Cast
65	PN10,16	17	18	185	194	175	213	M16 x 300	4	9.4	4	9.3	Cast
80	PN10,16,25,40	17	18	200	194	175	213	M16 x 300	4	10.4	4	10.4	Cast
100	PN10,16	17	18	220	194	175	213	M16 x 300	4	11.6	4	11.6	Cast
100	PN25,40	25	25	235	194	174	214	M20 x 320	4	19.2	4	19.2	Fabricated
125	PN10,16	17	18	250	194	175	213	M16 x 300	4	13.5	4	13.5	Cast
125	PN25,40	25	25	270	194	174	214	M24 x 330	4	26.2	4	26.2	Fabricated
150	PN10,16	17	18	285	194	175	213	M20 x 310	4	17.7	4	17.7	Cast
150	PN25	25	25	300	194	174	214	M24 x 330	4	28.9	4	28.9	Fabricated
150	PN40	25	25	300	194	174	214	M24 x 330	4	28.8	4	28.8	Fabricated
200	PN10	20	18	340	194	175	213	M20 x 310	4	24.3	4	24.3	Cast
200	PN16	20	18	340	194	175	213	M20 x 310	4	24.1	4	24.1	Cast
200	PN25	25	25	360	194	174	214	M24 x 340	4	37.5	4	37.5	Fabricated
200	PN40	25	25	375	194	174	214	M27 x 350	4	42.6	4	42.6	Fabricated
250	PN10	19	18	395	194	175	213	M20 x 310	4	29.6	4	29.6	Cast
250	PN16	19	18	405	194	175	213	M24 x 330	4	32.8	4	32.8	Cast
250	PN25	25	25	425	194	174	214	M27 x 350	4	49.1	4	49.1	Fabricated
250	PN40	25	25	450	194	174	214	M30 x 370	4	57.9	4	57.9	Fabricated
300	PN10	19	18	445	194	175	213	M20 x 310	4	36.2	4	36.2	Cast
300	PN16	19	18	460	194	175	213	M24 x 330	4	40.0	4	40.0	Cast
300	PN25	25	25	485	194	174	214	M27 x 350	4	57.1	4	57.1	Fabricated
300	PN40	25	25	515	194	174	214	M30 x 380	4	69.8	4	69.8	Fabricated

Materials & Relevant Standards

Flange Drilling
BS EN 1092-1 (formerly BS 4504), ISO 7005

Cast Flange Adaptor
Body - Ductile Iron to BS EN 1563:1997:Symbol EN-GJS-450-10

End Rings - Ductile Iron to BS EN 1563:1997:Symbol EN-GJS-450-10

Fabricated Flange Adaptor
Body - Rolled Steel to BS EN 10025-2:2004 Grade S275

End Rings - Rolled Steel to BS EN 10025-2:2004 Grade S275

Flanged Spigot
Flange - Steel to BS EN10025:2004 Grade S275

Spigot - Up to and including 165.1mm - Steel to BS10225:2004
Over 165.1mm Steel to BS10216-1:2002

Gaskets
BS EN 681-1 1996 Type WA WRAS Listed

Tie Rods:
H.T Steel BS4882 Grade MB7 or B7 Yield 725N/mm² Stainless Steel to BS EN3506-1:2009 Grade A2/A4 Property Class 70 (450 N/mm²)

Bolts/Nuts/Washers
Bolts - Steel to BS EN ISO 898-1:2009 Property Class 4.8

Nuts - Steel to BS 4190:2001 Grade 4

Washers - BS 1449:Part 2:1983 Grade 304S15

Coatings (Others available on request)
Centre Sleeve - Rilsan Nylon 11

End Ring - Rilsan Nylon 11

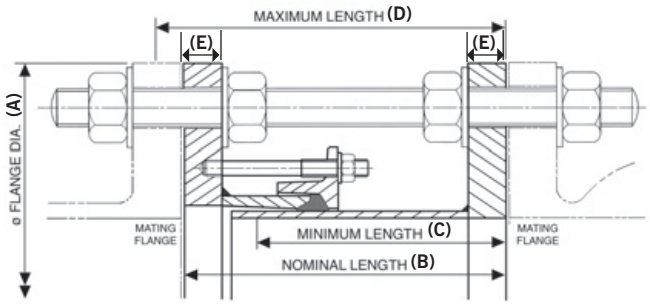
FA Studs & Nuts - Sheraplex to WIS 4-52-03

Tie Rods - Zn3 zinc coated

*More information available on request.

Dismantling Joint DN350 to DN2400 (PN10)

Specifications



Dismantling Joint

Flange Details				Flange To Flange Details				Tie Rod Details					
Nom	Drilling	Flange Thickness E (mm)	Flange OD A (mm)	Nominal Length B (mm)	Minimum Length C (mm)	Maximum Length D (mm)	Tie Rod Dia x Length (mm)	H.T Zinc Plated Steel H.T Steel BS4882 Grade MB7 Yield 725N/mm²		Stainless Steel			
										Class 70 Yield 450N/mm²		Class 50 Yield 210N/mm²	
								No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)
350	PN10	18	505	295	270	320	M20 x 430	4	57.7	4	57.7		
400	PN10	18	565	295	270	320	M24 x 440	4	68.9	4	68.9		
450	PN10	23	615	300	275	325	M24 x 450	5	87.2	5	87.2		
500	PN10	23	670	300	275	325	M24 x 460	5	97.1	5	97.1		
550	PN10	23	730	300	275	325	M27 x 470	5	112.0	5	112.0		
600	PN10	23	780	300	275	325	M27 x 470	5	120.0	5	120.0		
650	PN10	23	835	300	275	325	M27 x 480	6	132.0	6	132.0		
700	PN10	23	895	300	275	325	M27 x 480	6	146.0	6	146.0		
800	PN10	23	1015	300	275	325	M30 x 500	6	167.0	8	175.0		
900	PN10	25	1115	307	277	337	M30 x 520	7	211.0	14	239.0		
1000	PN10	25	1230	307	277	337	M33 x 530	7	246.0	14	281.0		
1100	PN10	25	1340	307	277	337	M33 x 540	8	276.0	16	316.0		
1200	PN10	38	1455	320	290	350	M36 x 570	8	414.0	16	465.0		
1300	PN10	38	1575	320	290	350	M39 x 590	8	475.0	16	539.0		
1400	PN10	38	1675	320	290	350	M39 x 600	9	509.0	12	533.0		
1500	PN10	38	1785	320	290	350	M39 x 610	9	606.0	12	631.0		
1600	PN10	38	1915	320	290	350	M45 x 630	10	731.0	20	851.0		
1800	PN10	38	2115	320	290	350	M45 x 650	11	829.0	22	964.0		
2000	PN10	38	2325	440	390	490	M45 x 810	12	997.0	24	1,149.0		
2200	PN10	38	2550	440	390	490	M52 x 840	13	1,699.0			52	2,500.0
2400	PN10	60	2760	462	412	512	M52 x 880	14	1,878.0			56	2,754.0

Materials & Relevant Standards

Flange Drilling

BS EN 1092-1 (formerly BS 4504), ISO 7005

Fabricated Flange Adaptor

Body - Rolled Steel to BS EN 10025-2:2004 Grade S275

End Rings/Sleeve - Rolled Steel to BS EN 10025-2:2004 Grade S275 or Rolled Steel to BS EN 10025-2:2004 Grade S355 Depending on section

Flanged Spigot

Flange - Steel to BS EN10025:1993 Grade S275

Spigot - Steel to BS10216-1:2002 or Rolled Steel to BS EN 10025-2:2004 Grade S275

Gaskets

BS EN 681-1 1996 Type WA WRAS Listed

Tie Rods

H.T Steel BS4882 Grade MB7 or B7 Yield 725N/mm²

u.t.i. M48 – 2" Stainless Steel to BS EN3506-1:2009 Grade A2/A4 Property Class 70 (450 N/mm²)

M52 and 2 1/4" and above Stainless Steel to BS EN3506-1:2009 Grade A2/A4 Property Class 50 (210 N/mm²)

Bolts/Nuts/Washers

Bolts - Steel to BS EN ISO 898-1:2009 Property Class 4.8

Nuts - Steel to BS 4190:2001 Grade 4

Washers - BS 1449:Part 2:1983 Grade 304S15

Coatings (Others available on request)

Centre Sleeve - Rilsan Nylon 11

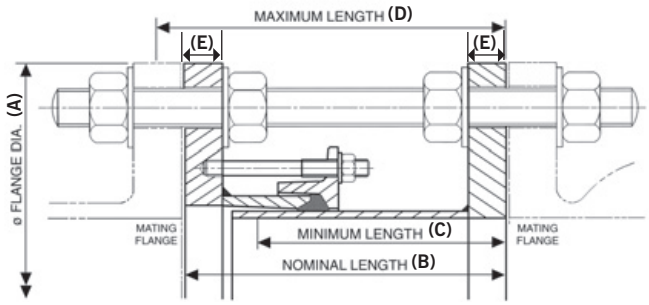
End Ring - Rilsan Nylon 11

FA Studs & Nuts - Sheraplex to WIS 4-52-03

Tie Rods - Zn3 zinc coated

Dismantling Joint DN350 to DN2400 (PN16)

Specifications



Dismantling Joint

Flange Details				Flange To Flange Details				Tie Rod Details					
Nom	Drilling	Flange Thickness E (mm)	Flange OD A (mm)	Nominal Length B (mm)	Minimum Length C (mm)	Maximum Length D (mm)	Tie Rod Dia x Length (mm)	H.T Zinc Plated Steel H.T Steel BS4882 Grade MB7 Yield 725N/mm²		Stainless Steel			
										Class 70 Yield 450N/mm²		Class 50 Yield 210N/mm²	
								No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)
350	PN16	18	520	295	270	320	M24 x 450	4	63.4	4	63.4		
400	PN16	18	580	295	270	320	M27 x 460	4	75.2	4	75.2		
450	PN16	23	640	300	275	325	M27 x 470	5	99.0	5	99.0		
500	PN16	23	715	300	275	325	M30 x 480	5	121.0	5	121.0		
550	PN16	23	775	300	275	325	M30 x 490	5	134.0	5	134.0		
600	PN16	23	840	300	275	325	M33 x 500	5	154.0	5	154.0		
650	PN16	23	860	300	275	325	M33 x 510	6	153.0	6	153.0		
700	PN16	23	910	300	275	325	M33 x 520	6	162.0	6	162.0		
750	PN16	23	970	300	275	325	M33 x 530	6	177.0	8	187.0		
800	PN16	23	1025	300	275	325	M36 x 540	6	184.0	8	196.0		
900	PN16	25	1125	307	277	337	M36 x 570	7	232.0	14	277.0		
1000	PN16	25	1255	307	277	337	M39 x 590	7	282.0	14	339.0		
1100	PN16	38	1355	320	290	350	M39 x 610	8	406.0	16	471.0		
1200	PN16	38	1485	320	290	350	M45 x 640	8	505.0	16	601.0		
1300	PN16	38	1585	320	290	350	M45 x 650	8	533.0	16	631.0		
1400	PN16	38	1685	320	290	350	M45 x 660	9	583.0	18	694.0		
1500	PN16	38	1820	320	290	350	M52 x 690	9	760.0			36.0	1,238.0
1600	PN16	38	1930	320	290	350	M52 x 710	10	850.0			40.0	1,391.0
1800	PN16	38	2130	320	290	350	M52 x 730	11	962.0			44.0	1,568.0
2000	PN16	60	2345	462	412	512	M56 x 930	12	1,662.0			48.0	2,577.0
2200	PN16	60	2555	462	412	512	M56 x 950	13	1,871.0			52.0	2,878.0
2400	PN16	60	2765	462	412	512	M56 x 980	28	2,461.0			56.0	3,201.0

Materials & Relevant Standards

Flange Drilling

BS EN 1092-1 (formerly BS 4504), ISO 7005

Fabricated Flange Adaptor

Body - Rolled Steel to BS EN 10025-2:2004 Grade S275

End Rings/Sleeve - Rolled Steel to BS EN 10025-2:2004 Grade S275 or Rolled Steel to BS EN 10025-2:2004 Grade S355 Depending on section

Flanged Spigot

Flange - Steel to BS EN10025:1993 Grade S275

Spigot - Steel to BS10216-1:2002 or Rolled Steel to BS EN 10025-2:2004 Grade S275

Gaskets

BS EN 681-1 1996 Type WA WRAS Listed

Tie Rods

H.T Steel BS4882 Grade MB7 or B7 Yield 725N/mm²

u.t.i. M48 – 2" Stainless Steel to BS EN3506-1:2009 Grade A2/A4 Property Class 70 (450 N/mm²)

M52 and 2 1/4" and above Stainless Steel to BS EN3506-1:2009 Grade A2/A4 Property Class 50 (210 N/mm²)

Bolts/Nuts/Washers

Bolts - Steel to BS EN ISO 898-1:2009 Property Class 4.8

Nuts - Steel to BS 4190:2001 Grade 4

Washers - BS 1449:Part 2:1983 Grade 304S15

Coatings (Others available on request)

Centre Sleeve - Rilsan Nylon 11

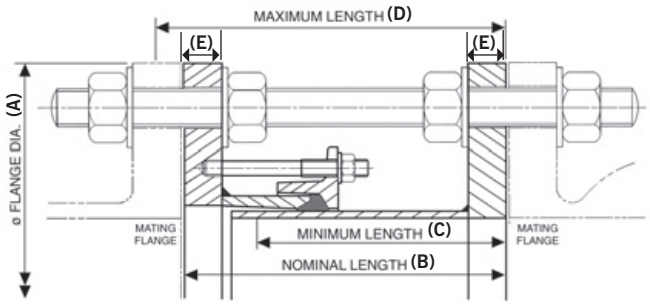
End Ring - Rilsan Nylon 11

FA Studs & Nuts - Sheraplex to WIS 4-52-03

Tie Rods - Zn3 zinc coated

Dismantling Joint DN350 to DN1800 (PN25)

Specifications



Dismantling Joint

Flange Details				Flange To Flange Details				Tie Rod Details				
								H.T Zinc Plated Steel H.T Steel BS4882 Grade MB7 Yield 725N/mm²		Stainless Steel		
										Class 70 Yield 450N/mm²		Class 50 Yield 210N/mm²	
Nom	Drilling	Flange Thickness E (mm)	Flange OD A (mm)	Nominal Length B (mm)	Minimum Length C (mm)	Maximum Length D (mm)	Tie Rod Dia x Length (mm)	No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)
350	PN25	25	555	302	277	327	M30 x 480	4	91.1	4	91.1		
400	PN25	25	620	302	277	327	M33 x 490	4	109.0	4	109.0		
450	PN25	25	670	302	277	327	M33 x 500	5	122.0	5	122.0		
500	PN25	25	730	302	277	327	M33 x 510	5	137.0	5	137.0		
550	PN25	25	785	302	277	327	M36 x 530	5	155.0	5	155.0		
600	PN25	25	845	302	277	327	M36 x 540	5	170.0	10	202.0		
650	PN25	25	895	307	277	337	M36 x 550	6	199.0	8	211.0		
700	PN25	25	960	302	277	327	M39 x 570	6	212.0	8	227.0		
800	PN25	25	1085	307	277	337	M45 x 630	6	279.0	8	302.0		
900	PN25	25	1185	307	277	337	M45 x 630	7	317.0	14	394.0		
1000	PN25	38	1320	320	290	350	M52 x 660	7	520.0			28	880.0
1200	PN25	38	1530	320	290	350	M52 x 690	8	637.0			32	1,061.0
1400	PN25	60	1755	462	412	512	M56 x 890	9	1,181.0			36	1,845.0
1600	PN25	60	1975	462	412	512	M56 x 920	10	1,514.0			40	2,272.0
1800	PN25	60	2185	462	412	512	M64 x 970	11	1,855.0			44	2,819.0

Materials & Relevant Standards

Flange Drilling

BS EN 1092-1 (formerly BS 4504), ISO 7005

Fabricated Flange Adaptor

Body - Rolled Steel to BS EN 10025-2:2004 Grade S275

End Rings/Sleeve - Rolled Steel to BS EN 10025-2:2004 Grade S275 or Rolled Steel to BS EN 10025-2:2004 Grade S355 Depending on section

Flanged Spigot

Flange - Steel to BS EN10025:1993 Grade S275

Spigot - Steel to BS10216-1:2002 or Rolled Steel to BS EN 10025-2:2004 Grade S275

Gaskets

BS EN 681-1 1996 Type WA WRAS Listed

Tie Rods

H.T Steel BS4882 Grade MB7 or B7 Yield 725N/mm²

u.t.i. M48 – 2" Stainless Steel to BS EN3506-1:2009 Grade A2/A4 Property Class 70 (450 N/mm²)

M52 and 2 1/4" and above Stainless Steel to BS EN3506-1:2009 Grade A2/A4 Property Class 50 (210 N/mm²)

Bolts/Nuts/Washers

Bolts - Steel to BS EN ISO 898-1:2009 Property Class 4.8

Nuts - Steel to BS 4190:2001 Grade 4

Washers - BS 1449:Part 2:1983 Grade 304S15

Coatings (Others available on request)

Centre Sleeve - Rilsan Nylon 11

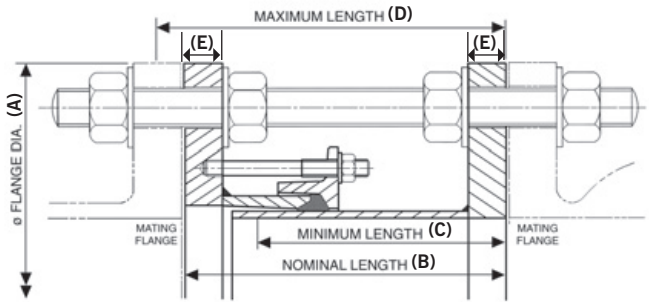
End Ring - Rilsan Nylon 11

FA Studs & Nuts - Sheraplex to WIS 4-52-03

Tie Rods - Zn3 zinc coated

Dismantling Joint DN350 to DN1600 (PN40)

Specifications



Dismantling Joint

Flange Details				Flange To Flange Details				Tie Rod Details					
Nom	Drilling	Flange Thickness E (mm)	Flange OD A (mm)	Nominal Length B (mm)	Minimum Length C (mm)	Maximum Length D (mm)	Tie Rod Dia x Length (mm)	H.T Zinc Plated Steel H.T Steel BS4882 Grade MB7 Yield 725N/mm²		Stainless Steel			
										Class 70 Yield 450N/mm²		Class 50 Yield 210N/mm²	
								No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)
350	PN40	25	580	307	277	337	M33 x 520	4	111.0	4	111.0		
400	PN40	25	660	307	277	337	M36 x 540	4	138.0	4	138.0		
450	PN40	25	685	307	277	337	M36 x 550	5	148.0	5	148.0		
500	PN40	25	755	307	277	337	M39 x 570	5	178.0	10	218.0		
550	PN40	38	835	320	290	350	M45 x 600	5	289.0	5	289.0		
600	PN40	38	890	320	290	350	M45 x 620	5	313.0	10	373.0		
650	PN40	38	945	320	290	350	M45 x 630	6	350.0	8	374.0		
700	PN40	38	995	320	290	350	M45 x 640	6	375.0	8	399.0		
800	PN40	38	1140	320	290	350	M52 x 680	6	479.0			24	795.0
900	PN40	38	1250	320	290	350	M52 x 700	7	570.0			28	945.0
1000	PN40	38	1360	320	290	350	M52 x 720	14	770.0			28	1,025.0
1200	PN40	38	1575	320	290	350	M56 x 780	16	998.0	Note		32	
1400	PN40	60	1795	462	412	512	M56 x 980	18	1,734.0	Note		Note	
1600	PN40	60	2025	462	412	512	M64 x 975	20	2,198.0	Note		Note	

Note 1: Stainless steel tie rods can not accommodate this working pressure so not available.

Materials & Relevant Standards

Flange Drilling

BS EN 1092-1 (formerly BS 4504), ISO 7005

Fabricated Flange Adaptor

Body - Rolled Steel to BS EN 10025-2:2004 Grade S275

End Rings/Sleeve - Rolled Steel to BS EN 10025-2:2004 Grade S275 or Rolled Steel to BS EN 10025-2:2004 Grade S355 Depending on section

Flanged Spigot

Flange - Steel to BS EN10025:1993 Grade S275

Spigot - Steel to BS10216-1:2002 or Rolled Steel to BS EN 10025-2:2004 Grade S275

Gaskets

BS EN 681-1 1996 Type WA WRAS Listed

Tie Rods

H.T Steel BS4882 Grade MB7 or B7 Yield 725N/mm²

u.t.i. M48 – 2" Stainless Steel to BS EN3506-1:2009 Grade A2/A4 Property Class 70 (450 N/mm²)

M52 and 2 1/4" and above Stainless Steel to BS EN3506-1:2009 Grade A2/A4 Property Class 50 (210 N/mm²)

Bolts/Nuts/Washers

Bolts - Steel to BS EN ISO 898-1:2009 Property Class 4.8

Nuts - Steel to BS 4190:2001 Grade 4

Washers - BS 1449:Part 2:1983 Grade 304S15

Coatings (Others available on request)

Centre Sleeve - Rilsan Nylon 11

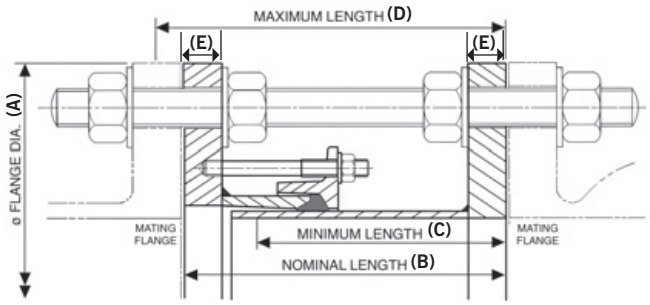
End Ring - Rilsan Nylon 11

FA Studs & Nuts - Sheraplex to WIS 4-52-03

Tie Rods - Zn3 zinc coated

Dismantling Joint 4” to 40” (Class D)

Specifications



Dismantling Joint

Flange Details				Flange To Flange Details			Tie Rod Details				
Nom	Drilling	Flange Thickness E (mm)	Flange OD A (mm)	Nominal Length B (mm)	Minimum Length C (mm)	Maximum Length D (mm)	Tie Rod Dia x Length	H.T Zinc Plated Steel H.T Steel BS4882 Grade MB7 Yield 725N/mm²		Stainless Steel Class 70 Yield 450N/mm²	
								No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)
4”	Class D	18	229	187	167	207	5/8” x 11 1/2”	4	14.2	4	14.2
6”	Class D	18	279	187	167	207	3/4” x 12”	4	19.7	4	19.7
8”	Class D	18	343	187	167	207	3/4” x 12”	4	27.5	4	27.5
10”	Class D	18	406	187	167	207	7/8” x 12”	4	35.4	4	35.4
12”	Class D	18	483	187	167	207	7/8” x 12 1/2”	4	48.3	4	48.3
14”	Class D	18	533	295	270	320	1” x 17 1/2”	4	69.3	4	69.3
16”	Class D	18	597	295	270	320	1” x 17 1/2”	4	79.7	4	79.7
18”	Class D	23	635	300	275	325	1 1/8” x 18 1/2”	4	98.3	4	98.3
20”	Class D	23	698	300	275	325	1 1/8” x 18 1/2”	5	115.0	5	115.0
24”	Class D	23	813	300	275	325	1 1/4” x 19”	5	143.0	5	143.0
28”	Class D	23	927	300	275	325	1 1/4” x 19”	7	176.0	7	176.0
30”	Class D	23	984	300	275	325	1 1/4” x 19”	7	189.0	7	189.0
32”	Class D	23	1060	300	275	325	1 1/2” x 20”	7	218.0	7	218.0
36”	Class D	25	1168	307	277	337	1 1/2” x 20 1/2”	8	278.0	8	278.0
40”	Class D	25	1289	307	277	337	1 1/2” x 20 1/2”	9	320.0	9	320.0

Materials & Relevant Standards

Flange Drilling

AWWA C207 Drilling

Fabricated Flange Adaptor

Body - Rolled Steel to BS EN 10025-2:2004 Grade S275

End Rings/Sleeve - Rolled Steel to BS EN 10025-2:2004 Grade S275 or Rolled Steel to BS EN 10025-2:2004 Grade S355 Depending on section

Flanged Spigot

Flange - Steel to BS EN10025:1993 Grade S275

Spigot - Steel to BS10216-1:2002 or Rolled Steel to BS EN 10025-2:2004 Grade S275

Gaskets

BS EN 681-1 1996 Type WA WRAS Listed

Tie Rods

H.T Steel BS4882 Grade MB7 or B7 Yield 725N/mm²
u.t.i. M48 – 2” Stainless Steel to BS EN3506-1:2009 Grade A2/A4 Property Class 70 (450 N/mm²)

M52 and 2 1/4” and above Stainless Steel to BS EN3506-1:2009 Grade A2/A4 Property Class 50 (210 N/mm²)

Bolts/Nuts/Washers

Bolts - Steel to BS EN ISO 898-1:2009 Property Class 4.8

Nuts - Steel to BS 4190:2001 Grade 4

Washers - BS 1449:Part 2:1983 Grade 304S15

Coatings (Others available on request)

Centre Sleeve - Rilsan Nylon 11

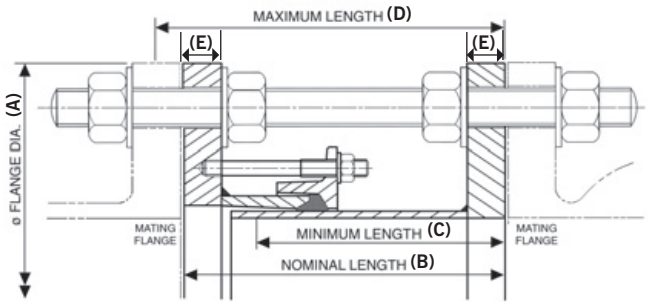
End Ring - Rilsan Nylon 11

FA Studs & Nuts - Sheraplex to WIS 4-52-03

Tie Rods - Zn3 zinc coated

Dismantling Joint 3” to 40” (ANSI 150)

Specifications



Dismantling Joint

Flange Details				Flange To Flange Details				Tie Rod Details			
Nom	Drilling	Flange Thickness E (mm)	Flange OD A (mm)	Nominal Length B (mm)	Minimum Length C (mm)	Maximum Length D (mm)	Tie Rod Dia x Length	H.T Zinc Plated Steel H.T Steel BS4882 Grade MB7 Yield 725N/mm²		Stainless Steel Class 70 Yield 450N/mm²	
								No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)
3”	ANSI 150	25	190	194	174	214	5/8” x 12 1/2”	4	14.0	4	14.0
4”	ANSI 150	25	229	194	174	214	5/8” x 12 1/2”	4	17.4	4	17.4
6”	ANSI 150	25	279	194	174	214	3/4” x 13”	4	23.8	4	23.8
8”	ANSI 150	25	343	194	174	214	3/4” x 13”	4	33.3	4	33.3
10”	ANSI 150	25	406	194	174	214	7/8” x 13 1/2”	4	43.0	4	43.0
12”	ANSI 150	25	483	194	174	214	7/8” x 13 1/2”	4	59.1	4	59.1
14”	ANSI 150	25	533	302	277	327	1” x 19”	4	82.8	4	82.8
16”	ANSI 150	25	597	302	277	327	1” x 19”	4	95.8	4	95.8
18”	ANSI 150	25	635	302	277	327	1 1/8” x 19”	4	103.0	4	103.0
20”	ANSI 150	25	698	302	277	327	1 1/8” x 19 1/2”	5	121.0	10	140.0
24”	ANSI 150	25	813	302	277	327	1 1/4” x 20 1/2”	5	151.0	10	177.0
28”	ANSI 150	25	927	302	277	327	1 1/4” x 22”	7	187.0	14	225.0
30”	ANSI 150	25	984	302	277	327	1 1/4” x 22 1/2”	7	202.0	14	240.0
32”	ANSI 150	25	1060	302	277	327	1 1/2” x 23”	7	225.0	14	277.0
36”	ANSI 150	25	1168	307	277	337	1 1/2” x 24 1/2”	8	291.0	16	361.0
40”	ANSI 150	38	1289	320	290	350	1 1/2” x 25”	9	441.0	18	520.0

Materials & Relevant Standards

Flange Drilling

ASME / ANSI B16.5 (uti 24”) & ASME / ANSI B16.47 (26” & over)

Fabricated Flange Adaptor

Body - Rolled Steel to BS EN 10025-2:2004 Grade S275

End Rings/Sleeve - Rolled Steel to BS EN 10025-2:2004 Grade S275 or Rolled Steel to BS EN 10025-2:2004 Grade S355 Depending on section

Flanged Spigot

Flange - Steel to BS EN10025:1993 Grade S275

Spigot - Steel to BS10216-1:2002 or Rolled Steel to BS EN 10025-2:2004 Grade S275

Gaskets

BS EN 681-1 1996 Type WA WRAS Listed

Tie Rods

H.T Steel BS4882 Grade MB7 or B7 Yield 725N/mm²
u.t.i. M48 – 2” Stainless Steel to BS EN3506-1:2009 Grade A2/A4 Property Class 70 (450 N/mm²)

M52 and 2 1/4” and above Stainless Steel to BS EN3506-1:2009 Grade A2/A4 Property Class 50 (210 N/mm²)

Bolts/Nuts/Washers

Bolts - Steel to BS EN ISO 898-1:2009 Property Class 4.8

Nuts - Steel to BS 4190:2001 Grade 4

Washers - BS 1449:Part 2:1983 Grade 304S15

Coatings (Others available on request)

Centre Sleeve - Rilsan Nylon 11

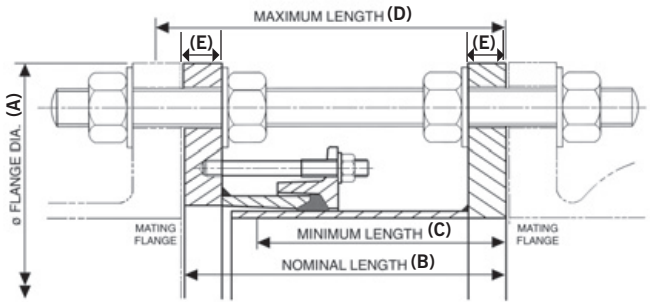
End Ring - Rilsan Nylon 11

FA Studs & Nuts - Sheraplex to WIS 4-52-03

Tie Rods - Zn3 zinc coated

Dismantling Joint 3” to 40” (ANSI 300)

Specifications



Dismantling Joint

Flange Details				Flange To Flange Details			Tie Rod Details				
Nom	Drilling	Flange Thickness E (mm)	Flange OD A (mm)	Nominal Length B (mm)	Minimum Length C (mm)	Maximum Length D (mm)	Tie Rod Dia x Length	H.T Zinc Plated Steel H.T Steel BS4882 Grade MB7 Yield 725N/mm²		Stainless Steel Class 70 Yield 450N/mm²	
								No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)
3”	ANSI 300	25	210	194	174	214	3/4” x 13”	4	19.3	4	19.3
4”	ANSI 300	25	254	194	174	214	3/4” x 13”	4	26.2	4	26.2
6”	ANSI 300	25	318	194	174	214	3/4” x 13 1/2”	4	32.1	4	32.1
8”	ANSI 300	25	381	194	174	214	7/8” x 14 1/2”	4	43.1	4	43.1
10”	ANSI 300	25	444	194	174	214	1” x 15”	4	63.0	8	72.1
12”	ANSI 300	25	521	194	174	214	1 1/8” x 16”	4	74.1	8	86.4
14”	ANSI 300	25	584	307	277	337	1 1/8” x 20 1/2”	5	117.0	10	137.0
16”	ANSI 300	25	648	307	277	337	1 1/4” x 21 1/2”	5	138.0	10	161.0
18”	ANSI 300	38	711	320	290	350	1 1/4” x 22”	6	220.0	12	252.0
20”	ANSI 300	38	775	320	290	350	1 1/4” x 22 1/2”	8	262.0	12	284.0
24”	ANSI 300	38	914	320	290	350	1 1/2” x 23 1/2”	8	359.0	12	393.0
28”	ANSI 300	38	1035	320	290	350	1 5/8” x 25”	14	510.0	14	510.0
30”	ANSI 300	38	1092	320	290	350	1 3/4” x 26”	14	577.0	14	577.0
32”	ANSI 300	38	1149	320	290	350	1 7/8” x 26 1/2”	14	646.0	14	646.0
36”	ANSI 300	38	1270	320	290	350	2” x 28”	16	786.0	16	786.0
40”	ANSI 300	60	1238	462	412	512	1 5/8” x 33 1/2”	16	844.0	32	1,027.0

Materials & Relevant Standards

Flange Drilling

ASME / ANSI B16.5 (uti 24”) & ASME / ANSI B16.47 (26” & over)

Fabricated Flange Adaptor

Body - Rolled Steel to BS EN 10025-2:2004 Grade S275

End Rings/Sleeve - Rolled Steel to BS EN 10025-2:2004 Grade S275 or Rolled Steel to BS EN 10025-2:2004 Grade S355 Depending on section

Flanged Spigot

Flange - Steel to BS EN10025:1993 Grade S275

Spigot - Steel to BS10216-1:2002 or Rolled Steel to BS EN 10025-2:2004 Grade S275

Gaskets

BS EN 681-1 1996 Type WA WRAS Listed

Tie Rods

H.T Steel BS4882 Grade MB7 or B7 Yield 725N/mm²
u.t.i. M48 – 2” Stainless Steel to BS EN3506-1:2009 Grade A2/A4 Property Class 70 (450 N/mm²)

M52 and 2 1/4” and above Stainless Steel to BS EN3506-1:2009 Grade A2/A4 Property Class 50 (210 N/mm²)

Bolts/Nuts/Washers

Bolts - Steel to BS EN ISO 898-1:2009 Property Class 4.8

Nuts - Steel to BS 4190:2001 Grade 4

Washers - BS 1449:Part 2:1983 Grade 304S15

Coatings (Others available on request)

Centre Sleeve - Rilsan Nylon 11

End Ring - Rilsan Nylon 11

FA Studs & Nuts - Sheraplex to WIS 4-52-03

Tie Rods - Zn3 zinc coated

Unrivalled

FlexLock

Couplings & Flange Adaptors

For Ductile Iron or Steel Pipes

Unique, Patented & Self Anchoring Joints for Ductile Iron or Steel Pipes

The FlexLock system provides a self-anchoring method of joining ductile iron or steel pipes and offers a cost effective, quick and simple alternative to traditional anchoring systems such as site welding, harnessing or thrust blocks.

Above Ground or Buried Application

FlexLock is a unique pipe jointing system that is fully end load bearing. Gaskets have embedded stainless steel teeth that grip the outer surface of the pipe, yet still allow for angular deflection of pipes in service. This prevents pipes from separating under pressure loads, making FlexLock ideal for above ground and buried applications, soft ground conditions or temporary pipe work.

End Load Restraint

Available as flange adaptors and couplings, FlexLock works on the same compression joint principle as standard Viking Johnson products but as the compression bolts are tightened, the stainless steel teeth grip around the outside diameter of the pipe, providing a fully end load restraint joint. Internal pressure in the pipe causes the assembly to lock firmly providing a leak proof joint.

The FlexLock range consists of couplings and flange adaptors with nominal sizes from DN50 (2”) up to DN300 (12”) and are suitable for use on cold potable water pipelines with a maximum operating temperature of 40°C.

FlexLock Flange Adaptors

FlexLock Coupling

Pipe Materials

Ductile Iron

Steel

FlexLock Couplings & Flange Adaptors

Product Design Benefits

Suitable for Water & Gas

A FlexLock is supplied as standard with EPDM gaskets for water applications to EN 681. However it is also available with Nitrile gaskets to EN 682 suitable for natural gas, petroleum products, low aromatic fuels, sewage and drainage.

Excellent Corrosion Protection

Metal components are coated with Rilsan Nylon 11 which is WRAS approved for use with potable water. The nuts and bolts are Sheraplex coated to WIS 4-52-03, offering long term protection against corrosion, impact and abrasion to ensure continued reliable performance.

Unique Load Bearing Teeth

As the compression bolts are tightened, unique load bearing stainless steel teeth, that are moulded into the gasket grip around the outside diameter of the pipe, providing a fully end load restraint joint.

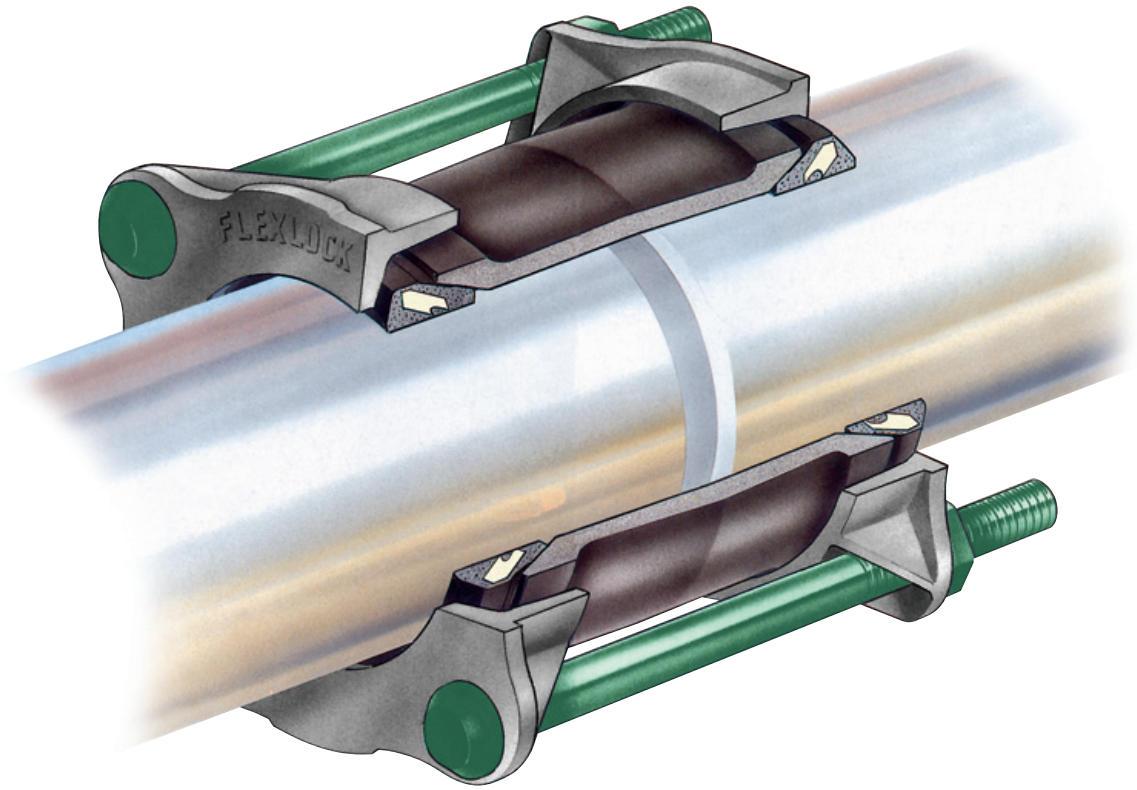
Customer Benefits

- FlexLock permits angular deflection between pipes, allowing for normal pipeline movement such as ground settlement. Long radius curves can also be accommodated, reducing the need for special fittings. FlexLock couplings allow for a total angular deflection of ±6° (±3° for flange adaptors).
- Cost effective – FlexLock can provide significant cost savings compared to non-locking couplings with a harnessing system.
- Restrains pressure thrusts without thrust blocks at bends.
- Convert cut lengths of pipe into flanged pipes - allows use of pipe offcuts.
- Working Pressure of 16bar on water up to and including DN200 and 10bar for DN250 & DN300.
- The ability to provide angular deflection in ANY plane is a particular advantage - a harness assembly can provide angular deflection only in ONE plane.

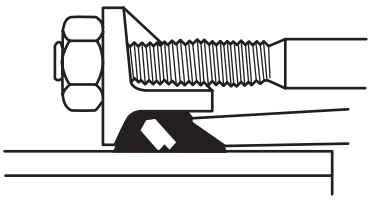
FlexLock Unique Sealing System

How FlexLock Works

FlexLock flange adaptors and couplings work on the same compression joint principle as standard Viking Johnson products. As the compression bolts are tightened, unique load bearing stainless steel teeth (moulded into the gasket) grip around the outside diameter of the pipe, providing a fully end load resistant joint. Internal pressure in the pipe causes the assembly to lock even more firmly.

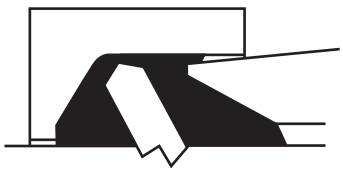


Step 1



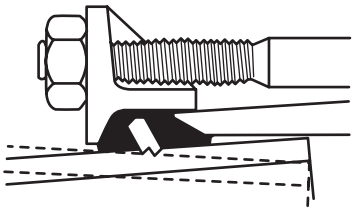
Tightening the bolts compresses the gaskets between the end rings and the centre sleeve, pressing the gasket on to the pipe and driving the edges of the steel teeth to grip on the pipe surface.

Step 2



Progressive tightening of the bolts drive the teeth into their correct locked position.

Step 3



When the bolts are tightened to their correct torque, the FlexLock coupling or flange adaptor is securely locked in position providing a leak proof joint whilst at the same time allowing the joint to compensate for angular movement within the pipeline.

United Kingdom - Chesterfield

Yorkshire Water

FlexLock Flange Adaptors - DN250

Project
FlexLock installed on ductile iron pipe.

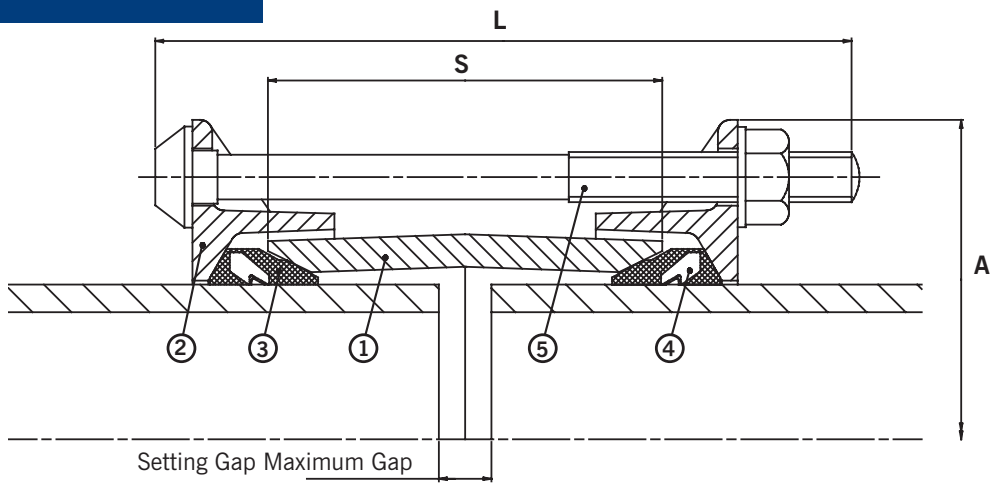
Client
Yorkshire Water

Contractor
Black & Veatch

FlexLock Coupling

Specifications

1) Sleeve
2) End Ring
3) Gasket
4) Gripper Teeth
5) Bolt



FlexLock Couplings

Pipe Nom	Pipe OD (mm)	Pipe Material	Bolt Size No.-Dia x Length	Overall Length (L)	End Ring OD (A)	Sleeve Length x Thickness (mm) (S)	Setting Gap		Working Pressure (bar)	Gasket Mould	Coupling Weight (kg)
							Min	Max			
DN50/2"	60.3	steel	2-M12 x 145	157	135	80 x 5.5	15	30	16	1375	2.7
DN65/2.5"	76.1/77	steel	2-M12 x 160	170	152	100 x 6.0	20	40	16	1394	3.2
DN80/3"	88.9	steel	4-M12 x 160	170	163	100 x 6.0	20	40	16	1382	4.2
DN80/3"	98.0	ductile iron	4-M12 x 195	203	181	115 x 6.4	20	40	16	1630	5.2
DN100/4"	114.3	steel	4-M12 x 170	188	195	100 x 6.0	20	40	16	1367	6.1
DN100/4"	118	ductile iron	4-M12 x 195	203	200	115 x 6.4	20	40	16	1618	5.6
DN150/6"	165.1	steel	6-M12 x 170	188	254	100 x 7.2	20	40	16	1369	9.2
DN150/6"	168.3	steel	6-M12 x 170	188	256	100 x 7.2	20	40	16	1369	9.3
DN150/6"	170	ductile iron	6-M12 x 170	178	256	100 x 7.2	20	40	16	1369	9.2
DN200/8"	219.1	steel	8-M12 x 170	188	310	100 x 7.2	20	40	16	1370	11.9
DN200/8"	222	ductile iron	6-M16 x 195	206	316	115 x 6.4	20	40	16	1631	12.0
DN250/10"	273.0	steel	12-M16 x 275	286	376	178 x 8.5	20	40	10	1737	32.2
DN250/10"	274	ductile iron	12-M16 x 275	286	376	178 x 8.5	20	40	10	1737	32.2
DN300/12"	323.9	steel	12-M16 x 275	286	436	178 x 6.0	20	40	10	7667/8	33.7
DN300/12"	326	ductile iron	12-M16 x 275	286	436	178 x 6.0	20	40	10	7667/8	33.7

FlexLock bolt torques: M12 = 55-65Nm M16 = 95-120Nm

Materials & Relevant Standards

Centre Sleeve/End Rings

SG. Iron to BS 1563:1997:Symbol EN-GJS-450-10
or Rolled Steel to: BS EN 10025:2004:Grade S275.

Coupling Body

Ductile Iron to BS EN 1563 EN-GJS-450-10.
or Mild Steel to: BS EN 10025:2004:Grade S275.

Bolts/Nuts/Washers

Bolts - Cold Forged Steel Fasteners to: BS EN ISO898-1: 2001 Property Class 8.8

Nuts - Steel BS EN 20898-2:1994 Property Class 8

Washers - BS 4320 Form B Stainless Steel BS 1449:PT2:1983 Grade 304 S15

Coatings

Body, Centre Sleeve, End Rings are coated in Rilsan Nylon 11 to WIS 4-52-01 Part 1.

Bolts, studs and nuts are Sheraplex coated to WIS 4-52-03.

Gaskets

EPDM compound Grade 'E' to BS EN 681-1 WRAS listed.
Suitable for: water, sewage, many strong and oxidising chemicals and food applications.

Nitrile compound Grade 'G' to BS EN 682-1.
Suitable for: natural gas, petroleum products, low aromatic fuels, compressed air, sewage and drainage.

Stainless Steel teeth in gaskets BS 3146:1975:Part 2 Grade ANC2.

Approvals/Standards

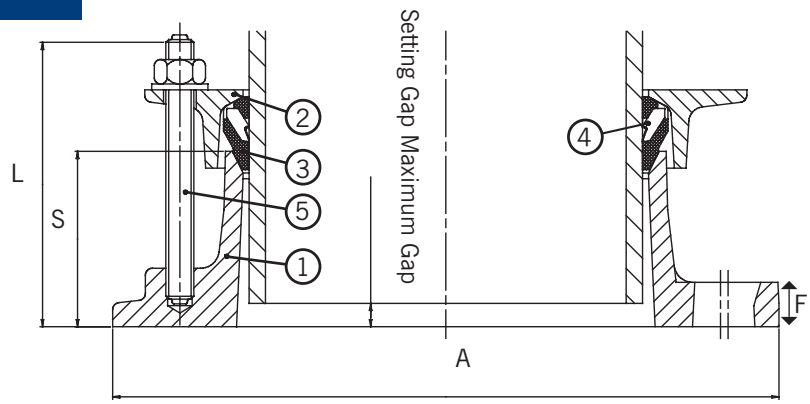
Designed and manufactured under quality management systems to BS EN ISO 9001. They have been tested in accordance with the requirements of WRc Water Bye-laws Scheme and conform to the American Water Works Associations standard AWWA/ANSI C.219 for bolted couplings.

Note: For coated steel pipe the maximum permitted coating thickness is 500μ DFT. This is to ensure the stainless steel teeth properly grip onto the pipe surface to mobilize the end load capability of the products. Due to the surface characteristics of stainless steel pipe, FlexLock grippers are unable to achieve a guaranteed grip on the pipe surface. FlexLock is suitable for use on cold potable water pipelines and has a maximum operating temperature of 40°C.

FlexLock Flange Adaptor

Specifications

1) Flange Adaptor
2) End Ring
3) Gasket
4) Gripper Teeth
5) Stud



FlexLock Flange Adaptors

Pipe Nom	Pipe OD (mm)	Pipe Material	Bolt Size No.-Dia x Length	Flange OD (A)	Overall Length (L)	Flange Thickness (mm) (F)	Sleeve Length (mm) (S)	Flange Nominal Drilling BS EN 1092-1	Working Pressure (bar)	Setting Gap		Gasket Mould	FA Weight (kg)
										Min	Max		
DN50/2"	60.3	steel	2-M12 x 115	160	123	16	75	50 PN10/16	16	10	30	1375	2.3
DN65/2.5"	76.1	steel	2-M12 x 115	180	123	16	75	60/65 PN10/16	16	10	30	1394	2.6
DN80/3"	88.9	steel	4-M12 x 115	195	123	16	75	80 PN10/16 90 PN6	16	10	30	1382	3.4
DN80/3"	98	ductile iron	4-M12 x 115	195	123	16	75	80 PN10/16 90 PN6	16	10	30	1630	4.0
DN100/4"	114.3	steel	4-M12 x 115	215	123	16	75	100 PN10/16 110 PN6	16	10	30	1367	4.5
DN100/4"	118	ductile iron	4-M12 x 115	215	123	16	75	100 PN10/16	16	10	30	1618	4.4
DN150/6"	165.1	steel	8-M12 x 115	285	127	25	75	150 PN10/16 6"E 6"ANSI 150	16	10	30	1369	9.3
DN150/6"	168.3	steel	8-M12 x 115	286	123	19	75	150 PN10/16	16	10	30	1369	8.0
DN150/6"	170	ductile iron	8-M12 x 115	286	123	19	75	150 PN10/16	16	10	30	1369	8.0
DN200/8"	219.1	steel	8-M12 x 115	341	123	19	75	200 PN10	10	10	30	1370	9.7
DN200/8"	219.1	steel	8-M12 x 115	340	127	25	73	200 PN16	16	10	30	1370	15.2
DN200/8"	222	ductile iron	6-M16 x 125	341	137	19	75	200 PN16	16	10	30	1631	10.6
DN200/8"	222	ductile iron	8-M16 x 125	340	137	25	75	200 PN10 8"E	10	10	30	1631	13.9
DN250/10"	273.0	steel	12-M16 x 125	405	137	19	90	250 PN10/16*	10	10	30	1737	16.4
DN250/10"	274	ductile iron	12-M16 x 125	405	137	19	90	250 PN10/16*	10	10	30	1737	16.4
DN300/12"	323.9	steel	12-M16 x 125	467	137	19	90	300 PN10/16*	10	10	30	7667/8	22.7
DN300/12"	326	ductile iron	12-M16 x 125	467	137	19	90	300 PN10/16*	10	10	30	7667/8	22.7

FlexLock bolt torques: M12 = 55-65Nm M16 = 95-120Nm

* Working pressure rating is less than flange rating.

Materials & Relevant Standards

Centre Sleeve/End Rings

SG. Iron to BS 1563:1997:Symbol EN-GJS-450-10
or Rolled Steel to: BS EN 10025:2004:Grade S275.

Flange Adaptor Body

Ductile Iron to BS EN 1563 EN-GJS-450-10.
or Mild Steel to: BS EN 10025:2004:Grade S275.

Studs - Bolts/Nuts/Washers

Studs/Bolts - Cold Forged Steel Fasteners to: BS EN ISO898-1: 2001 Property Class 8.8

Nuts - Steel BS EN 20898-2:1994 Property Class 8

Washers - BS 4320 Form B Stainless Steel BS 1449:PT2:1983 Grade 304 S15

Coating

Body, Centre Sleeve, End Rings are coated in Rilsan Nylon 11 to WIS 4-52-01 Part 1.

Bolts, studs and nuts are Sheraplex coated to WIS 4-52-03.

Gaskets

EPDM compound Grade 'E' to BS EN 681-1 WRAS listed.
Suitable for: water, sewage, many strong and oxidising chemicals and food applications.

Nitrile compound Grade 'G' to BS EN 682-1.
Suitable for: natural gas, petroleum products, low aromatic fuels, compressed air, sewage and drainage.

Stainless Steel teeth in gaskets

BS 3146:1975:Part 2 Grade ANC2.

Approvals/Standards

Designed and manufactured under quality management systems to BS EN ISO 9001. They have been tested in accordance with the requirements of WRc Water Bye-laws Scheme and conform to the American Water Works Associations standard AWWA/ANSI C.219 for bolted couplings.

Note: For coated steel pipe the maximum permitted coating thickness is 500μ DFT. This is to ensure the stainless steel teeth properly grip onto the pipe surface to mobilize the end load capability of the products. Due to the surface characteristics of stainless steel pipe, FlexLock grippers are unable to achieve a guaranteed grip on the pipe surface. FlexLock is suitable for use on cold potable water pipelines and has a maximum operating temperature of 40°C.

United Kingdom - Liverpool

West East Link Main

FlexLock - DN150 & Large Diameter - DN800

Project
West East link transmission main. The 53km pipeline runs from Prescot near Liverpool to Bury, near Manchester.

Client
United Utilities

Contractor
Murphys

Bespoke

Large Diameter

Fittings to Suit Any Pipe Specification

Robust, Reliable, Proven Solution for New Lay Pipes

Customer Specifications

The dedicated range is designed for use with new-lay pipes, and other specified situations where the pipe material and nominal sizes are known in advance. Customers can choose from Viking Johnson's standard range or have them custom made to suit a range of diameters and working pressures. This flexibility makes Viking Johnson the natural choice for most major pipeline projects.

Design Liaison

Viking Johnson has worked with clients, consultants and contractors all over the world, assisting in the selection of the product most appropriate to each individual project. Such assistance can include detailed design co-operation with specifying engineers, site visits to aid successful installation, specially designed products to suit project requirements, proof testing in our comprehensive in-house test facility and handling of the extensive documentation and inspection requirements often associated with large projects.

Designed for Flexibility

For pipeline design and installation engineers, the Viking Johnson large diameter couplings are extremely versatile. Each coupling sleeve is internally barrelled, allowing greater angular deflection. Ideal when accommodating misaligned pipes.

Product Capability

Large diameter couplings and flange adaptors are available in a wide range of sizes to suit virtually any customer requirement. Products can be supplied to suit all standard and non standard pipe diameters from DN350 and DN5000. Stepped couplings join pipes of different external diameters and flange adaptors can be supplied with flanges drilled to any national or international standard, or to customers' own specification with a pressure up to PN100.

Approvals

All products are designed and manufactured under quality management systems certified to ISO 9001 and conform to the American Water Works Association's specification AWWA/ANSI C219 for bolted couplings.

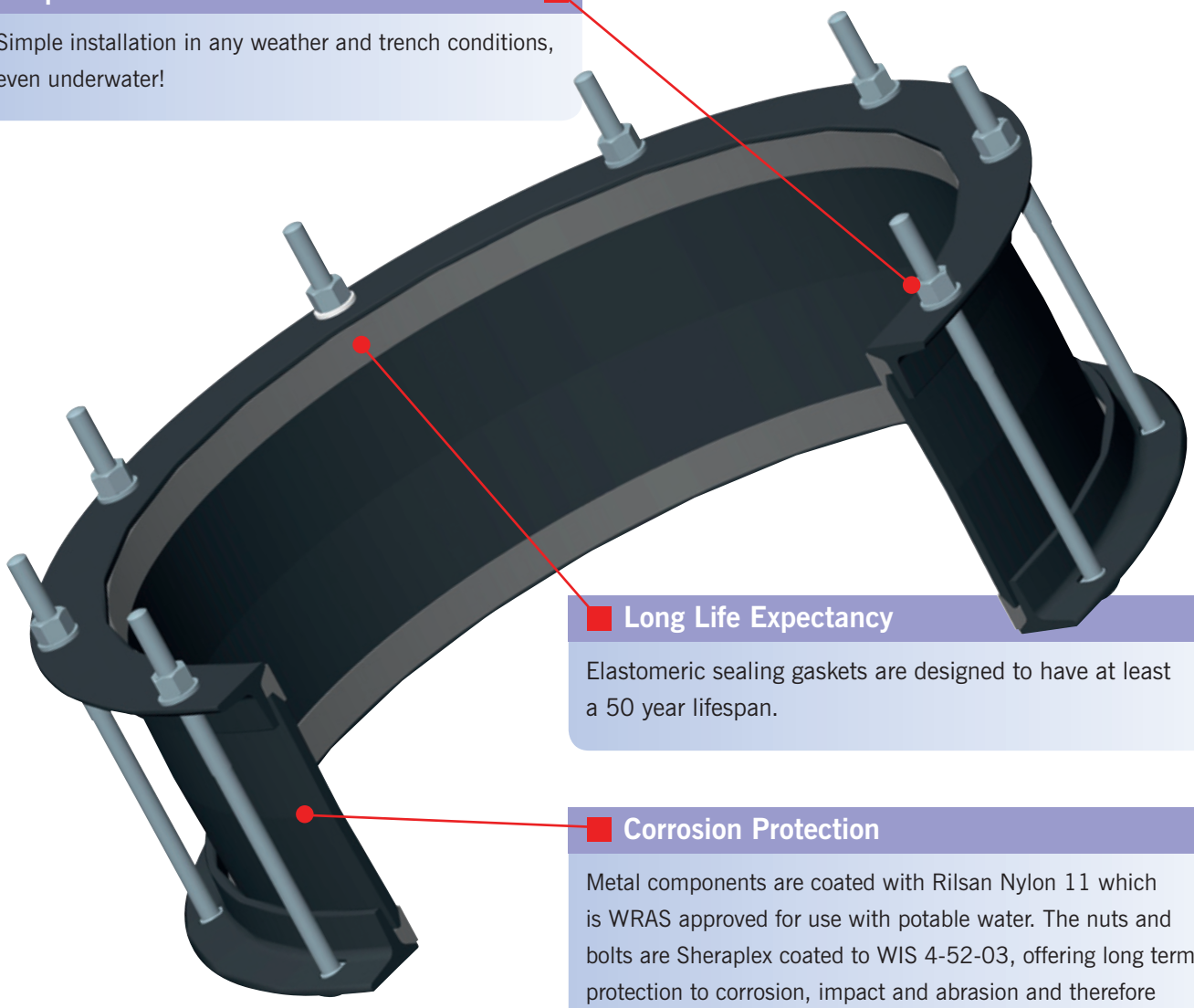
Pipe Materials

Large Diameter Couplings & Flange Adaptors

Product Design Benefits

Simple to Fit

Simple installation in any weather and trench conditions, even underwater!



Long Life Expectancy

Elastomeric sealing gaskets are designed to have at least a 50 year lifespan.

Corrosion Protection

Metal components are coated with Rilsan Nylon 11 which is WRAS approved for use with potable water. The nuts and bolts are Sheraplex coated to WIS 4-52-03, offering long term protection to corrosion, impact and abrasion and therefore ensures continued reliable performance.

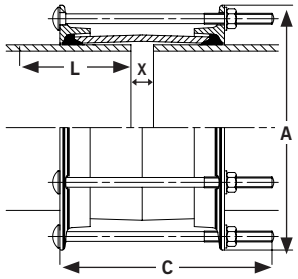
Customer Benefits

- Couplings can absorb up to 10mm expansion and contraction, flange adaptors up to 5mm which allows for movement on bridge crossings, in chambers and pump stations. Often eliminates the need for special expansion joints.
- Couplings can offer up to 6° of angular deflection, flange adaptors 3° - to allow for the connection of misaligned pipes; take up ground settlement at structures; lay pipes to large radius bends.
- Flange adaptors are often used to permit dismantling of valves in flanged pipe systems.

- The standard finish for all Viking Johnson products is black Rilsan Nylon 11, which is highly resistant to impact, corrosion, abrasion and chemical attack. However, other coatings such as shopcoat, hot dip galvanising, zinc spray and epoxy coating can be supplied as required.

Large Diameter Couplings OD355.6 - 738

Specifications



Viking Johnson manufacture couplings to any pipe OD and working pressure, with those tabled being the more popular products.

Pressure - Working Pressure = As Noted in table (Test Pressure = 1.5 x W.P.)
Notes - LO2 / YF2 / A2E / A2H / XSXG = Section names for large diameter dedicated coupling products
OD's - If the product required is not in the table contact Viking Johnson who can provide relevant information.

Dedicated Couplings DO NOT resist end load - adequate restraint must be provided

Pipe OD (mm)	Pipe Material	Tolerance for Distance (mm) L		Coupling Section Type	No. Bolts	Bolt Dia x Length (mm)	Working Pressure (bar)	Dimensions (mm)		Min Setting Gap (mm) X	Max Setting Gap (mm) X	Gasket Mould No.	Weight (kg)
		+	-					Diameter A	Overall Length C				
355.6	Steel	1.6	1.6	LO2	6	M12 x 235	23.2	446	243	25	50	J51LS	19.6
355.6	uPVC	1.6	1.6	LO2	6	M12 x 235	23.2	446	243	25	50	J51LS	19.6
358.6	Coated Steel	1.6	1.6	LO2	6	M12 x 235	23.0	450	243	25	50	J51LS	19.7
378	DI	2.7	3.5	LO2	8	M12 x 235	29.2	469	243	25	50	J52LS	21.1
406.4	Steel	1.6	1.6	LO2	8	M12 x 235	27.2	497	243	25	50	J53LS	22.4
406.4	uPVC	1.6	1.6	LO2	8	M12 x 235	27.2	497	243	25	50	J53LS	22.4
408.4	Coated Steel	1.6	1.6	LO2	8	M12 x 235	27.0	499	243	25	50	J53LS	22.5
409.4	Coated Steel	1.6	1.6	LO2	8	M12 x 235	27.0	500	243	25	50	J53LS	22.6
429	DI	2.8	4	LO2	8	M12 x 235	25.8	520	243	25	50	J54LS	23.6
457	Steel	1.6	1.6	LO2	8	M12 x 235	24.2	548	243	25	50	J55LS	24.9
457	uPVC	1.6	1.6	LO2	8	M12 x 235	24.2	548	243	25	50	J55LS	24.9
460	Coated Steel	1.6	1.6	LO2	8	M12 x 235	24.1	551	243	25	50	J55LS	25.0
480	DI	2.9	4	LO2	8	M12 x 235	23.1	571	243	25	50	J56LS	26.0
480	DI	2.9	4	LO2	10	M12 x 235	28.9	571	243	25	50	J56LS	26.5
508	Steel	1.6	1.6	LO2	10	M12 x 235	27.4	598	243	25	50	J57LS	27.8
508	uPVC	1.6	1.6	LO2	10	M12 x 235	27.4	598	243	25	50	J57LS	27.8
511	Coated Steel	1.6	1.6	LO2	10	M12 x 235	27.2	602	243	25	50	J57LS	27.9
532	DI	3	4	LO2	10	M12 x 235	26.1	624	243	25	50	J58LS	29.0
559	Steel	1.6	1.6	LO2	10	M12 x 235	24.9	649	243	25	50	J59LS	30.2
559	uPVC	1.6	1.6	LO2	10	M12 x 235	24.9	649	243	25	50	J59LS	30.2
610	Steel	1.6	1.6	LO2	10	M12 x 235	22.9	700	243	25	50	J60LS	32.7
610	uPVC	1.9	1.6	LO2	10	M12 x 235	22.9	700	243	25	50	J60LS	32.7
613	Coated Steel	1.6	1.6	LO2	10	M12 x 235	22.8	703	243	25	50	J60LS	32.8
635	DI	3.2	4.5	LO2	10	M12 x 235	22.0	726	243	25	50	J61LS	33.9
635	DI	3.2	4.5	LO2	12	M12 x 235	25.2	726	243	25	50	J61LS	34.3
660	Steel	1.6	1.6	LO2	12	M12 x 235	24.3	751	243	25	50	J61LS	35.5
711	Steel	1.6	1.6	LO2	12	M12 x 235	22.6	802	243	25	50	J63LS	37.9
714	Coated Steel	1.6	1.6	LO2	12	M12 x 235	22.4	805	243	25	50	J63LS	38.1
738	DI	3.4	4.5	LO2	12	M12 x 235	21.7	830	243	25	50	J63LS	39.3

Materials & Relevant Standards

Centre Sleeve/End Rings
Steel to BS EN10025-2:2004 Grade S275JR

Bolts/Studs/Nuts/Washers
Bolts/Studs - Steel to BS EN ISO898-1:2009 Property Class 4.8
Nuts - Steel to BS4190:2001 Grade 4
Washers - Stainless Steel to BS1449:Part 2:1983 Grade 304S15

Coatings
Body, Flange & End Ring - Rilsan Nylon 11 to WIS 4-52-01 Part 1
Nuts and Bolts - Sheraplex coated to WIS 4-52-03

Gaskets: LO2/LO3/YF2/YF3
Rubber 80 IRHD Moulded Compound to BS EN681-1:1996 Type WA,WC,WG or BS EN682:2002, Type G
(other materials available on request)

Gaskets: A2E/A2H/XSXG
Rubber 70 IRHD Moulded Compound to BS EN681-1:1996 Type WA, WC, WG or BS EN682:2002, Type G (other materials available on request)

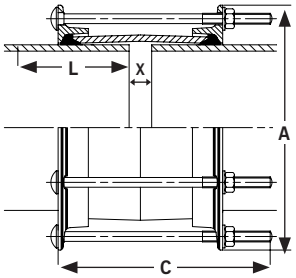
Large Diameter Couplings OD738 - 2032

Specifications

Viking Johnson manufacture couplings to any pipe OD and working pressure, with those tabled being the more popular products.

Pressure - Working Pressure = As Noted in table (Test Pressure = 1.5 x W.P.)
Notes - LO2 / YF2 / A2E / A2H / XSXG = Section names for large diameter dedicated coupling products
OD's - If the product required is not in the table contact Viking Johnson who can provide relevant information.

Dedicated Couplings DO NOT resist end load - adequate restraint must be provided



Pipe OD (mm)	Pipe Material	Tolerance for Distance (mm) L		Coupling Section Type	No. Bolts	Bolt Dia x Length (mm)	Working Pressure (bar)	Dimensions (mm)		Min Setting Gap (mm) X	Max Setting Gap (mm) X	Gasket Mould No.	Weight (kg)
		+	-					Diameter A	Overall Length C				
738	DI	3.4	4.5	YF2	10	M16 x 265	28.2	849	276	38	76	J63LS	69.3
762	Steel	1.6	1.6	LO2	12	M12 x 235	21.0	852	243	25	50	J64LS	40.4
813	Steel	1.6	1.6	LO2	14	M12 x 235	19.8	903	243	25	50	J65LS	43.3
816	Coated Steel	1.6	1.6	LO2	14	M12 x 235	19.7	906	243	25	50	J65LS	43.4
842	DI	1	4.5	LO2	14	M12 x 235	18.9	931	243	25	50	J65LS	44.6
842	DI	1	4.5	YF2	12	M16 x 265	25.0	950	276	38	76	J65LS	78.7
842	DI	1	4.5	A2E	14	M16 x 265	29.1	965	276	38	76	J65LS	103.4
864	Steel	1.6	1.6	LO2	14	M12 x 235	17.9	955	243	25	50	J66LS	45.7
914	Steel	1.6	1.6	LO2	14	M12 x 235	16.0	1005	243	25	50	J67LS	48.2
916	Coated Steel	1.6	1.6	LO2	14	M12 x 235	16.0	1007	243	25	50	J67LS	48.3
945	DI	1	5	YF2	12	M16 x 265	22.0	1054	276	38	76	J70LS	87.5
945	DI	1	5	A2E	14	M16 x 265	25.9	1069	276	38	76	J70LS	115.0
1016	Steel	1.6	1.6	YF2	14	M16 x 265	19.6	1125	276	38	76	J71LS	94.3
1019	Coated Steel	1.6	1.6	YF2	14	M16 x 265	19.4	1129	276	38	76	J71LS	94.6
1048	DI	1	5	YF2	14	M16 x 265	18.4	1156	276	38	76	J71LS	96.9
1048	DI	1	5	A2E	16	M16 x 265	26.8	1171	276	38	76	J71LS	127.1
1067	Steel	1.6	1.6	YF2	14	M16 x 265	17.7	1177	276	38	76	J72LS	98.6
1118	Steel	1.6	1.6	YF2	14	M16 x 265	16.2	1227	276	38	76	J73LS	102.9
1152	DI	1	6	A2E	16	M16 x 265	24.4	1275	276	38	76	J121M	138.7
1219	Steel	1.6	1.6	A2E	16	M16 x 265	23.0	1343	276	38	76	J121M	146.3
1222	Coated Steel	1.6	1.6	A2E	16	M16 x 265	23.0	1347	276	38	76	J121M	146.6
1255	DI	1	6	A2E	18	M16 x 265	25.2	1378	276	38	76	J122M	151.0
1422	Steel	1.6	3	A2E	20	M16 x 265	24.5	1546	276	38	76	J125M	170.5
1462	DI	1	7	A2E	20	M16 x 265	23.8	1585	276	38	76	J125M	174.8
1620	Steel	3	3	A2E	24	M16 x 265	20.3	1745	276	38	76	J127M	192.4
1626	Coated Steel	3	3	A2E	24	M16 x 265	20.2	1751	276	38	76	J127M	194.2
1668	DI	1	7	A2E	24	M16 x 265	19.2	1791	276	38	76	J128M	199.4
1829	Steel	3	3	A2E	24	M16 x 265	16.0	1954	276	38	76	J130M	217.5
2032	Steel	3	3	XSXG	36	M16 x 400	22.1	2167	411	57	114	J186H	418.6

Materials & Relevant Standards

Centre Sleeve/End Rings
Steel to BS EN10025-2:2004 Grade S275JR

Bolts/Studs/Nuts/Washers
Bolts/Studs - Steel to BS EN ISO898-1:2009 Property Class 4.8
Nuts - Steel to BS4190:2001 Grade 4
Washers - Stainless Steel to BS1449:Part 2:1983 Grade 304S15

Coatings
Body, Flange & End Ring - Rilsan Nylon 11 to WIS 4-52-01 Part 1
Nuts and Bolts - Sheraplex coated to WIS 4-52-03

Gaskets: LO2/LO3/YF2/YF3
Rubber 80 IRHD Moulded Compound to BS EN681-1:1996 Type WA,WC,WG or BS EN682:2002, Type G
(other materials available on request)

Gaskets: A2E/A2H/XSXG
Rubber 70 IRHD Moulded Compound to BS EN681-1:1996 Type WA, WC, WG or BS EN682:2002, Type G (other materials available on request)

Large Diameter Stepped Couplings OD355.6 - 1220

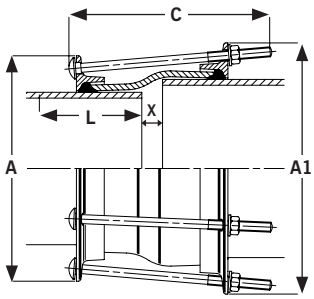
Specifications

If the product required is not in the table contact Viking Johnson who can provide relevant information

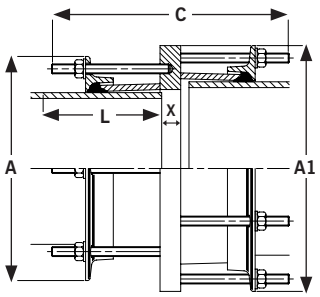
Pressure - Working Pressure = As Noted in table (Test Pressure = 1.5 x W.P.)
Notes - LO2 / YF2 / A2E / A2H / XSXG = Section names for large diameter dedicated stepped coupling products
OD's - If the product required is not in the table contact Viking Johnson who can provide relevant information.

Dedicated Couplings DO NOT resist end load - adequate restraint must be provided

Expanded Sleeve Stepped Couplings



Stepped Coupling With Make Up Ring



Pipe OD (mm)		Pipe						Coupling Section Type	No. Bolts	Bolt Dia x Length (mm)	Working Pressure (bar)	Dimensions (mm)			Min Setting Gap (mm) X	Max Setting Gap (mm) X	Gasket Mould No.	Weight (kg)
		Material 1	Tolerance for Distance (mm) L		Material 2	Tolerance for Distance (mm) L						Diameter A	Diameter A1	Overall Length C				
			+	-		+	-											
355.6	378	Steel	1.6	1.6	DI	2.7	3.5	LO2	8	M12 x 235	29.2	446	469	243	25	50	J51LS / J52LS	20.7
406.4	429	Steel	1.6	1.6	DI	2.8	4	LO2	8	M12 x 235	25.7	497	520	243	25	50	J53LS / J54LS	23.1
457	480	Steel	1.6	1.6	DI	2.9	4	LO2	8	M12 x 235	23.1	548	571	243	25	50	J55LS / J56LS	25.6
480	508	DI	2.9	4	Steel	1.6	1.6	LO2	10	M12 x 235	27.3	571	598	243	25	50	J56LS / J57LS	27.3
508	532	Steel	1.6	1.6	DI	3	4	LO2	10	M12 x 235	26.1	598	624	243	25	50	J57LS / J58LS	28.6
610	635	Steel	1.6	1.6	DI	3.2	4.5	LO2	10	M12 x 235	22.0	700	726	243	25	50	J60LS / J61LS	33.6
711	738	Steel	1.6	1.6	DI	3.4	4.5	LO2	12	M12 x 235	21.7	802	830	243	25	50	J63LS / J63LS	39.0
738	747	DI	3.4	4.5	Cast Iron CD	3.3	3.3	LO2	12	M12 x 235	21.3	830	839	243	25	50	J63LS / J63LS	39.4
738	755	DI	3.4	4.5	Cast Iron AB	3.3	3.3	LO2	12	M12 x 235	21.2	830	847	243	25	50	J63LS / J65LS	39.9
813	842	Steel	1.6	1.6	DI	1	4.5	LO2	14	M12 x 235	18.8	903	931	243	25	50	J65LS / J65LS	44.4
826	842	Cast Iron CD	3.3	3.3	DI	1	4.5	LO2	14	M12 x 235	18.8	918	931	243	25	50	J65LS / J65LS	44.3
842	886	DI	1	4.5	Cast Iron AB	3.3	3.3	LO3 (LONG SLEEVE)	14	M12 x 340	17.0	931	978	348	25	150	J65LS / J66LS	62.7
906	945	Cast Iron CD	3.3	3.3	DI	1	5	YF2	12	M16 x 265	22.0	1017	1054	276	38	76	J67LS / J70LS	86.5
914	945	Steel	1.6	1.6	DI	1	5	YF2	12	M16 x 265	22.0	1024	1054	276	38	76	J67LS / J70LS	86.5
945	964	DI	1	5	Cast Iron AB	3.3	3.3	YF2	12	M16 x 265	21.6	1054	1075	276	38	76	J70LS / J70LS	88.3
1016	1048	Steel	1.6	1.6	DI	1	5	YF2	14	M16 x 265	18.3	1125	1156	276	38	76	J71LS / J71LS	95.9
1121	1152	Cast Iron AB	3.3	3.3	DI	1	6	A2E	16	M16 x 265	24.3	1247	1275	276	38	76	J120M / J121M	137.6
1220	1255	Steel	1.6	1.6	DI	1	6	A2E	18	M16 x 265	25.2	1344	1378	276	38	76	J120M / J132M	150.1

Materials & Relevant Standards

Centre Sleeve/End Rings

Steel to BS EN10025-2:2004 Grade S275JR

Bolts/Studs/Nuts/Washers

Bolts/Studs - Steel to BS EN ISO898-1:2009 Property Class 4.8

Nuts - Steel to BS4190:2001 Grade 4

Washers - Stainless Steel to BS1449:Part 2:1983 Grade 304S15

Coatings

Body, Flange & End Ring - Rilsan Nylon 11 to WIS 4-52-01 Part 1

Nuts and Bolts - Sheraplex coated to WIS 4-52-03

Gaskets: LO2/LO3/YF2/YF3

Rubber 80 IRHD Moulded Compound to BS EN681-1:1996 Type WA,WC,WG or BS EN682:2002, Type G
(other materials available on request)

Gaskets: A2E/A2H/XSXG

Rubber 70 IRHD Moulded Compound to BS EN681-1:1996 Type WA, WC, WG or BS EN682:2002, Type G

(other materials available on request)

Australia - Adelaide

Desalination Plant Transfer Pipeline

Large Diameter Flange Adaptor - DN1600

Project

The Desalination Plant will have a capacity of up to 100 gigalitres and will provide Adelaide with up to half its annual water requirement. The huge size of the plant will be powered by sustainable energy sources and will ensure that the majority of the water supply is sourced from the sea with lesser reliance placed on the River Murray basin.

Client

South Australian Water
& South Australian Government

Contractor

McConnell Dowell

Distributor

Philmac

Large Diameter Flange Adaptors OD355.6 - 457

Specifications

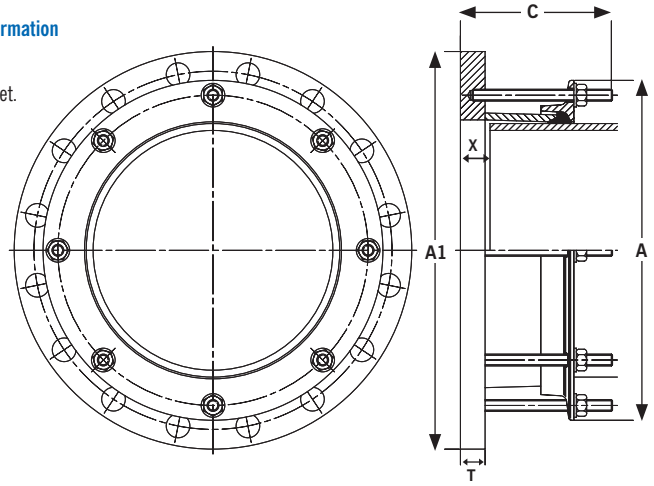
If the product required is not in the table contact Viking Johnson who can provide relevant information

Pressure - In accordance with rating for flange drilling

Notes - The prices for these products DO NOT include flange connecting bolts and flange gasket. When ordering Dedicated FA's, ensure Pipe O.D./Flange Nominal Size/Flange Drilling are ALL specified LO2/YF2/A2E flange adaptors are supplied unfitted

OD's - Viking Johnson manufacture flange adaptors to any pipe OD and flange drilling, with those tabled being the more popular products.

Dedicated Flange Adaptors DO NOT resist end load - adequate restraint must be provided



Key to End Ring Notching

Tied Rods - Certain pipe OD's & flange drilling require the notching of end rings to accommodate tie rods - see table for details

None = Standard product without notches - Tie rods will clash with end ring

Not Required = Tie rods clear end ring - Notching not required

X Notches = End ring notched to accommodate "X" no. tie rods
The number of notches stated assumes the use of high tensile strength tie rods. Min yield = 725 N/mm^2

Pipe OD (mm)	Pipe Material	Tolerance for Distance (mm) L		FA Section Type	Flange Details BS EN 1092-1		Number of Notches in End Ring if Required	No. Bolts	Bolt Dia x Length (mm)	Dimensions Diameter (mm) A	Flange OD A1	Overall Length C	Flange Thickness T	Flange Holes No.	Flange Holes Diameter (mm)	Min Setting Gap (mm) X	Max Setting Gap (mm) X	Gasket Mould No.	Weight (kg)
		+	-		Nominal	Drilling													
355.6	Steel	1.6	1.6	LO2	350	PN10	4	8	M12 x 140	446	505	148	18	16	23	25	50	J51LS	22.8
355.6	uPVC	1.6	1.6	LO2	350	PN10	4	8	M12 x 140	446	505	148	18	16	23	25	50	J51LS	22.8
355.6	Steel	1.6	1.6	LO2	350	PN16	4	8	M12 x 140	446	520	148	18	16	28	25	50	J51LS	24.1
355.6	uPVC	1.6	1.6	LO2	350	PN16	4	8	M12 x 140	446	520	148	18	16	28	25	50	J51LS	24.1
355.6	Steel	1.6	1.6	LO2	350	PN25	-	8	M12 x 140	446	555	155	25	16	34	25	50	J51LS	34.4
358.6	Coated Steel	1.6	1.6	LO2	350	PN16	4	8	M12 x 140	450	520	148	18	16	28	25	50	J51LS	23.9
378	DI	2.7	3.5	LO2	350	PN10	8	8	M12 x 140	469	505	148	18	16	23	25	50	J52LS	21.3
378	DI	2.7	3.5	LO2	350	PN16	8	8	M12 x 140	469	520	148	18	16	28	25	50	J52LS	22.5
378	DI	2.7	3.5	LO2	350	PN25	8	8	M12 x 140	469	555	155	25	16	34	25	50	J52LS	32.2
406.4	Steel	1.6	1.6	LO2	400	PN10	4	8	M12 x 140	497	565	148	18	16	28	25	50	J53LS	26.3
406.4	uPVC	1.6	1.6	LO2	400	PN10	4	8	M12 x 140	497	565	148	18	16	28	25	50	J53LS	26.3
406.4	Steel	1.6	1.6	LO2	400	PN16	4	8	M12 x 140	497	580	148	18	16	31	25	50	J53LS	27.9
406.4	uPVC	1.6	1.6	LO2	400	PN16	4	8	M12 x 140	497	580	148	18	16	31	25	50	J53LS	27.9
406.4	Steel	1.6	1.6	LO2	400	PN25	-	8	M12 x 140	497	620	155	25	16	37	25	50	J53LS	40.7
409.4	Coated Steel	1.6	1.6	LO2	400	PN16	4	8	M12 x 140	500	580	148	18	16	31	25	50	J53LS	27.7
429	DI	2.8	4	LO2	400	PN10	8	8	M12 x 140	520	565	148	18	16	28	25	50	J54LS	24.5
429	DI	2.8	4	LO2	400	PN16	8	8	M12 x 140	520	580	148	18	16	31	25	50	J54LS	26.2
429	DI	2.8	4	LO2	400	PN25	8	8	M12 x 140	520	620	155	25	16	37	25	50	J54LS	38.2
451	PVC	1.6	1.6	LO2	450	PN16	-	10	M12 x 140	541	640	155	25	20	31	25	50	J55LS	45.2
451	Hep30	0	1	LO2	450	PN16	-	10	M12 x 140	541	640	155	25	20	31	25	50	J55LS	45.2
457	Steel	1.6	1.6	LO2	450	PN10	5	10	M12 x 140	548	615	153	23	20	28	25	50	J55LS	33.5
457	uPVC	1.6	1.6	LO2	450	PN10	5	10	M12 x 140	548	615	153	23	20	28	25	50	J55LS	33.5
457	Steel	1.6	1.6	LO2	450	PN16	-	10	M12 x 140	548	640	153	23	20	31	25	50	J55LS	37.5
457	uPVC	1.6	1.6	LO2	450	PN16	-	10	M12 x 140	548	640	153	23	20	31	25	50	J55LS	37.5
457	Steel	1.6	1.6	LO2	450	PN25	-	10	M12 x 140	548	670	155	25	20	37	25	50	J55LS	44.4

Materials & Relevant Standards

Flange/End Ring

Steel to BS EN10025-2:2004 Grade S275JR

Bolts/Studs/Nuts/Washers

Bolts/Studs - Steel to BS EN ISO898-1:2009 Property Class 4.8

Nuts - Steel to BS4190:2001 Grade 4

Washers - Stainless Steel to BS1449:Part 2:1983 Grade 304S15

Coatings

Body, Flange & End Ring - Rilsan Nylon 11 to WIS 4-52-01 Part 1

Nuts and Bolts - Sheraplex coated to WIS 4-52-03

Gaskets: LO2/LO3/YF2/YF3

Rubber 80 IRHD Moulded Compound to BS EN681-1:1996 Type WA,WC,WG or BS EN682:2002, Type G
(other materials available on request)

Gaskets: A2E/A2H/XSXG

Rubber 70 IRHD Moulded Compound to BS EN681-1:1996 Type WA, WC, WG or BS EN682:2002, Type G

(other materials available on request)

Large Diameter Flange Adaptors OD450 - 711

Specifications

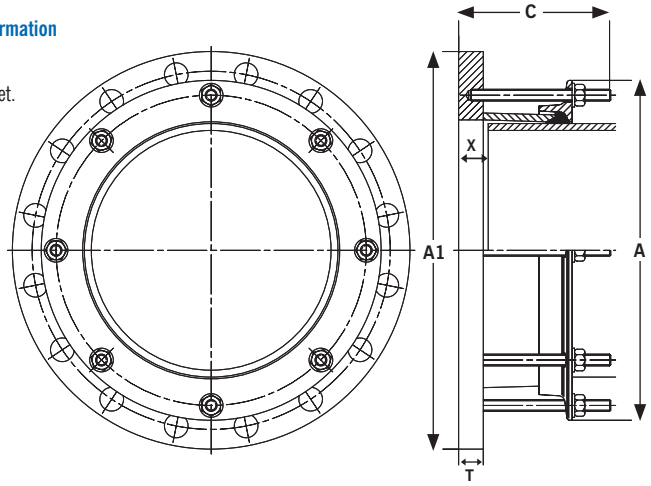
If the product required is not in the table contact Viking Johnson who can provide relevant information

Pressure - In accordance with rating for flange drilling

Notes - The prices for these products DO NOT include flange connecting bolts and flange gasket. When ordering Dedicated FA's, ensure Pipe O.D./Flange Nominal Size/Flange Drilling are ALL specified LO2/YF2/A2E flange adaptors are supplied unfitted

OD's - Viking Johnson manufacture flange adaptors to any pipe OD and flange drilling, with those tabled being the more popular products.

Dedicated Flange Adaptors DO NOT resist end load - adequate restraint must be provided



Key to End Ring Notching

Tied Rods - Certain pipe OD's & flange drilling require the notching of end rings to accommodate tie rods - see table for details

None = Standard product without notches - Tie rods will clash with end ring

Not Required = Tie rods clear end ring - Notching not required

X Notches = End ring notched to accommodate "X" no. tie rods
The number of notches stated assumes the use of high tensile strength tie rods. Min yield = 725 N/mm²

Pipe OD (mm)	Pipe Material	Tolerance for Distance (mm) L		FA Section Type	Flange Details BS EN 1092-1		Number of Notches in End Ring if Required	No. Bolts	Bolt Dia x Length (mm)	Dimensions Diameter (mm) A	Flange OD A1	Overall Length C	Flange Thickness T	Flange Holes No.	Flange Holes Diameter (mm)	Min Setting Gap (mm) X	Max Setting Gap (mm) X	Gasket Mould No.	Weight (kg)
		+	-		Nominal	Drilling													
460	Coated Steel	1.6	1.6	LO2	450	PN16	5	10	M12 x 140	551	640	153	23	20	31	25	50	J55LS	37.2
480	DI	2.9	4	LO2	450	PN10	10	10	M12 x 140	571	615	153	23	20	28	25	50	J56LS	30.7
480	DI	2.9	4	LO2	450	PN16	10	10	M12 x 140	571	640	153	23	20	31	25	50	J56LS	34.7
480	DI	2.9	4	LO2	450	PN25	10	10	M12 x 140	571	670	155	25	20	37	25	50	J56LS	41.4
500	Metric PVC	1.6	1.6	LO2	500	PN16	-	10	M12 x 140	590	715	155	25	20	34	25	50	J57LS	49.3
508	Steel	1.6	1.6	LO2	500	PN10	5	10	M12 x 140	598	670	153	23	20	28	25	50	J57LS	37.7
508	uPVC	1.6	1.6	LO2	500	PN10	5	10	M12 x 140	598	670	153	23	20	28	25	50	J57LS	37.7
508	Steel	1.6	1.6	LO2	500	PN16	-	10	M12 x 140	598	715	153	23	20	34	25	50	J57LS	45.5
508	uPVC	1.6	1.6	LO2	500	PN16	-	10	M12 x 140	598	715	153	23	20	34	25	50	J57LS	45.5
508	Steel	1.6	1.6	LO2	500	PN25	-	10	M12 x 140	598	730	155	25	20	37	25	50	J57LS	50.9
511	Coated Steel	1.6	1.6	LO2	500	PN10	5	10	M12 x 140	602	670	153	23	20	28	25	50	J57LS	37.3
511	Coated Steel	1.6	1.6	LO2	500	PN16	-	10	M12 x 140	602	715	153	23	20	34	25	50	J57LS	45.1
532	DI	3	4	LO2	500	PN10	10	10	M12 x 140	624	670	153	23	20	28	25	50	J58LS	34.3
532	DI	3	4	LO2	500	PN16	10	10	M12 x 140	624	715	153	23	20	34	25	50	J58LS	42.2
532	DI	3	4	LO2	500	PN25	10	10	M12 x 140	624	730	155	25	20	37	25	50	J58LS	47.4
610	Steel	1.6	1.6	LO2	600	PN10	5	10	M12 x 140	700	780	153	23	20	31	25	50	J60LS	45.9
610	uPVC	1.9	1.6	LO2	600	PN10	5	10	M12 x 140	700	780	153	23	20	31	25	50	J60LS	45.9
610	Steel	1.6	1.6	LO2	600	PN16	-	10	M12 x 140	700	840	153	23	20	37	25	50	J60LS	58.5
610	uPVC	1.9	1.6	LO2	600	PN16	-	10	M12 x 140	700	840	153	23	20	37	25	50	J60LS	58.5
610	Steel	1.6	1.6	LO2	600	PN25	-	10	M12 x 140	700	845	155	25	20	40	25	50	J60LS	62.7
613	Coated Steel	1.6	1.6	LO2	600	PN16	-	10	M12 x 140	703	840	153	23	20	37	25	50	J60LS	58.0
635	DI	3.2	4.5	LO2	600	PN10	10	10	M12 x 140	726	780	153	23	20	31	25	50	J61LS	41.6
635	DI	3.2	4.5	LO2	600	PN16	-	10	M12 x 140	726	840	153	23	20	37	25	50	J61LS	54.5
635	DI	3.2	4.5	LO2	600	PN25	10	10	M12 x 140	726	845	155	25	20	40	25	50	J61LS	58.3
711	Steel	1.6	1.6	LO2	700	PN10	-	12	M12 x 140	802	895	153	23	24	31	25	50	J63LS	56.1

Materials & Relevant Standards

Flange/End Ring

Steel to BS EN10025-2:2004 Grade S275JR

Bolts/Studs/Nuts/Washers

Bolts/Studs - Steel to BS EN ISO898-1:2009 Property Class 4.8

Nuts - Steel to BS4190:2001 Grade 4

Washers - Stainless Steel to BS1449:Part 2:1983 Grade 304S15

Coatings

Body, Flange & End Ring - Rilsan Nylon 11 to WIS 4-52-01 Part 1

Nuts and Bolts - Sheraplex coated to WIS 4-52-03

Gaskets: LO2/LO3/YF2/YF3

Rubber 80 IRHD Moulded Compound to BS EN681-1:1996 Type WA,WC,WG or BS EN682:2002, Type G
(other materials available on request)

Gaskets: A2E/A2H/XSXG

Rubber 70 IRHD Moulded Compound to BS EN681-1:1996 Type WA, WC, WG or BS EN682:2002, Type G

(other materials available on request)

Large Diameter Flange Adaptors OD711 - 1048

Specifications

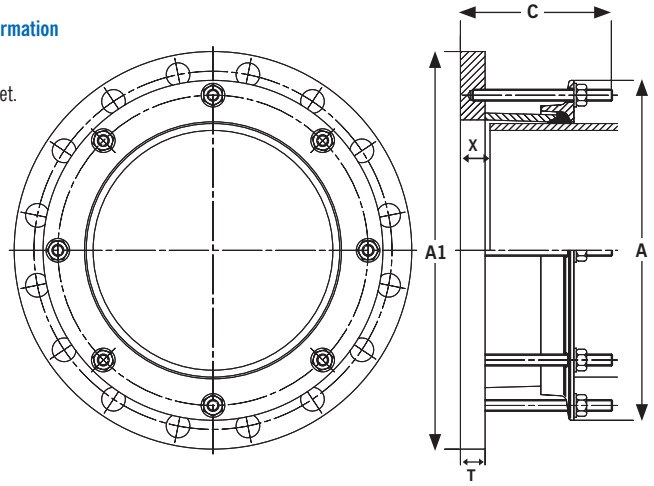
If the product required is not in the table contact Viking Johnson who can provide relevant information

Pressure - In accordance with rating for flange drilling

Notes - The prices for these products DO NOT include flange connecting bolts and flange gasket. When ordering Dedicated FA's, ensure Pipe O.D./Flange Nominal Size/Flange Drilling are ALL specified LO2/YF2/A2E flange adaptors are supplied unfitted

OD's - Viking Johnson manufacture flange adaptors to any pipe OD and flange drilling, with those tabled being the more popular products.

Dedicated Flange Adaptors DO NOT resist end load - adequate restraint must be provided



Key to End Ring Notching

Tied Rods - Certain pipe OD's & flange drilling require the notching of end rings to accommodate tie rods - see table for details

None = Standard product without notches - Tie rods will clash with end ring

Not Required = Tie rods clear end ring - Notching not required

X Notches = End ring notched to accommodate "X" no. tie rods
The number of notches stated assumes the use of high tensile strength tie rods. Min yield = 725 N/mm²

Pipe OD (mm)	Pipe Material	Tolerance for Distance (mm) L		FA Section Type	Flange Details BS EN 1092-1		Number of Notches in End Ring if Required	No. Bolts	Bolt Dia x Length (mm)	Dimensions Diameter (mm) A	Flange OD A1	Overall Length C	Flange Thickness T	Flange Holes No.	Flange Holes Diameter (mm)	Min Setting Gap (mm) X	Max Setting Gap (mm) X	Gasket Mould No.	Weight (kg)
		+	-		Nominal	Drilling													
711	Steel	1.6	1.6	LO2	700	PN16	6	12	M12 x 140	802	910	153	23	24	37	25	50	J63LS	58.5
711	Steel	1.6	1.6	LO2	700	PN25	-	12	M12 x 140	802	960	155	25	24	43	25	50	J63LS	74.2
714	Coated Steel	1.6	1.6	LO2	700	PN16	6	12	M12 x 140	805	910	153	23	24	37	25	50	J63LS	58.0
738	DI	3.4	4.5	LO2	700	PN10	12	12	M12 x 140	830	895	153	23	24	31	25	50	J63LS	50.8
738	DI	3.4	4.5	LO2	700	PN16	12	12	M12 x 140	830	910	153	23	24	37	25	50	J63LS	53.1
738	DI	3.4	4.5	YF2	700	PN25	12	12	M16 x 160	830	960	169	25	24	43	32	76	J63LS	83.5
813	Steel	1.6	1.6	LO2	800	PN10	-	12	M12 x 140	903	1015	153	23	24	34	25	50	J65LS	68.2
813	Steel	1.6	1.6	LO2	800	PN16	-	12	M12 x 140	903	1025	153	23	24	40	25	50	J65LS	69.6
813	Steel	1.6	1.6	YF2	800	PN25	-	12	M16 x 160	922	1085	169	25	24	49	32	76	J65LS	106.5
816	Coated Steel	1.6	1.6	LO2	800	PN16	6	12	M12 x 140	906	1025	153	23	24	40	25	50	J65LS	68.9
842	DI	1	4.5	LO2	800	PN10	12	12	M12 x 40	931	1015	153	23	24	34	25	50	J65LS	62.2
842	DI	1	4.5	LO2	800	PN16	12	12	M12 x 140	931	1025	153	23	24	40	25	50	J65LS	63.4
842	DI	1	4.5	YF2	800	PN25	12	12	M16 x 160	950	1085	169	25	24	49	32	76	J65LS	100.0
914	Steel	1.6	1.6	LO2	900	PN10	-	14	M12 x 140	1005	1115	155	25	28	34	25	50	J67LS	79.8
914	Steel	1.6	1.6	LO2	900	PN16	7	14	M12 x 140	1005	1125	155	25	28	40	25	50	J67LS	81.3
914	Steel	1.6	1.6	A2E	900	PN25	7	14	M16 x 160	1038	1185	182	38	28	49	32	76	J117M	168.6
916	Coated Steel	1.6	1.6	LO2	900	PN16	7	14	M12 x 140	1007	1125	155	25	28	40	25	50	J67LS	80.8
945	DI	1	5	YF2	900	PN10	14	14	M16 x 160	1054	1115	169	25	28	34	32	76	J70LS	89.3
945	DI	1	5	YF2	900	PN16	14	14	M16 x 160	1054	1125	169	25	28	40	32	76	J70LS	90.8
945	DI	1	5	A2E	900	PN25	14	14	M16 x 160	1069	1185	182	38	28	49	32	76	J118M	156.1
1016	Steel	1.6	1.6	YF2	1000	PN10	7	14	M16 x 160	1125	1230	169	25	28	37	32	76	J71LS	112.4
1016	Steel	1.6	1.6	YF2	1000	PN16	7	14	M16 x 160	1125	1255	169	25	28	43	32	76	J71LS	119.8
1016	Steel	1.6	1.6	A2E	1000	PN25	-	14	M16 x 160	1140	1320	182	38	28	56	32	76	J119M	202.2
1019	Coated Steel	1.6	1.6	YF2	1000	PN16	7	14	M16 x 160	1129	1255	169	25	28	43	32	76	J71LS	118.9
1048	DI	1	5	YF2	1000	PN10	14	14	M16 x 160	1156	1230	169	25	28	37	32	76	J71LS	102.9

Materials & Relevant Standards

Flange/End Ring

Steel to BS EN10025-2:2004 Grade S275JR

Bolts/Studs/Nuts/Washers

Bolts/Studs - Steel to BS EN ISO898-1:2009 Property Class 4.8

Nuts - Steel to BS4190:2001 Grade 4

Washers - Stainless Steel to BS1449:Part 2:1983 Grade 304S15

Coatings

Body, Flange & End Ring - Rilsan Nylon 11 to WIS 4-52-01 Part 1

Nuts and Bolts - Sheraplex coated to WIS 4-52-03

Gaskets: LO2/LO3/YF2/YF3

Rubber 80 IRHD Moulded Compound to BS EN681-1:1996 Type WA,WC,WG or BS EN682:2002, Type G
(other materials available on request)

Gaskets: A2E/A2H/XSXG

Rubber 70 IRHD Moulded Compound to BS EN681-1:1996 Type WA, WC, WG or BS EN682:2002, Type G

(other materials available on request)

Large Diameter Flange Adaptors OD1048 - 1663

Specifications

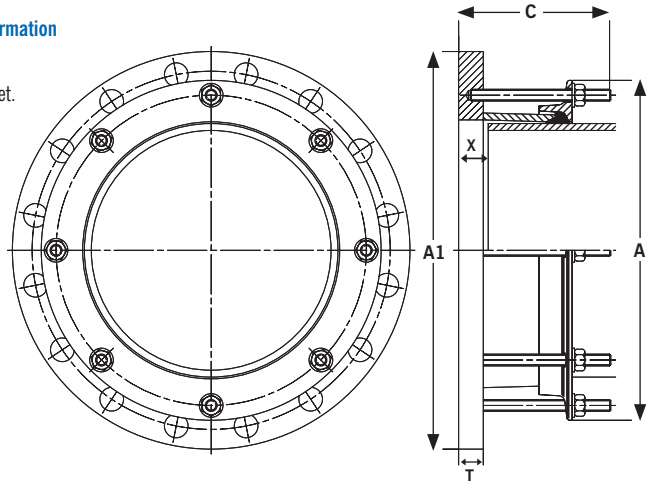
If the product required is not in the table contact Viking Johnson who can provide relevant information

Pressure - In accordance with rating for flange drilling

Notes - The prices for these products DO NOT include flange connecting bolts and flange gasket. When ordering Dedicated FA's, ensure Pipe O.D./Flange Nominal Size/Flange Drilling are ALL specified LO2/YF2/A2E flange adaptors are supplied unfitted

OD's - Viking Johnson manufacture flange adaptors to any pipe OD and flange drilling, with those tabled being the more popular products.

Dedicated Flange Adaptors DO NOT resist end load - adequate restraint must be provided



Key to End Ring Notching

Tied Rods - Certain pipe OD's & flange drilling require the notching of end rings to accommodate tie rods - see table for details

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Not Required = Tie rods clear end ring - Notching not required

X Notches = End ring notched to accommodate "X" no. tie rods
The number of notches stated assumes the use of high tensile strength tie rods. Min yield = 725 N/mm²

Pipe OD (mm)	Pipe Material	Tolerance for Distance (mm) L		FA Section Type	Flange Details BS EN 1092-1		Number of Notches in End Ring if Required	No. Bolts	Bolt Dia x Length (mm)	Dimensions Diameter (mm) A	Flange OD A1	Overall Length C	Flange Thickness T	Flange Holes No.	Flange Holes Diameter (mm)	Min Setting Gap (mm) X	Max Setting Gap (mm) X	Gasket Mould No.	Weight (kg)
		+	-		Nominal	Drilling													
1048	DI	1	5	YF2	1000	PN16	14	14	M16 x 160	1156	1255	169	25	28	43	32	76	J71LS	110.4
1048	DI	1	5	A2E	1000	PN25	14	14	M16 x 160	1171	1320	182	38	28	56	32	76	J119M	188.3
1118	Steel	1.6	1.6	YF2	1100	PN10	-	16	M16 x 160	1227	1340	169	25	32	37	32	76	J73LS	126.0
1118	Steel	1.6	1.6	YF2	1100	PN16	8	16	M16 x 160	1227	1355	169	25	32	43	32	76	J73LS	129.8
1118	Steel	1.6	1.6	A2E	1100	PN25	-	16	M16 x 160	1242	1420	182	38	32	56	32	76	J120M	218.1
1121	Coated Steel	1.6	1.6	YF2	1100	PN16	8	16	M16 x 160	1231	1355	169	25	32	43	32	76	J73LS	128.7
1152	DI	1	6	A2E	1100	PN10	16	16	M16 x 160	1275	1340	182	38	32	37	32	76	J121M	162.6
1152	DI	1	6	A2E	1100	PN16	16	16	M16 x 160	1275	1355	182	38	32	43	32	76	J121M	168.0
1152	DI	1	6	A2E	1100	PN25	16	16	M16 x 160	1275	1420	182	38	32	56	32	76	J121M	201.6
1219	Steel	1.6	1.6	YF2	1200	PN10	-	16	M16 x 160	1329	1455	169	25	32	40	32	76	J74LS	141.8
1219	Steel	1.6	1.6	A2E	1200	PN16	8	16	M16 x 160	1343	1485	182	38	32	49	32	76	J121M	217.4
1219	Steel	1.6	1.6	A2E	1200	PN25	-	16	M16 x 160	1343	1530	182	38	32	56	32	76	J121M	243.5
1222	Coated Steel	1.6	1.6	A2E	1200	PN16	8	16	M16 x 160	1347	1485	182	38	32	49	32	76	J121M	215.8
1255	DI	1	6	A2E	1200	PN10	16	16	M16 x 160	1378	1455	182	38	32	40	32	76	J122M	183.0
1255	DI	1	6	A2E	1200	PN16	16	16	M16 x 160	1378	1485	182	38	32	49	32	76	J122M	197.6
1255	DI	1	6	A2E	1200	PN25	16	16	M16 x 160	1378	1530	182	38	32	56	32	76	J122M	224.8
1422	Steel	1.6	3	A2E	1400	PN10	9	18	M16 x 160	1546	1675	182	38	36	43	32	76	J125M	245.5
1422	Steel	1.6	3	A2E	1400	PN16	9	18	M16 x 160	1546	1685	182	38	36	49	32	76	J125M	248.7
1426	Coated Steel	1.6	3	A2E	1400	PN16	9	18	M16 x 160	1550	1685	182	38	36	49	32	76	J125M	246.1
1462	DI	1	7	A2E	1400	PN10	18	18	M16 x 160	1585	1675	182	38	36	43	32	76	J125M	220.1
1462	DI	1	7	A2E	1400	PN16	18	18	M16 x 160	1585	1685	182	38	36	49	32	76	J125M	223.3
1620	Steel	3	3	A2E	1600	PN10	-	20	M16 x 160	1745	1915	182	38	40	49	32	76	J127M	309.3
1620	Steel	3	3	A2E	1600	PN16	-	20	M16 x 160	1745	1930	182	38	40	56	32	76	J127M	315.9
1626	Coated Steel	3	3	A2E	1600	PN16	-	20	M16 x 160	1751	1930	182	38	40	56	32	76	J127M	311.3
1668	DI	1	7	A2E	1600	PN10	20	20	M16 x 160	1791	1915	182	38	40	49	32	76	J128M	275.2
1668	DI	1	7	A2E	1600	PN16	20	20	M16 x 160	1791	1930	182	38	40	56	32	76	J128M	281.3

Materials & Relevant Standards

Flange/End Ring
Steel to BS EN10025-2:2004 Grade S275JR

Bolts/Studs/Nuts/Washers
Bolts/Studs - Steel to BS EN ISO898-1:2009 Property Class 4.8

Nuts - Steel to BS4190:2001 Grade 4

Washers - Stainless Steel to BS1449:Part 2:1983 Grade 304S15

Coatings
Body, Flange & End Ring - Rilsan Nylon 11 to WIS 4-52-01 Part 1

Nuts and Bolts - Sheraplex coated to WIS 4-52-03

Gaskets: LO2/LO3/YF2/YF3
Rubber 80 IRHD Moulded Compound to BS EN681-1:1996 Type WA,WC,WG or BS EN682:2002, Type G
(other materials available on request)

Gaskets: A2E/A2H/XSXG
Rubber 70 IRHD Moulded Compound to BS EN681-1:1996 Type WA, WC, WG or BS EN682:2002, Type G

(other materials available on request)

Large Diameter Check list

Large Diameter is a bespoke product and Viking Johnson requires the following information to assist with the quotation process. This page can be copied from the brochure or a form is available on the website or directly from the Marketing Department.

Please fax back to: +44 (0)1462 443311 or email to: info@vikingjohnson.com

Company Name		Date	
Contact Name		Email	
Customer Address		Telephone	
		Fax	
		Quantity	
		Delivery Date	

Pipe Details

Outside Diameter	
Outside Diameter Tolerances	
Pipe Material (Please tick)	

Ductile Iron ☐	Cast Iron ☐	Steel ☐	Stainless Steel ☐
PVC ☐	PE ☐	HEP30 ☐	GRP ☐
ABS ☐	Clay ☐	Concrete ☐	Asbestos Cement ☐
Copper ☐	Lead ☐		

Other (Please specify) ____

Pipe Coating (Especially important on steel pipes)	
Pipe Coating Thickness	
Working/Test/Design Pressure	

Product Requirements

Coating Required	
Gasket Grade Required or medium conveyed	

Flange Rating	
Drilling Pattern	
Locating Plugs (If required)	

Packaging & Carriage Requirements

Any Special Documents / Inspection Requirements

Any Other Special Requirements

Simple

QuickFit

Couplings & Flange Adaptors

Close Tolerance Preassembled Fittings

Dedicated Couplings & Flange Adaptors

The QuickFit coupling range is designed to connect plain ended pipes with similar outside diameters. The full range includes couplings and flange adaptors to suit pipes with nominal sizes between DN50 (2") and DN300 (12"). One fitting can accommodate PVC, coated and uncoated steel pipe and ductile iron pipe as well.

New Lay & High Pressure Applications

The QuickFit range is ideal for new lay schemes as the fittings are preassembled with close tolerance to allow for quick installation. They are also suitable for high pressure applications – DN50 to DN125 are available up to 46 bar, DN150 to DN300 to 29 bar as standard. Higher pressures are available as fabricated specials.

Close Tolerance

QuickFit is a dedicated product offering a narrow tolerance on pipe outside diameter.

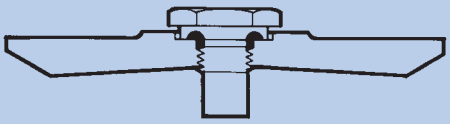
Transferring the End Load

QuickFit flange adaptors are not end load-bearing products and in the event that the application requires restraining, tie rods are required to transfer the end load forces to an anchor flange on the pipe. The design of QuickFit flange adaptors is such that there is sufficient clearance to allow the tie rods to pass over the end ring without the need for notching. This means that one product can be offered for both flexible and tied configurations, thus reducing stock holding.

QuickFit couplings are available with removable locating plugs, to prevent coupling creep on above ground pipelines caused by repeated pipe movement from temperature variation, continuous vibrations and movement. The removable locating plug (optional) ensures the coupling can slide fully over the pipe ends for quick and simple installation. Once installed they engage between the pipe ends to prevent the coupling moving beyond fixed limits.

QuickFit Coupling

QuickFit Flange Adaptor



Removable locating plug (optional).

Pipe Materials

QuickFit Couplings & Flange Adaptors

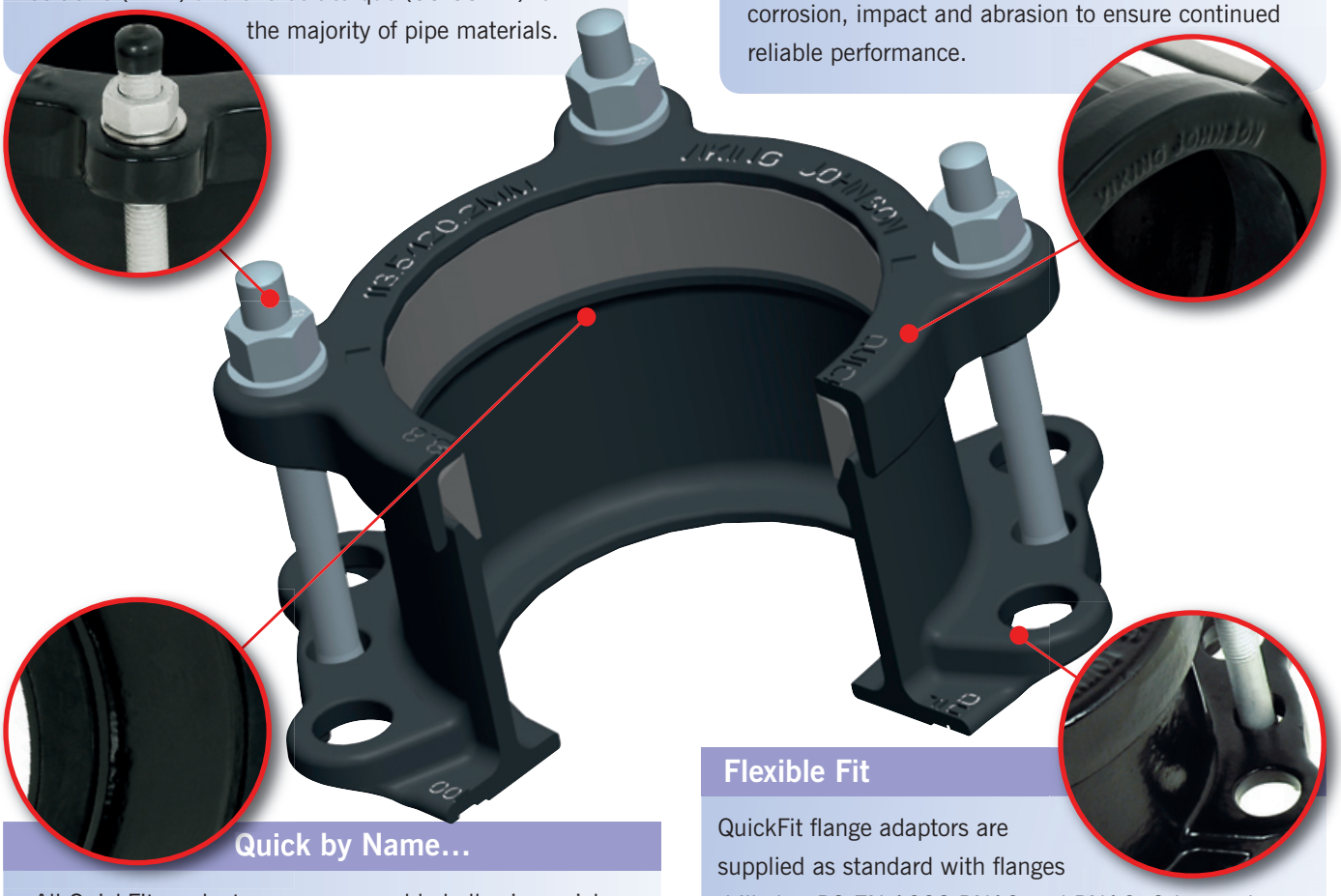
Product Design Benefits

Simple to Fit

Captive, non-rotating bolt heads require a single spanner/ torque wrench. Installation is simple with one bolt size (M12) and one bolt torque (55-65Nm) for the majority of pipe materials.

Excellent Corrosion Protection

Metal components are coated with Rilsan Nylon 11 which is WRAS approved for use with potable water. The nuts and bolts are Sheraplex coated to WIS 4-52-03, offering long term protection against corrosion, impact and abrasion to ensure continued reliable performance.



Quick by Name...

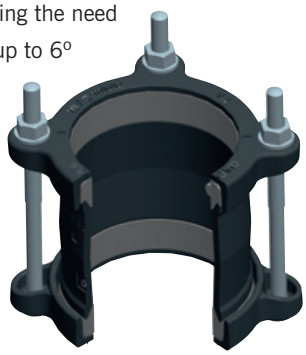
All QuickFit products are pre-assembled allowing quick and efficient installation, even in the most difficult of conditions without the need for on-site dismantling.

Flexible Fit

QuickFit flange adaptors are supplied as standard with flanges drilled to BS EN 1092 PN10 and PN16. Other options are available - see Specification Page for details of fabricated products available.

Customer Benefits

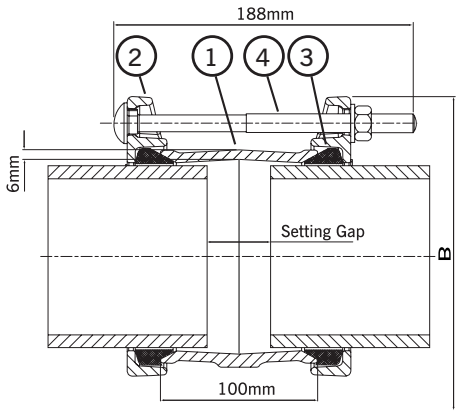
- QuickFit products accommodate angular deflection between pipes. This makes installation easy and allows pipeline movement, such as ground settlement. Long radius curves can also be accommodated, avoiding the need for special fittings with couplings up to 6º and flange adaptors to 3º.



- QuickFit couplings are capable of accommodating 10mm of expansion/contraction per fitting, flange adaptors 5mm. This reduces the need for supplementary expansion joints or bellows.
- No need for specialist tools – just a 19mm A/F deep reach socket and torque wrench.
- All cast QuickFit flange adaptors are supplied as standard with an extended sealing face, and are suitable for use with wafer style (butterfly) valves.
- Fabricated flange adaptors can be supplied with either an extended sealing face or clear bore option.

QuickFit Couplings

Specifications



QuickFit Coupling

Bolt size	M12 x 180mm CDX
Setting gap	Recommended - 20mm Max - 40mm
Bolt torque	55-65Nm

1 = Centre Sleeve
2 = End Ring
3 = Gasket
4 = Bolts

Size Range (mm)		Working Pressure (bar)	End Ring OD B (mm)	Bolt Size No.-Dia x Length	Gasket Mould No.	Weight (kg)
Min	Max					
47.9	51.3	46.6	136.0	2-M12 x 180	12477/41	2.22
59.5	63.3	46.6	148.0	2-M12 x 180	12477/1	2.51
75.3	79.1	46.6	164.0	2-M12 x 180	12477/5	2.89
88.1	91.9	46.6	177.0	4-M12 x 180	12477/7	3.81
95.8	100.2	46.6	185.0	4-M12 x 180	12477/10	4.00
107.2	111.0	46.6	196.0	4-M12 x 180	12477/12	4.26
113.5	120.2	46.6	205.0	4-M12 x 180	12477/15	4.48
138.9	142.7	44	228.0	4-M12 x 180	12477/19	5.02
158.2	162.0	38.8	254.0	4-M12 x 180	12477/21	6.32
167.5	172.3	36.9	264.0	4-M12 x 180	12477/24	6.59
192.9	196.7	32.2	292.0	4-M12 x 180	12477/26	8.06
218.3	224.4	35.8	319.0	4-M12 x 180	12477/29	8.89
272.2	276.5	34.8	372.0	6-M12 x 180	12477/34	11.15
323.1	328.6	29.5	424.0	6-M12 x 180	12477/37	12.76

Test pressure = 1.5 x working pressure

Materials & Relevant Standards

Centre Sleeve and End Rings

Ductile Iron to BS EN1563:1997 Symbol EN-GJS-450-10

Gaskets

Standard: EPDM to BS EN681-1, TYPE WA, WC Nitrile to BS EN682:2002, Type G Other grades are available - contact Viking Johnson for details

Tee Bolts/Bolts

Standard: Steel to BS EN ISO 898-1:2009 property class 4.8
Option: Stainless Steel to BS EN ISO 3506-1:2009 grade A4 property class 50

Nuts/Washers

Nuts - **Standard:** Steel to BS EN 20898-2:1994 property class 8
Option: Stainless Steel to BS EN ISO 3506-2:2009 grade A4 property class 80

Washers - Stainless Steel to BS1449:PART 2:1983 GRADE 304S15

Coatings

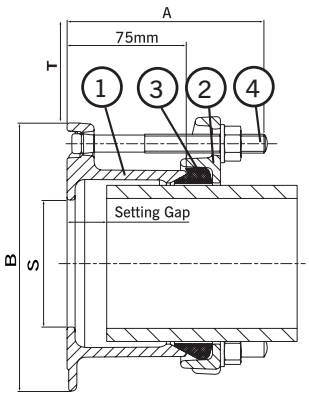
Centre sleeve and end rings coated with:

Standard: Rilsan Nylon 11 to WIS 4-52-01 Part 1
Other coatings available: Scotchkote, Primer, Galvanised

Tee bolts, CDX bolts and nuts coated with Standard Sheraplex to WIS 4-52-03

QuickFit Flange Adaptors - Standard Cast

Specifications



QuickFit Flange Adaptor (Standard Cast Product)

Bolt Size	M12 x 115mm Tee Bolt
Setting gap	Recommended - 25mm Max - 45mm
Bolt torque	55-65Nm
Max working pressure	In accordance with flange rating

1 = Body
2 = End Ring
3 = Gasket
4 = Bolts

Size Range (mm)		Flange Detail (mm)		Overall Length A (mm)	S Bore S (mm)	Flange Drilling	Bolt Size No.-Dia x Length	Gasket Mould No.	Weight (kg)
Min	Max	Flange OD (B)	Flange Thickness (T)						
59.5	63.3	161.0	17.0	125.0	50.0	50 PN10,16,25,40	2-M12 x 115	12477/1	2.28
75.3	79.1	181.0	17.0	125.0	65.0	65 PN10,16	2-M12 x 115	12477/5	2.66
88.1	91.9	196.0	17.0	126.0	80.0	80 PN10,16,25,40	4-M12 x 115	12477/7	3.48
95.8	100.2	196.0	17.0	126.0	80.0	80 PN10,16,25,40	4-M12 x 115	12477/10	3.59
107.2	111.0	216.0	17.0	126.0	100.0	100 PN10,16	4-M12 x 115	12477/12	3.91
113.5	120.2	216.0	17.0	126.0	100.0	100 PN10,16	4-M12 x 115	12477/15	4.03
138.9	142.7	246.0	17.0	126.0	125.0	125 PN10,16	4-M12 x 115	12477/19	4.71
158.2	162.0	284.0	17.0	126.0	150.0	150 PN10,16	4-M12 x 115	12477/21	5.76
167.5	172.3	284.0	17.0	126.0	150.0	150 PN10,16	4-M12 x 115	12477/24	5.87
192.9	196.7	339.0	20.0	126.0	199.0	200 PN10,16	4-M12 x 115	12477/26	8.43
218.3	224.4	339.0	20.0	126.0	200.0	200 PN10,16	4-M12 x 115	12477/29	8.49
272.2	276.5	405.0	20.0	129.0	250.0	250 PN10,16	6-M12 x 115	12477/34	11.38
323.1	328.6	455.0	20.0	129.0	300.0	300 PN10,16	6-M12 x 115	12477/37	13.04

Test pressure = 1.5 x working pressure

Tied Flange Adaptor

The design of the new QuickFit flange adaptor is such that there is sufficient clearance to allow tie rods (used to restrain them) to pass over without the need for notching.

Materials & Relevant Standards

Flange Adaptor Body and End Rings

Ductile Iron to BS EN1563:1997 Symbol EN-GJS-450-10

Gaskets

Standard: EPDM to BS EN681-1, TYPE WA, WC Nitrile to BS EN682:2002, Type G Other grades are available - contact Viking Johnson for details

Tee Bolts/Bolts

Standard: Steel to BS EN ISO 898-1:2009 property class 4.8
Option: Stainless Steel to BS EN ISO 3506-1:2009 grade A4 property class 50

Nuts/Washers

Nuts - **Standard:** Steel to BS EN 20898-2:1994 property class 8
Option: Stainless Steel to BS EN ISO 3506-2:2009 grade A4 property class 80

Washers - Stainless Steel to BS1449:PART 2:1983 GRADE 304S15

Coatings

Flange adaptor body and end rings coated with:
Standard: Rilsan Nylon 11 to WIS 4-52-01 Part 1
Other coatings available: Scotchkote, Primer, Galvanised

Tee bolts, CDX bolts and nuts coated with
Standard: Sheraplex to WIS 4-52-03

QuickFit Flange Adaptors - Fabricated (Common Drillings)

Specifications

QuickFit Flange Drilling Capabilities - Other common drillings

OD	Flange Details	ASME/ANSI B16.1/ASME B16.5 Class							
	Nom - (")	125		150		250		300	
		Y/N	Tied?	Y/N	Tied?	Y/N	Tied?	Y/N	Tied?
059.5 - 063.3	2	✓	✗	✓	✗	✓	✓	✗	✗
075.3 - 079.1	2.5	✓	✓	✓	✓	✓	✓	✗	✗
088.1 - 091.9	3	✓	✓	✓	✓	✓	✓	✗	✗
095.8 - 100.2	3	✓	✗	✓	✗	✓	✓	✗	✗
107.2 - 111.0	4	✓	✓	✓	✓	✓	✓	✗	✗
113.5 - 120.2	4	✓	✓	✓	✓	✓	✓	✗	✗
138.9 - 142.7	5	✓	✓	✓	✓	✓	✓	✗	✗
158.2 - 162.0	6	✓	✓	✓	✓	✓	✓	✗	✗
167.5 - 172.3	6	✓	✓	✓	✓	✓	✓	✗	✗
192.2 - 196.7	8	✓	✓	✓	✓	✗	✗	✗	✗
218.3 - 224.4	8	✓	✓	✓	✓	✓	✓	✗	✗
272.2 - 276.5	10	✓	✓	✓	✓	✗	✗	✗	✗
323.1 - 328.6	12	✓	✓	✓	✓	✗	✗	✗	✗

OD	Flange Details	AWWA C207 Class							
	Nom - (")	B		D		E		F	
		Y/N	Tied?	Y/N	Tied?	Y/N	Tied?	Y/N	Tied?
107.2 - 111.0	4	✓	✓	✓	✓	✓	✓	✓	✓
113.5 - 120.2	4	✓	✓	✓	✓	✓	✓	✓	✓
138.9 - 142.7	5	✓	✓	✓	✓	✓	✓	✓	✓
158.2 - 162.0	6	✓	✓	✓	✓	✓	✓	✓	✓
167.5 - 172.3	6	✓	✓	✓	✓	✓	✓	✓	✓
192.2 - 196.7	8	✓	✓	✓	✓	✓	✓	✓	✓
218.3 - 224.4	8	✓	✓	✓	✓	✓	✓	✓	✓
272.2 - 276.5	10	✓	✓	✓	✓	✓	✓	✗	✗
323.1 - 328.6	12	✓	✓	✓	✓	✓	✓	✗	✗

OD	Flange Details	AS2129 Table							
	Nom - (mm)	A		C		D		E	
		Y/N	Tied?	Y/N	Tied?	Y/N	Tied?	Y/N	Tied?
059.5 - 063.3	50	✓	✗	✓	✗	✓	✗	✓	✗
075.3 - 079.1	65	✓	✗	✓	✗	✓	✗	✓	✗
088.1 - 091.9	80	✓	✗	✓	✗	✓	✗	✓	✗
095.8 - 100.2	80	✓	✗	✓	✗	✓	✗	✓	✗
107.2 - 111.0	100	✓	✓	✓	✓	✓	✓	✓	✓
113.5 - 120.2	100	✓	✗	✓	✗	✓	✗	✓	✗
138.9 - 142.7	125	✓	✓	✓	✓	✓	✓	✓	✓
158.2 - 162.0	150	✓	✓	✓	✓	✓	✓	✓	✓
167.5 - 172.3	150	✓	✗	✓	✗	✓	✗	✓	✗
192.2 - 196.7	200	✓	✓	✓	✓	✓	✓	✓	✓
218.3 - 224.4	200	✓	✗	✓	✗	✓	✗	✓	✗
272.2 - 276.5	250	✗	✗	✗	✗	✗	✗	✓	✓
323.1 - 328.6	300	✗	✗	✓	✓	✓	✓	✓	✗

Materials & Relevant Standards

Flange

Steel to BS EN 10025-2:2004 Grade S275JR

Sleeve

Steel Tube to BS EN 10216-1:2004:Grade P265TRI
or Steel Tube to BS EN 10217-1:2002
or Steel BS EN10025-2:2004 Grade S275JR

Tee Bolts/Bolts

Standard: Steel to BS EN ISO 898-1:2009 property class 4.8
Option: Stainless Steel to BS EN ISO 3506-1:2009 grade A4 property class 50

Nuts/Washers

Nuts - **Standard:** Steel to BS EN 20898-2:1994 property class 8
Option: Stainless Steel to BS EN ISO 3506-2:2009 grade A4 property class 80

Washers - Stainless Steel to BS1449:PART 2:1983 GRADE 304S15

End Rings

Ductile Iron to BS EN1563:1997 Symbol EN GJS-450-10

Gaskets

Standard: EPDM to BS EN681-1, TYPE WA, WC Nitrile to BS EN682:2002, Type G Other grades are available - contact Viking Johnson.

QuickFit Flange Adaptors - Fabricated (Standard Drillings)

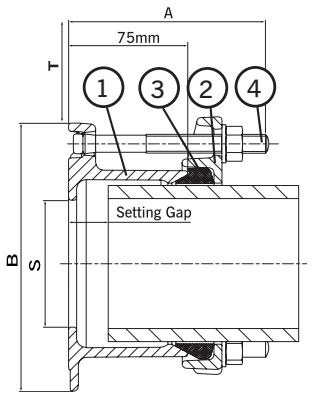
Specifications

New QuickFit Flange Drilling Capabilities - Standard drillings

OD	Flange Details	BS EN 1092											
	Nom (mm)	PN2.5		PN6		PN10		PN16		PN25		PN40	
		Y/N	Tied?	Y/N	Tied?	Y/N	Tied?	Y/N	Tied?	Y/N	Tied?	Y/N	Tied?
059.5 - 063.3	50	✓	✗	✓	✗								
075.3 - 079.1	65	✓	✗	✓	✗					✓	✓	✓	✓
088.1 - 091.9	80	✓	✗	✓	✗								
095.8 - 100.2	80	✓	✗	✓	✗								
107.2 - 111.0	100	✓	✓	✓	✓					✓	✓	✓	✓
113.5 - 120.2	100	✓	✗	✓	✗					✓	✓	✓	✓
138.9 - 142.7	125	✓	✗	✓	✗					✓	✓	✓	✓
158.2 - 162.0	150	✓	✗	✓	✗					✓	✓	✗	✗
167.5 - 172.3	150	✓	✗	✓	✗					✓	✓	✗	✗
192.2 - 196.7	200	✓	✓	✓	✓					✓	✓	✗	✗
218.3 - 224.4	200	✓	✗	✓	✗					✓	✓	✗	✗
272.2 - 276.5	250	✓	✗	✓	✗					✓	✓	✗	✗
323.1 - 328.6	300	✓	✗	✓	✗					✗	✗	✗	✗

= Denotes standard cast product, please refer to page 59 for full details

OD	Flange Details	BS 10:1962 Table											
	Nom (")	A		D		E		F		H		J	
		Y/N	Tied?	Y/N	Tied?	Y/N	Tied?	Y/N	Tied?	Y/N	Tied?	Y/N	Tied?
059.5 - 063.3	2	✓	✗	✓	✗	✓	✗	✓	✓	✓	✓	✗	✗
075.3 - 079.1	2.5	✓	✗	✓	✗	✓	✗	✓	✓	✓	✓	✗	✗
088.1 - 091.9	3	✓	✗	✓	✗	✓	✗	✓	✓	✓	✓	✗	✗
095.8 - 100.2	3	✓	✗	✓	✗	✓	✗	✓	✓	✓	✓	✗	✗
107.2 - 111.0	4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
113.5 - 120.2	4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
138.9 - 142.7	5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
158.2 - 162.0	6	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
167.5 - 172.3	6	✓	✗	✓	✗	✓	✗	✓	✓	✓	✓	✗	✗
192.2 - 196.7	8	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗
218.3 - 224.4	8	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗
272.2 - 276.5	10	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✗	✗
323.1 - 328.6	12	✗	✗	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗



1 = Body
2 = End Ring
3 = Gasket
4 = Bolts

Y/N = ✓ = Can make QFFA with this drilling

✗ = Cannot make QFFA with this drilling

Tied? = ✓ = Can offer as tied FA – notching not required

✗ = Cannot offer as tied FA – bolts clash with end ring – cannot notch

Materials & Relevant Standards

Flange
Steel to BS EN 10025-2:2004 Grade S275JR

Sleeve
Steel Tube to BS EN 10216-1:2004:Grade P265TRI
or Steel Tube to BS EN 10217-1:2002
or Steel BS EN10025-2:2004 Grade S275JR

Tee Bolts/Bolts
Standard: Steel to BS EN ISO 898-1:2009 property class 4.8
Option: Stainless Steel to BS EN ISO 3506-1:2009 grade A4 property class 50

Nuts/Washers
Nuts - **Standard:** Steel to BS EN 20898-2:1994 property class 8
Option: Stainless Steel to BS EN ISO 3506-2:2009 grade A4 property class 80

Washers - Stainless Steel to BS1449:PART 2:1983 GRADE 304S15

End Rings
Ductile Iron to BS EN1563:1997 Symbol EN GJS-450-10

Gaskets
Standard: EPDM to BS EN681-1, TYPE WA, WC Nitrile to BS EN682:2002, Type G Other grades are available - contact Viking Johnson.

United Kingdom - Blackburn

Hyndburn Wastewater Treatment Plant

QuickFit - DN150

Project

QuickFits are installed on the transfer pipework to the pumping station and the perforated basket screens, at Hyndburn Wastewater Treatment Plant, which serves a population of 114,000 in the Great Harwood area of Blackburn. A recent extension to the plant aims to increase the capacity of effluent treated each day.

Client

United Utilities

Contractor

Valves & Engineered Products

Simple

Marine

Couplings & Flange Adaptors

Approved & Pre-assembled Fittings

Pre-assembled & Approved Fittings for Marine Applications

The proven Marine range has been designed and approved for use in marine environments. Alongside all the features and benefits of Viking Johnson's standard range, the marine fittings have attained international seals of approval from prominent marine authorities including Lloyds Register, American Bureau of Shipping (ABS), DNV and Bureau Veritas.

Allowing for Movement

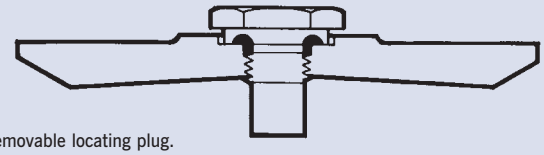
In marine installations, pipework is often anchored to the frame of the vessel so particular care must be taken to allow for the movement of pipework as the ship travels. Marine couplings and flange adaptors aim to relieve the strain and stress that pipework may experience on board.

Enhanced Design Features

The Marine range has enhanced design features including a galvanized finish, nitrile gasket and a locating plug which prevents coupling creep caused by repeated pipe movement. The removable locating plug ensures the coupling can slide fully over the pipe ends to ease installation and when installed, they engage between the pipe ends preventing the coupling moving beyond fixed limits.

Typical Marine Applications

- Fire and deck wash
- Sanitary supply
- Domestic fresh water
- Oil fuel transfer lines
- Scupper and discharge lines
- Cargo oil lines in tankers
- Hold-sounding pipes
- Inert gas
- Bilge lines
- Ballast lines
- Fuel and lubricating oil
- Filling and vent pipes
- Fresh and salt water systems



Removable locating plug.

Marine Couplings & Flange Adaptors

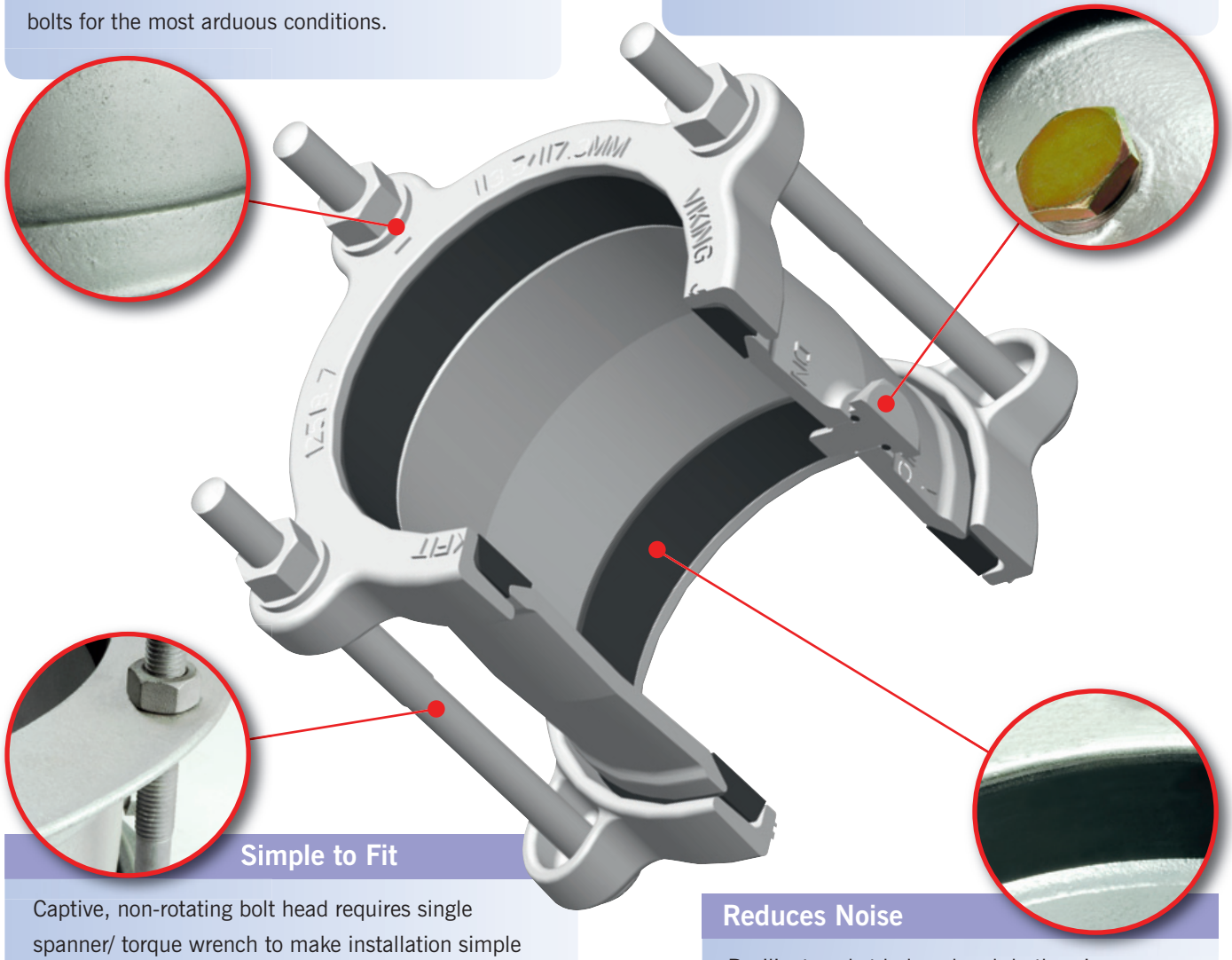
Product Design Benefits

Corrosion Protection

Available as standard with galvanised body and bolts for the most arduous conditions.

Fixed Fitting

Removable locating plug prevents coupling creep caused by continuous vibrations found onboard along with movement from temperature variations.



Simple to Fit

Captive, non-rotating bolt head requires single spanner/ torque wrench to make installation simple with one bolt size (M12) across range and one bolt torque (55-65Nm) for all pipe materials.

Reduces Noise

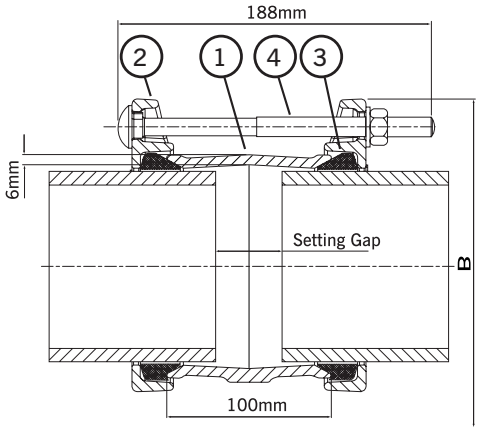
Resilient gasket helps absorb both noise and vibration.

Customer Benefits

- The Marine design allows angular movement, which caters for minor misalignment and pipe deflection with couplings up to 6º and flange adaptors to 3º. Vessel movement can be accommodated without using specialised fittings.
- Marine couplings are capable of accommodating 10mm of expansion/contraction per fitting, flange adaptors 5mm which reduces the need for supplementary expansion joints or bellows.
- All Marine products are pre-assembled allowing quick and efficient installation, without the need for dismantling, even in the most difficult of conditions.

Marine Couplings

Specifications



Marine Couplings

Setting gap	Recommended - 30mm Max - 40mm
Bolt torque	55-65Nm

1 = Centre Sleeve
2 = End Ring
3 = Gasket
4 = Bolts

Pipe OD (mm)	W.P. (bar)	No. Plugs	End Ring OD (mm) - B	Bolt Size No.-Dia x Length	Gasket Mould No.	Weight (kg)
047.9 - 051.3	46.6	1 Plug	136	2-M12 x 180	12477/41	2.22
059.5 - 063.3	46.6	1 Plug	148	2-M12 x 180	12477/1	2.51
075.3 - 079.1	46.6	1 Plug	164	2-M12 x 180	12477/5	2.89
088.1 - 091.9	46.6	1 Plug	177	4-M12 x 180	12477/7	3.81
107.2 - 111.0	46.6	1 Plug	196	4-M12 x 180	12477/12	4.26
113.5 - 120.2	46.6	1 Plug	205	4-M12 x 180	12477/15	4.48
138.9 - 142.7	44.0	1 Plug	228	4-M12 x 180	12477/19	5.02
158.2 - 162.0	38.8	1 Plug	254	4-M12 x 180	12477/21	6.32
167.5 - 172.3	36.9	1 Plug	264	4-M12 x 180	12477/24	6.59
192.2 - 196.7	32.2	2 Plug	292	4-M12 x 180	12477/26	8.06
218.3 - 224.4	35.8	2 Plug	319	4-M12 x 180	12477/29	8.89
272.2 - 276.5	34.8	2 Plug	372	6-M12 x 180	12477/34	11.15
323.1 - 328.6	29.5	2 Plug	424	6-M12 x 180	12477/37	12.76
355.6	23.2	2 Plug	446	6-M12 x 235	J51LS	19.60
406.4	27.2	2 Plug	497	8-M12 x 235	J53LS	22.40
457.0	24.2	3 Plug	548	8-M12 x 235	J55LS	24.90
508.0	27.4	3 Plug	598	10-M12 x 235	J57LS	27.80
560.0	24.9	3 Plug	649	10-M12 x 235	J59LS	30.20
610.0	22.9	3 Plug	700	10-M12 x 235	J60LS	32.70
660.0	24.3	3 Plug	751	12-M12 x 235	J61LS	35.50
711.0	22.6	3 Plug	802	12-M12 x 235	J63LS	38.00

Materials & Relevant Standards

Coating
Galvanised

Gasket
Nitrile (NBR)

Bolts/Nuts
Galvanised

Locating Plugs
Zn^{10}

Pressure
Working Pressure = As noted in table (Test Pressure = 1.5 x W.P.)
Consult relevant technical literature for full details on product.
Marine Couplings DO NOT resist end load - adequate restraint must be provided

Options

NBR Gasket without removable plugs
EPDM Gasket with removable plugs
EPDM Gasket without removable plugs

Couplings are also available with Rilsan or Expoxy coating, with same gasket and plug

Flange adaptors available on request

Marine range - International approvals & designed to withstand the most arduous conditions.

United Kingdom

‘Dunfords’ Bulk Carrier

Marine Couplings

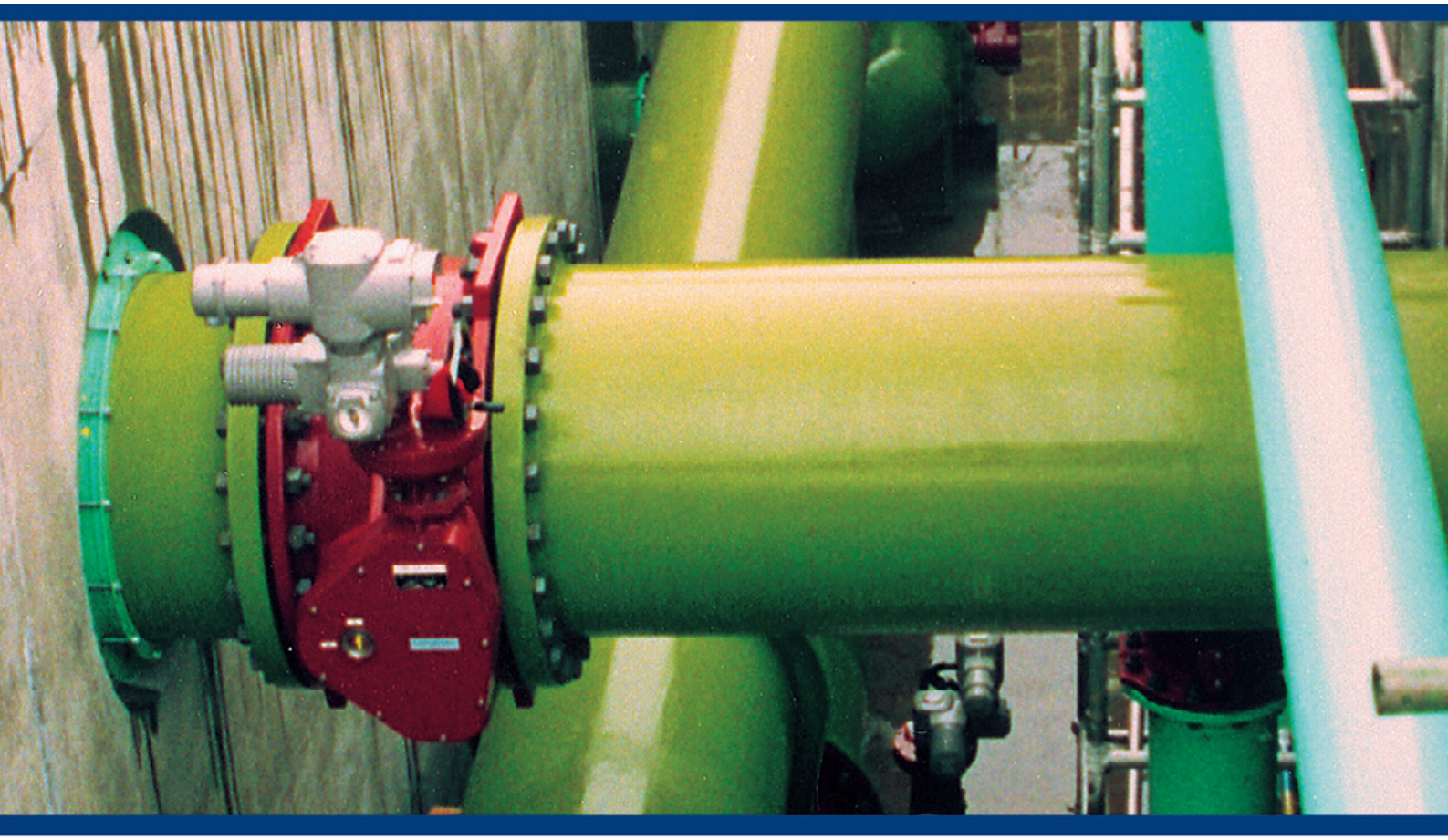
Project

‘Dunfords‘, a 30,000 tonne bulk carrier is equipped with marine couplings in the bilge & ballast sections of the vessel.

Specialist

Wall Couplings

The Perfect Through Wall Connection



The Perfect Solution for Passing Pipes Through Walls

Old Practice

The normal procedure for passing pipes through walls is to leave a substantial cut-out in the wall during the original concrete pouring process. Later, the contractor will pass a 'puddle pipe' through the cut-out, and build an intricate 'letter-box' shutter around it. New concrete is then poured into the void to encapsulate the puddle pipe. Not only is this a time consuming process, but very often the puddle pipe moves with the pour and settles to a less than suitable alignment.

Easier Installation

By utilising a Viking Johnson wall coupling which is held rigidly between the shutters, the 'boxing out' process is eliminated. This means that pouring the wall is a simplified and is a single step process. It also guarantees that leak paths, which are inevitably set up when new concrete is poured onto old, are completely eliminated.

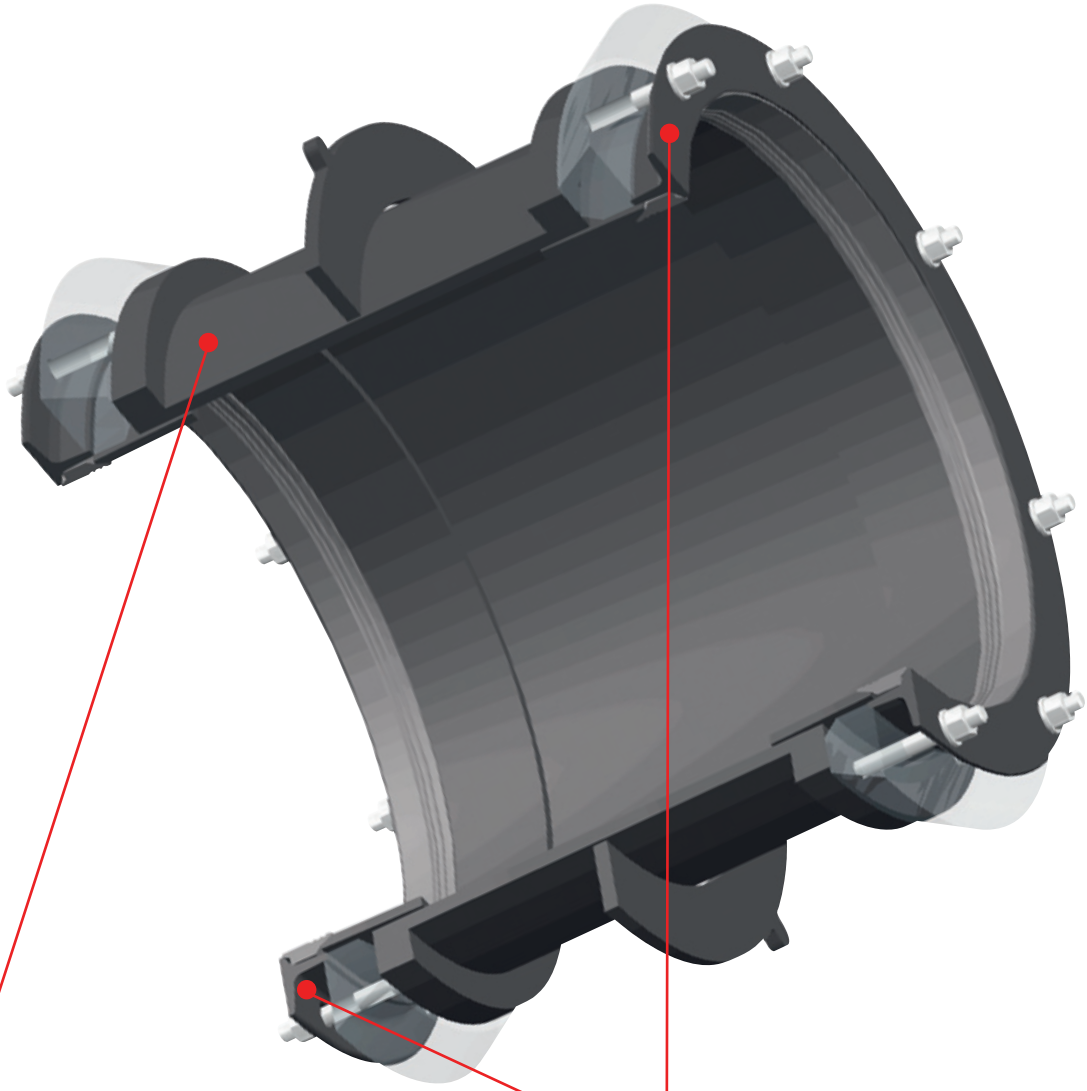
Using a standard Type 1 Viking Johnson wall coupling gives a versatile coupling either side of the wall where pipes can either be passed through or inserted into each side. This system allows for misalignment or angular deflection of up to 3° on each side of the wall. In addition, the use of a Viking Johnson wall coupling ensures that, on the outside of the structure, the first 'rocker' or settlement coupling is built into the shear face of the wall – exactly where it is required. It also means that only one further versatile coupling is needed to form the settlement 'rocker' instead of two. Consequently the installed cost can be drastically reduced, particularly where a large number of through the wall joints appear on a building, for instance in a gravity treatment works.

Approvals

All products are designed and manufactured under quality management systems certified to ISO 9001 and conform to the American Water Works Association's specification AWWA/ANSI C219 for bolted couplings.

Wall Couplings - Type 1

Product Design Benefits



Corrosion Protection

Metal components are coated with Rilsan Nylon 11 which is WRAS approved for use with potable water and offers a long term protection to corrosion, impact and abrasion to ensures continued reliable performance.

Flexible Fit

Using a standard Type 1 Viking Johnson wall coupling gives a flexible coupling either side of the wall where pipes can either be passed through or inserted into each side. This allows for slight misalignment or angular deflection on each side of the wall.

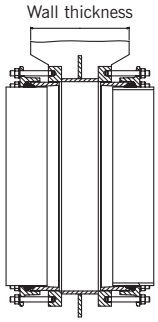
Customer Benefits

- Straightforward for Civil Contractor to position the pipe.
- Easy to secure and prevent movement of the pipe work.
- Large formwork panels can be reused as there is no need to make holes in the shuttering.
- No need for a contractor to come back and cast in pipes or 'make good' the wall surface after casting pipes.
- Ensures good bond between wall and pipe.
- Installed cost can be drastically reduced particularly where a large number of through the wall joints appear on a structure e.g. in a gravity treatment works.

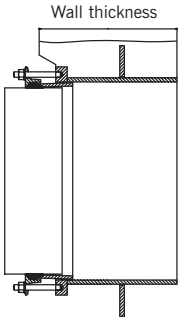
Wall Couplings

Specifications

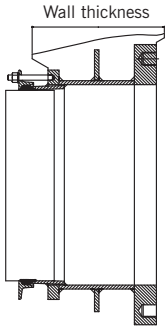
The Viking Johnson Wall Coupling is available in nine variations:



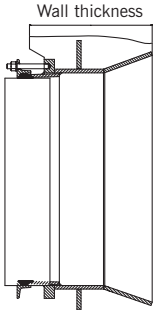
Type 1 Coupling/Coupling



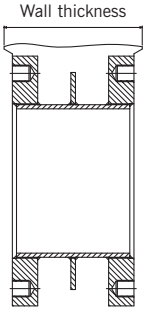
Type 2 Coupling/Plain End



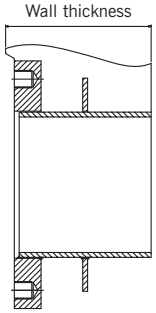
Type 3 Coupling/Flange



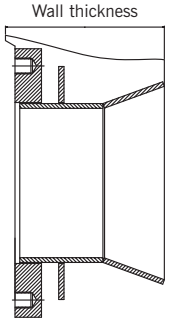
Type 4 Coupling/Bellmouth



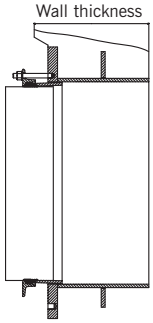
Type 5 Flange/Flange



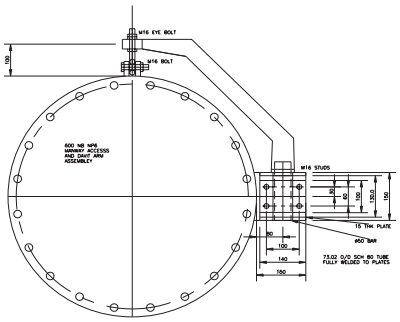
Type 6 Flange/Plain End



Type 7 Flange/Bellmouth



Type 8 Harnessing



Type 9 Man Entry

Viking Johnson wall couplings are patented products - UK Patent No. 2263323B, US Patent No.5505499.

Materials & Relevant Standards

The materials of construction vary according to size and wall coupling type, with the following being those typically used in their manufacture:

Body/Centre Sleeve/End Ring:

DN80 to DN300

Carbon steel to BS EN 10025:2004

Ductile iron to BS EN 1563:1997

DN350 to DN1800

Carbon steel to BS EN 10025:2004

Bolts/Nuts/Washer:

Tee Bolts or Stud - BS EN ISO 898-1:2009 Property Class 4.8

Washers - BS 1449: PT2:1983:Grade 304515

Gasket

Standard gaskets - EPDM to BS EN 681 Part 1 Type WA for water and sewage applications, with an operating temperature range of -40°C to +90°C.

Product coating

Wall coupling bodies and end rings: coated in black Rilsan Nylon 11.

Optional, Scotchkote 206N fusion bonded epoxy.

Studs, 'T' bolts and nuts: either zinc plated to BS EN 12329:2000 followed by Rilsan Nylon 11 for double protection against corrosion or Sheraplex coated to WIS 4-52-03.

Water contact materials

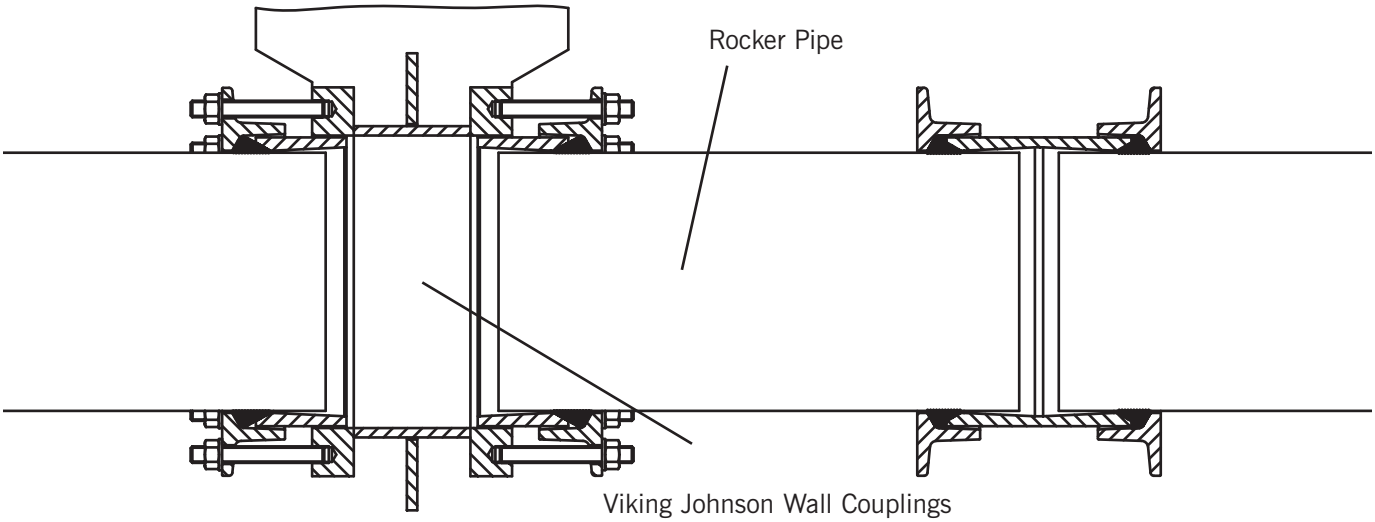
All water contact materials are WRAS listed for use with potable water.

Wall Couplings

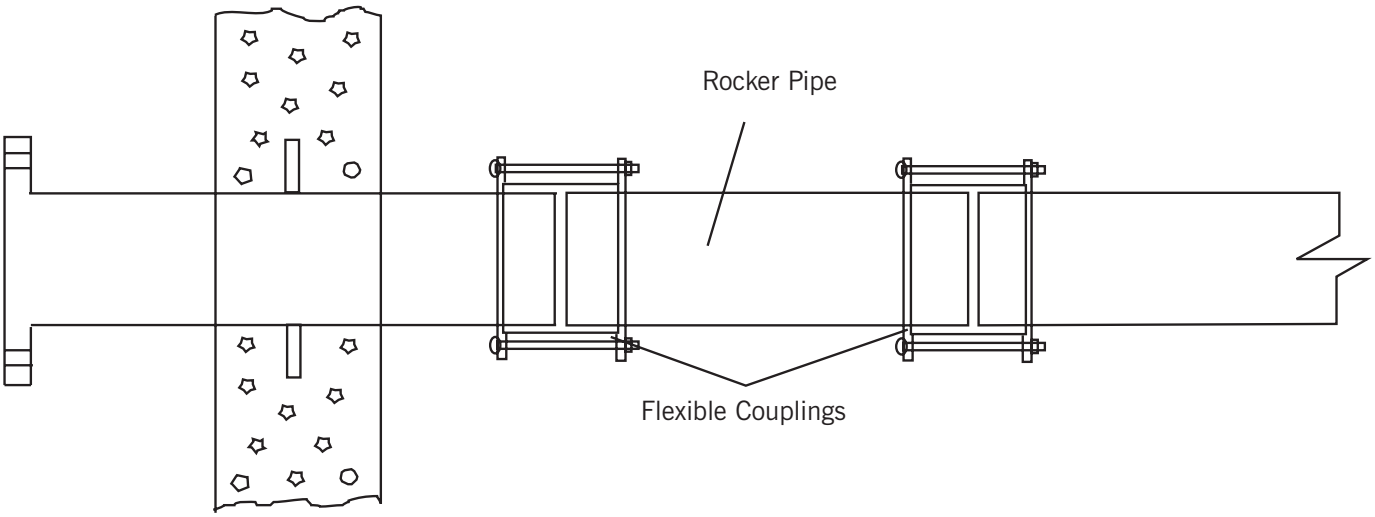
Specifications

Typical Installations

Wall Coupling Method



Conventional Method



Wall Couplings Check List

Wall Couplings are a bespoke product and Viking Johnson requires the following information to assist with the quotation process. This page can be copied from the brochure or a form is available on the website or directly from the Marketing Department.

Please fax back to: +44 (0)1462 443311 or email to: info@vikingjohnson.com

Company Name		Date	
Contact Name		Email	
Customer Address		Telephone	
		Fax	
		Quantity	
		Delivery Date	
Customer Reference No.		Fab No.	

Specifications

Nominal Diameter	
Quantity	

1st End (Please Tick)	Man Entry	☐	Coupling	☐	Flanged	☐	Plain End	☐	Bellmouth	☐	Harness	☐
2nd End (Please Tick)	Man Entry	☐	Coupling	☐	Flanged	☐	Plain End	☐	Bellmouth	☐	Harness	☐

Wall Thickness	
Actual OD of Pipe	

Pipe Material (Please Tick)	Carbon Steel	☐	Stainless Steel	☐	D.I.	☐	G.R.P	☐	Concrete	☐	PVC-U	☐

Other please specify

Fluid Flowing	
If Flanged, Flange Details	

If Harnessed - Stud Details (Please Tick)	No.	☐	Diameter	☐			
Working Pressure			Puddle Flange (Please Tick)	Yes	☐	No	☐

Any Other Details

Responsive

AquaFast

Couplings & Flange Adaptors

For Polyethylene & PVC Connections

Overview

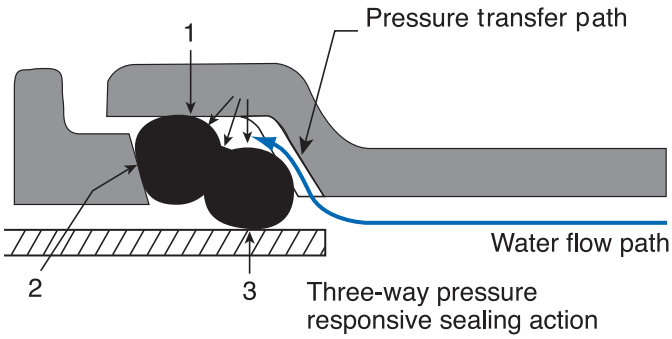
Designed & Engineered to Simplify Polyethylene & PVC Pipe Connections

Effortless Installation

AquaFast's unique 3-way pressure sealing system offers a simple and reliable solution to connecting polyethylene & PVC pipe. In addition, an enhanced gripping mechanism offers end load restraint, resisting pipe pull out. No special skills or tools are required making installation effortless and quicker than other systems.

On-the-spot Repairs

From start to finish, AquaFast offers benefits to the installer. The fittings come fully assembled, it is not necessary to chamfer pipe ends before use and it doesn't require the need for a support liner on PE or thin walled PVC pipe. It can be installed in all-weather conditions. There is no need for shelters so it is ideal for on-the spot repairs. In fact it can also be used in wet or submerged applications.



Simple Jointing

With fewer bolts to fasten – only two per fitting up to 125mm – and minimum bolt tightening using a standard spanner, the installation is further simplified by the easy alignment of bolt holes and a positive stop during bolt tightening ensuring optimum assembly every time. This metal-to-metal positive stop inhibits over tightening, removing the need for a torque wrench.

Transitional Connections

AquaFast couplings & flange adaptors are available from 63mm to 315mm OD. They are designed to work on PE80/ PE100 PE Pipe SDR 11, 17 & 17.6 without a support liner and can also be used to connect metric PVC pipe so AquaFast is ideal for PE/PVC transitional connections.

AquaFast Coupling

AquaFast Flange Adaptor

Pipe Materials

PE PVC

AquaFast Couplings & Flange Adaptors

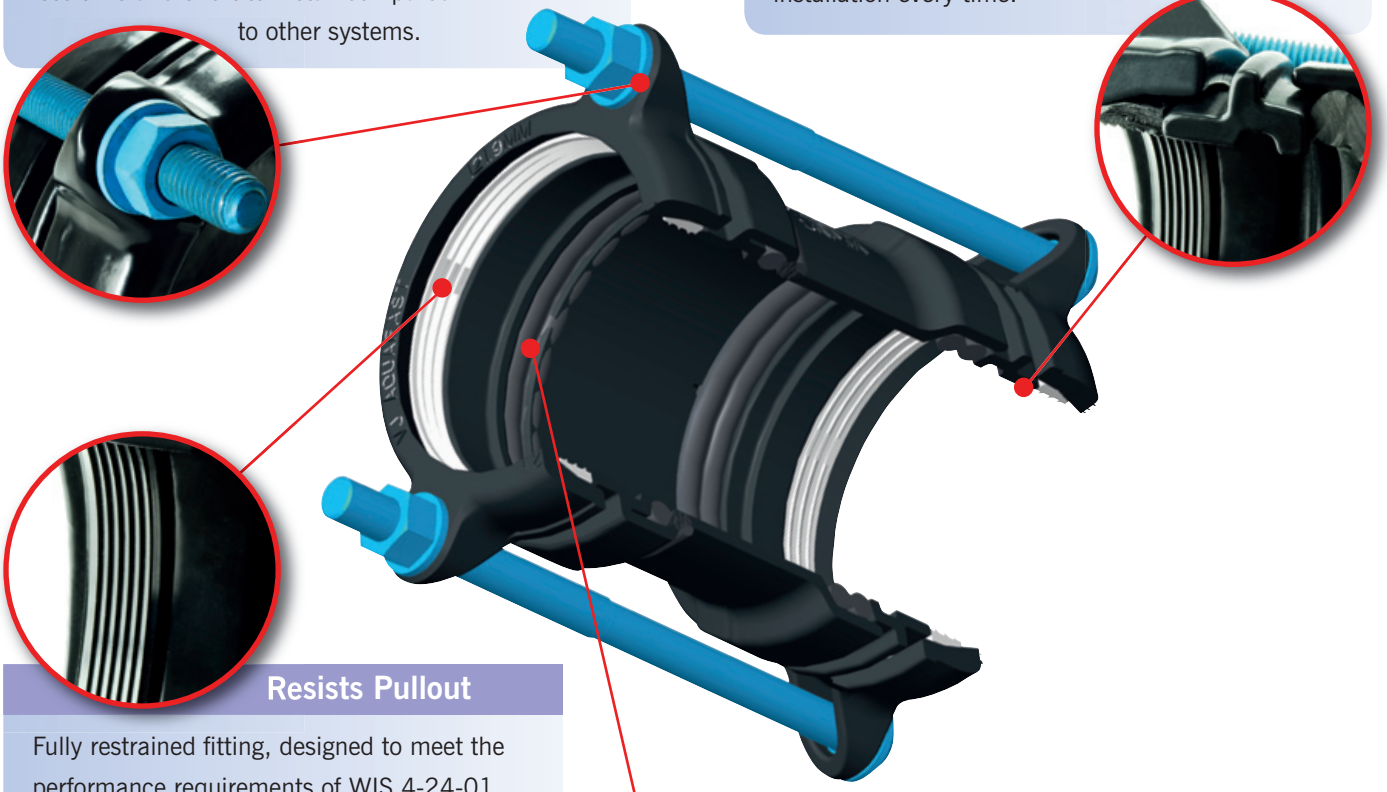
Product Design Benefits

Simple to Install

With fewer bolts to fasten and no torque wrench needed, AquaFast requires less skill and significantly less time and effort to install compared to other systems.

Positive Stop

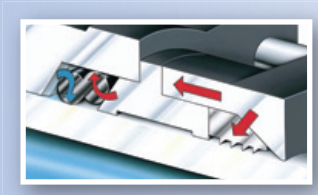
Metal-to-metal positive stop inhibits over tightening removing the need for a torque wrench meaning less skill is needed to install and ensures the perfect installation every time.



Resists Pullout

Fully restrained fitting, designed to meet the performance requirements of WIS 4-24-01 Type 2 and ISO 14236.2.

Unique 3-way Pressure Sealing System



The patented gasket and metal component design features enable three-way pressure responsive sealing, ensuring high performance sealing even after pipe wall relaxation.

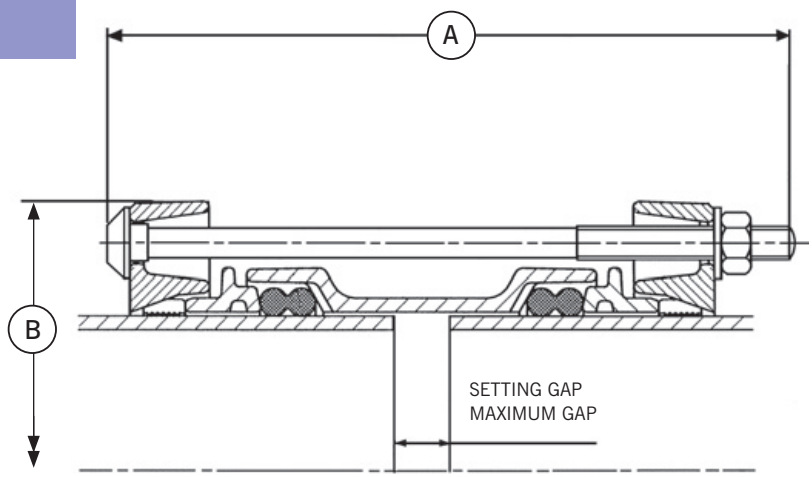
Customer Benefits

- As a support liner is not required, AquaFast is ideal for small diameter pumped sewerage pipelines.
- No need to dismantle before use, simply slip into place and tighten.
- Slip-on coupling without central obstruction makes it easier to make repairs to existing pipelines.
- Supplied as standard with EPDM gasket approved by WRAS for use with potable water.
- Corrosion protection - Metal components are coated with Rilsan Nylon 11 which is WRAS approved for use with potable water. The nuts and bolts are Sheraplex coated to WIS 4-52-03, offering long term protection from corrosion, impact and abrasion ensuring a continued reliable performance.
- Dual function – can be used to connect PE80/PE100 and Metric PVC – ideal for PE/PVC transitional connections.

Flange Adaptor

AquaFast Couplings

Specifications



Coupling

Pipe OD	Bolt Size No.-Dia x Length	Dimensions (mm)		Setting Gap (mm)	Max Gap (mm)	Weight (kg)
		A max	B dia			
63	2-M12 x 250	257	141.5	20	30	3
75	2-M12 x 250	257	153.5	20	30	3.3
90	2-M12 x 250	257	170	20	30	3.9
110	2-M12 x 250	257	190.5	20	30	4.7
125	2-M12 x 250	257	207	20	30	5.2
140	4-M12 x 250	257	222	20	30	6.2
160	4-M12 x 250	257	242	20	30	9.5
180	4-M12 x 375	382	264	30	50	13.6
200	4-M12 x 375	382	292	30	50	14.8
225	4-M16 x 385	395	323	30	50	18.4
250	6-M16 x 385	395	351	30	50	24.1
315	6-M16 x 385	395	417	30	50	29.2

Materials & Relevant Standards

Centre Sleeve, End Ring and Flange Adaptor Body
Ductile Iron to BS EN 1563:1997:Symbol EN-GJS-450-10

Gripper Ring
Zinc alloy to BS EN 12844:1999 Designation ZP3

Intermediate Ring
Up to and including 160mm: Ductile iron to BS EN 1563:1997: Symbol EN-GJS-450-10.
180mm and over Aluminium alloy 6063 condition T6

Bolts
BS EN ISO 898-1:2009 Property class 8.8
Stainless Steel option - BS EN ISO3506-1:2009 Grade A4 Property Class 70 (Stainless steel available as special order)

Nuts (M97)
Steel to BS EN20898-2:1994 Property Class 8
Stainless Steel option - BS EN ISO3506-2:2009 Grade A4 Property Class 70 (Stainless steel available as special order)

Washers (M42)
BS 1449:Part 2:1983 Grade 304S15

Gasket (EPDM)
BS EN 681-1 1996 Type WA/BS 6920 hardness to 70 IRHD

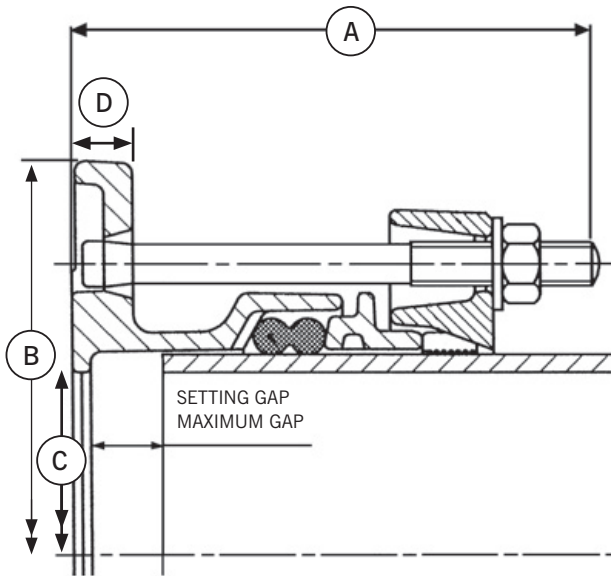
Coatings
Centre sleeve, end ring, flange adaptor body and intermediate ring: Rilsan Nylon 11
Gripper: Cataphoretic coating
Bolts, nuts: Sheraplex to WIS 4-52-03

Working Pressure
Maximum 16 bar

Approvals
WRAS

AquaFast Flange Adaptors

Specifications



Flange Adaptor

Pipe OD	Flange Drillings	Tee Bolt Size No.-Dia x Length	Dimensions (mm)		Bore C (mm)	Flange Thickness D (mm)	Setting Gap (mm)	Max Gap (mm)	Weight (kg)
			A max	B dia					
63	50/65 PN10,16	2-M12 x 135	144	185	50	17	20	25	3.7
75	65/80 PN10,16	2-M12 x 135	144	200	65	17	20	25	4.3
75	60 PN10,16	2-M12 x 135	144	200	65	17	20	25	4.3
90	65/80 PN10,16	2-M12 x 135	144	200	80	17	20	25	4.4
110	100 PN10,16	2-M12 x 135	144	229.5	100	17	20	25	5.4
125	100/125 PN10,16	2-M12 x 135	144	250	100	17	20	25	6.3
140	125 PN10,16	4-M12 x 135	144	250	125	17	20	25	6.4
160	150 PN10,16	4-M12 x 135	144	285.5	150	17	20	25	7.3
180	150 PN10,16	4-M12 x 185	195	285.5	150	17	25	35	10.2
200	200 PN10,16	4-M12 x 185	195	343	190	18	25	35	13
225	200 PN10,16	4-M16 x 195	205	342.5	190	18	25	35	14.5
250	250 PN10,16	6-M16 x 195	208	406	240	20	25	35	19.5
315	300 PN10,16	6-M16 x 195	209	483	300	21.5	25	35	24.6

All flange drilled to BS EN 1092-1 (formerly BS 4504) /BS EN ISO 7005 PN10 and PN16

Materials & Relevant Standards

Centre Sleeve, End Ring and Flange Adaptor Body
Ductile Iron to BS EN 1563:1997:Symbol EN-GJS-450-10

Gripper Ring
Zinc alloy to BS EN 12844:1999 Designation ZP3

Intermediate Ring
Up to and including 160mm: Ductile iron to BS EN 1563:1997: Symbol EN-GJS-450-10.
180mm and over Aluminium alloy 6063 condition T6

Bolts
BS EN ISO 898-1:2009 Property class 8.8
Stainless Steel option - BS EN ISO3506-1:1998 Grade A4 Property Class 70 (Stainless steel available as special order)

Nuts (M97)
Steel to BS EN20898-2:1994 Grade 8
Stainless Steel option - BS EN ISO3506-2:2009 Grade A4 Property Class 70 (Stainless steel available as special order)

Washers (M42)
BS 1449:Part 2:1983 Grade 304S15

Gasket (EPDM)
BS EN 681-1 1996 Type WA/BS 6920 hardness to 70 IRHD

Coatings
Centre sleeve, end ring, flange adaptor body and intermediate ring: Rilsan Nylon 11
Gripper: Cataphoretic coating
Bolts, nuts: Sheraplex to WIS 4-52-03

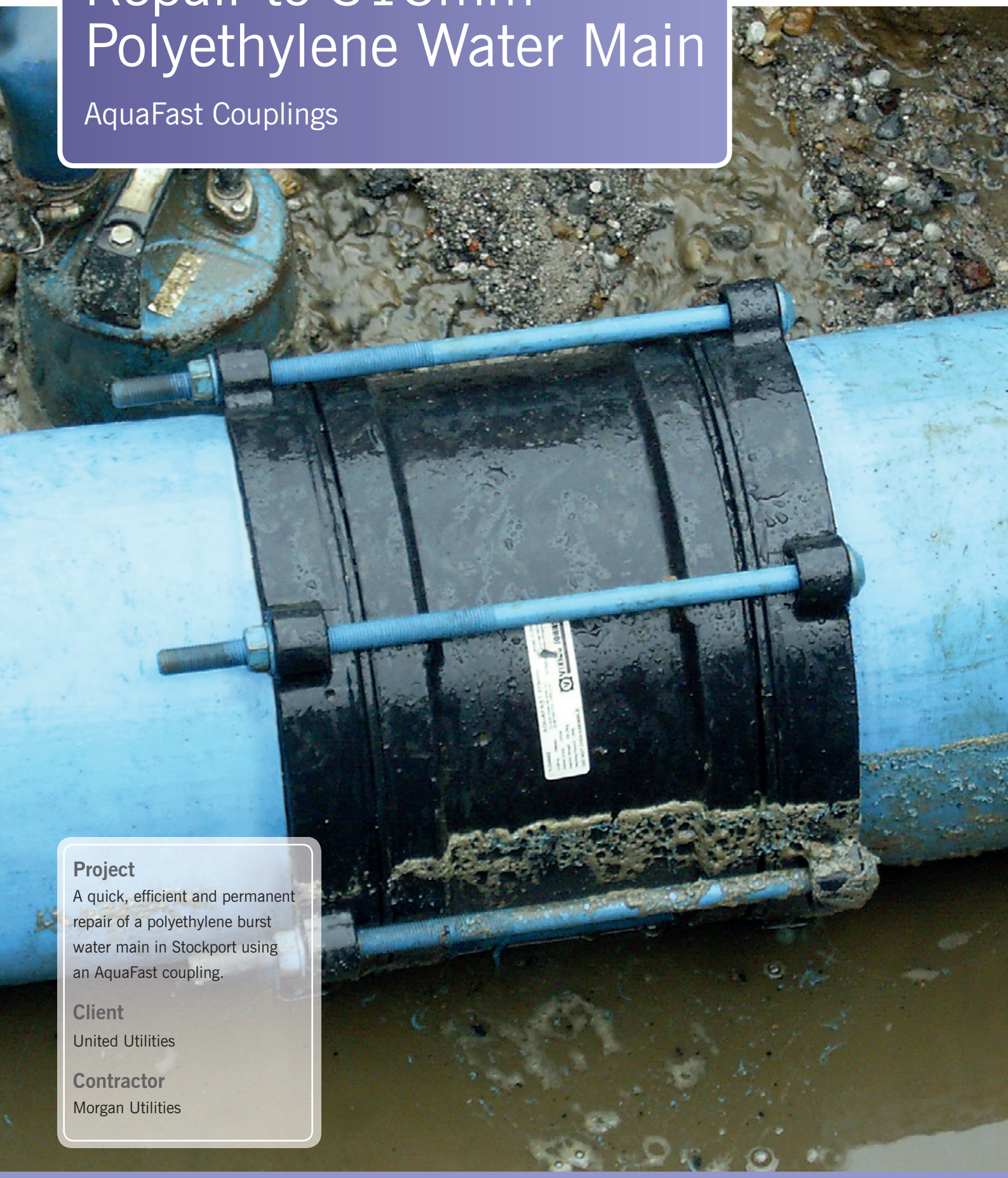
Working Pressure
Maximum 16 bar

Approvals
WRAS

United Kingdom - Stockport

Repair to 315mm Polyethylene Water Main

AquaFast Couplings



Project

A quick, efficient and permanent repair of a polyethylene burst water main in Stockport using an AquaFast coupling.

Client

United Utilities

Contractor

Morgan Utilities

Unique

AquaGrip

Couplings & Flange Adaptors

For Polyethylene Pipe Connections

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 jointing 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 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.

Flange Adaptors
OD 225mm & Larger

Flange Adaptors
OD up to 180mm

Couplings OD 63mm to 180mm

Pipe Material

PE

AquaGrip Coupling & Flange Adaptor up to 180mm

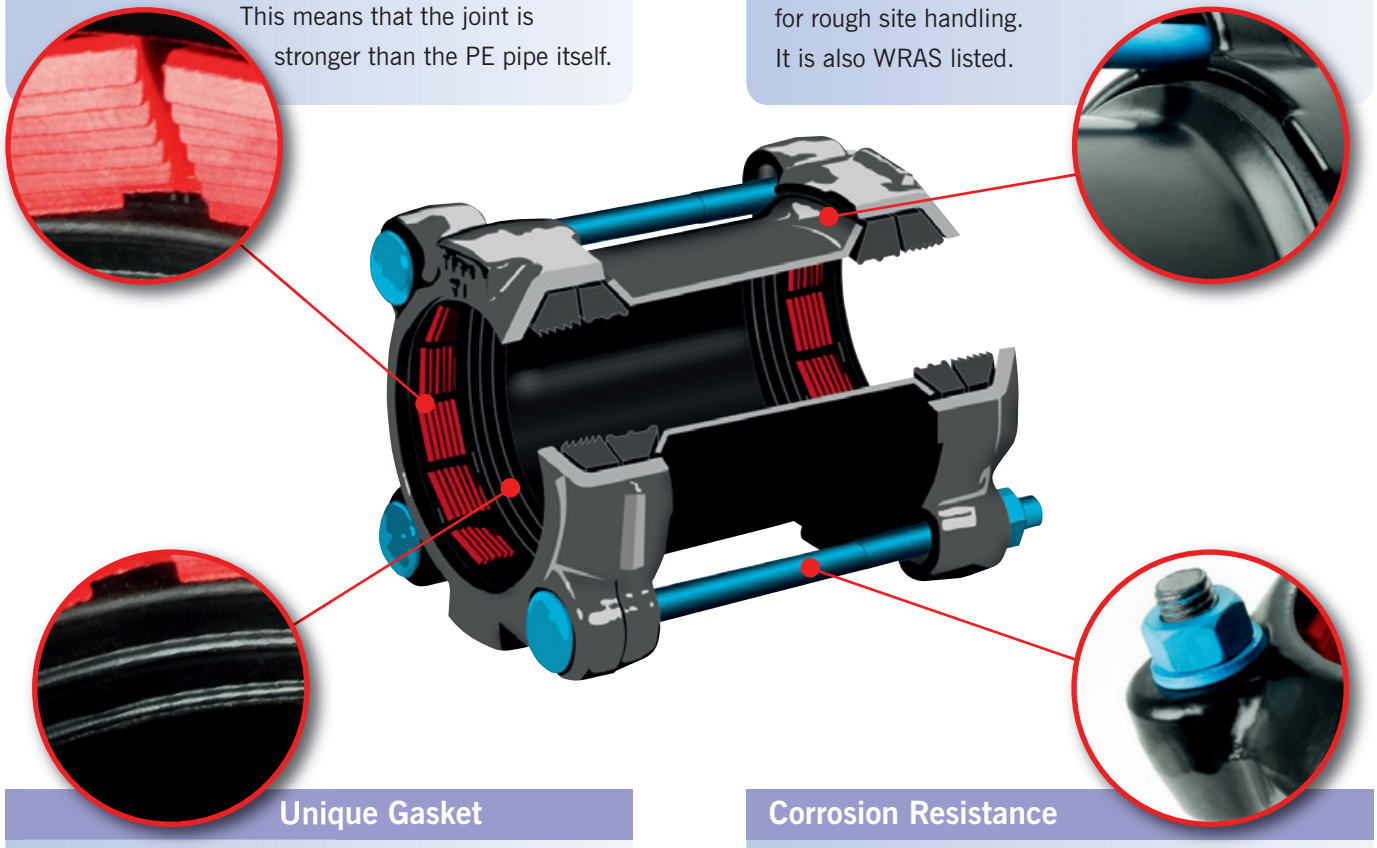
Product Design Benefits

Exceptional Grip

The combination of the acetal grippers and separate internal support liner gives AquaGrip an end load gripping capability of Type 1 to 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

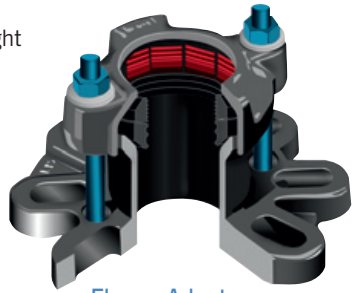
The EPDM gasket (Compound 80 IRHD Grade E) is suitable for water and sewage applications between a temperature range of -10°C to +40°C.

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.



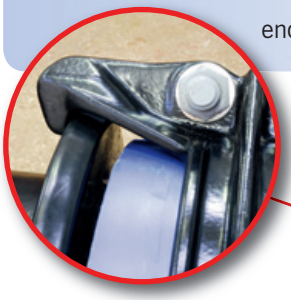
Flange Adaptor

AquaGrip Flange Adaptor 225mm to 1600mm

Product Design Benefits

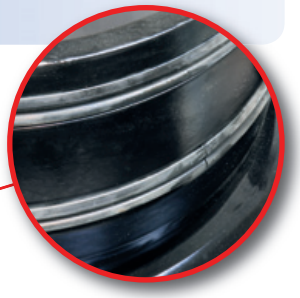
Exceptional End Restraint

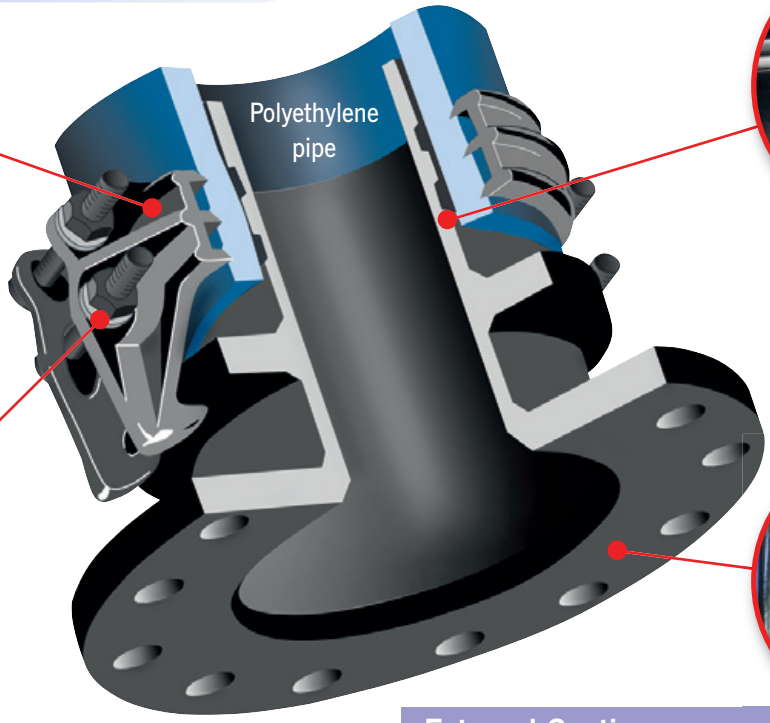
Uniquely designed clamp locks onto the anchoring shoulder, providing maximum end load restraint.



Reliable Seal

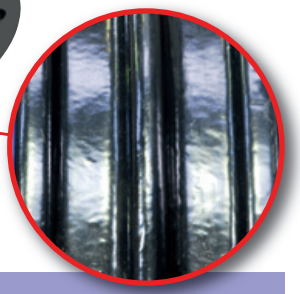
The flanged body incorporates an internal support liner which carries the double ridged gasket(s) that seals on the inside of the PE pipe. The inside of the pipe is well protected from casual on-site damage, so the seal remains secured.





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 miss-shapen 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 WIS 4-24-01 (Type 1 performance to WIS 4-24-01 up to 450mm SDR 11, other sizes / SDR's minimum Type 2).

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

Sri Lanka - Wakwella

Laying Transmission Main

AquaGrip Flange Adaptor DN500

Project

The transmission main runs from Wakwella Treatment Plant to Beak Reservoir. The project has been funded by the American Red Cross and will see replacement of existing old asbestos cement pipeline with a new PE network. The new PE pipeline needs to connect to ductile iron flanges at culverts and valve chambers - large diameter AquaGrip is ideally suited.

Client

National Water Supply & Drainage Board

Consultant

Integrated Development Consultants

Distributor

Lanka Development Network

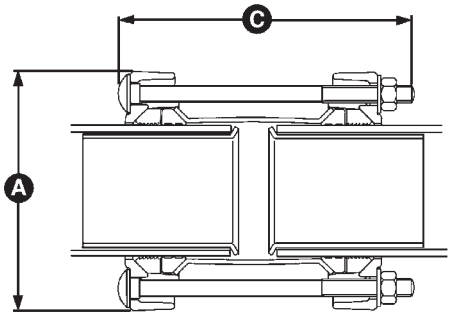
AquaGrip Couplings & Flange Adaptors up to 180mm

Specifications

AquaGrip couplings and flange adaptors up to 180mm are currently manufactured for SDR17 and SDR11 PE pipe. SDR26 is also available on AquaGrip couplings 125mm and 160mm.

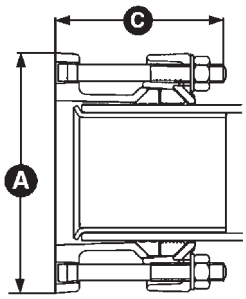
AquaGrip coupling assembly joins PE pipe to PE pipe

Pipe OD	Dimensions (mm)		No. of Bolts	Bolts size (mm)	Gasket Mould No.	Weight (kg)
	A	C				
63	144	208	2	M12x200	6001	2.4
90	167.5	208	4	M12x200	1785	3.8
110	188	208	4	M12x200	1786	5.4
125	203	208	4	M12x200	1787	5.8
160	240	223	8	M12x215	1788	9.0
180	257.5	223	8	M12x215	1789	9.8



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	M12x115	50/80 PN10/16	6001	3.6
90	200	123	4	M12x115	80 PN10/16	1785	3.8
110	220	123	4	M12x115	100 PN10 & 16	1786	4.2
125	220	123	4	M12x115	100 PN10 & 16	1787	4.3
160	285	129	8	M12x115	150 PN10 & 16	1788	8.1
180	285	129	8	M12x115	150 PN10 & 16	1789	8.5



Materials & Relevant Standards

End rings/Flange adaptor body
SG iron to BS EN 1563:1997 Symbol EN-GJS-450-10.

Centre sleeve/Liners
Mild steel to BS EN 10025:2004 Grade S 275.

Bolts
To BS EN ISO 898-1:2009 Property Class 4.8.

Nuts
To BS 4190:2001 Grade 4.

Washers
Stainless steel - BS 1449: PT2: 1983 Grade 304 S 15

Gripper
Acetal copolymer Grade M90 or equivalent.

Gasket
EPDM compound 80 IRHD Grade 'E' to BS EN 681-1:1996 Type WA. Temperature range: -10°C to +40°C. Suitable for water and sewage applications. (Not suitable for fluctuating temperature, i.e. heating systems.) WRAS listed.

Coating
Flange adaptor body, centre sleeve and end rings are coated in Rilsan Nylon 11. Rilsan complies with WIS 4-52-01
Part 1. Bolts: Blue Sheraplex followed by dry film lubricant (Ilex).

Performance criteria
WRAS listed and designed to meet the Full Type 1 performance requirements of WIS 4-24-01.

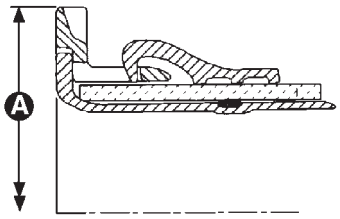
Bolt torque required
Blue Sheraplex: 40-50lbf.ft (55-65Nm.)

Pressure rating
16 bar

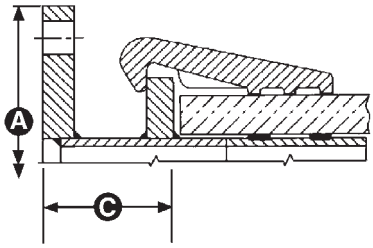
AquaGrip Flange Adaptor 225mm to 1600mm

Specifications

225mm - 280mm



315mm - 800mm



Note:

*SDR = Standard Dimensional Ratio

$= \frac{\text{Pipe OD}}{\text{Wall Thickness}}$

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

Pipe OD	SDR Rating *				Flange Drilling **	Dimensions		No. of Bolts	Bolt Size	Weight (approx) (kg)	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	M16x130	15	1763	1685	1685	1685
250	✓	✓	✗	✓	200 PN16	340	-	4	M16x130	24	1655	1686	1686	1686
250	✓	✓	✗	✓	250 PN16	405	-	4	M16x130	23	1685	1686	1686	1686
280	✓	✓	✓	✓	250 PN16	405	-	4	M16x130	32	1686	1713	1713	1687
315	✓	✓	✓	✓	250 PN16	405	170	4	M20x120	48	4	24	6	6
355	✓	✓	✓	✓	300 PN16	460	138	6	M20x120	65	6	32	34	8
355	✓	✓	✓	✓	350 PN16	520	138	6	M20x120	65	6	32	34	8
400	✓	✓	✓	✓	400 PN16	580	134	9	M20x120	95	34	9	25	25
450	✓	✓	✓	✓	400 PN16	580	134	9	M27x150	160	25	11	12	12
450	✓	✓	✓	✓	450 PN16	640	134	9	M27x150	186	25	11	12	12
500	✓	✓	✓	✓	400 PN16	580	175	9	M27x150	169	11	26	27	13
500	✓	✓	✓	✓	450 PN16	640	134	9	M27x150	169	11	26	27	13
500	✓	✓	✓	✓	500 PN16	715	134	9	M27x150	199	11	26	27	13
560	✓	✓	✓	✓	450 PN16	640	235	12	M27x150	200	27	28	14	14
560	✓	✓	✓	✓	500 PN16	715	180	12	M27x150	248	27	28	14	14
630	✓	✓	✓	✓	600 PN16	840	220	12	M27x150	311	14	15	15	29
710	✗	✓	✓	✓	700 PN16	910	310	12	M27x150	311	–	16	35	35/36
800	✗	✓	✓	✓	700 PN16	910	270	15	M27x150	470	–	31	18	19
800	✗	✓	✓	✓	800 PN16	1025	270	15	M27x150	497	–	31	18	19
900	✗	✓	✓	✓	900 PN16	1125	Contact Viking Johnson	15	M33x160	800	–	36	20	37
1000	✗	✓	✓	✓	1000 PN16	1255		18	M33x160	1107	–	20	20	20
1200	✗	✗	✗	✓	1200 PN16	1485		18	M33x180	1127	–	–	–	22
1400	✗	✗	✗	✓	1400 PN16	1685		18	M33x180	1582	–	–	–	23
1600	✗	✗	✗	✓	1600 PN16	1930		24	M33x180	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.

Materials & Relevant Standards

Flange adaptor body

280mm and below: SG iron to BS EN 1563:1997: Symbol EN-GJS-450-10.

315mm and above: mild steel to BS EN10025:2004: Grade S275.

Clamp band

SG iron (225mm to 800mm) to BS EN 1563:1997: Symbol EN-GJS-450-10.

Mild steel to BS EN10025:2004: Grade S275 (900mm to 1600mm).

Liner

(225 -280mm sizes): aluminium to BS1490:1988: Grade LM 27M.

Gaskets

70 IRHD EPDM to BS EN 681-1:1996:Type WA. WRAS listed.

Coatings

Flange adaptor body, clamp bands and liners are coated in Rilsan Nylon 11 (Black), WRAS listed.

Bolts and nuts and washers are zinc plated followed by Grey Flurene® 177.

Please note:

This product must be tightened to the required torque range:

M16 bolts 70 - 80lbf.ft (95 - 110Nm.)
M20 bolts 140 - 160lbf.ft (190 - 215Nm.)
M27 bolts 260 - 300lbf.ft (350 - 405Nm.)
M33 bolts 500 - 550lbf.ft (675 - 750Nm.)

Performance criteria

Designed and listed to meet the full Type 1 performance requirements of WIS 4-24-01 in all sizes up to 450mm.

For confirmation of other sizes please contact our Marketing Department.

France - Marseille

Martigues Thermal Power Plant

AquaGrip Flange Adaptor DN350

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

Glynwed France

Enhanced

LinerGrip

Pipeline Rehabilitation System

For use with Polyethylene Pipe Liners

A Bespoke Solution to Enhance Pipeline Rehabilitation

In an attempt to improve water quality and flow in existing pipelines, water companies use a process which involves scraping the pipe and then re-lining it, often with a polyethylene (PE) liner. Whilst this is a tried and tested technique, worries of water leakage at the termination point remain - Viking Johnson has the ultimate solution.

Simple Connection

LinerGrip is specifically designed as a termination method for existing pipework that has been re-lined with PE pipes that are not self-supporting in buried applications and therefore rely on the host main for pressure retention. One end of the fitting is a simple flange connection which allows attachment of other flanged equipment.

Gripping & Sealing

The other end of the fitting seals onto the outside of the existing pipe, preventing the ingress of ground water between the host pipe and liner. It also has an in-built gripping mechanism that attaches to the internal PE liner to prevent it from retracting inside the host main, either under tension or internal pressure. The mechanical fitting locally supports the PE liner from the force that it may experience, creating a seal which eradicates potential leak paths which are common where the liner ends.

Versatile

Extremely versatile, water companies can use LinerGrip with any cast iron, ductile iron, steel, asbestos cement and concrete pipes that have PE lining. Viking Johnson has a standard LinerGrip range of 50mm to 1000mm but is able to manufacture bespoke fittings to suit almost any specific site conditions.

Host Pipe Materials

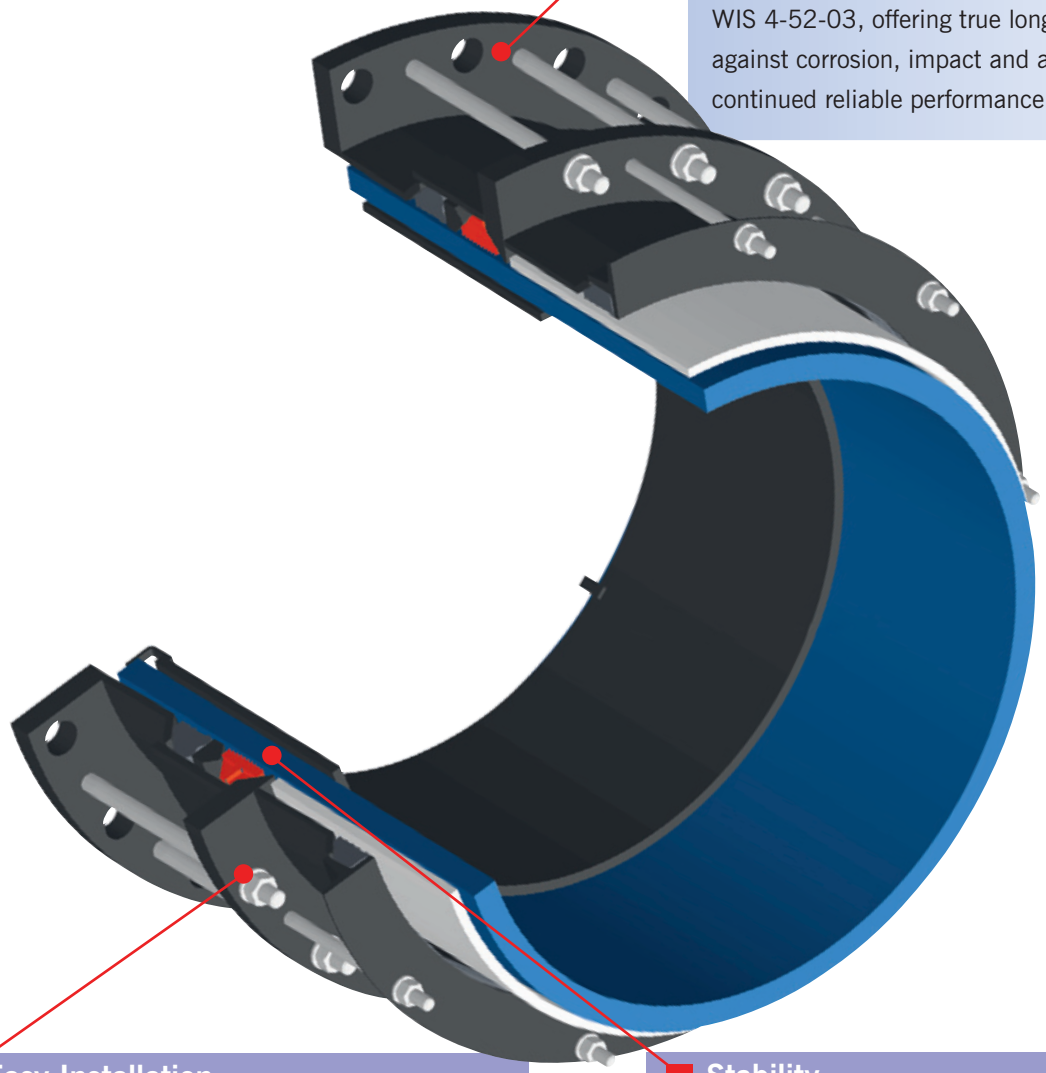
Lining Material

LinerGrip Pipeline Rehabilitation Technology

Product Design Benefits

Corrosion Protection

Metal components are coated with Rilsan Nylon 11 which is WRAS approved for use with potable water. The nuts and bolts are Sheraplex coated to WIS 4-52-03, offering true long term protection against corrosion, impact and abrasion to ensure continued reliable performance.



Easy Installation

LinerGrip is a mechanical connection, and as such requires no specialist equipment, other than a torque wrench.

Stability

LinerGrip seals onto the outside of the host main, which stabilises the entire fitting, as well as preventing the possibility of ingress of ground water into the gap between host and liner pipes.

Customer Benefits

- LinerGrip can be produced to suit almost any combination of configurations, specific to site requirements.
- Supports the PE pipe as it exits the host main.
- Prevents the PE pipe from retracting into the host pipe and seals the gap between the two pipes to ensure no leaks or ingress of ground water.
- Uses MaxiFit components for connection to the host main and therefore benefits from the tolerance of the MaxiFit range.

Easy to Install

Step 1

The polyethylene pipe is cut to length, after ensuring pipe is fully relaxed.

Step 2

After cutting to length, the centre sleeve is placed over the host pipe, and a coated insert is installed into the polyethylene pipe.

The gripper bracelet, gasket divider and gasket are installed onto the polyethylene pipe end.

Step 3

The main flange body is installed over the polyethylene pipe, locating the studs into the centre sleeve. This encloses the gasket and gripper.

Use of mechanical handling will aid on large diameter products.

Step 4

The flange body studs are tightened, compressing the gasket and engaging the gripping teeth. The host main end ring is tightened. Installation is now complete.

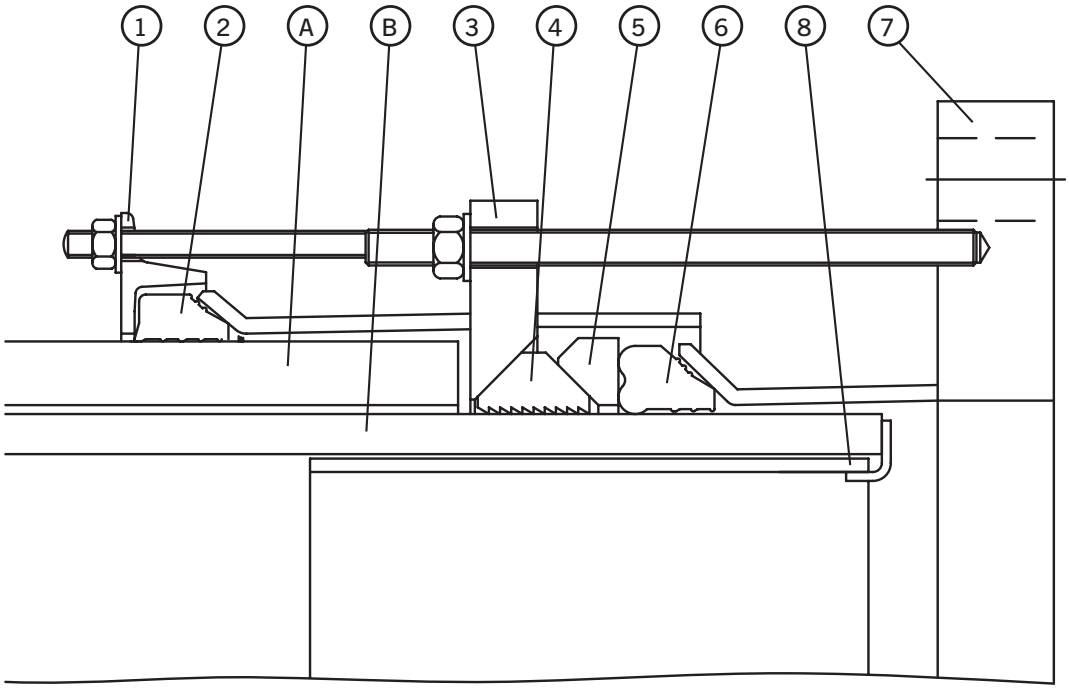
LinerGrip Standard Range 50mm to 1000mm

Specifications

LinerGrip Cross Section

1) Host End Ring
2) Host Gasket
3) Main Body
4) Gripper Segment
5) Gasket Divider
6) LinerGrip Gasket
7) Main Flange Body
8) Coated Insert

A) Host Pipe
B) Polyethylene Liner Pipe



Materials and Relevant Standards

Centre Sleeve/End Rings/Flange Adaptor Body

Rolled Steel to BS EN 10025:1993 Grade S275JR or Equivalent

Gripper Links

Acetal Copolymer Grade M90 or equivalent

Bolts/Studs/Nuts/Washers

Bolts and Studs - Steel to BS EN ISO 898-1:2009 Property Class 4.8

Nuts - Mild Steel to BS 4190:2001 Grade 4

Washers - Stainless Steel to BS1449:Part 2:1993 Grade 515

Gasket

Compound to suit application. Contact Viking Johnson for advice

Coating

Body, Sleeve and End Rings - Coated in Rilsan Nylon 11 to WIS 4-52-01 (Part 1)

Bolts and Nuts - Sheraplex to WIS 4-52-03

United Kingdom - Oswestry

Vyrnwy Aqueduct - Relining

LinerGrip - DN1000

Project

A relining project using a thin wall SDR51 PE pipe inserted into the existing cast iron pipeline.
The 80km pipeline supplies drinking water taken from Lake Vrynwy in North Wales to Liverpool.

Client

United Utilities

Contractor

Daniel Contractors Ltd & Subterra

LinerGrip Check List

LinerGrip is a bespoke product and Viking Johnson requires the following information to assist with the quotation process. This page can be copied from the brochure or a form is available on the website or directly from the Marketing Department.

Please fax back to: +44 (0)1462 443311 or email to: info@vikingjohnson.com

Company Name		Date	
Contact Name		Email	
Customer Address		Telephone	
		Fax	
		Quantity	
		Delivery Date	

Host Pipe Details

Pipe Material (Please tick) Cast Iron ☐ Steel ☐ Concrete ☐ Asbestos Concrete ☐ PVC ☐ Other (Please specify)

Nominal		Outside Diameter	
Tolerance range required on OD		Inside Diameter	

Note: For sizes uti DN1000, the connection to the host main is normally in the form of the Viking Johnson MaxiFit. The MaxiFit has a tolerance range of 17mm, and this can be applied to suit the Host pipe. i.e. for a 610mm Steel host pipe the MaxiFit could be specified as having a range of 605mm to 622mm, giving a range to cover oversize conditions.
Note: For sizes DN1100 & over, the connection to the host main is normally in the form of the Viking Johnson High Tol LD Product, which will have a tolerance of 10mm.

PE Liner Details

Virgin PE pipe parameters before manipulation to install in host pipe

Liner Material (Please tick) PE80 ☐ PE100 ☐

Specification (WIS 4-32-03 etc)	
Virgin PE Pipe Diameter (before reversion)	
SDR Rating of PE	
Max PE Pipe OD	
Min PE Pipe OD	
Max PE THK	
Min PE THK	

PE pipe diameter after installation in host pipe

Method of Installation of PE Liner
Exit Diameter PE Pipe (after reversion)

Note: This is the diameter of PE pipe that will be used for the LinerGrip fitting.

Note: The section in yellow are required if the PE specification is not to WIS 4-32-03.

Flange Drilling Details

Nominal Size		Drilling Pattern	

Note: Certain Drillings/configurations may require the upsizing of the flange or the use of special wrenches. In this case, we advise using the next flange size up as the preferred option. Small Diameter LinerGrip products use flanges with multiple flange drillings. Care should be exercised in ensuring the fit of the mating flange.

Application

Fluid in Relined Pipe (Please tick) Water ☐ Wastewater ☐ Sewer ☐ Gas ☐ Other (Please specify)

Working Pressure		Liner Primary Seal (between PE liner and LinerGrip)	

Note: 1) Any quotation for LinerGrip is given based on technical details provided by the Customer, and may include assumptions where full details are not provided. Under these circumstances, both Viking Johnson and the Customer will need to establish the correctness of any datasheet or drawing prior to order. Viking Johnson reserves the right to re-quote at any time if new or complete technical dimensions are provided which materially alter the design of the product. 2) Manufacture cannot commence until ALL information has been provided.

Other Comments	

Germany - Memmingen

Maintenance on Water Pipe Network

Next Generation UltraGrip Stepped Coupling - DN100/DN80

Project

In Germany, for daily repair and renewal of the existing pipe network many utility companies use PE-HD pipe materials. For this project, in Memmingen a FriaGrip (UltraGrip) stepped coupling, utilizes a stainless steel support liner to connect an old grey cast iron pipe sized at DN80 to a new DN100 PE pipe.

Client

Stadtwerke Memmingen

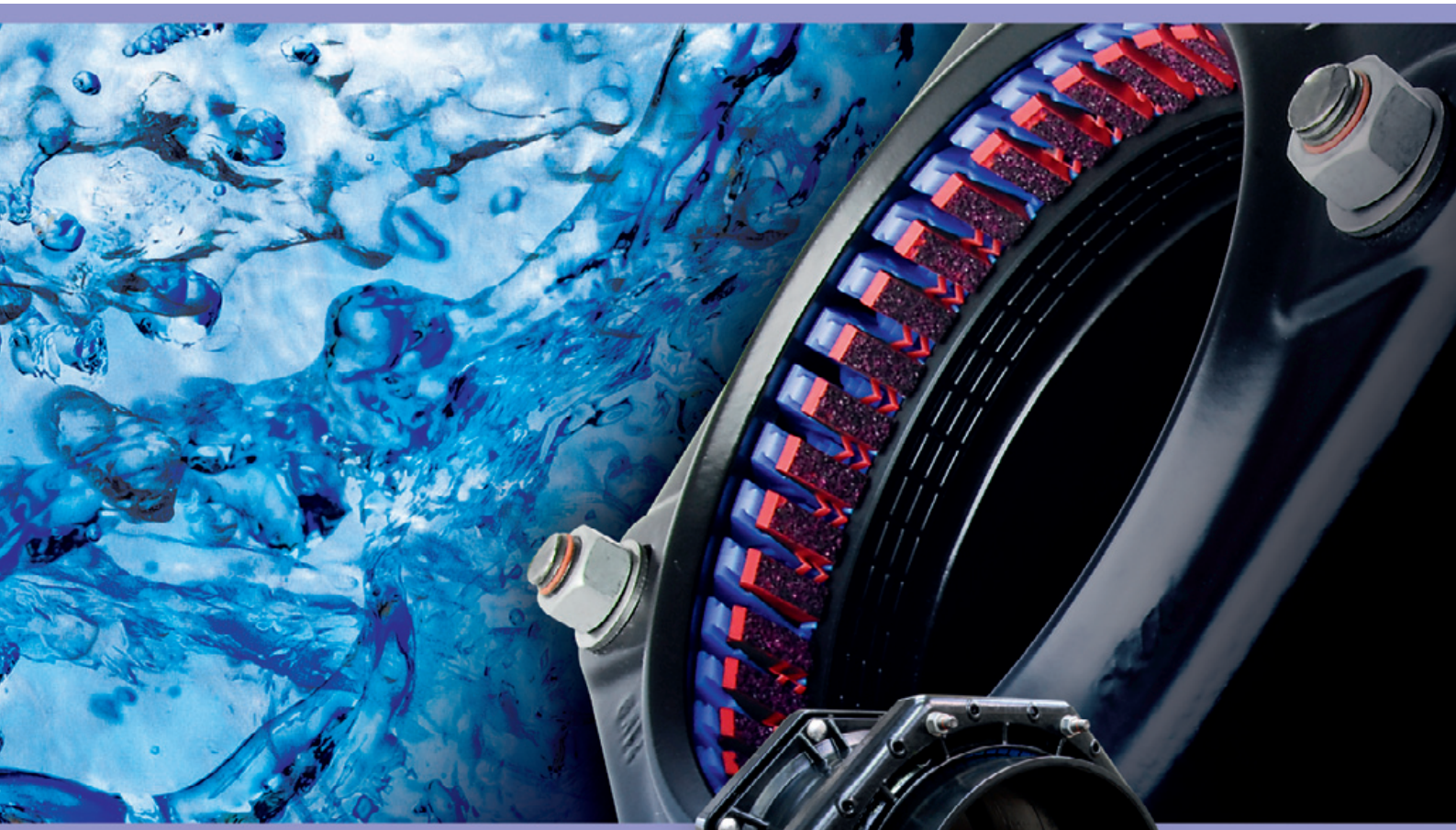
Distributor

Friatec AG, Mannheim

Next Generation

UltraGrip

PE & PVC Connections & Repairs



Overview

Pipe Materials

PVC PE

For use on PE & PVC Pipe Connections & Transitions

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.

In fact Viking Johnson is the only business that can offer within its range 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 Pecatadaptor.

Pecatadaptors are supplied factory assembled to a PE tail, ready for fusion jointing into the network by butt-fusion or an electro-fusion coupler. The UltraGrip end can be connected to a wide variety of other pipe materials. The PE connection is 500mm in length which will accommodate two electrofusion connections. The Pecatadaptor 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.

Due to the flexible nature of plastic pipes a close fit Stainless Steel internal support liner is required when mechanical joints are used on all PE pipes and thin walled PVC to prevent excessive pipe deformation which can occur.

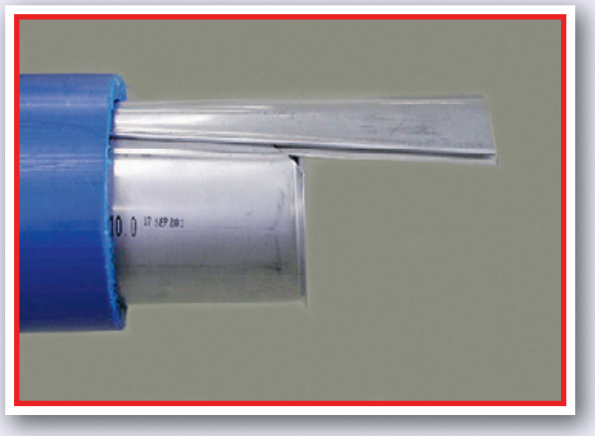
For information & specifications on all UltraGrip products refer to pages 125 - 134.

UltraGrip Support Liner For PE & PVC Pipes

Easy to use in 4 Simple Steps

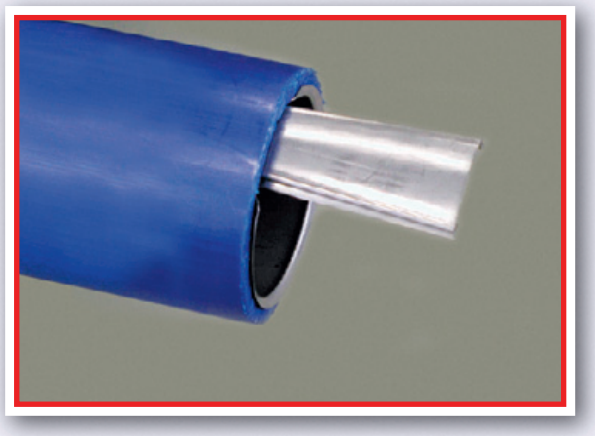
Step 1

Place insert in to pipe.



Step 2

Slide insert until its collar contacts pipe end.

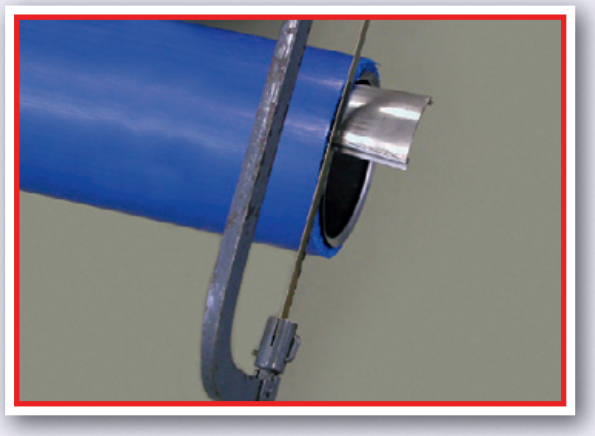


Step 3

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

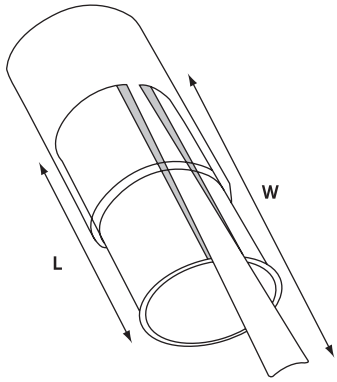
Step 4

Remove excess wedge.



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 41	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 41	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

Materials

Stainless steel
ASTM, AISI 304

Support Liner - Standard - 2mm thickness

Pipe OD	Insert length L (mm)	SDR Rating	Wedge Length W (mm)
200	180	SDR 41	220
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

Materials

Stainless steel
ASTM, AISI 304

Universal

MaxiFit

Wide Tolerance Range

Mechanical Pipe Fitting Technology

A Versatile Solution for Pipe Jointing...

MaxiFit universal pipe couplings are designed to accommodate plain ended pipes with different outside diameters. One fitting is able to connect a wide variety of pipe materials including steel, ductile iron, PVC, cast iron, GRP and asbestos cement pipes amongst others. The range is designed and manufactured under quality management systems to BS EN ISO 9001 and meets the requirements of the UK Water Regulations & EN 14525.

Wide Tolerance

With up to 34mm tolerance on the pipe OD it not only eases installation but can reduce the need for expensive and time consuming trial holes, reduce stock holding and increase stock turn over. MaxiFit is an adaptable and economic solution to most pipe connections.

All products in the range have a test pressure of 24bar on water (9bar on gas) and are suitable for 16bar working pressure for water (6bar on gas).

Quick & Efficient Installation

The versatile range is pre-assembled with an innovative gasket which has 'slide easy' ribs that reduce friction on pipes at the upper tolerance range of the fitting, providing maximum sealing pressure, even on scored, pitted and corroded pipe surfaces. The captive non-rotating bolt heads require just a single spanner to install with just one standard bolt torque across the range. These features allow for a quick and efficient installation even in the most difficult of conditions.

Extensive Range

The expansive range is available in sizes DN40 up to DN600 and includes MaxiFit couplings & MaxiFit Xtra long sleeved couplings, MaxiStep reducing couplings, MaxiDaptor flange adaptors, MaxiCap, MaxiThread End Cap, & MaxiFit Large Diameter couplings & flange adaptors.

Pipe Materials

Note: MaxiFit can also be used as a repair product - see pages 167 - 168

MaxiFit Range

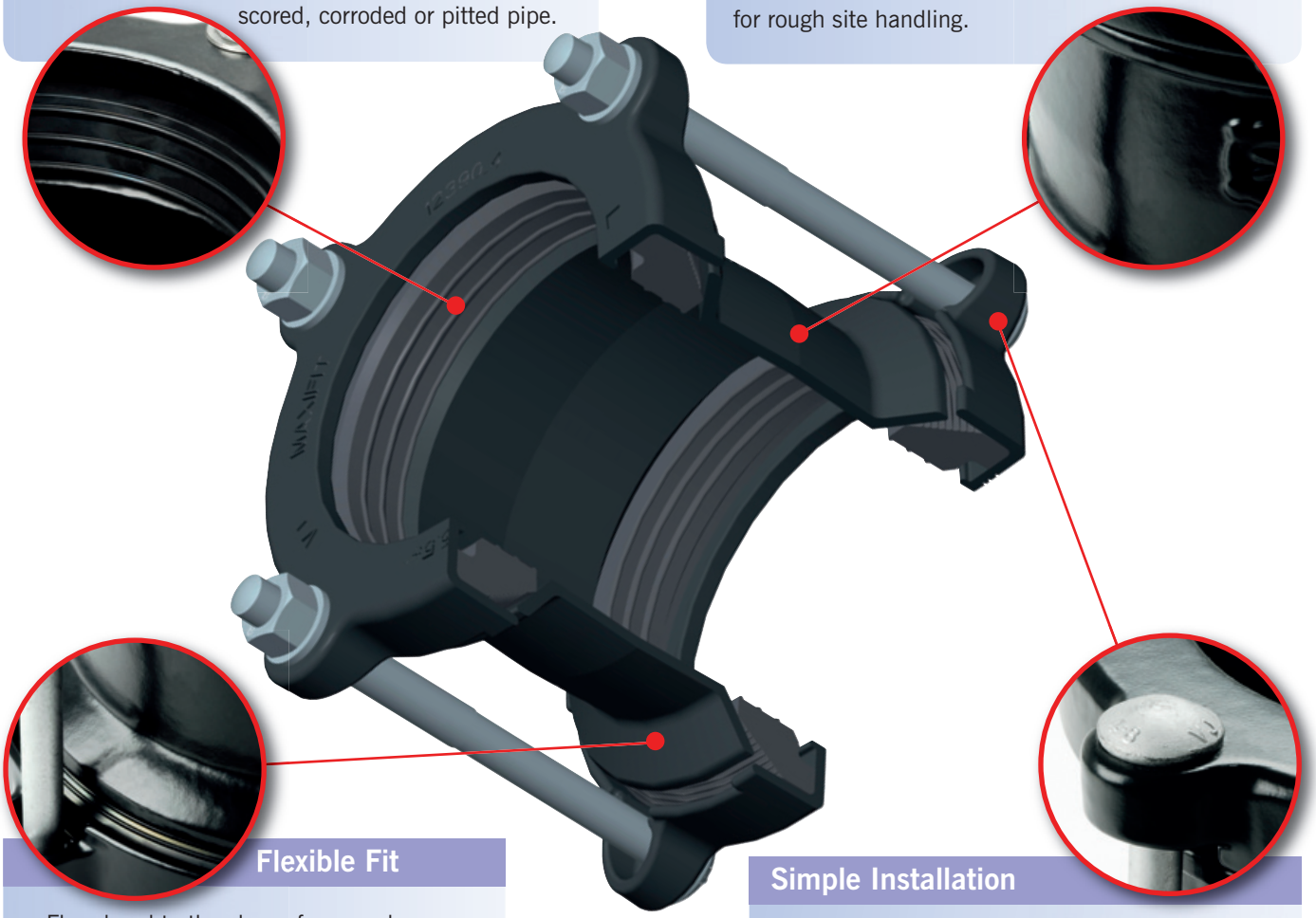
Product Design Benefits

Unique Gasket

A unique gasket with distinctive circumferential ribs provides a 'slide easy' fit for maximum sealing on scored, corroded or pitted pipe.

Excellent Corrosion & Damage Resistance

Coated in black Rilsan Nylon 11 which is WRAS listed and has excellent resistance to impact, abrasion, weathering and chemicals. It also has good thermal stability and flexibility to accommodate for rough site handling.



Flexible Fit

Flared end to the sleeve forms a deep gasket chamber to give maximum possible pipe adjustment.

Simple Installation

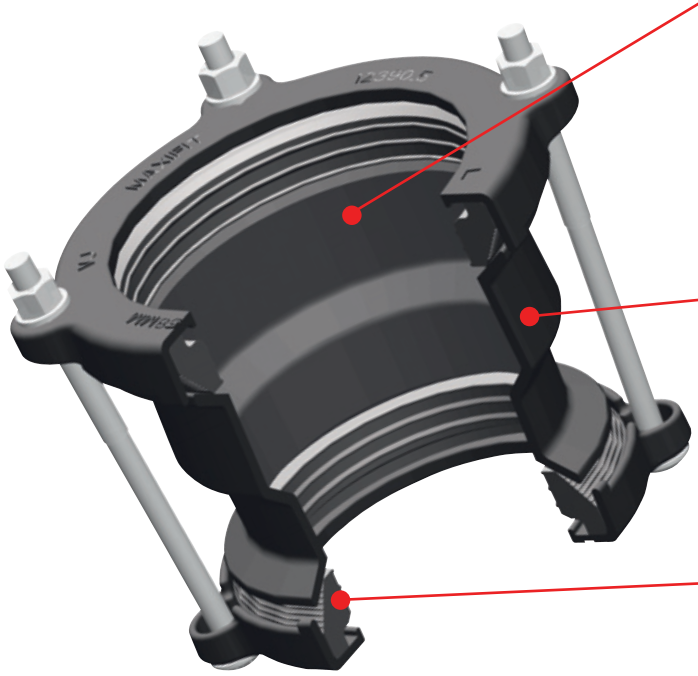
Captive, non-rotating bolt heads require just a torque wrench to install.

Customer Benefits

- Design life expectancy of 50 years, established by rigorous 'Accelerated Age Testing' which subjects product to working pressure at 80°C for 1000 hours.
- Wide tolerances permit lower stock holding.
- All models accommodate angularity between pipes which allows for normal pipeline movement caused by ground settlement. Couplings and reducing couplings allowing for 6° total angular deflection 3° total on the flange adaptors.
- A rigorous bolt torque test is completed to confirm that the bolt, end ring and adaptor body are capable of withstanding bolt over-tightening to 1.5 times maximum recommended torque.

MaxiFit, MaxiFit Xtra & MaxiStep

Design Benefits



Simple Installation

Available as standard and long sleeved versions, the MaxiFit Xtra simplifies the installation further, allowing for greater cutting tolerances and a greater pipe insertion depth - sealing beyond corrosion damaged pipe ends to create a safe and permanent repair.

Excellent Repair Product

MaxiStep reducing couplings are designed to provide transitions between pipes of different nominal bores simplifying installations when repairing old pipe with new.

Accommodates Pipe Movement

All models accommodate angularity between pipes which allows for normal pipeline movement due to ground settlement. Couplings and reducing couplings allow for 6° total angular deflection.

MaxiDaptor

Design Benefits

Ultimate Flexibility

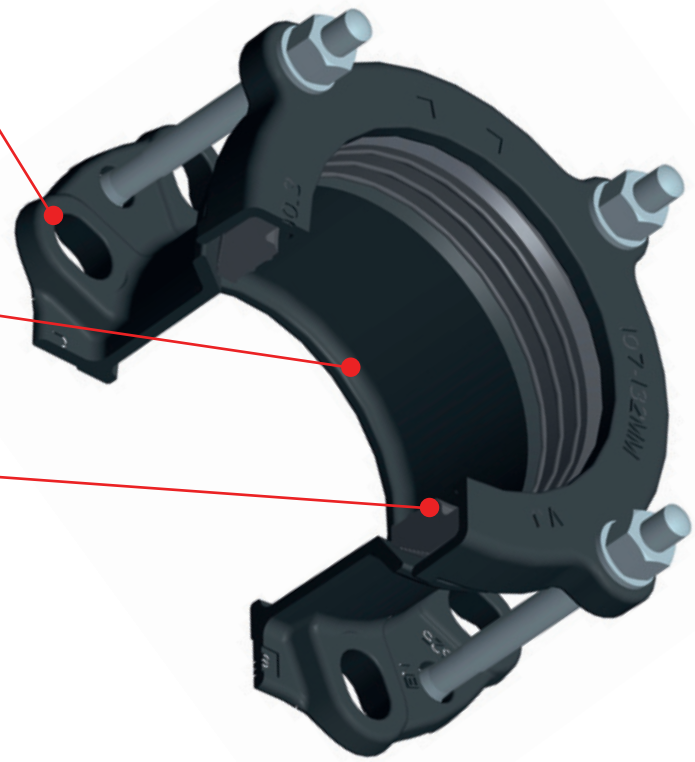
All cast flanges have multi drilling including; BS EN 1092-1, ISO 7005 1:1992, (PN10/16), BS10: 1962 (Table ADE), ANSI/AWWA.

Exceptional Sealing Capabilities

Flanges have an extended sealing face.

Accommodates Pipe Movement

All models accommodate angularity between pipes which allows for normal pipeline movement caused by to ground settlement. Flange adaptors have a total angular deflection of 3°.

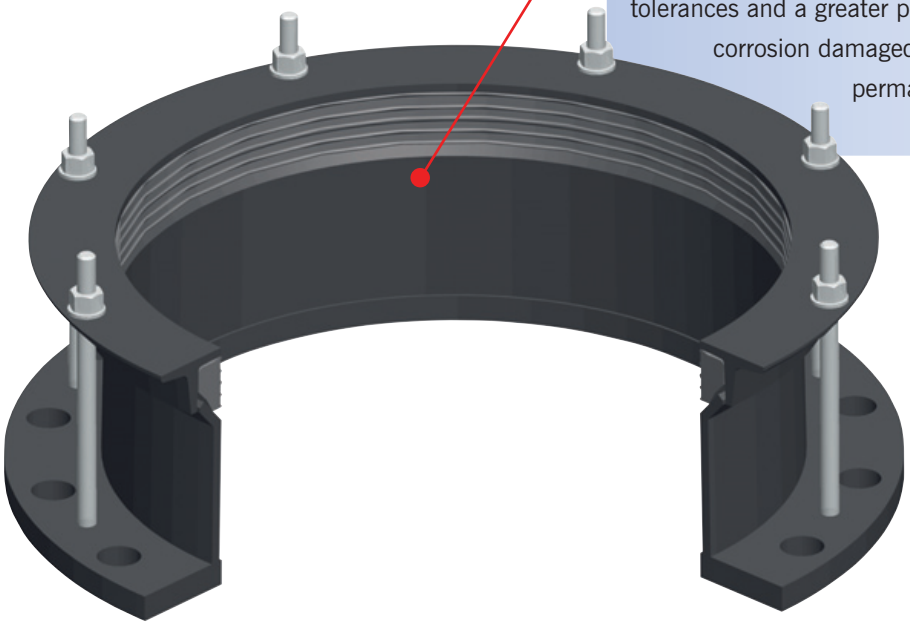


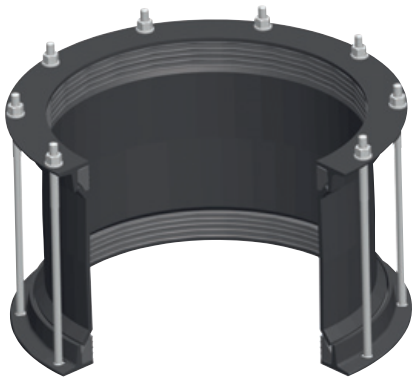
MaxiFit Large Diameter

Design Benefits

Simple to Fit

All Large Diameter MaxiFit, MaxiStep & MaxiDaptor products (DN350 – DN600) have a long sleeve length as standard; this is a major benefit to the installer, allowing for greater cutting tolerances and a greater pipe insertion depth sealing beyond corrosion damaged pipe ends to create a safe and permanent repair.





MaxiCap & MaxiThread End Cap

Design Benefits

Dual Purpose

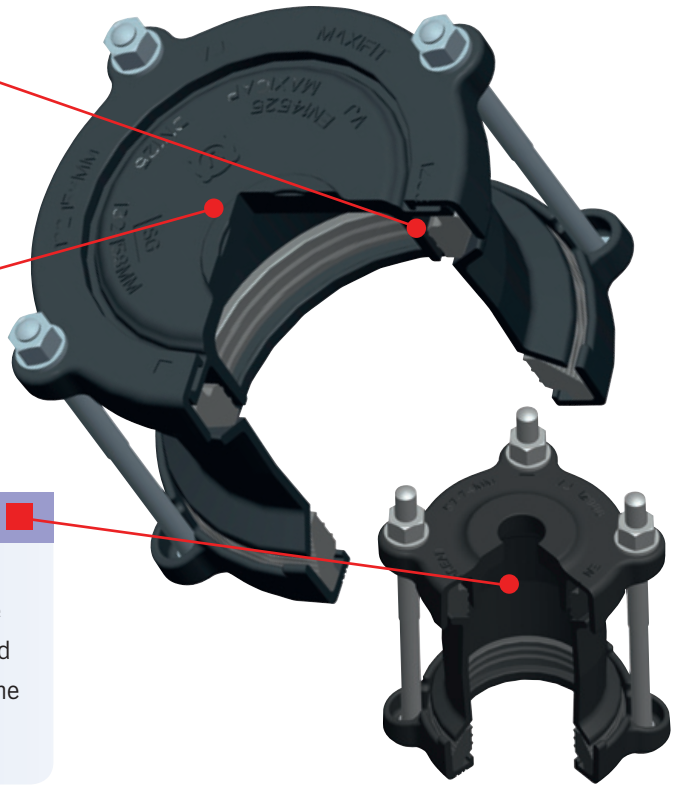
The MaxiCap end cap fits inside the end ring to the MaxiFit and can be drilled and tapped to form an outlet (up to 2” depending on size).

Enables Testing On-Site

Converts product to cap end for testing and blanking off, although the assembly must have suitable external support to prevent movement under pressure.

Connects to Threaded Pipe

The MaxiThread threaded end cap is designed to provide a connection between plain-ended and threaded pipe. Outlets are available with 1”, 1.25” and 1.5” BSP threads. It is constructed with a MaxiFit coupling body with one standard end ring and one threaded end ring.



United Kingdom - Lancashire

Hodder Aqueduct

MaxiStep Reducing Coupling - DN700

Project

Relining & Cleaning Scheme - The 28 mile Hodder Aqueduct was originally constructed in 1925 by Flyde Water Board to supply water to Blackpool from Stocks reservoir.

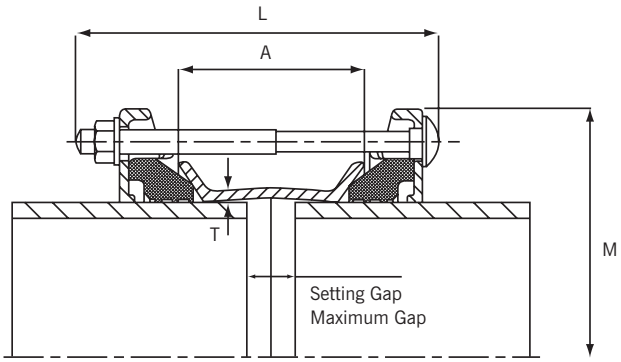
Client

United Utilities

MaxiFit & MaxiFit Xtra Couplings & End Caps

Specifications

Working Pressure = 16bar (water)
6bar (gas)



Coupling

Coupling - Standard Sleeve (MaxiFit)

Nominal Size (mm)	Size Range (mm)		Diameter (mm)	Overall Length (mm)	Sleeve Length x Thickness	Setting Gap (mm)	Max Gap (mm)	Bolts No.-Dia x Length	Gasket Mould No.	Weight (kg)	MaxiCap Available	Maximum Threaded Outlet
	Min	Max	M	L	(A) x (T)							
DN40	47.9	59.5	149.5	190.0	100.0 x 4.5	20.0	40.0	2-M12 x 180	1637	3.1		
DN50	57.0	74.0	154.5	190.0	95.0 x 4.5	20.0	40.0	4-M12 x 180	12392/1	3.0	✓	1”
DN65	63.0	85.0	173.5	190.0	95.0 x 4.5	20.0	40.0	4-M12 x 180	12392/2	3.6	✓	1”
DN80	85.0	107.0	195.5	190.0	95.0 x 4.5	20.0	40.0	4-M12 x 180	12392/3	4.1	✓	2”
DN100	107.0	132.0	224.5	190.0	95.0 x 4.5	20.0	40.0	4-M12 x 180	12392/4	4.8	✓	2”
DN125	132.0	158.0	254.5	190.0	95.0 x 5.0	20.0	40.0	4-M12 x 180	12392/6	6.0	✓	2”
DN150	158.0	184.0	280.5	190.0	95.0 x 5.0	20.0	40.0	4-M12 x 180	12392/7	6.9	✓	2”
DN175	189.0	212.0	306.5	230.0	130.0 x 5.0	25.0	50.0	4-M12 x 220	12392/9	9.4	✓	2”
DN200	218.0	244.0	342.5	230.0	130.0 x 5.0	25.0	50.0	4-M12 x 220	12392/10	10.9	✓	2”
DN225	243.0	269.0	367.5	230.0	130.0 x 5.0	25.0	50.0	6-M12 x 220	12392/11	12.4	✓	2”
DN250	266.0	295.0	399.5	230.0	130.0 x 5.0	25.0	50.0	6-M12 x 220	12392/12	14.6	✓	2”
DN300	315.0	349.0	462.5	230.0	130.0 x 5.0	25.0	50.0	8-M12 x 220	12392/14	19.4	✓	2”
Coupling - Long Sleeve (MaxiFit Xtra)												
DN50	57.0	74.0	154.5	285.0	200.0 x 5.5	20.0	140.0	4-M12 x 275	12392/1	4.6	✓	1”
DN65	63.0	85.0	173.5	285.0	190.0 x 5.5	20.0	130.0	4-M12 x 275	12392/2	5.2	✓	1”
DN80	85.0	107.0	195.5	285.0	200.0 x 5.5	20.0	140.0	4-M12 x 275	12392/3	6.3	✓	2”
DN100	107.0	132.0	224.5	285.0	190.0 x 5.5	20.0	130.0	4-M12 x 275	12392/4	7.2	✓	2”
DN125	132.0	158.0	254.5	285.0	190.0 x 6.0	20.0	130.0	4-M12 x 275	12392/6	9.0	✓	2”
DN150	158.0	184.0	280.5	285.0	190.0 x 6.0	20.0	130.0	4-M12 x 275	12392/7	10.3	✓	2”
DN175	189.0	212.0	306.5	285.0	190.0 x 6.0	25.0	110.0	4-M12 x 275	12392/9	12.1	✓	2”
DN200	218.0	244.0	342.5	285.0	190.0 x 6.0	25.0	110.0	4-M12 x 275	12392/10	14.1	✓	2”
DN225	243.0	269.0	367.5	350.0	250.0 x 6.0	25.0	165.0	6-M12 x 340	12392/11	18.6	✓	2”
DN250	266.0	295.0	399.5	350.0	250.0 x 6.0	25.0	165.0	6-M12 x 340	12392/12	21.4	✓	2”
DN300	315.0	349.0	462.5	350.0	240.0 x 6.0	25.0	155.0	8-M12 x 340	12392/14	27.0	✓	2”

Materials & Relevant Standards

End Ring and Adaptor Body/Centre Sleeve
Ductile Iron to BS EN 1563:1997 Symbol EN GJS-450-10

Gasket
EPDM compound Grade E to BS EN 681-1:1996, Type WA, WC
Nitrile compound to Grade G BS EN 682:2002, Type G

Tee Bolts/Bolts
Steel to BS EN ISO 898-1:2009 Property Class 4.8

Bolt Torque/Spanner
Bolt torque 55-65Nm, Spanner size A/F 19mm

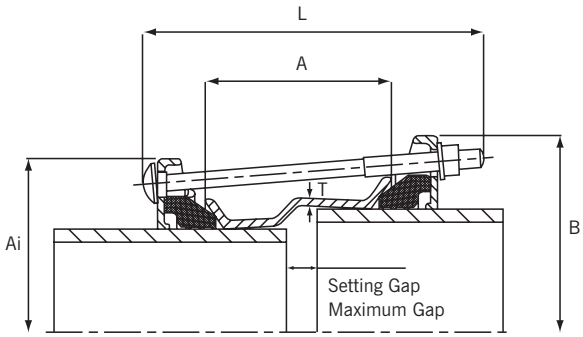
Nuts
Steel to BS EN 4190:2001 Grade 4

Washers
Stainless Steel to BS 1449:Part 2: 1983 Grade 304S15 Standard

MaxiFit Stepped Couplings

Specifications

Working Pressure = 16bar (water)
6bar (gas)



Stepped Coupling

Size Range (mm) Small End		Size Range (mm) Large End		Diameter (mm)		Overall Length (mm)	Sleeve Length x Thickness	Setting Gap (mm)	Max Gap (mm)	Bolts No.-Dia x Length	Gasket Mould No.		Weight (kg)
Min	Max	Min	Max	Ai	B	L	(A) x (T)				Small End	Large End	
57.0	74.0	63.0	85.0	154.5	173.5	210.0	110.0 x 4.5	20.0	40.0	4-M12 x 200	12392/1	12392/2	3.5
57.0	74.0	85.0	107.0	154.5	195.5	210.0	110.0 x 4.5	20.0	40.0	4-M12 x 200	12392/1	12392/3	3.9
63.0	85.0	85.0	107.0	173.5	195.5	210.0	110.0 x 4.5	20.0	40.0	4-M12 x 200	12392/2	12392/3	4.2
85.0	107.0	107.0	132.0	195.5	224.5	210.0	110.0 x 4.5	20.0	40.0	4-M12 x 200	12392/3	12392/4	4.8
107.0	132.0	132.0	158.0	224.5	254.5	220.0	120.0 x 4.5	20.0	40.0	4-M12 x 210	12392/4	12392/6	6.2
132.0	158.0	158.0	184.0	254.5	280.5	220.0	120.0 x 5.0	20.0	40.0	4-M12 x 210	12392/6	12392/7	7.2
158.0	184.0	189.0	212.0	280.5	306.5	230.0	130.0 x 5.0	25.0	50.0	4-M12 x 220	12392/7	12392/9	8.8
189.0	212.0	218.0	244.0	306.5	342.5	230.0	130.0 x 5.0	25.0	50.0	4-M12 x 220	12392/9	12392/10	10.4
218.0	244.0	243.0	269.0	342.5	367.5	230.0	130.0 x 5.0	25.0	50.0	6-M12 x 220	12392/10	12392/11	12.2
243.0	269.0	266.0	295.0	367.5	399.5	230.0	130.0 x 5.0	25.0	50.0	6-M12 x 220	12392/11	12392/12	13.7

Materials & Relevant Standards

End Ring and Adaptor Body/Centre Sleeve
Ductile Iron to BS EN 1563:1997 Symbol EN GJS-450-10

Gasket
EPDM compound Grade E to BS EN 681-1:1996, Type WA, WC
Nitrile compound to Grade G BS EN 682:2002, Type G

Tee Bolts/Bolts
Steel to BS EN ISO 898-1:2009 Property Class 4.8

Bolt Torque/Spanner
Bolt torque 55-65Nm, Spanner size A/F 19mm

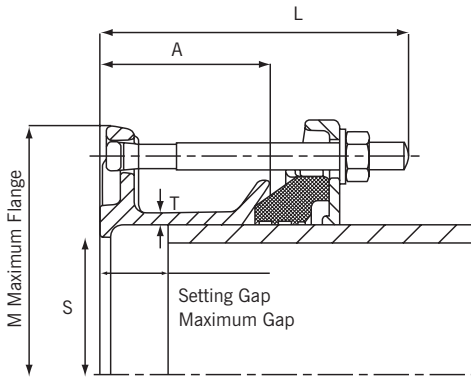
Nuts
Steel to BS EN 4190:2001 Grade 4

Washers
Stainless Steel to BS 1449:Part 2: 1983 Grade 304S15 Standard

MaxiFit Flange Adaptors

Specifications

Working Pressure = 16bar (water)
6bar (gas)



Flange Adaptor

Size Range (mm)		Diameter (mm)	Bores (mm)	Overall Length (mm)	Sleeve Length x Thickness	Flange Drilling	Setting Gap (mm)	Max Gap (mm)	Bolts No.-Dia x Length	Gasket Mould No.	Weight (kg)
Min	Max	M	S	L	(A) x (T)						
57.0	74.0	163.4	59.0	124.0	75.0 x 4.5	50 PN10:16, 2.5" BS10 Table ADE, 2" ANSI125	20.0	40.0	4-M12 x 115	12392/1	2.7
63.0	85.0	196.9	75.0	124.0	75.0 x 4.5	60 PN10:16, 65 PN10:16, 80 PN10:16, 3" BS10 Table ADE, 2.5" ANSI125, 3" ANSI125 80 AS2129 CD, 80 AS4087 E	20.0	40.0	4-M12 x 115	12392/2	3.5
85.0	107.0	202.5	101.0	124.0	75.0 x 4.5	80 PN10:16, 3"ANSI125, 3.5" BS10 Table AD, 3.5" BS10 Table E	20.0	40.0	4-M12 x 115	12392/3	3.7
107.0	132.0	228.0	121.0	134.0	75.0 x 4.5	100 PN 10:16, 4" BS10 Table AD, 4" BS10 Table E, 4" AWWA C207 D, 100 AS2129 CD, 100 AS4087 E	20.0	40.0	4-M12 x 125	12392/4	4.4
132.0	158.0	281.5	150.0	134.0	75.0 x 5.0	125 PN10:16, 150 PN10:16 5" BS10 Table A, 5" BS10 Table DE, 6" BS10 Table A, 6" BS10 Table D, 6" BS10 Table E, 6" AWWA C207 D, 125 AS2129 CD, 150 AS2129 CD, 125 AS4087 E, 150 AS4087 E	20.0	40.0	4-M12 x 125	12392/6	5.6
158.0	184.0	281.2	173.0	134.0	75.0 x 5.0	150 PN10:16, 6" BS10 Table A, 6" BS10 Table D, 6" AWWA, C207 D, 150 AS4087 E, 150 AS2129 CD,	20.0	40.0	4-M12 x 125	12392/7	6.0
189.0	212.0	336.5	202.0	133.0	75.0 x 5.0	200 PN10:16, 8" BS10 Table AD, 8" AWWA C207 D, 200 AS2129 CD, 200 AS4087 E	25.0	40.0	4-M12 x 125	12392/9	8.3
218.0	244.0	337.8	225.0	134.0	75.0 x 5.0	200 PN10:16, 8" BS10 Table AD, 8" AWWA C207 D, 200 AS2129 CD	25.0	40.0	4-M12 x 125	12392/10	8.3
243.0	269.0	401.5	252.0	144.0	85.0 x 5.0	250 PN10:16, 250 AS4087 E	25.0	50.0	6-M12 x 135	12392/11	10.9
266.0	295.0	402.1	277.0	146.0	85.0 x 5.0	250 PN10:16, 250 AS4087 E	25.0	50.0	6-M12 x 135	12392/12	11.4
315.0	349.0	457.8	329.0	155.0	100.0 x 5.0	300 PN10:16, 12" BS10 Table D, 300 AS2129 CD	25.0	60.0	6-M12 x 145	12392/14	14.8

Materials & Relevant Standards

End Ring and Adaptor Body/Centre Sleeve
Ductile Iron to BS EN 1563:1997 Symbol EN GJS-450-10

Gasket
EPDM compound Grade E to BS EN 681-1:1996, Type WA, WC
Nitrile compound to Grade G BS EN 682:2002, Type G

Tee Bolts/Bolts
Steel to BS EN ISO 898-1:2009 Property Class 4.8

Bolt Torque/Spanner
Bolt torque 55-65Nm, Spanner size A/F 19mm

Nuts
Steel to BS EN 4190:2001 Grade 4

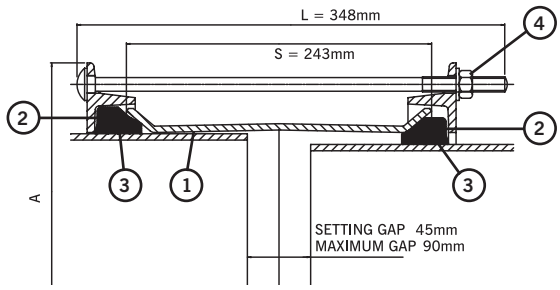
Washers
Stainless Steel to BS 1449:Part 2: 1983 Grade 304S15 Standard

MaxiFit Large Diameter Couplings

Specifications

1 = Sleeve 2 = End Ring
3 = Gasket 4 = Bolts, Nuts & Washer

Working Pressure = 16bar (water)
6bar (gas)



Coupling

OD Range		Dimensions	Gasket Mould No.	Bolts No.-Dia x Length	Weight (kg)
Min (mm)	Max (mm)	End Ring Diameter A (mm)			
351.0	368.0	478.0	6002	8-M12 x 340	30.1
374.5	391.5	501.5	1659	8-M12 x 340	31.9
386.0	403.0	513.0	6035	8-M12 x 340	32.6
394.3	411.3	521.5	1766	8-M12 x 340	33.2
404.8	421.8	532.0	1767	8-M12 x 340	34.0
412.0	429.0	539.0	6023	10-M12 x 340	35.1
418.2	435.2	545.0	1784	8-M12 x 340	34.9
425.0	442.0	552.0	1662	8-M12 x 340	35.5
434.5	451.5	561.5	1768	10-M12 x 340	37.0
439.0	456.0	566.0	6036	10-M12 x 340	37.3
447.2	464.2	574.0	1769	10-M12 x 340	37.9
455.0	472.0	582.0	6003	10-M12 x 340	38.5
467.0	484.0	594.0	6073	10-M12 x 340	39.3
476.0	493.0	603.0	1770	10-M12 x 340	39.9
487.0	504.3	614.5	1771	10-M12 x 340	40.7
492.0	509.0	619.0	6037	10-M12 x 340	41.1
501.9	518.9	629.0	1772	10-M12 x 340	41.8
510.0	527.0	637.0	6004	10-M12 x 340	42.3
515.0	532.0	642.0	6024	10-M12 x 340	42.8
527.0	544.0	654.0	1773	12-M12 x 340	44.1
540.1	557.1	667.0	1774	10-M12 x 340	44.5
546.0	563.0	673.0	6038	12-M12 x 340	45.5
555.3	572.3	682.5	1775	12-M12 x 340	46.1
565.0	582.0	692.0	1776	12-M12 x 340	46.8
582.2	599.2	709.0	1777	12-M12 x 340	48.0
593.0	610.0	720.0	6021	12-M12 x 340	48.8
601.0	618.0	728.0	6020	12-M12 x 340	49.4
613.0	630.0	740.0	6019	12-M12 x 340	50.3
618.0	635.0	745.0	6025	12-M12 x 340	50.6
630.0	647.0	757.0	1778	14-M12 x 340	52.0
645.2	662.2	772.0	1779	14-M12 x 340	53.0
654.0	671.0	781.0	6039	14-M12 x 340	53.8
662.0	679.0	789.0	1780	14-M12 x 340	54.3
675.0	692.0	802.0	6005	14-M12 x 340	55.2
689.0	706.0	816.0	10511/49	14-M12 x 340	56.3
695.0	712.0	822.0	6063	14-M12 x 340	56.7
710.0	727.0	837.0	6075	14-M12 x 340	57.7

Materials & Relevant Standards

Sleeve
Rolled Steel to BS EN 10025-2:2004 Grade S275

End Ring
Rolled Steel to BS EN 10025-2:2004 Grade S275

Gasket
EPDM Grade "E" to BS EN 681-1 1996 Type WA WRAS Listed

Bolts, Nuts & Washer
Bolts - Steel to BS EN ISO 898-1:2009 Property Class 4.8
Nuts - Steel to BS EN 4190:2001 Grade 4
Washer - Stainless Steel to BS 1449:Part 2:1983 Grade 304 S15

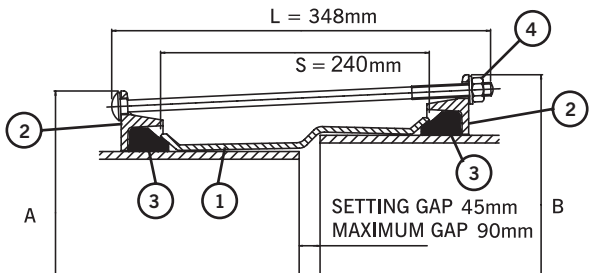
Coating
Sleeve & End Ring = Rilsan Nylon 11 to WIS 4-52-01 Part 1
Bolts & Nuts = Sheraplex to WIS 4-52-03

MaxiFit Large Diameter Expanded Sleeve Stepped Couplings

Specifications

1 = Sleeve 2 = End Ring
3 = Gasket 4 = Bolts, Nuts & Washer

Working Pressure = 16bar (water)
6bar (gas)



Extended Sleeve Stepped Coupling

OD Range				Gasket Mould No.		Bolts No.-Dia x Length	Dimensions		Weight (kg)
Small End		Large End		Small End	Large End		End Ring Diameter		
Min (mm)	Max (mm)	Min (mm)	Max (mm)				Small End A (mm)	Large End B (mm)	
374.5	391.5	394.3	411.3	1659	1766	8-M12 x 340	501.5	521.5	32.1
374.5	391.5	404.8	421.8	1659	1767	8-M12 x 340	501.5	532.0	32.4
374.5	391.5	418.2	435.2	1659	1784	10-M12 x 340	501.5	545.0	33.1
386.0	403.0	412.0	429.0	6035	6023	10-M12 x 340	513.0	539.0	33.6
394.3	411.3	418.2	435.2	1766	1784	10-M12 x 340	521.5	545.0	34.1
404.8	421.8	418.2	435.2	1767	1784	10-M12 x 340	532.0	545.0	34.7
404.8	421.8	425.0	442.0	1767	1662	10-M12 x 340	532.0	552.0	34.8
425.0	442.0	434.5	451.4	1662	1768	10-M12 x 340	552.0	561.5	36.3
425.0	442.0	447.2	464.2	1662	1769	10-M12 x 340	552.0	574.0	36.5
425.0	442.0	455.0	472.0	1662	6003	10-M12 x 340	552.0	582.0	36.6
439.0	456.0	467.0	484.0	6036	6073	10-M12 x 340	566.0	594.0	37.8
455.0	472.0	467.0	484.0	6003	6073	10-M12 x 340	582.0	594.0	38.7
476.0	493.0	487.3	504.3	1770	1771	10-M12 x 340	603.0	614.5	40.1
476.0	493.0	501.9	518.9	1770	1772	10-M12 x 340	603.0	629.0	40.4
476.0	493.0	510.0	527.0	1770	6004	10-M12 x 340	603.0	637.0	40.5
492.0	509.0	510.0	527.0	6037	6004	10-M12 x 340	619.0	637.0	41.4
492.0	509.0	527.0	544.0	6037	1773	12-M12 x 340	619.0	654.0	42.2
501.9	518.9	527.0	544.0	1772	1773	12-M12 x 340	629.0	654.0	42.8
510.0	527.0	527.0	544.0	6004	1773	12-M12 x 340	637.0	654.0	43.1
527.0	544.0	540.1	557.1	1773	1774	12-M12 x 340	654.0	667.0	44.3
527.0	544.0	555.3	572.3	1773	1775	12-M12 x 340	654.0	682.5	44.6
527.0	544.0	566.5	583.5	1773	1776	12-M12 x 340	654.0	693.5	44.8
527.0	544.0	573.0	590.0	1773	6129	12-M12 x 340	654.0	700.0	44.9
527.0	544.0	582.2	599.2	1773	1777	12-M12 x 340	654.0	709.0	45.1
546.0	563.0	590.5	607.5	6038	6074	12-M12 x 340	673.0	717.5	46.3
598.0	615.0	630.0	647.0	6130	1778	14-M12 x 340	725.0	757.0	50.3
601.0	618.0	630.0	647.0	6020	1778	14-M12 x 340	728.0	757.0	50.4
601.0	618.0	645.2	662.2	6020	1779	14-M12 x 340	728.0	772.0	50.7
618.0	635.0	630.0	647.0	6025	1778	14-M12 x 340	745.0	757.0	51.3
630.0	647.0	645.2	662.2	1778	1779	14-M12 x 340	757.0	772.0	52.3
630.0	647.0	654.0	671.0	1778	6039	14-M12 x 340	757.0	781.0	52.4
630.0	647.0	662.0	679.0	1778	1780	14-M12 x 340	757.0	789.0	52.6
630.0	647.0	675.0	692.0	1778	6005	14-M12 x 340	757.0	802.0	52.8
654.0	671.0	710.0	727.0	6039	6075	14-M12 x 340	781.0	837.0	54.7
733.0	750.0	741.0	758.0	10511/46	10511/51	16-M12 x 340	860.0	868.0	60.1

Materials & Relevant Standards

Make Up Ring Sleeve

Mild Steel to BS EN 10025-2:2004 Grade S275
Rolled Steel to BS EN 10025-2:2004 Grade S275

End Ring

Rolled Steel to BS EN 10025-2:2004 Grade S275

Gasket

EPDM Grade "E" to BS EN 681-1 1996 Type WA WRAS Listed

Bolts, Nuts & Washer

Bolts - Steel to BS EN ISO 898-1:2009 Property Class 4.8
Nuts - Steel to BS EN 4190:2001 Grade 4
Washer - Stainless Steel to BS 1449:Part 2:1983 Grade 304 S15

Coating

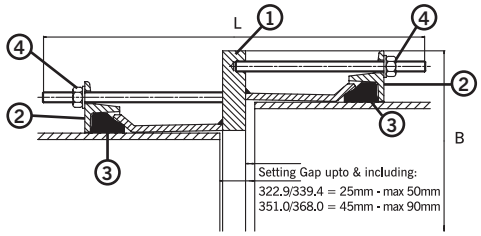
Sleeve & End Ring = Rilsan Nylon 11 to WIS 4-52-01 Part 1
Bolts & Nuts = Sheraplex to WIS 4-52-03

MaxiFit Large Diameter Make Up Ring Stepped Couplings

Specifications

Working Pressure = 16bar (water)
6bar (gas)

1 = Make Up Ring Sleeve
2 = End Ring
3 = Gasket
4 = Stud, Nut & Washer



Make Up Ring Stepped Couplings

OD Range				Gasket Mould		Studs		Dimensions		Weight (Kg)
Small End		Large End		Small End	Large End	Small End No.-Dia x Length	Large End No.-Dia x Length	Overall Diameter B (mm)	Overall Length L (mm)	
Min (mm)	Max (mm)	Min (mm)	Max (mm)							
315.0	332.0	351.0	368.0	1738	6002	8-M12 x 125	8-M12 x 205	478	326	39.3
315.0	332.0	367.0	384.0	1738	6097	8-M12 x 125	8-M12 x 190	494	316	45.6
315.0	332.0	374.5	391.5	1738	1659	8-M12 x 125	8-M12 x 205	502	335	47.3
315.0	332.0	404.8	421.8	1738	1767	8-M12 x 125	8-M12 x 205	532	335	53.1
315.0	332.0	418.2	435.2	1738	1784	8-M12 x 125	10-M12 x 205	545	337	58.6
322.9	339.4	374.5	391.5	1657	1659	8-M12 x 125	8-M12 x 205	502	331	46.7
351.0	368.0	367.0	384.0	6002	6097	8-M12 x 205	8-M12 x 205	494	410	43.7
351.0	368.0	374.5	391.5	6002	1659	8-M12 x 205	8-M12 x 205	502	410	44.9
351.0	368.0	394.3	411.3	6002	1766	8-M12 x 205	8-M12 x 205	522	410	48.1
351.0	368.0	527.0	544.0	6002	1773	8-M12 x 205	12-M12 x 205	654	423	96.0
367.0	384.0	374.5	391.5	6097	1659	8-M12 x 205	8-M12 x 205	502	410	44.2
374.5	391.5	412.0	429.0	1659	6023	8-M12 x 205	10-M12 x 205	539	410	54.0
374.5	391.5	425.0	442.0	1659	1662	8-M12 x 205	10-M12 x 205	552	411	56.6
394.3	411.3	404.8	421.8	1766	1767	8-M12 x 205	8-M12 x 205	532	410	47.1
394.3	411.3	425.0	442.0	1766	1662	8-M12 x 205	10-M12 x 205	552	410	50.8
394.3	411.3	447.2	464.2	1766	1769	8-M12 x 205	10-M12 x 205	574	415	59.6
404.8	421.8	434.5	451.5	1767	1768	8-M12 x 205	10-M12 x 205	562	420	51.9
404.8	421.8	439.0	456.0	1767	6036	8-M12 x 205	10-M12 x 205	566	415	56.9
404.8	421.8	447.2	464.5	1767	1769	8-M12 x 205	10-M12 x 205	574	415	58.6
404.8	421.8	467.0	484.0	1767	6073	8-M12 x 205	10-M12 x 205	594	415	62.8
412.0	429.0	425.0	442.0	6023	1662	10-M12 x 205	10-M12 x 205	552	410	50.0
418.2	435.2	434.5	451.5	1784	1768	10-M12 x 205	10-M12 x 205	562	411	51.3
418.2	435.2	455.0	472.0	1784	6003	10-M12 x 205	10-M12 x 205	582	415	59.4
425.0	442.0	476.0	493.0	1662	1770	10-M12 x 205	10-M12 x 205	603	411	63.2
425.0	442.0	487.0	504.0	1662	1771	10-M12 x 205	10-M12 x 205	615	411	65.7
425.0	442.0	527.0	544.0	1662	1773	10-M12 x 205	12-M12 x 205	654	392	81.6
425.0	442.0	555.3	572.3	1662	1775	10-M12 x 205	12-M12 x 205	683	421	92.3
425.0	442.0	565.0	582.0	1662	1776	10-M12 x 205	12-M12 x 205	692	422	95.9
439.0	456.0	527.0	544.0	6036	1773	10-M12 x 205	12-M12 x 205	654	419	78.7
447.2	464.2	476.0	493.0	1769	1770	10-M12 x 205	10-M12 x 205	603	410	56.7
447.2	464.2	487.0	504.3	1769	1771	10-M12 x 205	10-M12 x 205	615	415	63.7
447.2	464.4	455.0	472.0	1769	6003	10-M12 x 205	10-M12 x 205	582	411	52.9
476.0	493.0	527.0	544.0	1770	1773	10-M12 x 205	12-M12 x 205	654	415	69.7
492.0	509.0	555.3	572.3	6037	1775	10-M12 x 205	12-M12 x 205	683	416	76.1
501.9	518.9	540.1	557.1	1772	1774	10-M12 x 205	12-M12 x 205	667	411	69.7
527.0	544.0	598.0	615.0	1773	6130	12-M12 x 205	12-M12 x 205	725	413	83.9
527.0	544.0	601.0	618.0	1773	6020	12-M12 x 205	12-M12 x 205	728	417	85.2
527.0	544.0	630.0	647.0	1773	1778	12-M12 x 205	14-M12 x 205	757	422	101.0
527.0	544.0	645.2	662.2	1773	1779	12-M12 x 205	14-M12 x 205	772	423	108.0
527.0	544.0	675.0	692.0	1773	6005	12-M12 x 205	14-M12 x 205	802	412	122.0
565.0	582.0	582.2	599.2	1776	1777	12-M12 x 205	12-M12 x 205	709	401	67.0
565.0	582.0	601.0	618.0	1776	6020	12-M12 x 205	12-M12 x 205	728	415	76.5
566.5	583.5	601.0	618.0	1776	6020	12-M12 x 205	12-M12 x 205	728	415	76.5
582.2	599.2	601.0	618.0	1777	6020	12-M12 x 205	12-M12 x 205	728	410	69.1
582.2	599.2	630.0	647.0	1777	1778	12-M12 x 205	14-M12 x 205	757	421	83.2
598.0	615.0	630.0	647.0	6130	1778	14-M12 x 205	14-M12 x 205	757	411	80.0
601.0	618.0	630.0	647.0	6020	1778	14-M12 x 205	14-M12 x 205	757	411	79.5
601.0	618.0	675.0	692.0	6020	6005	14-M12 x 205	14-M12 x 205	802	419	99.0
630.0	647.0	689.0	706.0	1778	10511/49	14-M12 x 205	14-M12 x 205	816	418	94.9
630.0	647.0	710.0	727.0	1778	6075	14-M12 x 205	14-M12 x 205	837	420	106.0

Materials & Relevant Standards

Make Up Ring Sleeve

Mild Steel to BS EN 10025-2:2004 Grade S275
Rolled Steel to BS EN 10025-2:2004 Grade S275

End Ring

Rolled Steel to BS EN 10025-2:2004 Grade S275

Gasket

EPDM Grade "E" to BS EN 681-1 1996 Type WA WRAS Listed

Bolts, Nuts & Washer

Bolts - Steel to BS EN ISO 898-1:2009 Property Class 4.8

Nuts - Steel to BS EN 4190:2001 Grade 4
Washer - Stainless Steel to BS 1449:Part 2:1983 Grade 304 S15

Coating

Sleeve & End Ring = Rilsan Nylon 11 to WIS 4-52-01 Part 1
Bolts & Nuts = Sheraplex to WIS 4-52-03

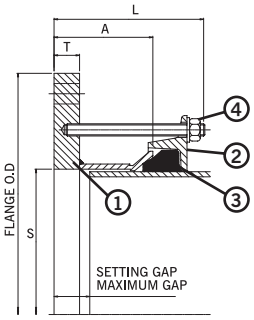
MaxiFit Large Diameter Flange Adaptor PN10

Specifications

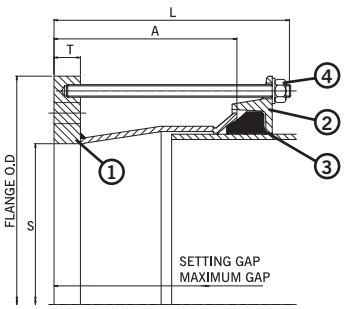
1 = Make Up Ring Sleeve
2 = End Ring
3 = Gasket
4 = Stud, Nut & Washer

Working Pressure = 16bar (water)
6bar (gas)

TYPE 1



TYPE 2



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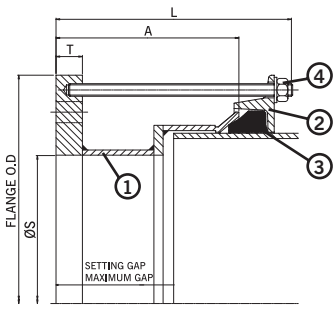


Flange Adaptor PN10

OD Range		Flange Details								Gasket Mould No.	Studs No.-Dia x Length	Setting Gap		Weight (kg)
Min (mm)	Max (mm)	Nom.	Drilling	Flange Diameter OD (mm)	Flange Bore S (mm)	Flange Thickness T (mm)	Type	Sleeve Length A (mm)	Overall Length L (mm)			Min (mm)	Max (mm)	
351.0	368.0	300	PN10	478.0	300.0	18	3	205	298	6002	6-M12 x 290	130	153	36.6
351.0	368.0	350	PN10	505.0	350.0	18	1	120	218	6002	8-M12 x 205	45	68	27.4
351.0	368.0	350	PN10	505.0	370.0	18	1	120	218	6002	8-M12 x 205	45	68	28.9
367.0	384.0	300	PN10	494.0	300.0	18	3	235	313	6097	6-M12 x 305	160	183	41.4
367.0	384.0	350	PN10	505.0	350.0	18	1	120	213	6097	8-M12 x 205	45	68	29.5
374.5	391.5	300	PN10	501.0	300.0	18	3	205	298	1659	6-M12 x 290	130	153	41.2
374.5	391.5	350	PN10	505.0	350.0	18	1	120	213	1659	8-M12 x 205	45	68	29.8
374.5	391.5	350	PN10	505.0	393.5	18	1	120	218	1659	8-M12 x 205	45	68	26.2
374.5	391.5	400	PN10	565.0	393.5	25	1	120	218	1659	8-M12 x 205	45	68	39.4
394.3	411.3	350	PN10	522.0	350.0	18	2	205	303	1766	8-M12 x 290	130	153	37.4
394.3	411.3	350	PN10	505.0	397.5	18	2	205	303	1766	8-M12 x 290	130	153	33.5
394.3	411.3	400	PN10	565.0	400.0	25	1	120	220	1766	8-M12 x 205	45	68	39.3
394.3	411.3	400	PN10	565.0	413.5	25	1	120	220	1766	8-M12 x 205	45	68	37.6
404.8	421.8	350	PN10	532.0	350.0	18	3	235	313	1767	8-M12 x 305	160	183	44.3
404.8	421.8	400	PN10	565.0	400.0	18	1	120	213	1767	8-M12 x 205	45	68	33.4
404.8	421.8	400	PN10	565.0	424.0	18	1	120	218	1767	8-M12 x 205	45	68	31.2
418.2	435.2	400	PN10	565.0	400.0	18	1	120	213	1784	8-M12 x 205	45	68	33.8
418.2	435.2	400	PN10	565.0	437.0	18	1	120	218	1784	8-M12 x 205	45	68	30.4
425.0	442.0	350	PN10	552.0	350.0	18	3	235	313	1662	8-M12 x 305	160	183	48.5
425.0	442.0	400	PN10	565.0	400.0	18	1	120	218	1662	8-M12 x 205	45	68	34.1
425.0	442.0	400	PN10	565.0	444.0	18	1	120	218	1662	8-M12 x 205	45	68	30.0
434.4	451.4	400	PN10	565.0	400.0	18	2	205	298	1768	8-M12 x 290	130	153	40.4
434.4	451.4	400	PN10	565.0	448.0	18	2	205	298	1768	8-M12 x 290	130	153	35.9
447.2	464.2	400	PN10	575.0	400.0	18	2	205	298	1769	8-M12 x 290	130	153	41.9
447.2	464.2	400	PN10	575.0	448.0	18	2	205	298	1769	8-M12 x 290	130	153	37.4
455.0	472.0	400	PN10	582.0	400.0	18	3	240	333	6003	8-M12 x 325	165	188	48.7
455.0	472.0	450	PN10	615.0	450.0	23	1	120	213	6003	10-M12 x 205	45	68	42.0
455.0	472.0	450	PN10	615.0	474.0	23	1	120	218	6003	10-M12 x 205	45	68	38.9
467.0	484.0	400	PN10	594.0	400.0	23	3	205	303	6073	8-M12 x 290	130	153	54.7
467.0	484.0	450	PN10	615.0	450.0	23	1	120	218	6073	10-M12 x 205	45	68	42.4
476.0	493.0	400	PN10	603.0	400.0	23	3	240	338	1770	8-M12 x 325	170	193	60.6
476.0	493.0	450	PN10	615.0	450.0	23	1	120	218	1770	10-M12 x 205	45	68	42.7
476.0	493.0	450	PN10	615.0	495.0	23	1	120	218	1770	10-M12 x 205	45	68	36.7
476.0	493.0	500	PN10	670.0	495.0	25	1	120	218	1770	10-M12 x 205	45	68	49.0
487.3	504.3	400	PN10	615.0	400.0	23	3	245	338	1771	8-M12 x 325	170	193	63.8
487.3	504.3	450	PN10	615.0	450.0	23	2	205	303	1771	10-M12 x 290	130	153	49.8
487.3	504.3	450	PN10	615.0	499.0	23	2	205	303	1771	10-M12 x 290	130	153	43.2

Materials & Relevant Standards

Flange Adaptor Body
Mild Steel to BS EN 10025-2:2004 Grade S275

End Ring
Rolled Steel to BS EN 10025-2:2004 Grade S275

Gasket
EPDM Grade "E" to BS EN 681-1 1996 Type WA WRAS Listed

Studs, Nuts & Washer
Studs - Steel to BS EN ISO 898-1:2009 Property Class 4.8
Nuts - Steel to BS EN 4190:2001 Grade 4
Washer - Stainless Steel to BS 1449:Part 2:1983 Grade 304 S15

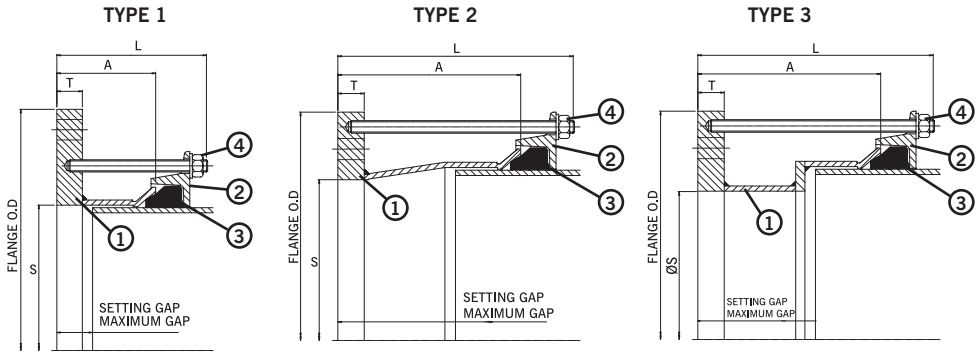
Coating
Flange Adaptor Body & End Ring = Rilsan Nylon 11 to WIS 4-52-01 Part 1
Bolts & Nuts = Sheraplex to WIS 4-52-03

MaxiFit Large Diameter Flange Adaptor PN10 Continued

Specifications

1 = Make Up Ring Sleeve
2 = End Ring
3 = Gasket
4 = Stud, Nut & Washer

Working Pressure = 16bar (water)
6bar (gas)



Flange Adaptor PN10

OD Range		Flange Details								Gasket Mould No.	Studs No.-Dia x Length	Setting Gap		Weight (kg)
Min (mm)	Max (mm)	Nom.	Drilling	Flange Diameter OD (mm)	Flange Bore S (mm)	Flange Thickness T (mm)	Type	Sleeve Length A (mm)	Overall Length L (mm)			Min (mm)	Max (mm)	
487.3	504.3	500	PN10	670.0	500.0	23	1	120	218	1771	10-M12 x 205	45	68	46.4
492.0	509.0	500	PN10	670.0	511.0	23	1	120	218	6037	10-M12 x 205	45	68	45.0
501.9	518.9	450	PN10	630.0	450.0	23	2	205	303	1772	10-M12 x 290	130	153	52.3
501.9	518.9	450	PN10	615.0	485.5	23	2	205	303	1772	10-M12 x 290	130	153	47.6
501.9	518.9	500	PN10	670.0	500.0	23	1	120	218	1772	10-M12 x 205	45	68	47.0
501.9	518.9	500	PN10	670.0	521.0	23	1	120	218	1772	10-M12 x 205	45	68	43.9
510.0	527.0	450	PN10	637.0	450.0	23	2	205	303	6004	10-M12 x 290	130	153	53.9
510.0	527.0	450	PN10	637.0	494.0	23	2	205	303	6004	10-M12 x 290	130	153	48.0
510.0	527.0	500	PN10	670.0	500.0	23	1	120	220	6004	10-M12 x 205	45	68	47.2
527.0	544.0	500	PN10	670.0	500.0	23	1	120	218	1773	10-M12 x 205	45	68	47.8
527.0	544.0	500	PN10	670.0	546.0	23	1	120	218	1773	10-M12 x 205	45	68	47.1
540.1	557.1	450	PN10	667.0	450.0	23	3	250	338	1774	10-M12 x 325	175	198	71.2
540.1	557.1	500	PN10	670.0	500.0	23	2	205	303	1774	10-M12 x 290	130	153	55.0
540.1	557.1	500	PN10	670.0	550.0	23	2	205	303	1774	10-M12 x 290	130	153	47.6
555.3	572.3	500	PN10	684.0	500.0	23	2	205	303	1775	10-M12 x 290	130	153	58.2
555.3	572.3	500	PN10	684.0	550.0	23	2	205	303	1775	10-M12 x 290	130	153	50.8
566.5	583.5	500	PN10	694.0	500.0	23	2	205	303	1776	10-M12 x 290	130	153	60.5
566.5	583.5	500	PN10	694.0	550.0	23	2	205	303	1776	10-M12 x 290	130	153	53.1
582.2	599.2	500	PN10	709.0	500.0	23	3	205	303	1777	10-M12 x 290	130	153	72.6
582.2	599.2	500	PN10	670.0	540.0	23	3	205	303	1777	10-M12 x 290	130	153	64.5
582.2	599.2	600	PN10	780.0	600.0	25	1	120	218	1777	10-M12 x 205	45	68	59.1
601.0	618.0	500	PN10	728.0	500.0	23	3	255	338	6020	10-M12 x 325	180	203	81.3
601.0	618.0	600	PN10	780.0	600.0	25	1	120	218	6020	10-M12 x 205	45	68	59.8
618.0	635.0	600	PN10	780.0	600.0	23	1	120	218	6025	10-M12 x 205	45	68	57.5
630.0	647.0	600	PN10	780.0	600.0	23	1	120	218	1778	10-M12 x 205	45	68	58.0
630.0	647.0	600	PN10	780.0	649.0	23	1	120	218	1778	10-M12 x 205	45	68	49.4
645.2	662.2	600	PN10	780.0	600.0	23	2	205	303	1779	10-M12 x 290	130	153	66.8
645.2	662.2	600	PN10	780.0	649.0	23	2	205	303	1779	10-M12 x 290	130	153	58.1
662.0	679.0	600	PN10	790.0	600.0	23	2	205	298	1780	10-M12 x 290	130	153	69.3
662.0	679.0	600	PN10	790.0	653.0	23	2	205	303	1780	10-M12 x 290	130	153	60.0
675.0	692.0	600	PN10	802.0	600.0	23	2	205	303	6005	10-M12 x 290	130	153	72.3
675.0	692.0	600	PN10	802.0	653.0	23	2	205	303	6005	10-M12 x 290	130	153	63.0
689.0	706.0	600	PN10	816.0	600.0	23	3	260	338	10511/49	10-M12 x 325	185	210	90.3
695.0	712.0	700	PN10	895.0	714.0	23	1	120	218	6063	12-M12 x 205	45	68	66.1
699.0	716.0	700	PN10	895.0	718.0	23	1	120	218	10511/50	12-M12 x 205	45	68	65.5

Materials & Relevant Standards

Flange Adaptor Body
Mild Steel to BS EN 10025-2:2004 Grade S275

End Ring
Rolled Steel to BS EN 10025-2:2004 Grade S275

Gasket
EPDM Grade "E" to BS EN 681-1 1996 Type WA WRAS Listed

Studs, Nuts & Washer
Studs - Steel to BS EN ISO 898-1:2009 Property Class 4.8
Nuts - Steel to BS EN 4190:2001 Grade 4
Washer - Stainless Steel to BS 1449:Part 2:1983
Grade 304 S15

Coating
Flange Adaptor Body & End Ring = Rilsan Nylon 11 to WIS 4-52-01 Part 1
Bolts & Nuts = Sheraplex to WIS 4-52-03

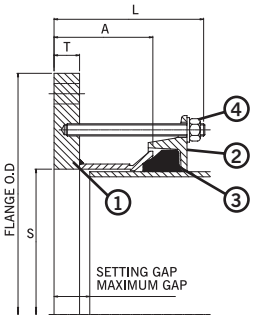
MaxiFit Large Diameter Flange Adaptor PN16

Specifications

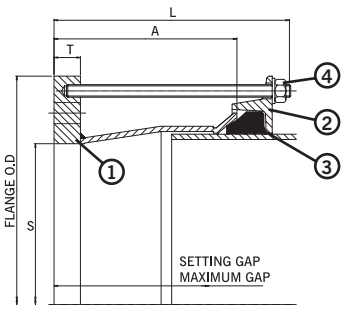
1 = Make Up Ring Sleeve
2 = End Ring
3 = Gasket
4 = Stud, Nut & Washer

Working Pressure = 16bar (water)
6bar (gas)

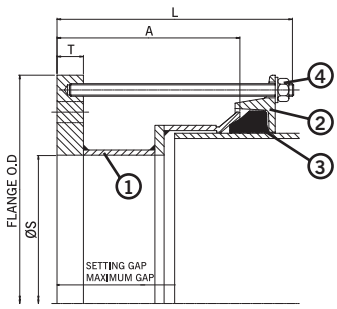
TYPE 1



TYPE 2



TYPE 3



MaxiDaptor PN16

OD Range		Flange Details								Gasket Mould No.	Studs No.-Dia x Length	Setting Gap		Weight (kg)
Min (mm)	Max (mm)	Nom.	Drilling	Flange Diameter OD (mm)	Flange Bore S (mm)	Flange Thickness T (mm)	Type	Sleeve Length A (mm)	Overall Length L (mm)			Min (mm)	Max (mm)	
348.5	365.5	350	PN16	520.0	367.5	18	2	120	218	6008	8-M12 x 205	45	68	28.5
351.0	368.0	300	PN16	478.0	300.0	18	3	240	333	6002	6-M12 x 325	165	188	38.5
351.0	368.0	300	PN16	478.0	329.0	18	3	240	333	6002	6-M12 x 325	165	188	36.5
351.0	368.0	350	PN16	520.0	370.0	18	1	120	218	6002	8-M12 x 205	45	68	28.6
374.5	391.5	300	PN16	502.0	300.0	18	3	240	333	1659	6-M12 x 325	160	183	43.1
374.5	391.5	350	PN16	520.0	350.0	18	1	120	218	1659	8-M12 x 205	45	68	31.0
374.5	391.5	350	PN16	520.0	393.5	18	1	120	218	1659	8-M12 x 205	45	68	27.5
374.5	391.5	400	PN16	580.0	393.5	25	1	120	218	1659	8-M12 x 205	45	68	41.6
394.3	411.3	350	PN16	522.0	350.0	18	2	205	298	1766	8-M12 x 290	130	153	37.1
394.3	411.3	350	PN16	520.0	397.5	18	2	205	303	1766	8-M12 x 290	130	153	33.1
394.3	411.3	400	PN16	580.0	413.5	25	1	120	220	1766	8-M12 x 205	45	68	39.8
404.8	421.8	400	PN16	580.0	400.0	18	1	120	213	1767	8-M12 x 205	45	68	34.9
404.8	421.8	400	PN16	580.0	424.0	18	1	120	218	1767	8-M12 x 205	45	68	32.8
418.2	435.2	400	PN16	580.0	437.0	18	1	120	218	1784	8-M12 x 205	45	68	32.0
425.0	442.0	400	PN16	580.0	400.0	18	1	120	218	1662	8-M12 x 205	45	68	35.7
425.0	442.0	400	PN16	580.0	444.0	18	1	120	218	1662	8-M12 x 205	45	68	31.6
434.4	451.4	400	PN16	580.0	448.0	18	2	205	303	1768	8-M12 x 290	130	153	37.4
447.2	464.2	400	PN16	580.0	400.0	18	2	205	303	1769	8-M12 x 290	130	153	42.2
447.2	464.2	400	PN16	580.0	448.0	18	2	205	303	1769	8-M12 x 290	130	153	37.7
455.0	472.0	400	PN16	582.0	400.0	18	2	205	298	6003	8-M12 x 290	130	153	42.6
455.0	472.0	450	PN16	640.0	450.0	23	1	120	218	6003	10-M12 x 205	45	68	46.0
455.0	472.0	450	PN16	640.0	474.0	23	1	120	218	6003	10-M12 x 205	45	68	42.8
462.5	479.5	400	PN16	590.0	440.0	25	2	205	303	10511/40	8-M12 x 290	130	153	45.7
467.0	484.0	450	PN16	640.0	486.0	23	1	120	218	6073	10-M12 x 205	45	68	41.6
476.0	493.0	400	PN16	603.0	400.0	23	3	255	338	1770	8-M12 x 325	180	203	60.8
476.0	493.0	450	PN16	640.0	495.0	23	1	120	218	1770	10-M12 x 205	45	68	40.7
487.3	504.3	450	PN16	640.0	506.5	23	1	120	218	1771	10-M12 x 205	45	68	39.4
487.3	504.3	500	PN16	715.0	506.5	23	1	120	218	1771	10-M12 x 205	45	68	53.2
501.9	518.9	450	PN16	640.0	485.5	23	2	205	303	1772	10-M12 x 290	130	153	48.7
501.9	518.9	500	PN16	715.0	500.0	23	1	120	218	1772	10-M12 x 205	45	68	54.7
501.9	518.9	500	PN16	715.0	521.0	23	1	120	218	1772	10-M12 x 205	45	68	51.7
510.0	527.0	450	PN16	640.0	494.0	23	2	205	303	6004	10-M12 x 290	130	153	47.9
510.0	527.0	500	PN16	715.0	500.0	23	1	120	218	6004	10-M12 x 205	45	68	54.9
527.0	544.0	500	PN16	715.0	500.0	23	1	120	218	1773	10-M12 x 205	45	68	55.6
527.0	544.0	500	PN16	715.0	546.0	23	1	120	218	1773	10-M12 x 205	45	68	48.8
540.1	557.1	500	PN16	715.0	559.0	23	1	120	218	1774	10-M12 x 205	45	68	47.2
555.3	572.3	500	PN16	715.0	550.0	23	2	205	303	1775	10-M12 x 290	130	153	56.0
555.3	572.3	600	PN16	840.0	649.5	25	1	120	218	1775	10-M12 x 205	45	68	62.3

Materials & Relevant Standards

Flange Adaptor Body
Mild Steel to BS EN 10025-2:2004 Grade S275

End Ring
Rolled Steel to BS EN 10025-2:2004 Grade S275

Gasket
EPDM Grade "E" to BS EN 681-1 1996 Type WA WRAS Listed

Studs, Nuts & Washer
Studs - Steel to BS EN ISO 898-1:2009 Property Class 4.8
Nuts - Steel to BS EN 4190:2001 Grade 4
Washer - Stainless Steel to BS 1449:Part 2:1983
Grade 304 S15

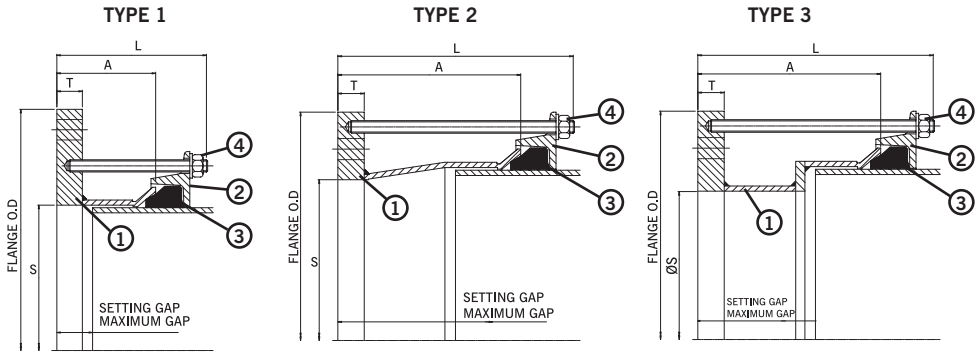
Coating
Flange Adaptor Body & End Ring = Rilsan Nylon 11 to WIS 4-52-01 Part 1
Bolts & Nuts = Sheraplex to WIS 4-52-03

MaxiFit Large Diameter Flange Adaptor PN16 Continued

Specifications

1 = Make Up Ring Sleeve
2 = End Ring
3 = Gasket
4 = Stud, Nut & Washer

Working Pressure = 16bar (water)
6bar (gas)



MaxiDaptor PN16 Continued

OD Range		Flange Details								Gasket Mould No.	Studs No.-Dia x Length	Setting Gap		Weight (kg)
Min (mm)	Max (mm)	Nom.	Drilling	Flange Diameter OD (mm)	Flange Bore S (mm)	Flange Thickness T (mm)	Type	Sleeve Length A (mm)	Overall Length L (mm)			Min (mm)	Max (mm)	
566.5	583.5	500	PN16	715.0	500.0	23	2	205	303	1776	10-M12 x 290	130	153	63.6
566.5	583.5	500	PN16	715.0	550.0	23	2	205	303	1776	10-M12 x 290	130	153	56.2
582.2	599.2	500	PN16	715.0	560.0	23	3	205	303	1777	10-M12 x 290	130	153	60.4
582.2	599.2	600	PN16	840.0	601.0	25	1	120	218	1777	10-M12 x 205	45	68	72.5
601.0	618.0	600	PN16	840.0	600.0	25	1	120	218	6020	10-M12 x 205	45	68	73.4
601.0	618.0	600	PN16	840.0	620.0	25	1	120	218	6020	10-M12 x 205	45	68	69.7
613.0	630.0	600	PN16	840.0	632.0	23	1	120	218	6019	10-M12 x 205	45	68	64.4
618.0	635.0	600	PN16	840.0	637.0	23	1	120	218	6025	10-M12 x 205	45	68	63.6
630.5	647.5	600	PN16	840.0	600.0	23	1	120	218	1778	10-M12 x 205	45	68	70.6
630.5	647.5	600	PN16	840.0	649.5	23	1	120	218	1778	10-M12 x 205	45	68	61.8
645.2	662.2	600	PN16	840.0	664.0	23	1	120	218	1779	10-M12 x 205	45	68	59.7
662.0	679.0	600	PN16	840.0	681.0	23	1	120	218	1780	10-M12 x 205	45	68	57.1
675.0	692.0	600	PN16	840.0	653.0	23	2	205	303	6005	10-M12 x 290	130	153	70.6

Materials & Relevant Standards

Flange Adaptor Body

Mild Steel to BS EN 10025-2:2004 Grade S275

End Ring

Rolled Steel to BS EN 10025-2:2004 Grade S275

Gasket

EPDM Grade "E" to BS EN 681-1 1996 Type WA WRAS Listed

Studs, Nuts & Washer

Studs - Steel to BS EN ISO 898-1:2009 Property Class 4.8
Nuts - Steel to BS EN 4190:2001 Grade 4
Washer - Stainless Steel to BS 1449:Part 2:1983
Grade 304 S15

Coating

Flange Adaptor Body & End Ring = Rilsan Nylon 11 to WIS 4-52-01 Part 1
Bolts & Nuts = Sheraplex to WIS 4-52-03

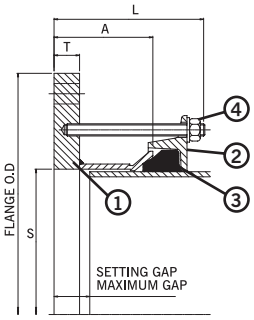
MaxiFit Large Diameter Flange Adaptor ANSI Flange Drilling

Specifications

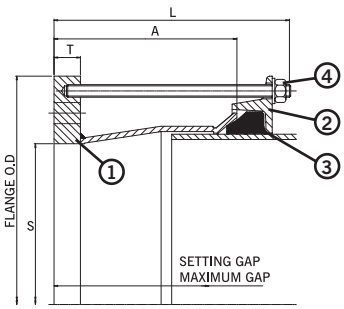
1 = Make Up Ring Sleeve
2 = End Ring
3 = Gasket
4 = Stud, Nut & Washer

Working Pressure = 16bar (water)
6bar (gas)

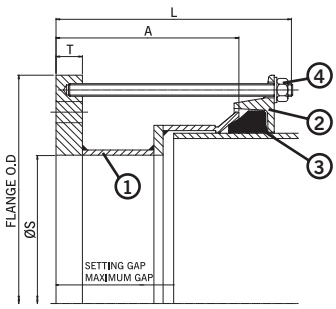
TYPE 1



TYPE 2



TYPE 3



MaxiDaptor ANSI

OD Range		Flange Details								Gasket Mould No.	Studs No.-Dia x Length	Setting Gap		Weight (kg)
Min (mm)	Max (mm)	Nom.	Drilling	Flange Diameter OD (mm)	Flange Bore S (mm)	Flange Thickness T (mm)	Type	Sleeve Length A (mm)	Overall Length L (mm)			Min (mm)	Max (mm)	
351.0	368.0	14"	ANSI150	533.0	370.0	25	1	120	218	6002	6-M12 x 205	45	68	35.9
374.5	391.5	14"	ANSI150	533.0	393.5	25	1	120	218	1659	6-M12 x 205	45	68	34.0
386.0	403.0	14"	ANSI150	533.0	397.5	25	2	205	218	6035	6-M12 x 290	130	153	39.0
394.3	411.3	14"	ANSI150	533.0	397.5	25	2	205	218	1766	6-M12 x 290	130	153	39.2
404.8	421.8	16"	ANSI150	597.0	424.0	25	1	120	218	1767	8-M12 x 205	45	68	42.2
425.0	442.0	16"	ANSI150	597.0	444.0	25	1	120	218	1662	8-M12 x 205	45	68	40.3
434.4	451.4	16"	ANSI150	597.0	453.5	25	1	120	303	1768	8-M12 x 205	45	68	39.4
439.0	456.0	16"	ANSI150	597.0	458.0	25	1	120	303	6036	8-M12 x 205	45	68	39.0
447.2	464.2	16"	ANSI150	597.0	448.0	25	2	205	303	1769	8-M12 x 290	130	153	46.3
455.0	472.0	16"	ANSI150	597.0	448.0	25	2	205	303	6003	8-M12 x 290	130	153	46.4
455.0	472.0	18"	ANSI150	635.0	474.0	25	1	120	303	6003	8-M12 x 205	45	68	44.0
487.3	504.3	18"	ANSI150	635.0	499.0	25	2	205	303	1771	8-M12 x 290	130	153	47.8
492.0	509.0	18"	ANSI150	635.0	499.0	25	2	205	303	6037	8-M12 x 290	130	153	47.8
501.9	518.9	18"	ANSI150	635.0	499.0	25	2	205	303	1772	8-M12 x 290	130	153	48.0
510.0	527.0	18"	ANSI150	637.0	499.0	25	2	205	303	6004	8-M12 x 290	130	153	48.6
527.0	544.0	20"	ANSI150	698.0	546.0	25	1	120	303	1773	10-M12 x 205	45	68	47.9
540.1	557.1	20"	ANSI150	698.0	550.0	25	2	205	303	1774	10-M12 x 290	130	153	54.4
546.0	563.0	20"	ANSI150	698.0	550.0	25	2	205	303	6038	10-M12 x 290	130	153	54.8
555.3	572.3	20"	ANSI150	698.0	550.0	25	2	205	303	1775	10-M12 x 290	130	153	55.0
565.0	582.0	20"	ANSI150	698.0	550.0	25	2	205	303	1776	10-M12 x 290	130	153	55.1
582.2	599.2	20"	ANSI150	709.0	550.0	25	2	205	303	1777	10-M12 x 290	130	153	57.8
601.0	618.0	24"	ANSI150	813.0	620.0	25	1	120	218	6020	10-M12 x 205	45	68	63.3
630.0	647.0	24"	ANSI150	813.0	649.0	25	1	120	303	1778	10-M12 x 205	45	68	58.7
645.2	662.2	24"	ANSI150	813.0	653.0	25	2	205	303	1779	10-M12 x 290	130	153	66.7
654.0	671.0	24"	ANSI150	813.0	653.0	25	2	205	303	6039	10-M12 x 290	130	153	66.9
662.0	679.0	24"	ANSI150	813.0	653.0	25	2	205	303	1780	10-M12 x 290	130	153	67.0
675.0	692.0	24"	ANSI150	813.0	653.0	25	2	205	303	6005	10-M12 x 290	130	153	67.3

Materials & Relevant Standards

Flange Adaptor Body
Mild Steel to BS EN 10025-2:2004 Grade S275

End Ring
Rolled Steel to BS EN 10025-2:2004 Grade S275

Gasket
EPDM Grade "E" to BS EN 681-1 1996 Type WA WRAS Listed

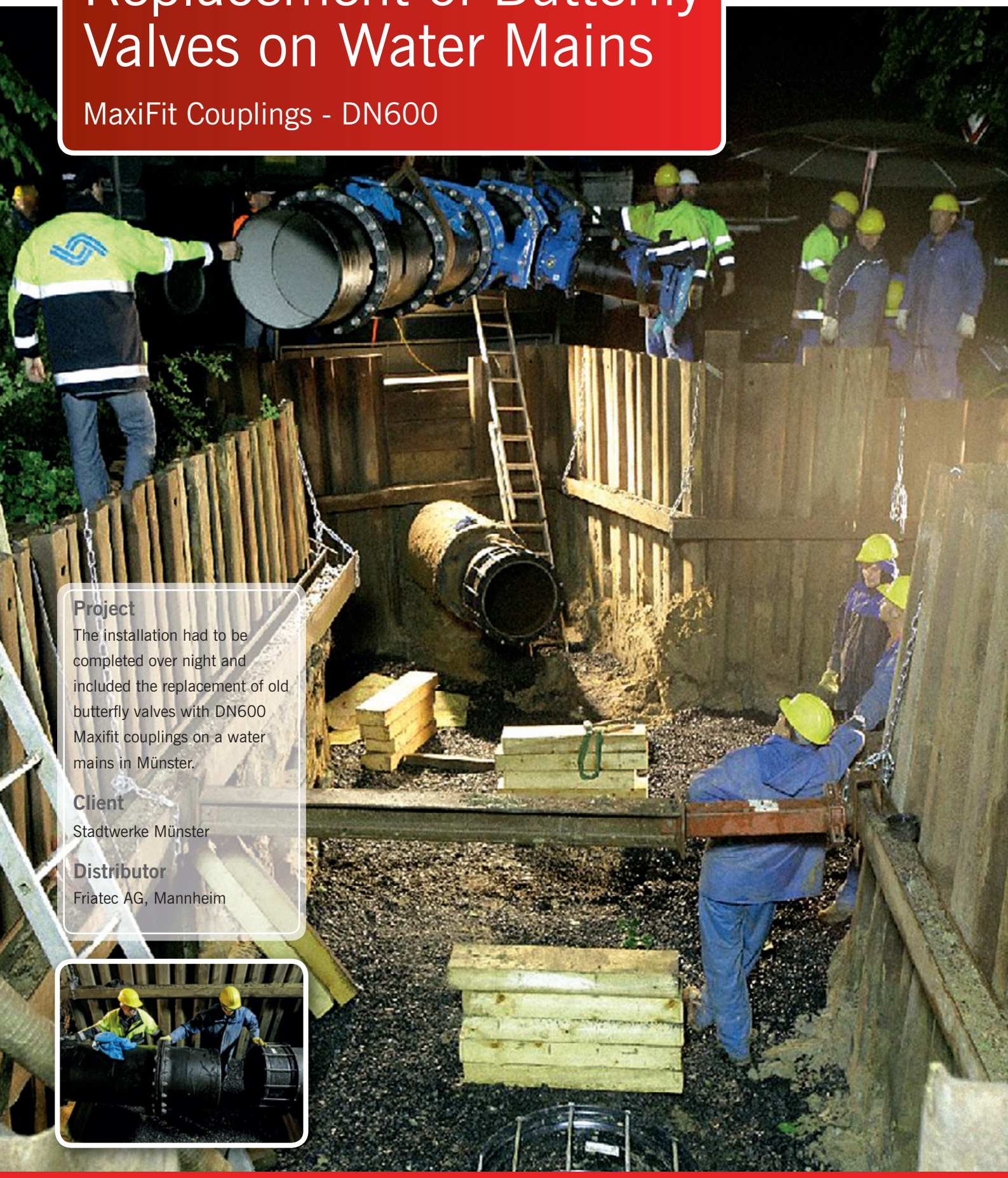
Studs, Nuts & Washer
Studs - Steel to BS EN ISO 898-1:2009 Property Class 4.8
Nuts - Steel to BS EN 4190:2001 Grade 4
Washer - Stainless Steel to BS 1449:Part 2:1983 Grade 304 S15

Coating
Flange Adaptor Body & End Ring = Rilsan Nylon 11 to WIS 4-52-01 Part 1
Bolts & Nuts = Sheraplex to WIS 4-52-03

Germany - Münster

Replacement of Butterfly Valves on Water Mains

MaxiFit Couplings - DN600



Project

The installation had to be completed over night and included the replacement of old butterfly valves with DN600 Maxifit couplings on a water mains in Münster.

Client

Stadtwerke Münster

Distributor

Friatec AG, Mannheim

Robust

MegaFit

Couplings & Flange Adaptors

Advanced Mechanical Jointing Technology

Universal Pipe Fittings

The MegaFit range of universal pipe fittings represent the very latest in mechanical pipe coupling technology, with products designed to connect plain ended pipes of the same nominal bore, with same or different outside diameters. One coupling is able to connect steel, ductile iron, PVCu, cast iron and asbestos cement pipes, thereby reducing stocks.

Simplifies Stock-holding & Installation

MegaFit products are designed for use in repair situations where the exact outside diameter of the pipes are unknown. An OD tolerance range of up to 34mm is offered, which has the effect of reducing stockholding, down to one size per nominal diameter, also simplifies installation.

Simple, Reliable Seal

The MegaFit range design incorporates end rings which are designed to enclose the gasket. The unique 'slide easy' gasket provides maximum sealing pressure, even on scored, pitted and corroded pipe surfaces through its distinctive circumferential ribs offering a simple installation and guaranteed seal.

Approved Quality

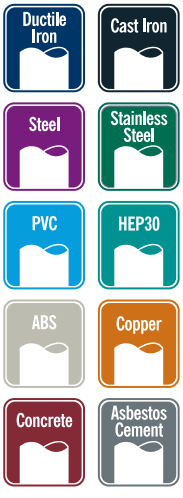
The MegaFit product range includes couplings and flange adaptors, which are available from DN50 (2") to DN300 (12"). All models are designed and manufactured under quality management systems to BS EN ISO 9001 and have been tested by Viking Johnson's comprehensive in-house research facilities to the most exacting performance requirements of the UK Water Regulations Advisory Scheme (WRAS) and also conform to the American Water Works Association specification AWWA/ANSI C.219 for bolted couplings.

MegaFit Coupling

MegaDaptor Flange Adaptor

MegaFit Coupling

Pipe Materials



MegaFit Couplings and Flange Adaptors

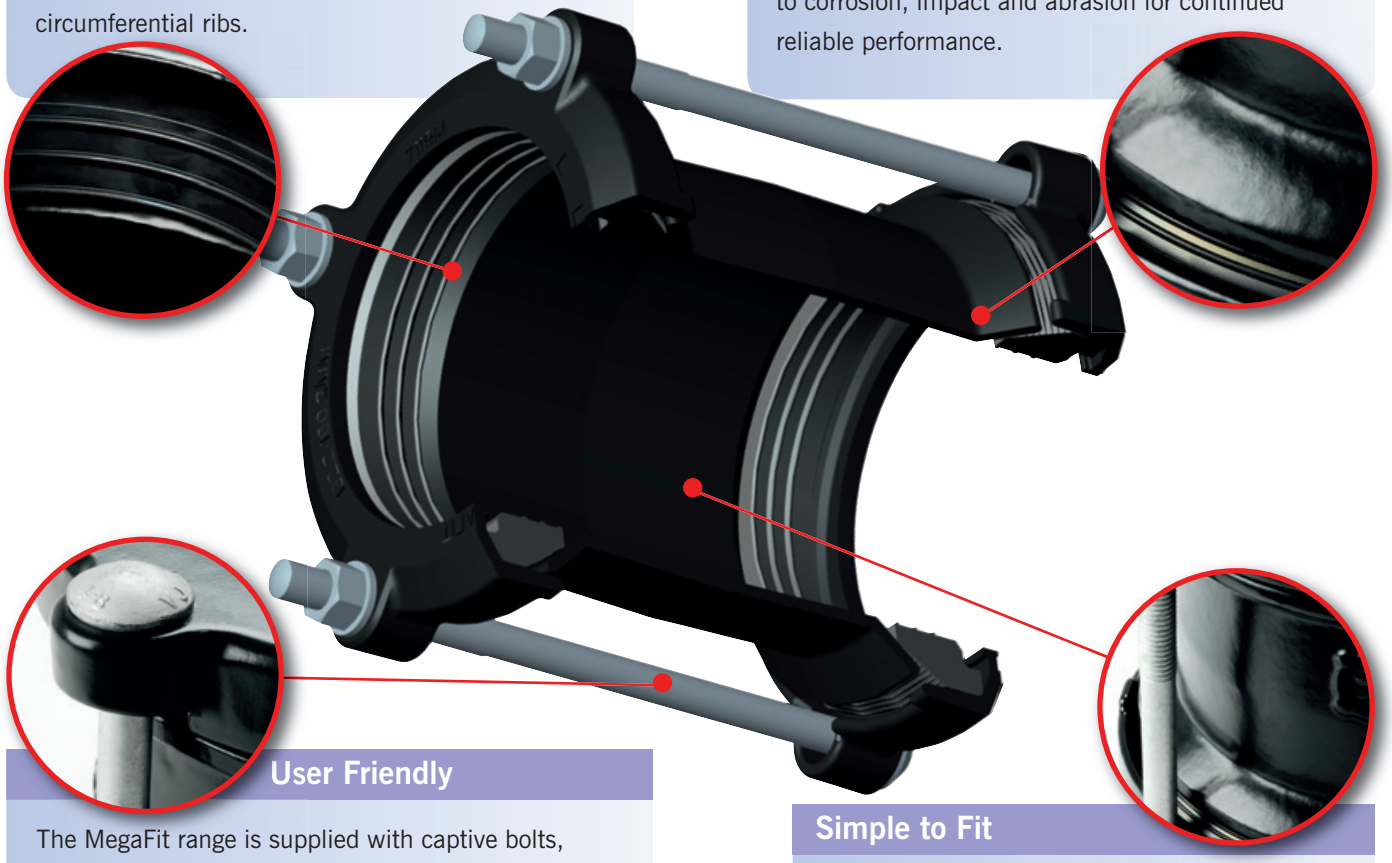
Product Design Benefits

Guaranteed Sealing

The unique, 'slide easy' gasket provides maximum sealing pressure, even on scored, pitted and corroded pipe surfaces through its distinctive circumferential ribs.

Excellent Corrosion Protection

Metal components are coated with Rilsan Nylon 11 which is WRAS approved for use with potable water,. The nuts and bolts are Sheraplex coated to WIS 4-52-03, offering long term protection to corrosion, impact and abrasion for continued reliable performance.



User Friendly

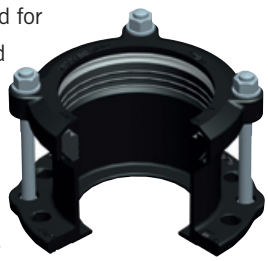
The MegaFit range is supplied with captive bolts, meaning that the nuts need only to be tightened, with a torque wrench, at one end, saving time and simplifying installation.

Simple to Fit

MegaFit includes an extended centre sleeve as standard to aid installation it allows for greater cutting tolerances and greater pipe insertion depths - sealing beyond corrosion damaged pipe ends.

Customer Benefits

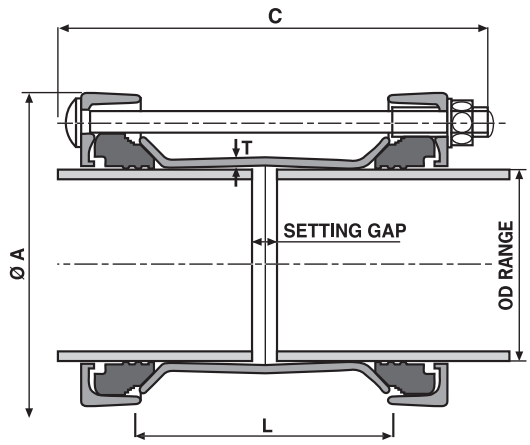
- The MegaFit range is suitable for water and gas applications. Following extensive tests, the products can be guaranteed for a working pressure of 16 bar for water applications (test pressure 24 bar) and 5 bar for gas (test pressure 7.5 bar).
- With up to 34mm tolerance on the pipe OD, each product fits a range of pipe diameters and materials. It reduces the need for expensive and time consuming trial holes, reduces stock holding and increases stock turn. In all MegaFit is adaptable and economic solution to most pipe connections.
- For the discerning customer, the MegaFit range offers an extended sealing face, greater than other wide tolerance models. M16 bolts on DN100 models and above ensure a complete robust solution.
- MegaFit couplings accommodate angular deflection between pipes of up to 8° for couplings and 4° for flange adaptors, allowing for ease of installation and for pipeline movement such as ground settlement. This angular deflection can be utilised to lay pipelines to long radius curves, without the need for special fittings, saving both time and cost.



MegaFit Couplings

Specifications

Working Pressure = 16bar (water)
6bar (gas)



A = End Ring Diameter
T = Sleeve Thickness

Couplings - Nominal Bores between DN50 & DN300

DN	OD Range		Bolts No.-Dia x Length	A (mm)	C (mm)	Sleeve Length x Thickness L x T (mm)	Setting Gap		Gasket Mould No.	Weight (kg)
	Min (mm)	Max (mm)					Min (mm)	Max (mm)		
50	43.5	63.5	4-M12 x 235	151	242	144 x 5	18	60	6010	4.5
65	63.0	83.7	4-M12 x 235	171	242	144 x 5	18	60	6011	5.2
80	85.7	107.0	4-M12 x 260	192	267	170 x 5	18	100	6012	6.3
100	107.2	133.2	4-M16 x 290	231	300	180 x 5	18	110	6013	9.0
125	132.2	160.2	4-M16 x 290	265	300	180 x 5.5	18	110	6014	11.3
150	158.2	192.2	4-M16 x 340	308	350	213 x 5.5	18	130	6015	15.4
175	192.2	226.9	4-M16 x 340	344	350	215 x 7	18	130	6030	21.7
200	218.1	252.1	4-M16 x 340	369	350	220 x 8	18	135	6016	24.3
250	266.2	300.2	6-M16 x 420	417	430	300 x 8	18	215	6017	34.7
300	315.0	349.0	6-M16 x 420	466	430	300 x 8	18	215	6018	39.4

Bolt Torques	
	Nm
M12	55 - 65
M16	95 - 110

Materials & Relevant Standards

Centre Sleeve/End Rings*

SG ductile iron BS EN 1563:1997, EN GJS-450-10

Flange Adaptor Body*

SG ductile iron BS EN 1563:1997, EN GJS-450-10

Bolts/Nuts/Washers

Bolts - Steel to BS EN ISO 898-2009 Property Class Grade 8.8 equivalent DIN 267 - Part 3:Class 8.8

Nuts - Steel to BS EN20898-2:1994 Property Class 8.0

Washers - BS 1449:Pt2:1983 grade 304 S15

Coatings

Flange adaptor body, centre sleeve, end rings are coated in Rilsan Nylon 11 to WIS 4-52-01 (Part 1)

As standard, all bolts and nuts are Sheraplex coated, which is a compound of zinc sheradising and low friction polymeric coating that meets WIS 4-52-03

Gasket

EPDM compound Grade 'E' to BS EN 681-1:1996 WRAS approved, or nitrile compound to DIN 3535-3

'E' temperature range: -40°C to +90°C. Suitable for water, sewage, many strong and oxidising chemicals, food applications

Nitrile temperature range: -20°C to +100°C. Suitable for natural gas, petroleum products, low aromatic fuels and compressed air

(Not suitable for fluctuating temperature, e.g. heating systems)

Approvals/Standards

All MegaFit products are designed and manufactured under quality management systems certified to BS EN ISO 9001, have been tested to the UK Water Regulations Advisory Scheme and conform to the American Water Works Association's standard AWWA/ANSI C.219 for bolted couplings

* Materials of construction at the discretion of Viking Johnson. Viking Johnson reserves the right to modify the details in this publication as products and specifications are updated and improved.

MegaFit Flange Adaptors

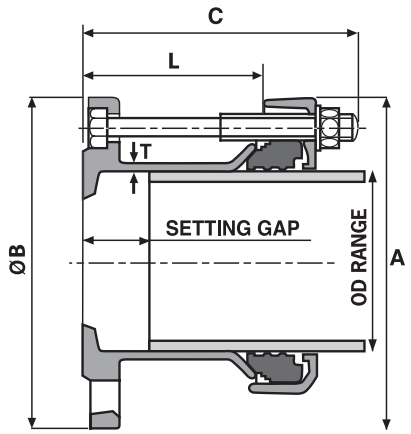
Specifications

Flange adaptors designed to join pipes of various materials and outside diameters to flanges of the same nominal size*.

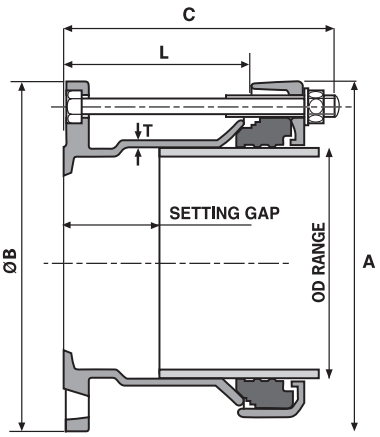
Working Pressure = 16bar (water)
6bar (gas)

A = End Ring Diameter
B = Flange Diameter
T = Sleeve Thickness

Type 1



Type 2



MegaDaptor

DN	OD Range (mm)		Flange Nominal	Flange Drilling	Flange Thickness (mm)	Bolts No.-Dia x Length	A (mm)	B (mm)	C (mm)	Sleeve Length x Thickness (L) x (T)	Setting Gap (mm)		Type	Gasket Mould No.	Weight (kg)
	Min	Max									Min	Max			
50	43.5	63.5	50	PN10/PN16	17.0	4-M12 x 125	151	167	131	80 x 6	25	35	1	6010	4.4
65	63.0	83.7	65	PN10/PN16	17.0	4-M12 x 125	171	185	132	80 x 6	25	35	1	6011	5.1
80	85.7	107.0	80	PN10/PN16	17.0	4-M12 x 145	192	200	154	100 x 6	30	60	1	6012	5.8
100	107.2	133.2	100	PN10/PN16	18.0	4-M16 x 180	231	234	191	130 x 6	57	85	2	6013	8.6
125	132.2	160.2	125	PN10/PN16	18.0	4-M16 x 160	265	268	171	111 x 6	28	65	1	6014	9.8
150	158.2	192.2	150	PN10/PN16	18.0	4-M16 x 210	303	317	220	150 x 6	70	100	2	6015	14.17
175*	192.2	226.9	200	PN10/PN16	18.0	4-M16 x 190	344	344	201	132 x 7	25	80	1	6030	17.2
200	218.1	252.1	200	PN10/PN16	18.0	4-M16 x 230	369	374	241	180 x 7	75	130	2	6016	20.4
250	266.2	300.2	250	PN10/PN16	20.0	6-M16 x 270	417	424	281	212 x 7	80	160	2	6017	27.5
300	315.0	349.0	300	PN10/PN16	21.5	6-M16 x 270	466	472	281	211 x 8	80	160	2	6018	34.3

*DN175 MegaDaptor supplied with DN200 flange.

Bolt Torques	
	Nm
M12	55 - 65
M16	95 - 110

Materials & Relevant Standards

Centre Sleeve/End Rings*

SG ductile iron BS EN 1563:1997, EN GJS-450-10

Flange Adaptor Body*

SG ductile iron BS EN 1563:1997, EN GJS-450-10

Bolts/Nuts/Washers

Bolts - Steel to BS EN ISO 898-2009 Property Class Grade 8.8 equivalent DIN 267 - Part 3:Class 8.8

Nuts - Steel to BS EN20898-2:1994 Property Class 8.0

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Coatings

Flange adaptor body, centre sleeve, end rings are coated in Rilsan Nylon 11 to WIS 4-52-01 (Part 1)

As standard, all bolts and nuts are Sheraplex coated, which is a compound of zinc sheradising and low friction polymeric coating that meets WIS 4-52-03

Gasket

EPDM compound Grade 'E' to BS EN 681-1:1996 WRAS approved, or nitrile compound to DIN 3535-3

'E' temperature range: -40°C to +90°C. Suitable for water, sewage, many strong and oxidising chemicals, food applications

Nitrile temperature range: -20°C to +100°C. Suitable for natural gas, petroleum products, low aromatic fuels and compressed air

(Not suitable for fluctuating temperature, e.g. heating systems)

Approvals/Standards

All MegaFit products are designed and manufactured under quality management systems certified to BS EN ISO 9001, have been tested to the UK Water Regulations Advisory Scheme and conform to the American Water Works Association's standard AWWA/ANSI C.219 for bolted couplings

* Materials of construction at the discretion of Viking Johnson. Viking Johnson reserves the right to modify the details in this publication as products and specifications are updated and improved.

Germany - Bielefeld

Replacement of Old Cast Iron Service Pipe

MegaFit Flange Adaptors - DN300

Project

A DN300 gas main pipeline was cut and a screwed ductile iron tee was installed to build a new service line connected by two MegaFit flange adaptors.

Client

Stadtwerke Bielefeld

Distributor

Friatec AG, Mannheim

Next Generation

UltraGrip

Optimum Wide Tolerance & Full End Restraint

UltraGrip
can also be used
as a repair product
for more information
see pages
169 - 171

UltraGrip
can also be used
on PE pipes
for further details on
UltraGrip Support liners
see pages
97 - 100

UltraGrip is a high performance restrained jointing solution for pipework from DN40 up to DN400.

Overview

Designed for Both Water & Gas Applications

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*.

Progressive Gripping

One of the key components of Next Generation UltraGrip is the progressive gripping mechanism, which increases its end load restraint capabilities as the internal pressure in the pipe increases. One gripper system suits all recommended pipe materials. 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 up to 44mm pipe outside diameter variation depending on nominal size.

PE Solutions

In fact, Viking Johnson is the only business that can offer, within its range, two alternative solutions for connecting PE and iron pipes across a wide range of sizes. You can choose between the UltraGrip range of couplings and adaptors or the UltraGrip Pecatadaptor, which contains a factory fitted and tested, transition joint connecting the two materials.

Ease of Installation

On site, the Next Generation UltraGrip is easy to install. The product is pre-assembled to allow for quick positioning over 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.

UltraGrip Couplings

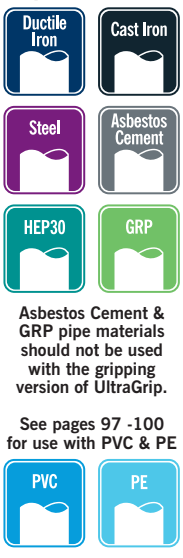
UltraGrip Reducing Coupling

UltraGrip Flange Adaptor

UltraGrip Pecatadaptor

UltraGrip End Cap

Pipe Materials



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

See pages 97 -100 for use with PVC & PE

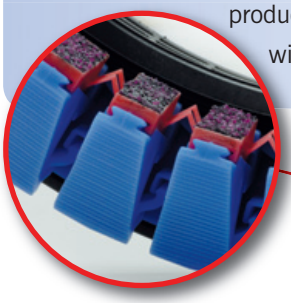
***Note:** PVC & PE pipe materials require the use of a close fit stainless steel liner PVC and PE

Next Generation UltraGrip

Features & Benefits

Intelligent Carriers

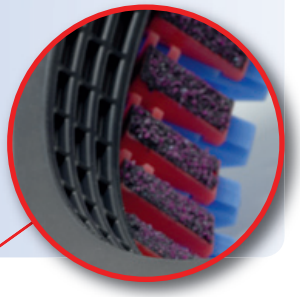
The carriers can accommodate high tolerances of pipe outside diameters – up to 44mm, with interlocking "spring" effect ensuring gasket & grippers retract so product slips over top tolerance pipe without interference.

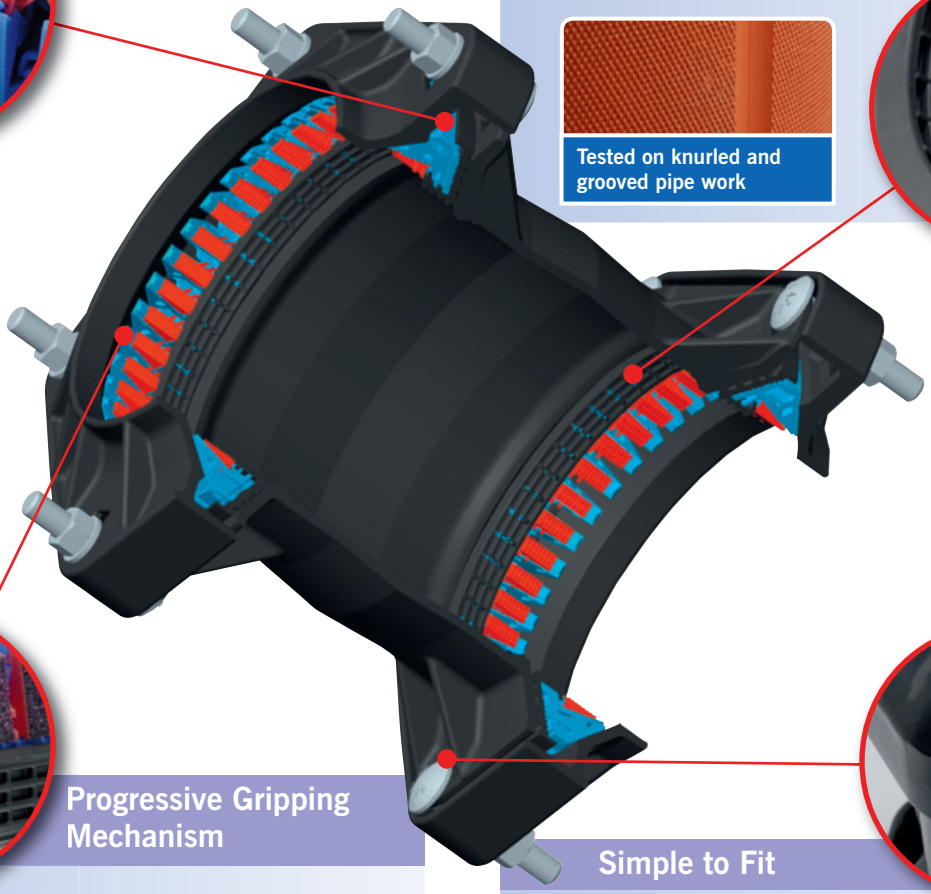


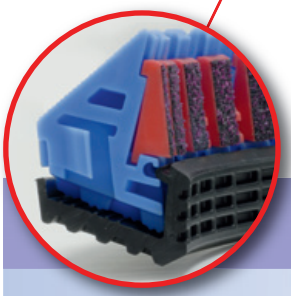
Unique UltraGrip Sealing Gasket

Specially profiled gasket (patent pending) ensures full seal even on scored and corroded pipes which has been tested on "knurled and grooved pipe", as detailed in "Specification for Methods of Repairing Leaking Ferrous Gas Mains Part 4; Pipe Repair Clamps, Split Collars and Under Pressure Branch Connections (GIS/LC8-4): 2006", to verify the sealing capability on severely corroded and pitted pipe in low pressure gas applications.

Tested on knurled and grooved pipe work







Progressive Gripping Mechanism

Increases its end load restraint capability as the internal pressure in the pipe increases. One gripper system suits all recommended pipe materials and offers full end load resistance at full angular deflection.

Simple to Fit

Captive bolt heads allow use of a single spanner to install with reversible orientation of the bolts in couplings and reducing couplings to accommodate site conditions.

Customer Benefits

- High level of performance in both water and gas applications.
- Increased diameter range and wide tolerance delivers a reduction in stock holding costs.
- Gripping product can be converted to non-gripping flexible product by removing grippers, to permit axial movement.
- Available in Nitrile for gas and EPDM for water, materials approved by WRAS as well as KTW and DVGW W270 (11.2007) for potable water applications.
- Reversible captive bolts for quick and easy installation.
- New design based on proven technology to deliver total peace of mind.

Germany - Coesfeld

Maintenance of Existing Pipework Infrastructure

Next Generation UltraGrip Coupling - DN400

Project

Repair of leaking and severely corroded grey cast iron pipe. The 44mm tolerance in the pre-assembled DN400 FriaGrip (UltraGrip) ensured the fittings could be easily positioned on the repair and combined with the captive bolt mechanism meant only a single spanner/torque wrench was needed to fit the product in just 35 minutes.

Client

Stadtwerke Coesfeld -
North Rhine Westphalia

Distributor

Friatec AG, Mannheim

Next Generation UltraGrip Couplings

Specifications

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	

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), but in many cases Viking Johnson reaches substantially higher levels – up to 36bar.
3) All water contact components are approved for use with potable water.

Application Notes

Pipe Materials

Gripping product - works on the following pipe materials
Steel/Ductile iron/Grey cast iron/ PE/PVC

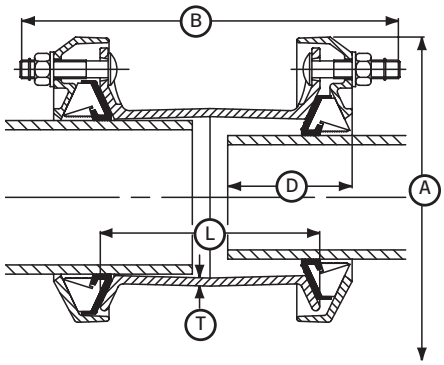
Flex product - works on the following pipe materials
Steel/Ductile iron/Grey cast iron/ PVC/Asbestos cement / GRP

Restrained couplings for buried application only - Since it is not possible to safely predict the additional loads in above ground pipework, due to thermal expansion and other external influences, Viking Johnson restricts the use of restrained couplings to buried applications only.

Support liners - PE and PVC pipes

A close fit support liner is required when used on all PE pipes and thin walled PVC pipes.

When used on thick walled PVC pipes a support liner is not required.
(Contact Viking Johnson for further advice on this matter.)



Couplings (up to 8° angular deflection)

Nom Size	Size Range		Insertion Depth (D)		Dimensions (mm)				Bolts		Weight (kg)
					Overall		Sleeve				
	Min (mm)	Max (mm)	Min	Max	A	B	L	T	No.-size	Type	
40	43.5	63.5	65	95	168	262	144	7.0	6-M12x70	HRH	5.2
50	48.0	71.0	65	110	178	296	180	5.0	6-M12x70	CSX	5.6
65	63.0	83.7	65	95	189	262	144	7.0	6-M12x70	HRH	6.1
80	85.7	107.0	65	110	212	288	170	7.0	6-M12x70	HRH	7.7
100	107.2	133.2	90	125	280	336	180	7.0	6-M16x90	CSX	13.4
125	132.2	160.2	90	125	305	336	180	6.0	6-M16x90	CSX	14.3
150	158.2	192.2	90	135	339	380	213	6.5	8-M16x90	CSX	19.9
175	192.2	226.9	125	165	403	387	220	6.5	10-M16x90	CSX	32.8
200	218.1	256.0	125	165	432	387	220	6.5	10-M16x90	CSX	35.0
250	266.2	310.0	125	165	476	524	300	8.0	12-M16x120	CSX	52.3
300	315.0	356.0	125	200	522	524	300	8.0	16-M16x120	CSX	63.2
350	352.2	396.0	125	200	577	525	300	7.5	18-M16x120	CSX	73.9
400	398.2	442.0	125	200	623	525	300	7.5	20-M16x120	CSX	81.9

* There are several parts to these standards to suit different flange materials:
1. BS EN 1092 PT1: 2007 **2.** BS EN 1092 PT2: 1997 **3.** BS EN 1092 PT3: 2003 **4.** BS EN 1092 PT4: 2002 **5.** ISO 7005-1: 1992 **6.** ISO 7005-2: 1988 **7.** ISO 7005-3: 1988

Materials & Relevant Standards

End Rings, Centre Sleeve

S.G. Iron to BS EN 1563:1997 Symbol EN-GJS-450-10

Gaskets

EPDM: EPDM Compound Grade E to BS EN 681-1:1996 WA KTW & DVGW (11.2007) approved

NBR: WBS listed Nitrile Compound EN 682 (01.10.2006) approved

Gripper and Carrier

Acetal Copolymer Grade M25 or equivalent

Bolts/Nuts/Washers

Bolts - Stainless steel to BS EN 3506-1: 2009 Grade A2 Property Class 80 or 70 End caps supplied with Sheraplex coated steel bolts to BS EN ISO 898-1: 2009 Property Class 8.8

Nuts - Stainless Steel to BS EN 3506-2: 2009 Grade A4 Property Class 80 Steel to BS EN 20898-2: 1994 Property Class 8.0

Washer - Stainless steel – BS1449:PT2:1983 Grade 304 S15

Coatings

Cast/Metal Components - Rilsan Nylon 11 (Black)
Bolts - Dry Film Lubricant
Nuts - Dacromet coated

Approvals

Rilsan Nylon 11 (Black):
WRAS approved for use with potable water

Gasket: EPDM with WBS as well as KTW & DVGW W270 (11.2007) approvals

Next Generation UltraGrip Flange Adaptors

Specifications

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	

Notes:

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Application Notes

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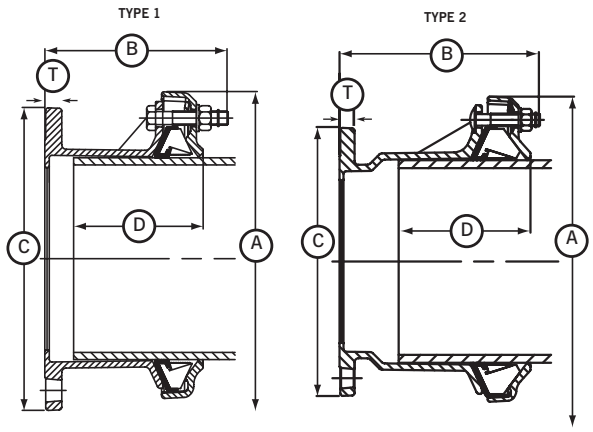


Flange Adaptors (up to 4° angular deflection)

Nom Size	Size Range		Flange Nom Size	Flange Drilling	Type	Insertion Depth (D)		Dimensions (mm)				Bolts		Weight (kg)
	Min (mm)	Max (mm)				Min (mm)	Max (mm)	C	A	B	T	No.-size	Type	
40	43.5	63.5	50	PN10,16	1	65	110	165	168	164	17.0	3-M12x70	HRH	4.5
50	48.0	71.0	50	PN10,16	1	65	110	165	178	163	17.0	3-M12x70	CSX	4.5
65	63.0	83.7	65	PN10,16	1	65	110	185	189	164	17.0	3-M12x70	HRH	5.4
80	85.7	107.0	80	PN10,16	1	65	110	200	212	164	17.0	3-M12x70	HRH	6.3
100	107.2	133.2	100	PN10,16	2	90	125	200	280	212	17.0	3-M16x90	HRH	10.0
125	132.2	160.2	125	PN10,16	1	90	135	257	305	193	17.0	3-M16x90	HRH	10.7
150	158.2	192.2	150	PN10,16	2	90	125	285	339	232	17.0	4-M16x90	HRH	14.4
175	192.2	226.9	200	PN10,16	2	125	165	340	403	260	18.0	5-M16x90	CSX	23.9
200	218.1	256.0	200	PN10,16	2	125	165	340	432	260	18.0	5-M16x90	CSX	25.3
250	266.2	310.0	250	PN10,16	2	125	165	404	476	323	20.0	6-M16x120	HRH	35.7
300	315.0	356.0	300	PN10,16	2	125	200	469	522	324	21.5	8-M16x120	HRH	43.7
350	352.2	396.0	350	PN10,16	2	125	200	520	577	333	21.5	9-M16x120	CSX	51.2
400	398.2	442.0	400	PN10,16	2	125	200	580	623	333	21.5	10-M16x120	CSX	57.7

Full flange sealing face, can be used on wafer-type butterfly valves

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: 2007 **2.** BS EN 1092 PT2: 1997 **3.** BS EN 1092 PT3: 2003 **4.** BS EN 1092 PT4: 2002 **5.** ISO 7005-1: 1992 **6.** ISO 7005-2: 1988 **7.** ISO 7005-3: 1988

Materials & Relevant Standards

End Rings, Flange Adaptor Body

S.G. Iron to BS EN 1563:1997 Symbol EN-GJS-450-10

Gaskets

EPDM: EPDM Compound Grade E to BS EN 681-1:1996 WA KTW & DVGW (11.2007) approved

NBR: WBS listed Nitrile Compound EN 682 (01.10.2006) approved

Gripper and Carrier

Acetal Copolymer Grade M25 or equivalent

Bolts/Nuts/Washers

Bolts - Stainless steel to BS EN 3506-1: 2009 Grade A2 Property Class 80 or 70 End caps supplied with Sheraplex coated steel bolts to BS EN ISO 898-1: 2009 Property Class 8.8

Nuts - Stainless Steel to BS EN 3506-2: 2009 Grade A4 Property Class 80 Steel to BS EN 20898-2: 1994 Property Class 8.0

Washer - Stainless steel – BS1449:PT2:1983 Grade 304 S15

Coatings

Cast/Metal Components - Rilsan Nylon 11 (Black)
Bolts - Dry Film Lubricant
Nuts - Dacromet coated

Approvals

Rilsan Nylon 11 (Black):
WRAS approved for use with potable water

Gasket: EPDM with WBS as well as KTW & DVGW W270 (11.2007) approvals

Next Generation UltraGrip Reducing Couplings

Specifications

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	

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), but in many cases Viking Johnson reaches substantially higher levels – up to 36bar.
3) All water contact components are approved for use with Potable Water.

Application Notes

Pipe Materials

Gripping product - works on the following pipe materials
Steel/Ductile iron/Grey cast iron/ PE/PVC

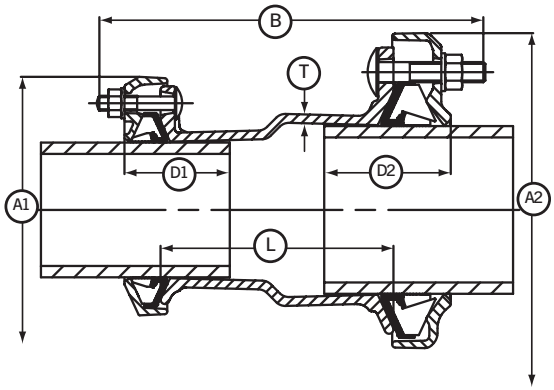
Flex product - works on the following pipe materials
Steel/Ductile iron/Grey cast iron/ PVC/Asbestos cement / GRP

Restrained couplings for buried application only - Since it is not possible to safely predict the additional loads in above ground pipework, due to thermal expansion and other external influences, Viking Johnson restricts the use of restrained couplings to buried applications only.

Support liners - PE and PVC pipes

A close fit support liner is required when used on all PE pipes and thin walled PVC pipes.

When used on thick walled PVC pipes a support liner is not required.
(Contact Viking Johnson for further advice on this matter.)



Reducing Couplings (up to 8° angular deflection)

Nom Size		Size Range (mm)				Insertion Depth (mm)				Dimensions (mm)					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	4.6
80	100	85.7	107.0	107.2	133.2	65	95	90	125	212	280	322	185	7.5	3-M12x70	HRH	3-M16x90	CSX	10.9
100	125	107.2	133.2	132.2	160.2	90	125	90	115	280	305	346	190	7.5	3-M16x90	CSX	3-M16x90	CSX	14.8
100	150	107.2	133.2	158.2	192.2	90	115	90	135	280	339	369	216	7.5	3-M16x90	CSX	4-M16x90	CSX	17.7
125	150	132.2	160.2	158.2	192.2	90	115	90	135	305	339	360	207	7.5	3-M16x90	CSX	4-M16x90	CSX	18.1
150	175	158.2	192.2	192.2	226.9	90	125	125	165	339	403	387	220	7.0	4-M16x90	CSX	5-M16x90	CSX	26.9
175	200	192.2	226.9	218.1	256.0	125	155	125	165	403	432	387	220	7.0	5-M16x90	CSX	5-M16x90	CSX	34.4
200	250	218.1	256.0	266.2	310.0	125	165	125	165	432	476	476	280	7.0	5-M16x90	CSX	6-M16x120	CSX	44.1

* There are several parts to these standards to suit different flange materials:
1. BS EN 1092 PT1: 2007 **2.** BS EN 1092 PT2: 1997 **3.** BS EN 1092 PT3: 2003 **4.** BS EN 1092 PT4: 2002 **5.** ISO 7005-1: 1992 **6.** ISO 7005-2: 1988 **7.** ISO 7005-3: 1988

Materials & Relevant Standards

End Rings, Centre Sleeve

S.G. Iron to BS EN 1563:1997 Symbol EN-GJS-450-10

Gaskets

EPDM: EPDM Compound Grade E to BS EN 681-1:1996 WA KTW & DVGW (11.2007) approved

NBR: WBS listed Nitrile Compound EN 682 (01.10.2006) approved

Gripper and Carrier

Acetal Copolymer Grade M25 or equivalent

Bolts/Nuts/Washers

Bolts - Stainless steel to BS EN 3506-1: 2009 Grade A2 Property Class 80 or 70 End caps supplied with Sheraplex coated steel bolts to BS EN ISO 898-1: 2009 Property Class 8.8

Nuts - Stainless Steel to BS EN 3506-2: 2009 Grade A4 Property Class 80 Steel to BS EN 20898-2: 1994 Property Class 8.0

Washer - Stainless steel – BS1449:PT2:1983 Grade 304 S15

Coatings

Cast/Metal Components - Rilsan Nylon 11 (Black)
Bolts - Dry Film Lubricant
Nuts - Dacromet coated

Approvals

Rilsan Nylon 11 (Black):
WRAS approved for use with potable water

Gasket: EPDM with WBS as well as KTW & DVGW W270 (11.2007) approvals

Next Generation UltraGrip Pecatadaptors

Specifications

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	

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), but in many cases Viking Johnson reaches substantially higher levels – up to 36bar.
3) All water contact components are approved for use with potable water.

Application Notes

Pipe Materials

Gripping product - works on the following pipe materials
Steel/Ductile iron/Grey cast iron/ PE/PVC

Flex product - works on the following pipe materials
Steel/Ductile iron/Grey cast iron/ PVC/Asbestos cement / GRP

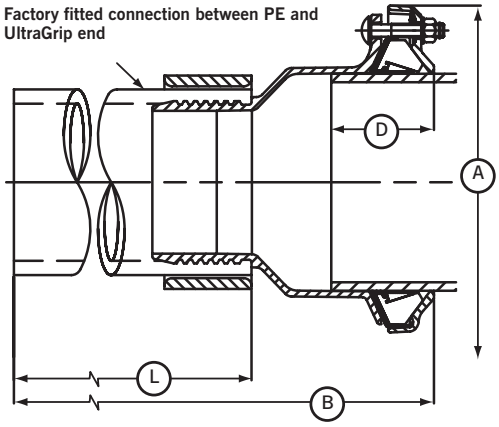
Restrained couplings for buried application only - Since it is not possible to safely predict the additional loads in above ground pipework, due to thermal expansion and other external influences, Viking Johnson restricts the use of restrained couplings to buried applications only.

Support liners - PE and PVC pipes

A close fit support liner is required when used on all PE pipes and thin walled PVC pipes.

When used on thick walled PVC pipes a support liner is not required.
(Contact Viking Johnson for further advice on this matter.)

Factory fitted connection between PE and UltraGrip end



Pecatadaptors (Length of PE will accomondate two electrofusion connections)

Nom Size	Size Range (mm)		PE		Insertion Depth (mm) D		Dimensions (mm)			Bolts		Weight (kg)
							Overall		PE Pipe End			
	Min	Max	Size	Sdr	Min	Max	A	B	L	Size	Type	
80	85.7	107.0	90	11	65	95	212	682	496	3-M12x70	HRH	6.8
100	107.2	133.2	110	11	90	115	280	705	496	3-M16x90	CSX	11.8
100	107.2	133.2	125	11	90	115	280	698	496	3-M16x90	CSX	12.5
125	132.2	160.2	110	11	90	115	305	724	496	3-M16x90	CSX	13.4
125	132.2	160.2	125	11	90	115	305	718	496	3-M16x90	CSX	14.1
150	158.2	192.2	160	11	90	125	339	727	496	4-M16x90	CSX	20.0
150	158.2	192.2	180	11	90	125	339	724	496	4-M16x90	CSX	22.5
200	218.1	256.0	225	11	125	165	432	748	496	5-M16x90	CSX	34.8

* There are several parts to these standards to suit different flange materials:
1. BS EN 1092 PT1: 2007 **2.** BS EN 1092 PT2: 1997 **3.** BS EN 1092 PT3: 2003 **4.** BS EN 1092 PT4: 2002 **5.** ISO 7005-1: 1992 **6.** ISO 7005-2: 1988 **7.** ISO 7005-3: 1988

Materials & Relevant Standards

End Rings, Pecatadaptor Body

S.G. Iron to BS EN 1563:1997 Symbol EN-GJS-450-10

Gaskets

EPDM: EPDM Compound Grade E to BS EN 681-1:1996 WA KTW & DVGW (11.2007) approved

NBR: WBS listed Nitrile Compound EN 682 (01.10.2006) approved

Gripper and Carrier

Acetal Copolymer Grade M25 or equivalent

Bolts/Nuts/Washers

Bolts - Stainless steel to BS EN 3506-1: 2009 Grade A2 Property Class 80 or 70 End caps supplied with Sheraplex coated steel bolts to BS EN ISO 898-1: 2009 Property Class 8.8

Nuts - Stainless Steel to BS EN 3506-2: 2009 Grade A4 Property Class 80 Steel to BS EN 20898-2: 1994 Property Class 8.0

Washer - Stainless steel – BS1449:PT2:1983 Grade 304 S15

Completion Sleeve to Pecatadaptor

Mild Steel Tube to DIN1629: 1984 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 - Dry Film Lubricant
Nuts - Dacromet coated

Approvals

Rilsan Nylon 11 (Black):
WRAS approved for use with potable water

Gasket: EPDM with WBS as well as KTW & DVGW W270 (11.2007) approvals

Next Generation UltraGrip End Caps

Specifications

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	

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), but in many cases Viking Johnson reaches substantially higher levels – up to 36bar.
3) All water contact components are approved for use with Potable Water.

Application Notes

Pipe Materials

Gripping product - works on the following pipe materials Steel/Ductile iron/Grey cast iron/ PE/PVC

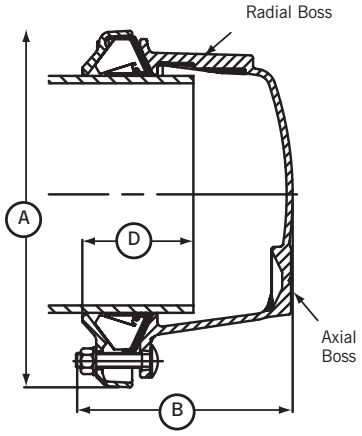
Flex product - works on the following pipe materials Steel/Ductile iron/Grey cast iron/ PVC/Asbestos cement / GRP

Restrained couplings for buried application only - Since it is not possible to safely predict the additional loads in above ground pipework, due to thermal expansion and other external influences, Viking Johnson restricts the use of restrained couplings to buried applications only.

Support liners - PE and PVC pipes

A close fit support liner is required when used on all PE pipes and thin walled PVC pipes.

When used on thick walled PVC pipes a support liner is not required.
(Contact Viking Johnson for further advice on this matter.)



End Caps (up to 4° angular deflection)

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)

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 (mm)		Insertion Depth (mm) D		Boss				Dimensions (mm)		Bolts		Weight (kg)
					Axial		Radial						
	Min	Max	Min	Max	Min BSP	Max BSP	Min BSP	Max BSP	A	B	No.-size	Type	
40	43.5	63.5	65	95	1/2"	2"	1/2"	3/4"	168	150	3-M12x70	Pan Head	3.1
65	63.0	83.7	65	95	1/2"	2"	1/2"	3/4"	189	150	3-M12x70	Pan Head	3.6
80	85.7	107.0	65	110	1/2"	2"	1/2"	3/4"	212	166	3-M12x70	Pan Head	4.4
100	107.2	133.2	90	125	1/2"	2"	1/2"	1"	280	194	3-M16x90	Pan Head	8.4
125	132.2	160.2	90	135	1/2"	2"	1/2"	1"	305	212	3-M16x90	Pan Head	10.0
150	158.2	192.2	90	135	1/2"	2"	1/2"	1"	339	216	4-M16x90	Pan Head	12.5
175	192.2	226.9	125	165	1/2"	2"	1/2"	1"	403	232	5-M16x90	Pan Head	19.2
200	218.1	256.0	125	165	1/2"	2"	1/2"	1 1/2"	432	234	5-M16x90	Pan Head	21.1
250	266.2	310.0	125	165	1/2"	2"	1/2"	2"	476	309	6-M16x120	Pan Head	32.2
300	315.0	356.0	125	200	1/2"	2"	1/2"	2"	522	310	8-M16x120	Pan Head	38.9

* There are several parts to these standards to suit different flange materials:
1. BS EN 1092 PT1: 2007 **2.** BS EN 1092 PT2: 1997 **3.** BS EN 1092 PT3: 2003 **4.** BS EN 1092 PT4: 2002 **5.** ISO 7005-1: 1992 **6.** ISO 7005-2: 1988 **7.** ISO 7005-3: 1988

Materials & Relevant Standards

End Ring/Body & Endcap

S.G. Iron to BS EN 1563:1997 Symbol EN-GJS-450-10

Gaskets

EPDM: EPDM Compound Grade E to BS EN 681-1:1996 WA KTW & DVGW (11.2007) approved

NBR: WBS listed Nitrile Compound EN 682 (01.10.2006) approved

Gripper and Carrier

Acetal Copolymer Grade M25 or equivalent

Bolts/Nuts/Washers

Bolts - Stainless steel to BS EN 3506-1: 2009 Grade A2 Property Class 80 or 70 End caps supplied with Sheraplex coated steel bolts to BS EN ISO 898-1: 2009 Property Class 8.8

Nuts - Stainless Steel to BS EN 3506-2: 2009 Grade A4 Property Class 80 Steel to BS EN 20898-2: 1994 Property Class 8.0

Washer - Stainless steel – BS1449:PT2:1983 Grade 304 S15

Coatings

Cast/Metal Components - Rilsan Nylon 11 (Black)
Bolts - Dry Film Lubricant
Nuts - Dacromet coated

Approvals

Rilsan Nylon 11 (Black):
WRAS approved for use with potable water

Gasket: EPDM with WBS as well as KTW & DVGW W270 (11.2007) approvals

Versatile

EasiRange

EasiClamp, EasiTap, EasiTee & EasiCollar

A Rapid Solution for Pipe Repair & Tapping

Remote EasiClamp & EasiTap

Overview

A Safe & Quick Remote Solution to Pipe Repair & Tapping

The Remote EasiClamp and EasiTap products are an exciting enhancement of the proven EasiRange system. They can be remotely installed from outside the trench by a single operator in just a few minutes, delivering a quick, safe and permanent repair solution for damaged pipes at full operational pressure.

Improved Health & Safety

The major benefits of this innovative and patented repair solution include the ability to maintain continual water supply to customers, the minimising of health and safety risks to operatives and a significant reduction in installation costs, traffic disruption and spoil.

Award Winning

In the development of this revolutionary fitting, Viking Johnson worked closely with Balfour Beatty Utility Solutions to ensure the new clamp exceeded the requirements of both operators and water companies, winning the SBWWI innovation award in 2010. The clamp consists of two halves that are hinged, fully opening to permit quick and easy fitting on the pipe.

Two patented self-retaining bolts are used to tighten up the clamp which speeds up the repair process and minimises disruption to water supply.

The newly designed Remote EasiRange offers advantages not only to customers in the water industry but also to the general public and environment.

Permanent & Reliable Repair Solution

Designed in three popular sizes, the EasiClamp is available in DN80, DN100 and DN150. EasiTap is also available in these sizes and offers either a drilled and tapped BSP boss or 2" BSP threaded outlet. The "waffle" design gasket is constructed in EPDM which is WRAS approved for use with potable water ensuring a reliable and permanent leak tight seal with a working pressure of 16bar and test pressure of 24bar.

The range has been manufactured using the latest technology minimising raw material usage and is supplied in biodegradable packaging that ensures the fitting arrives on site free from any contamination.

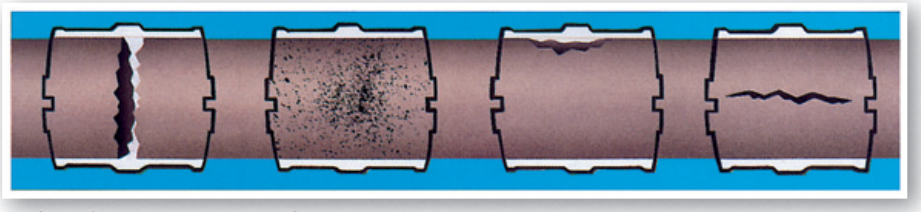
EasiClamp

EasiTap: BSP Outlet

EasiTap: Drilled & Tapped BSP Boss

Pipe Materials

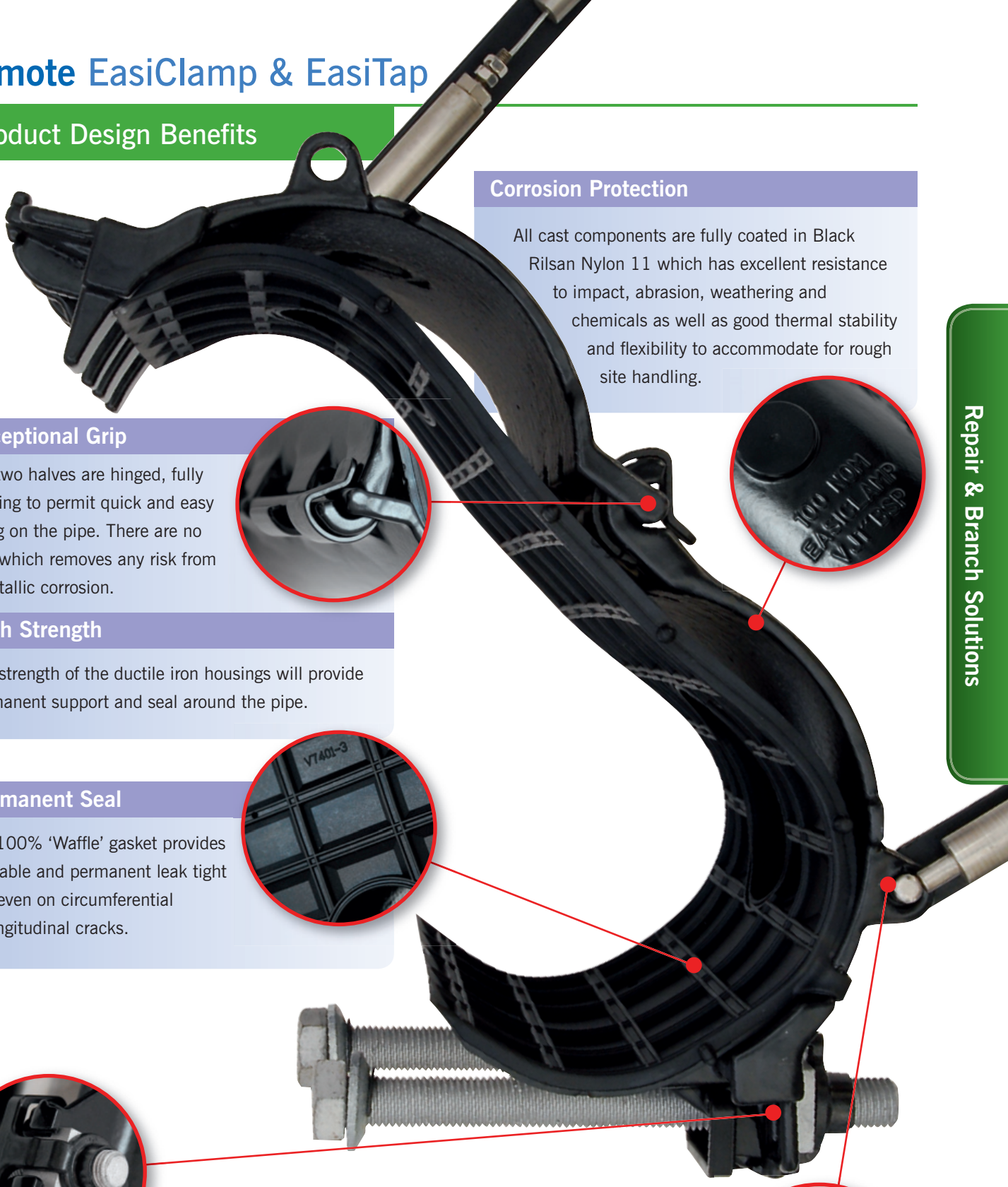
Types of damage that EasiClamp/EasiTap products will seal and support



Circumferential breaks | Corrosion holes | Impact damage | Longitudinal cracks

Remote EasiClamp & EasiTap

Product Design Benefits



Corrosion Protection

All cast components 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.

Exceptional Grip

The two halves are hinged, fully opening to permit quick and easy fitting on the pipe. There are no pins which removes any risk from bimetallic corrosion.

High Strength

The strength of the ductile iron housings will provide permanent support and seal around the pipe.

Permanent Seal

The 100% 'Waffle' gasket provides a reliable and permanent leak tight seal even on circumferential or longitudinal cracks.

Self Locating Bolts

Patented self retaining bolts not only prevent the loss of components in the trench but also self locate allowing blind assembly. The double locking mechanism automatically locks into position once the product is fully wrapped around the pipe allowing the operator to use both hands to position over the leak.

Unique Locking System

During remote installation, the unique locking system on the tool gives operators full control. Remote installation eliminates large excavations and removes operators from potential health and safety risks.

Remote EasiClamp and EasiTap can be installed from above ground on a pressurised pipe from the surface in a small excavation footprint, thereby:

- Reducing the working space, excavation and reinstatement costs for the work.
- Reducing traffic and pedestrian disruptions.
- The operator can work at a safe distance from the potential hazards of damaged pressurised pipes.
- Reducing energy usage - smaller equipment and reduces vehicle movements.
- Reducing excavation, reinstatement & lane rental costs.
- Reducing total time to undertake repair.

Remote EasiClamp & EasiTap

Quickly Installed in 4 Easy Steps

Step 1

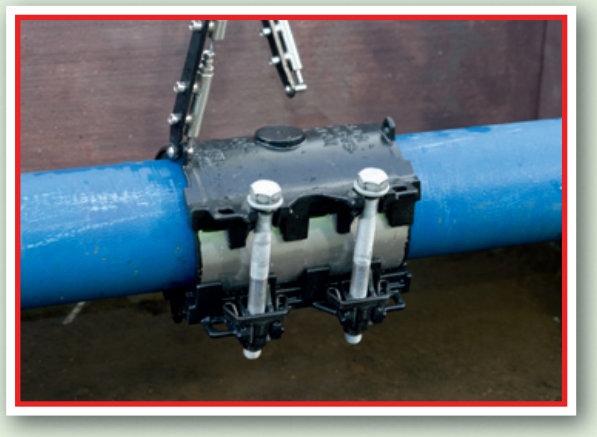
Place the clamp on pipe with the hinge resting on the top of the pipe, facing upwards.

Step 2

Let the two hinged halves drop round the pipe until the self locating bolt mechanism clicks into place over the lugs.

Step 3

Rotate the clamp in the direction that brings the bolt heads facing upwards, or in a convenient position to be tightened.



Step 4

Tighten bolts using extended socket until recommended bolt torque (95 – 120 Nm) is achieved.

Overview

Permanent Under Pressure Repair & Tapping Solutions

The EasiTee and EasiCollar ranges have been developed to provide a comprehensive range of pipe repair and tapping products to serve the needs of today's water industry.

Reliable & Permanent Seal

Universal and Matt Seal EasiTee guarantee a reliable, permanent seal, even on badly corroded pipes. Incorporated into these products is Viking Johnson's unique 100% circumferential "waffle" gasket, which provides a leak tight seal and also caters for circumferential or longitudinal cracks. RingSeal EasiTee uses a twin seal gasket to provide a permanent seal at the point of tapping whilst EasiCollar enables repairs to be made to spigot and socket joints.

No Specialist Equipment Needed

All products can be installed under pressure so there is no need for costly mains shutdown or disruption to customers. No specialist installation equipment is required, simply a torque wrench to confirm correct bolt torque.

The complete EasiRange is suitable for water applications with a 16bar working pressure and a test pressure of 24bar.

Universal EasiTee

RingSeal EasiTee

EasiCollar Pipe Materials

Ductile Iron | Cast Iron | Steel | Asbestos Cement | Concrete

EasiTee Pipe Materials

Ductile Iron | Cast Iron | Steel | PVC

Universal EasiTee

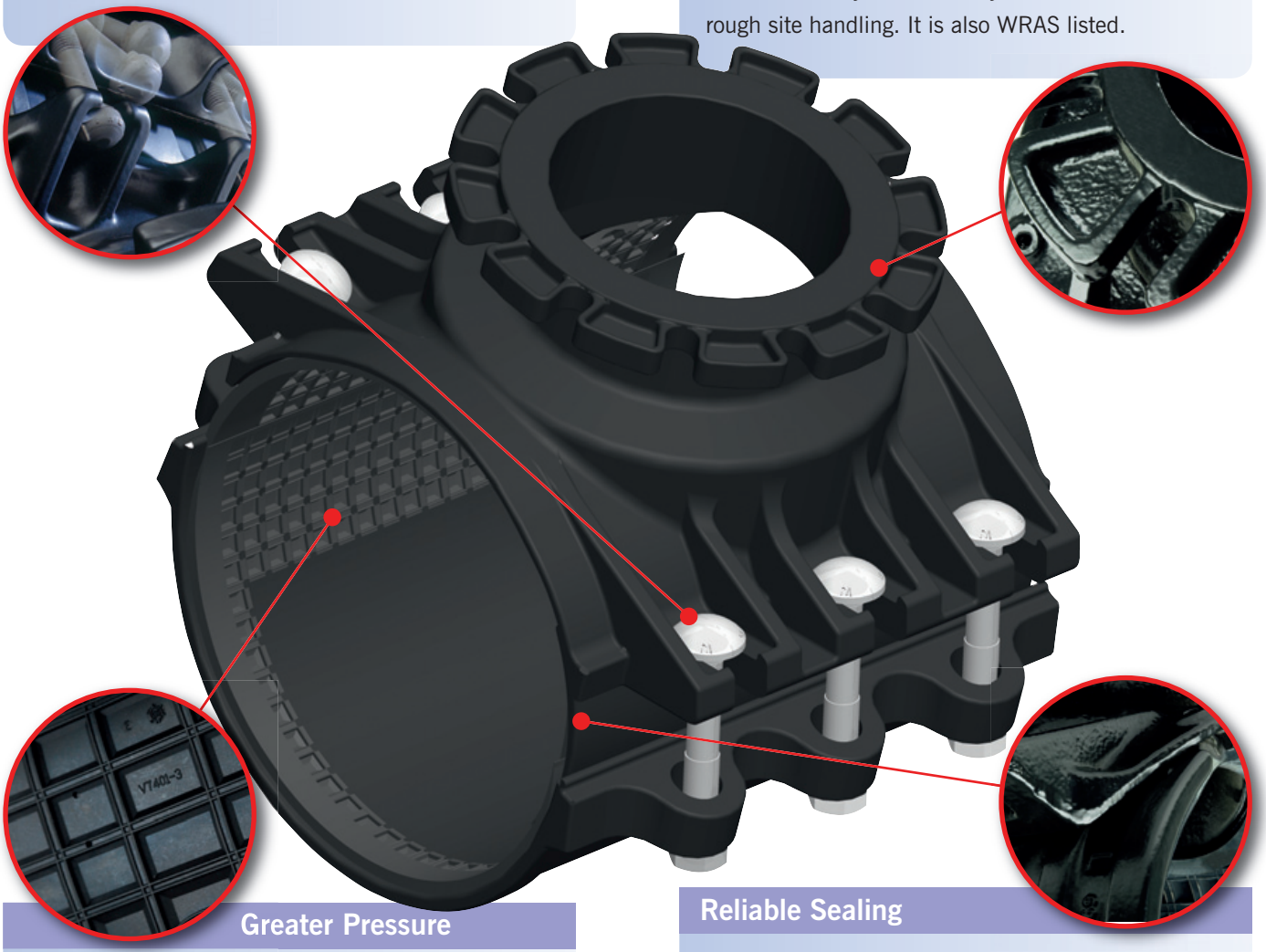
Product Design Benefits

Simple Installation

Universal EasiTee products feature a unique “swing over” bolt to aid installation.

Excellent Corrosion Protection

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.



Greater Pressure

Fluerene coated bolts offer higher load to torque capabilities achieving a greater gasket pressure.

Reliable Sealing

Deflecting bridging plate ensures a positive seal every time.

Customer Benefits

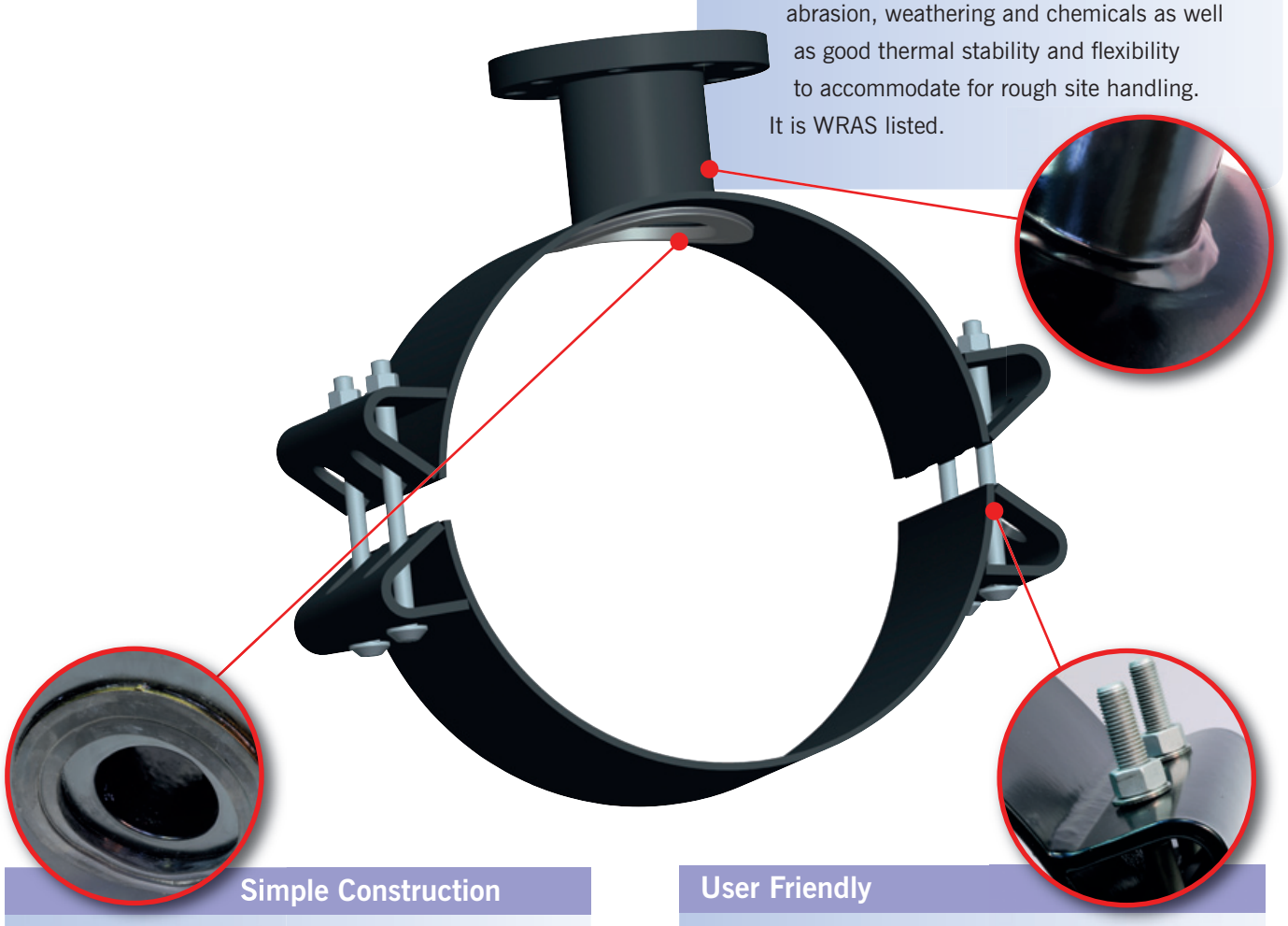
- Branch outlets available up to the same size as main.
- Can be installed under pressure:
  - No costly mains shutdown.
  - No disruption to customers.
  - No dirty water complaints.
- Up to 24mm pipe size tolerance to suit a number of popular pipe materials of the same nominal bore and reduce stock holding.
- Constructed from ductile iron, the Universal EasiTee will support and seal around the pipe for the full length of the body, ensuring that sealing effectiveness is maintained in all circumstances.
- Available from DN80 to DN300.
- Available with various flange connections.

RingSeal EasiTee

Product Design Benefits

Excellent Corrosion Protection

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 WRAS listed.



Simple Construction

Fabricated from carbon steel, with a circular gasket positioned at the base of the branch connection, makes the RingSeal EasiTee both a lighter and cost-effective alternative to the MattSeal EasiTee.

User Friendly

Sheraplex coated bolts offers a consistent torque/load ratio improving the factor of safety and sensitivity to installer error and eliminates galling of the coating in the threads.

Customer Benefits

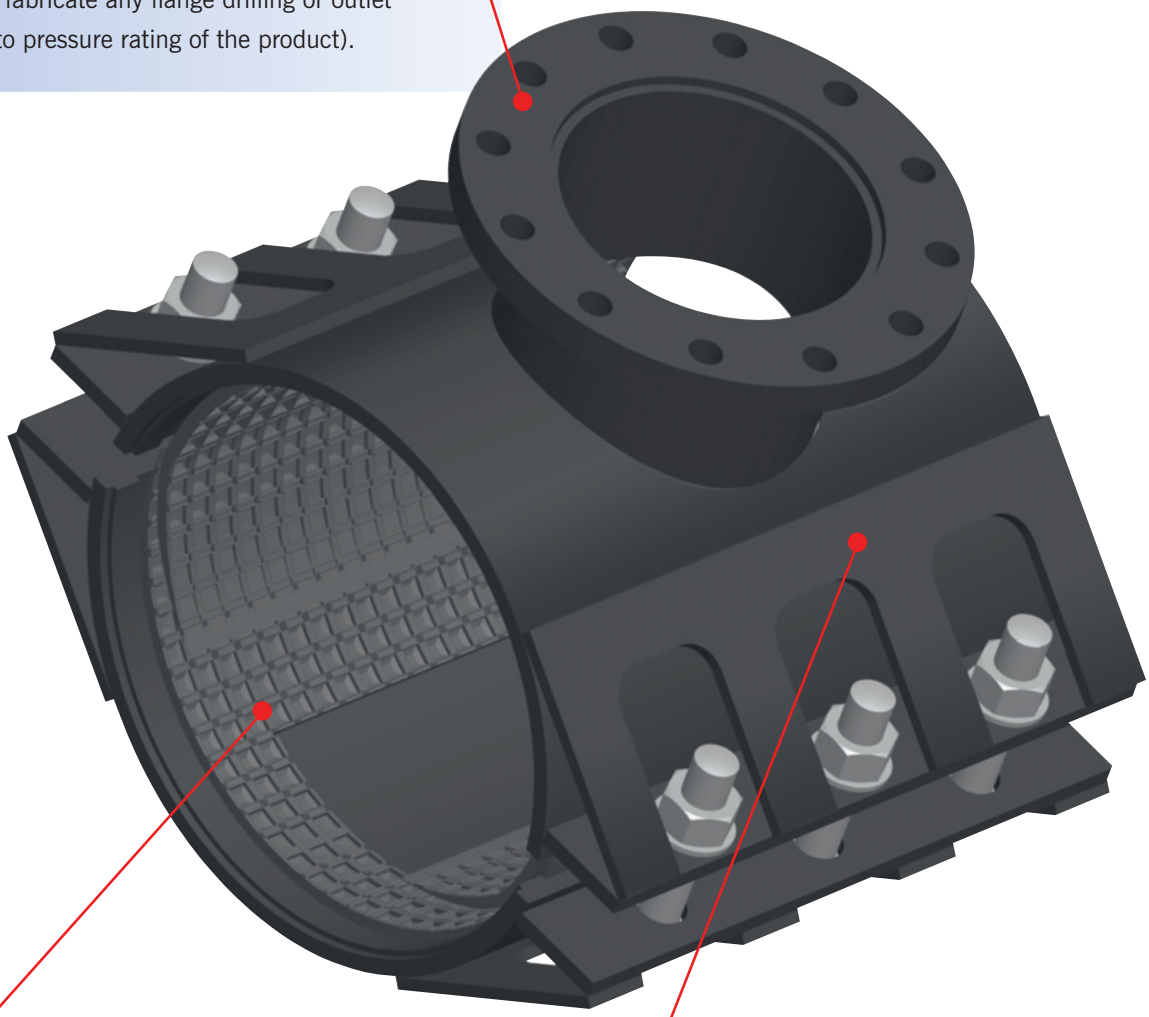
- Lightweight and quick to install.
- Up to DN600 branch (however, if the pipe is grey cast iron the branch must be limited to 70% of the main line size).
- Can be installed under pressure:
  - No costly mains shutdown.
  - No disruption to customers.
  - No dirty water complaints.
- Available from DN350 to DN1200.
- Ability to fabricate any flange drilling or outlet (subject to pressure rating of the product).

MattSeal EasiTee

Product Design Benefits

Flexible

Ability to fabricate any flange drilling or outlet (subject to pressure rating of the product).



Reliable Sealing

The waffle gasket is designed to fully surround the pipe within the housing offering optimal sealing.

Excellent Corrosion Protection

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 and is WRAS listed.

Customer Benefits

- Branch outlets from DN80 up to the same size as main, even on old grey cast iron pipe.
- Can be installed under pressure:
  - No costly mains shutdown.
  - No disruption to customers.
  - No dirty water complaints.
- Up to 12mm pipe size tolerance to suit a number of popular pipe materials of the same nominal bore. Reducing stock holding.
- Available from DN350 to DN600.

EasiCollar

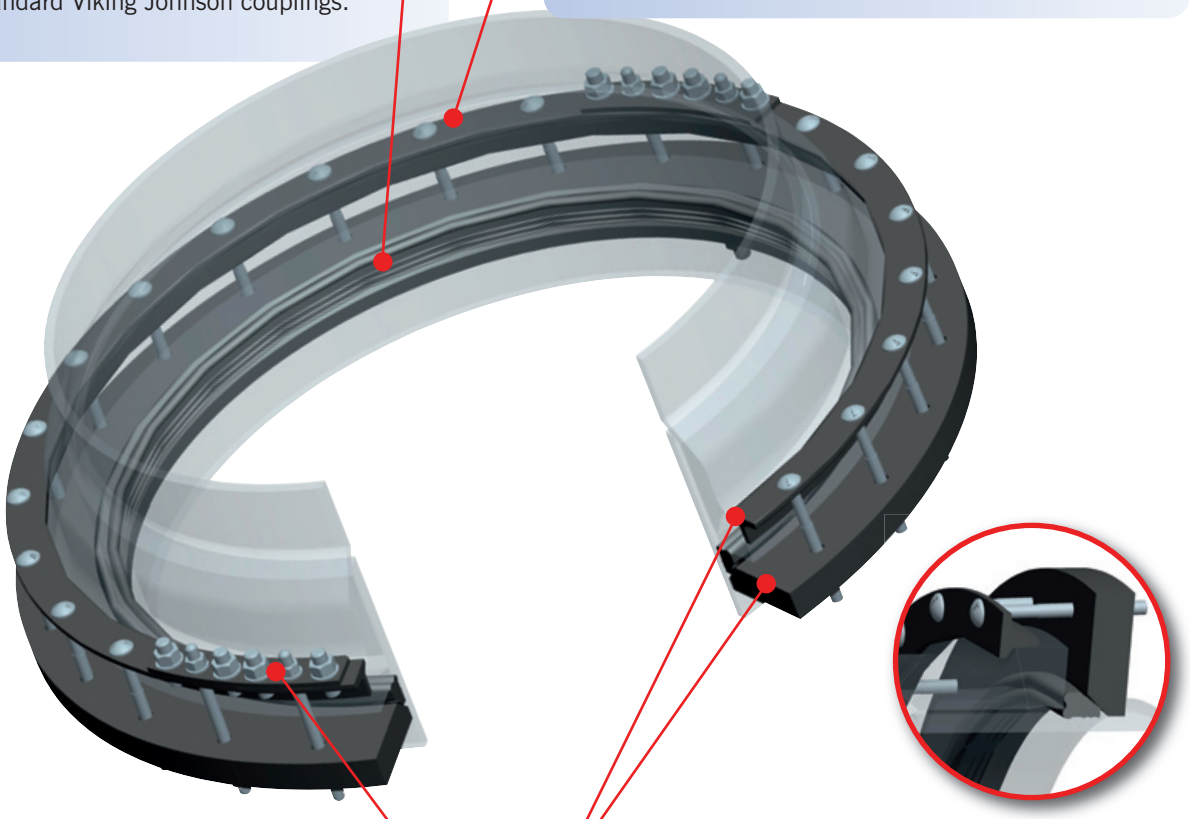
Product Design Benefits

Proven Sealing Capability

EasiCollar has a gasket that presses against the old caulking and provides a new seal on the face of the socket and pipe surface. It creates a flexible joint that uses the same basic sealing method as standard Viking Johnson couplings.

Excellent Corrosion Protection

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.



User Friendly

Sheraplex coated bolts offer an improved torque/load ratio and eliminates galling of coating in threads.

Simple Solution to Renew Old Joints

Two rings are assembled in segments around the pipe, one in front of the socket and around the gasket, the other as an anchorage behind the socket. When the connecting bolts are tightened, pressure is created in the gasket to seal the leaking joint.

Customer Benefits

- Repair collar for spigot and sock joints suitable for:
  - Old spigot and socket iron pipes.
  - Cast iron double collars.
  - Asbestos cement collars.
  - Concrete.
- Can be installed under pressure:
  - No costly mains shutdown.
  - No disruption to customers.
- Available from DN300 to DN1800.
- No additional lead caulking.
- EasiCollar is generally made to order, taking into account the particular dimensions of the pipe and socket.

United Kingdom - Preston

Routine Repair

EasiCollar 15”

Project
EasiCollar used to repair a 15 inch cast iron pipe with a leaking run lead joint.

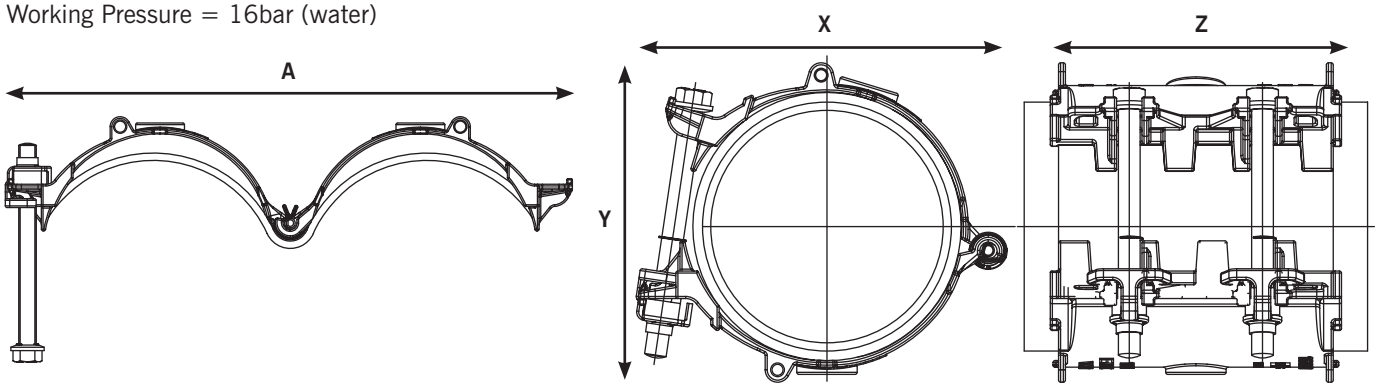
Client
United Utilities

Contractor
Enterprise

Remote EasiClamp & EasiTap D&T Boss

Specifications

Working Pressure = 16bar (water)



Remote EasiClamp

Nominal Diameter	OD Range		Overall Dimensions				Bolt Size No.-Dia x Length	Gasket Mould No.	Weight (kg)
	Min (mm)	Max (mm)	X (mm)	Y (mm)	Z (mm)	A (mm)			
3”	92.3	103	182	175	212	347	2-M16 x 165	13094	4.8
4”	115	125.6	207	186	212	395	2-M16 x 165	13095	5.3
6”	166	181.2	264	233	212	512	2-M16 x 185	13096	6.9

Remote EasiTap D&T Boss

Nominal Diameter	OD Range		Overall Dimensions				Bolt Size No.-Dia x Length	Gasket Mould No.	Weight (kg)	Standard BSP Threaded Boss Size	Non Standard BSP Threaded Boss Size
	Min (mm)	Max (mm)	X (mm)	Y (mm)	Z (mm)	A (mm)					
3”	92.3	103	182	175	212	347	2-M16 x 165	13094	4.8	0.75” BSP	0.5” BSP
4”	115	125.6	207	186	212	395	2-M16 x 165	13095	5.3	1” BSP	0.5” BSP 0.75” BSP
6”	166	181.2	264	233	212	512	2-M16 x 185	13096	6.9	1” BSP	0.5” BSP 0.75” BSP

Materials & Relevant Standards

Housing
Ductile Iron to BS EN1563:1997 Symbol EN-GJS-450-10

Gasket
BS EN681-1:1996 for potable water applications
(WRAS Approved) (60 IRHD)

Bridging Plate
Stainless Steel BS1449:PART 2:1983 GRADE 304S15 2B Finish

Hinge Clip
Acetal M25-04 Natural (HOECHST)

Bolts/Spanner Size
Steel BS EN ISO898-1:2009 Property Class 4.8 M16 / 24mm A/F

Bolt Torque
95 to 120Nm

Retaining Clip
Acetal M25-04 Natural (HOECHST)

Bolt Retainer
Acetal M25-04 Natural (HOECHST)

Anti-Rotation Nut
Cast or Machined Steel. Min Yield Strength = 275N/mm^2.
Ultimate Tensile Strength = 430mm^2. Elongation = 23%

Spherical Washer
Ductile Iron to BS EN1563:1997 Symbol EN-GJS-450-10

Coatings
Body - Rilsan Nylon II

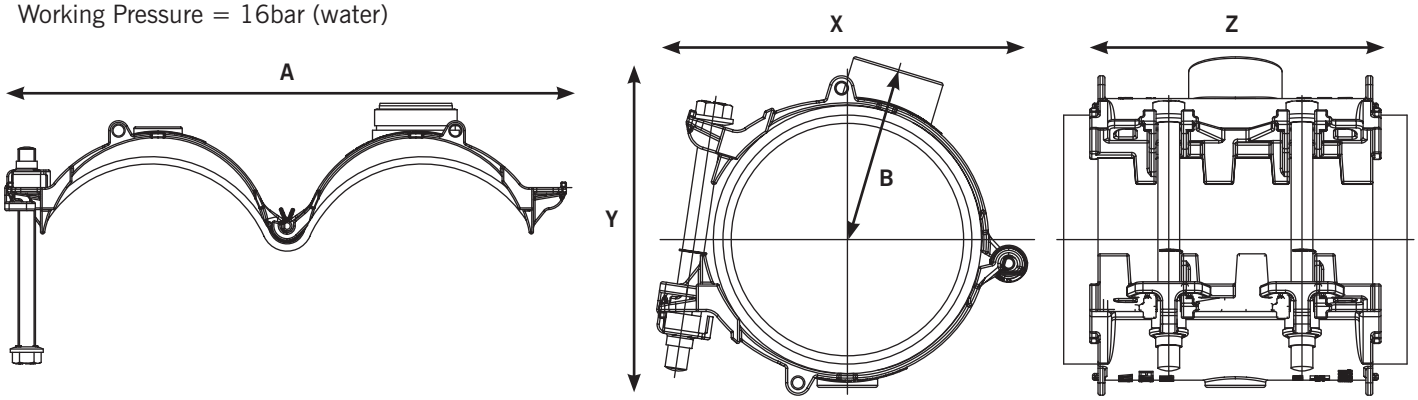
Bolts and Anti-Rotation Nuts - Silver Sheraplex

Spherical Washer - Galvanised

Remote EasiTap D&T Outlet

Specifications

Working Pressure = 16bar (water)



Remote EasiTap D&T Outlet

Nominal Diameter	OD Range		Overall Dimensions					Bolt Size No.-Dia x Length	Gasket Mould No.	Weight (kg)	Outlet - BSP Threaded Size
	Min (mm)	Max (mm)	X (mm)	Y (mm)	Z (mm)	A (mm)	B (mm)				
3”	92.3	103	182	185	212	347	86	2-M16 x 165	13094	5.0	2”BSP
4”	115	125.6	207	200	212	395	93	2-M16 x 165	13095	5.5	2”BSP
6”	166	181.2	264	247	212	512	122	2-M16 x 185	13096	7.1	2”BSP

Materials & Relevant Standards

Housing
Ductile Iron to BS EN1563:1997 Symbol EN-GJS-450-10

Gasket
BS EN681-1:1996 for potable water applications
(WRAS Approved) (60 IRHD)

Bridging Plate
Stainless Steel BS1449:PART 2:1983 GRADE 304S15 2B Finish

Hinge Clip
Acetal M25-04 Natural (HOECHST)

Bolts/Spanner Size
Steel BS EN ISO898-1:2009 Property Class 4.8 M16 / 24mm A/F

Bolt Torque
95 to 120Nm

Retaining Clip
Acetal M25-04 Natural (HOECHST)

Bolt Retainer
Acetal M25-04 Natural (HOECHST)

Anti-Rotation Nut
Cast or Machined Steel. Min Yield Strength = 275N/mm^2.
Ultimate Tensile Strength = 430mm^2. Elongation = 23%

Spherical Washer
Ductile Iron to BS EN1563:1997 Symbol EN-GJS-450-10

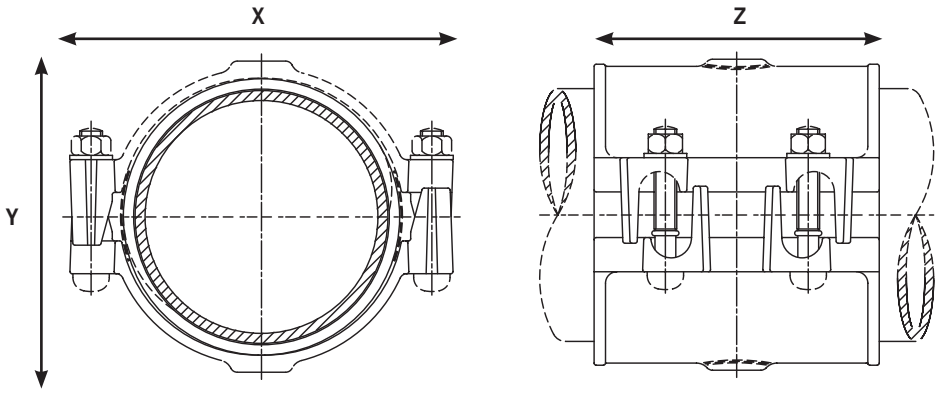
Coatings
Body - Rilsan Nylon II

Bolts and Anti-Rotation Nuts - Silver Sheraplex

Spherical Washer - Galvanised

EasiClamp & EasiTap D&T Boss

Specifications



EasiClamp & EasiTap D&T Boss

Nominal Diameter		OD Range		Dimensions			Bolt Size No.-Dia x Length	Weight (kg)	Outlet BSP Threaded Size
		Min (mm)	Max (mm)	X (mm)	Y (Max) (mm)	Z (mm)			
2”	DN50	66.0	75.0	150	110	200	4-M12 x 65mm	4.1	3/4”
2 1/2”	DN65	75.0	84.0	159	119	200	4-M12 x 65mm	4.4	3/4”
5”	DN125	141.0	153.9	239	182	200	4-M16 x 95mm	7.5	3/4” or 1”
7”	DN175	200.0	210.0	296	238	200	4-M16 x 95mm	9.0	3/4” or 1”
8”	DN200	216.5	226.0	313	269	200	4-M16 x 95mm	9.5	1”
8”	DN200	230.2	243.5	328	281	200	4-M16 x 95mm	10.8	3/4” or 1”
9”	DN225	243.0	267.0	362	307	212	4-M16 x 120mm	13.6	3/4” or 1”
10”	DN250	269.0	294.0	395	322	250	6-M16 x 120mm	18.5	1/2”, 3/4”or 1”
12”	DN300	323.0	349.0	450	387	300	8-M16 x 120mm	25.2	1/2”, 3/4”or 1”

Materials & Relevant Standards

Housing

Tapped Housing - Ductile Iron to BS EN 1563:1997
SYMBOL EN-GJS-450-10

Plain Housing - Ductile Iron to BS EN 1563:1997
SYMBOL EN-GJS-450-10

Bridging Plate

Stainless Steel to BS1449: Part 2:1983 Grade 304S15 2B Finish

Gasket

Grade E, 60 IRHD EPDM to BS2494: 1990/W+D

Bolts/Bolt Torque/Spanner Size

Steel to BS EN ISO 898-1:2001 Property Class 4.8

M12 = 55 to 65Nm / A/F 19mm
M16 = 95 to 110Nm / A/F 24mm

Nuts - Steel to BS 4190:2001 Grade 4

Washers - Stainless Steel to BS 1449:Part 2:1983 Grade 304 S15

Coating

Tapped Housing - Rilsan Nylon 11 to WIS 4-52-01 (Part1)

Plain Housing - Rilsan Nylon 11 to WIS 4-52-01 (Part1)

Bolts & Nuts - Sheraplex to WIS 4-52-03

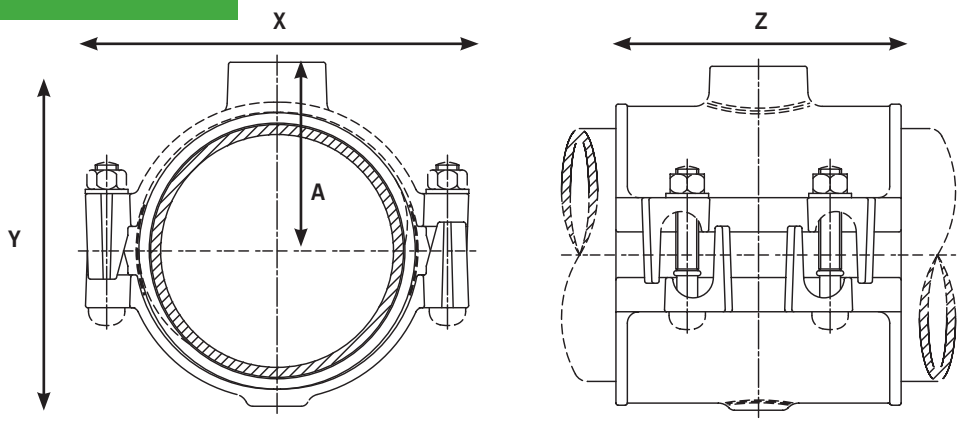
Approvals

All water contact materials are WRAS approved for use with potable water

Full product is WRAS approved for use with potable water

EasiTap - D&T Outlet

Specifications



EasiTap D&T Outlet

Nominal Diameter	OD Range		Dimensions				Bolt Size No.-Dia x Length	Weight (kg)	Outlet BSP Threaded Size
	Min (mm)	Max (mm)	X (mm)	Y (Max) (mm)	Z (mm)	A (mm)			
5”	141.0	153.9	239	210	200	120	4-M16 x 95mm	7.5	2” BSP
7”	200.0	210.0	296	266	200	146	4-M16 x 95mm	9.0	2” BSP
200	216.5	226.0	313	292	200	153	4-M16 x 95mm	10.0	2” BSP
8”	230.2	243.5	332	309	200	161	4-M16 x 95mm	10.8	2” BSP
9”	243.0	267.0	362	330	212	180	4-M16 x 120mm	13.7	2” BSP
10”	269.0	294.0	395	347	250	194	6-M16 x 120mm	18.7	2” BSP
12”	323.0	349.0	450	412	300	221	8-M16 x 120mm	25.4	2” BSP

Materials & Relevant Standards

Housing

Tapped Housing - Ductile Iron to BS EN 1563:1997
SYMBOL EN-GJS-450-10
or Malleable Cast Iron to BS EN 1562:1997
SYMBOL EN-GJMB-350-10

Plain Housing - Ductile Iron to BS EN 1563:1997 SYMBOL EN-GJS-450-10

Bridging Plate

Stainless Steel to BS1449: Part 2:1983 Grade 304S15 2B Finish

Gasket

Grade E, 60 IRHD EPDM to BS2494:1990/W+D

Bolts/Bolt Torque/Spanner Size

M16 = 95 to 110Nm/A/F 24mm

Bolts - Steel to BS EN ISO 898-1:2001 Property Class 4.8

Nuts - Steel to BS 4190:2001 Grade 4

Washers - Stainless Steel to BS 1449: Part 2:1983 Grade 304 S15

Coating

Tapped Housing - Rilsan Nylon 11 to WIS 4-52-01 (Part1)

Plain Housing - Rilsan Nylon 11 to WIS 4-52-01 (Part1)

Bolts & Nuts - Sheraplex to WIS 4-52-03

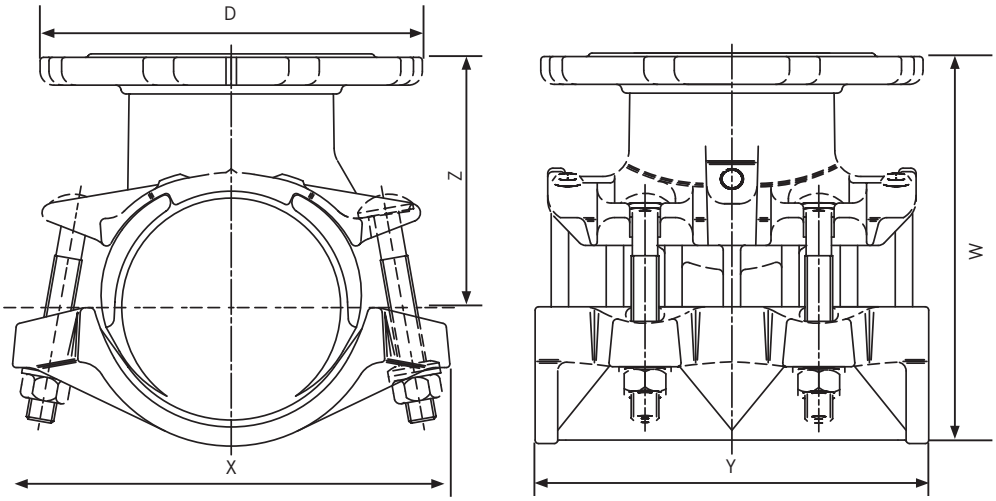
Approvals

All water contact materials are WRAS approved for use with potable water

Full product is WRAS approved for use with potable water

Universal EasiTee

Specifications



EasiTee

Pipe OD Size Range (mm)		Branch Drilling		Plain Mould No.	Branch Mould No.	Dimensions (mm)					Bolt Size No.-Size x length	Weight (kg)
Min	Max	Nom	Spec			D	W	X	Y	Z		
85.4	103.0	80	PN 10,16	1792	1791	200	205	213	193	128	4-M16 x 110	9.0
111.8	129.4	80/100	PN 10,16	1741	1740	200	228	227	252	146	4-M16 x 130	10.5
165.2	184.4	80/100	PN 10,16	1743	1742	200	275	269	305	165	4-M16 x 130	18.7
165.2	184.4	150	PN 10,16	1743	1742	285	275	269	305	165	4-M16 x 130	20.9
215.9	239.7	80/100	PN 10,16	1745	1744	200	365	319	385	228	6-M20 x 140	25.4
215.9	239.7	150	PN 10,16	1745	1744	285	365	319	385	228	6-M20 x 140	28.0
215.9	239.7	200	PN 16	1745	1744	340	365	319	385	228	6-M20 x 140	29.5
269.2	293.5	80/100	PN 10,16	1747	1746	200	424	368	462	260	6-M20 x 140	49.1
269.2	293.5	150	PN 10,16	1747	1746	285	424	368	462	260	6-M20 x 140	51.2
269.2	293.5	200	PN 16	1747	1746	340	424	368	462	260	6-M20 x 140	52.3
269.2	293.5	250	PN 16	1747	1746	405	424	368	462	260	6-M20 x 140	56.6
323.1	349.0	80/100	PN 10,16	1749	1748	200	478	439	534	290	6-M24 x 160	58.7
323.1	349.0	150	PN 10,16	1749	1748	285	478	439	534	290	6-M24 x 160	61.0
323.1	349.0	200	PN 16	1749	1748	340	478	439	534	290	6-M24 x 160	62.5
323.1	349.0	250	PN 16	1749	1748	405	478	439	534	290	6-M24 x 160	66.0
323.1	349.0	300	PN 16	1749	1748	460	478	439	534	290	6-M24 x 160	66.0

Materials & Relevant Standards

Bolt Torque/Spanner Details:-

M16 = 95 to 110Nm/A/F 24mm
M20 = 150 to 165Nm/A/F30mm
M24 = 285 to 300Nm/A/F36mm

Housing

Flanged Housing - Ductile Iron to BS EN1563:1997
SYMBOL EN-GJS-450-10

Plain Housing - Ductile Iron to BS EN1563:1997
SYMBOL EN-GJS-450-10

Bridging Plate

Ductile Iron to BS EN1563:1997
SYMBOL EN-GJS-450-10

Gasket

Grade E, 60 IRHD EPDM BS EN681-1:1996

Bolts/Nuts/Washers

Bolts - Steel to BS EN 10083: Part 1:1991 Grade 2.C.22
Steel to BS EN ISO898-1 2009 property class 4.8.

Nuts - Steel to BS 4190:2001 Grade 4

Spherical Washers - Pearlite Malleablle Iron
to BS EN 1562:1997 Symbol EN-GJMW-400-5

Washers - Stainless Steel to BS 1449: Part 2:1983
Grade 304 S15

Coatings

Flanged Housing - Rilsan Nylon 11 to WIS 4-52-01 (Part1)

Plain Housing - Rilsan Nylon 11 to WIS 4-52-01 (Part1)

Bridging Plate - Nylon 11 to WIS 4-52-01 (Part 1)

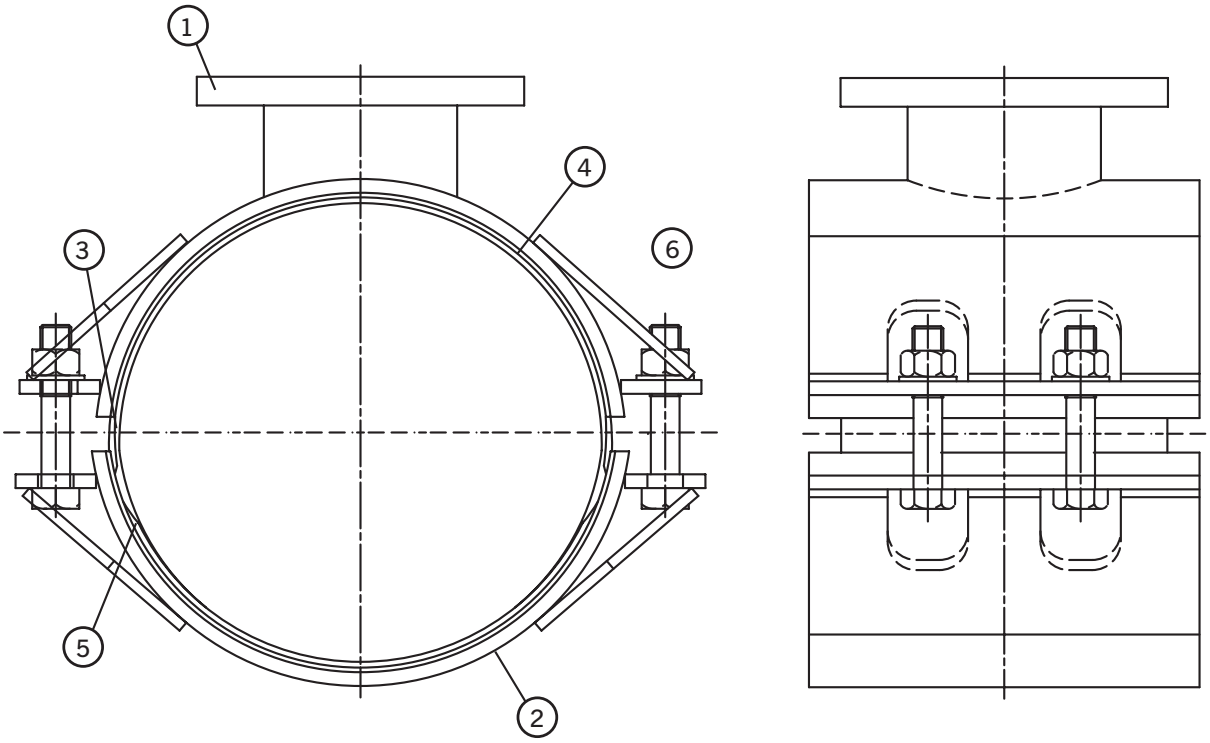
Bolts & Nuts - Flurene coated

Approvals

All water contact materials are WRAS approved for use with potable water.
Full product is WRAS approved for use with potable water.

MattSeal EasiTee

Specifications



Materials & Relevant Standards

1) Branch Housing
Steel BS EN10025-2:2004 Grade S275JR
and Steel tube BS EN 10216-1:2002 Grade P265TRI
BS EN 10255:2004

2) Plain Housing
Steel BS EN10025-2:2004 Grade S275JR

3) Bridging Plate
Stainless Steel BS1449:Part 2:1983 Grade 304S15

4) Saddle Gasket
60 IRHD EPDM to BS EN681-1: 1996

5) Housing Gasket
60 IRHD EPDM to BS EN681-1: 1996

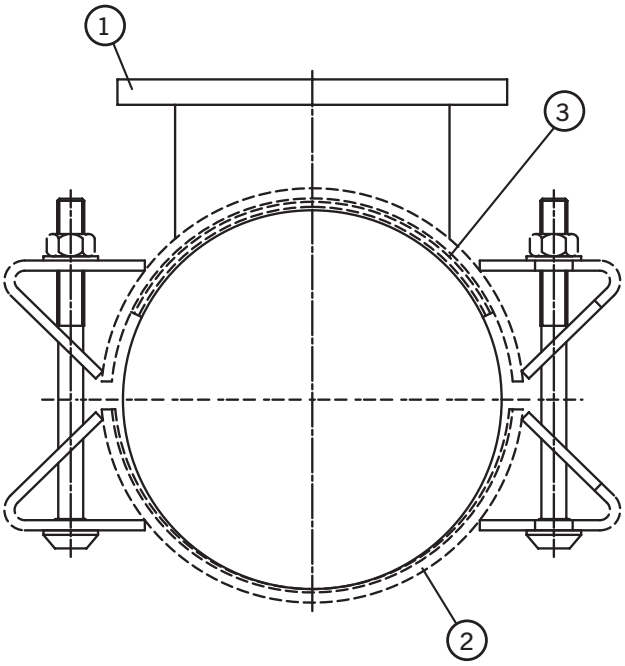
6) Bolts, Nuts and Washers
Bolts - Steel BS EN ISO898-1:2009 Property Class 4.8
Nuts - Steel BS4190:2001 Grade 4
Washers - Steel BS EN10083:Part 1:1991 Grade C22E

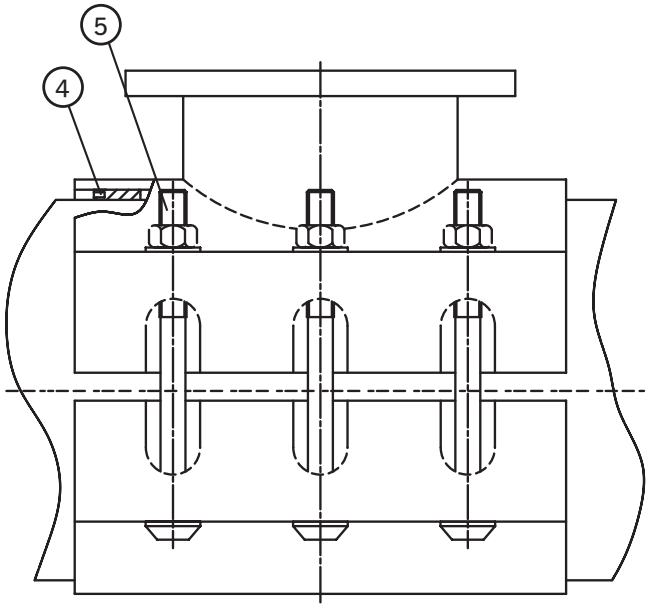
Finish Specification
1) **Branch Housing -** Rilsan Nylon II
2) **Plain Housing -** Rilsan Nylon II

MattSeal EasiTee products are manufactured to order. For detailed dimensional data please contact Viking Johnson.

RingSeal EasiTee

Specifications





Materials & Relevant Standards

1) Branch Housing

Steel BS EN10025-2:2004 Grade S275JR
Steel tube to BS EN 10216-1:2002 Grade P265TRI
BS EN 10255:2004

2) Plain Housing

Steel BS EN10025-2:2004 Grade S275JR

3) Gasket

Rubber BS EN681-1:1996 70 Hardness Grade EPDM

4) Gasket Retainer

Steel BS EN10025-2:2004 Grade S275JR

5) Bolt, Nut & Washer

Bolt - Steel BS EN ISO 898-1:2009 Property Class 8.8
Nut - Steel BS EN20898-2:1994 Property Class 8.0
Washer - Stainless Steel BS EN ISO3506-1:2009
Grade A2 Property Class 50 (304)

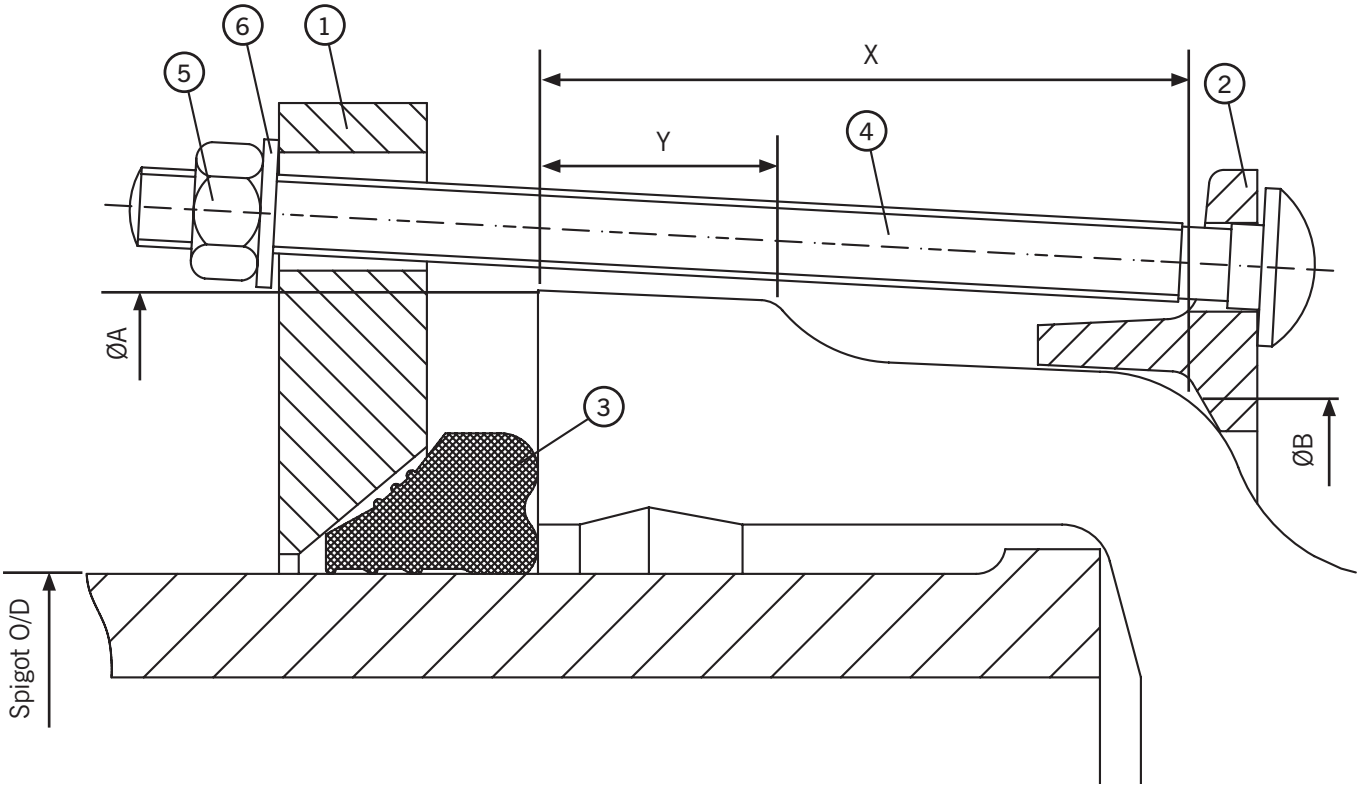
Finish Specification

1) **Branch Housing -** Rilsan Nylon II
2) **Plain Housing -** Rilsan Nylon II
4) **Gasket Retainer -** Zinc Plate to BS1706:1990 Fe/ZnB c1 B
5) **Bolt, Nut & Washer -** Sheraplex coated to WIS 4-52-03

RingSeal EasiTee products are manufactured to order. For detailed dimensional data please contact Viking Johnson.

EasiCollar DN300 to DN1800

Specifications



Materials & Relevant Standards

Materials

1) **Compression Flange -** Steel BS EN10025-2:2004 Grade S275JR
2) **Anchor End Ring -** Steel BS EN10025-2:2004 Grade S275JR
3) **Gasket -** 61 IRHD EPDM Compound Ref. CVE61
4) **Bolts -** Steel BS EN ISO 898-1:2009 Property Class 4.8
5) **Nuts -** Steel BS4190:2001 Grade 4
6) **Washers -** Stainless Steel to BS1449:Part 2 1983 Grade 304 S15

Finish Specification

Compression Flange (Part 1) Rilsan Nylon II - Black
Anchor End Ring (Part 2) Rilsan Nylon II - Black
Bolts and Nuts - Sheraplex coated to WIS 4-52-03

Note: Due to the number of different types of spigot and socket joints, with varying tolerances, when enquiring about EasiCollar a form is available with the dimensions required, please contact the marketing department for more information.

EasiCollar products are manufactured to order. For detailed dimensional data please contact Viking Johnson.

United Kingdom - Anglesey

Systems Maintenance

MattSeal EasiTee - DN300

Project
Upgrading network - making an under pressure connection to an existing cast iron water main.

Client
Welsh Water

Contractor
Daniel Contractor Limited

Telephone: +44 (0)1462 443322

Practical

HandiRange

HandiClamp, HandiTap, HandiTee & HandiBand

Stainless Steel Repair & Tapping Solutions

Overview

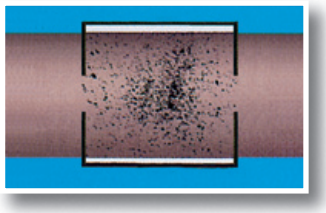
A Permanent Repair Solution for Small Bore Pipes

The HandiRange is a comprehensive range of stainless steel repair and tapping products, designed to serve the needs of today's water industry. The HandiRange comprises HandiClamp, HandiTap, HandiTee and HandiBand.

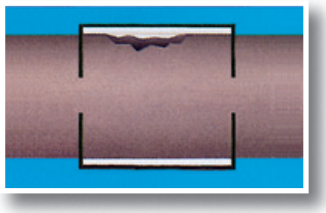
Available in various clamp lengths and suitable for virtually any pipe material, HandiRange products are available with either EPDM or Nitrile gaskets, with a maximum operating temperature of 40°C.

HandiClamp is constructed from 100% stainless steel and offers permanent repair for many types of pipe damage from DN50 (2") to DN1000 (24"). The HandiTap range offers the same design and construction features as the HandiClamp but has various female BSP outlet options, offering a quick, cost effective method of replacing service connections under pressure. The HandiTee range is extremely useful to make simple flanged connections on pipelines under pressure due to its lightweight and easy installation. Finally, HandiBand is a high quality repair clamp designed for localised damage on small bore pipes DN15 to DN50 (1/2" – 2").

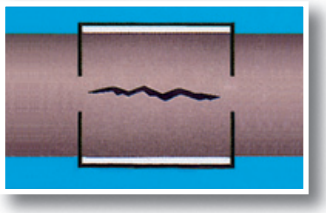
Types of Damage That HandiRange Will Seal



Corrosion holes



Impact Damage



Longitudinal Cracks

Note: HandiRange products will repair localised damage only. The maximum diameter of the hole in PE pipe that can be repaired by HandiClamp varies according to pipe diameter and clamp length.

Pipe Materials

HandiRange Repair & Tapping Solutions

Product Design Benefits

Corrosion Protection

Components constructed of fully-passivated stainless steel (Grade 304) with no need for any further protection on site (e.g. on-site wrapping). Bolts are secured with Dacromet coated nuts to prevent galling.

Easy Installation

Rapid installation in poor site conditions, made easy with simple, 'flip-over' action and self retaining bolts.

First Time Seal

All encompassing waffle gasket offers a guaranteed reliable seal even on badly corroded pipes.

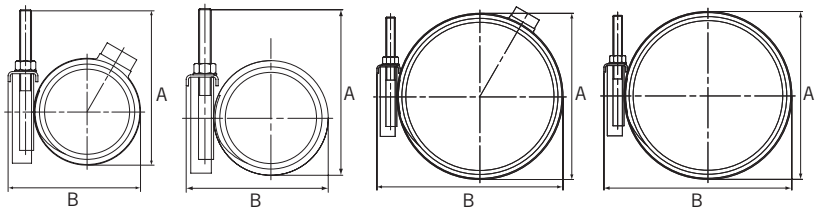
Customer Benefits

- No specialist equipment required, standard under-pressure equipment can be used with HandiTap and HandiTee.
- No costly mains shutdown with HandiTap and HandiTee, allowing branch connections whilst under pressure.
- Reduced stock holding due to wide tolerance in the range.

1 part clamp	2 part clamp	3 part clamp
Up to 10mm tolerance	Up to 20mm tolerance	Up to 30mm tolerance

HandiClamp & HandiTap Single Band

Specifications



Single Band HandiClamp & HandiTap

OD Range (mm)	A (mm)	B (mm)	Max Outlet Size*	Working** Pressure (bar)		Clamp Length***											
						150 (mm)		200 (mm)		250 (mm)		300 (mm)		400 (mm)		500 (mm)	
						Bolt Details		Bolt Details		Bolt Details		Bolt Details		Bolt Details		Bolt Details	
			BSP	Water	Gas	No.-Dia x Length	Weight (kg)	No.-Dia x Length	Weight (kg)	No.-Dia x Length	Weight (kg)	No.-Dia x Length	Weight (kg)	No.-Dia x Length	Weight (kg)	No.-Dia x Length	Weight (kg)
44 - 48	141	77	1.25" BSP	24.0	4.0	2-M12 x 135	1.13	2-M12 x 135	1.35	3-M12 x 135	1.89	3-M12 x 135	2.10				
48 - 52	143	82	1.25" BSP	24.0	4.0	2-M12 x 135	1.15	2-M12 x 135	1.37	3-M12 x 135	1.93	3-M12 x 135	2.14				
54 - 58	146	88	1.5" BSP	24.0	4.0	2-M12 x 135	1.18	2-M12 x 135	1.41	3-M12 x 135	1.98	3-M12 x 135	2.20				
58 - 64	148	92	1.5" BSP	24.0	4.0	2-M12 x 135	1.20	2-M12 x 135	1.44	3-M12 x 135	2.01	3-M12 x 135	2.24				
60 - 67	149	94	1.5" BSP	24.0	4.0	2-M12 x 135	1.21	2-M12 x 135	1.45	3-M12 x 135	2.03	3-M12 x 135	2.26				
63 - 70	151	97	1.5" BSP	24.0	4.0	2-M12 x 135	1.23	2-M12 x 135	1.47	3-M12 x 135	2.05	3-M12 x 135	2.29				
68 - 76	153	102	1.5" BSP	24.0	4.0	2-M12 x 135	1.25	2-M12 x 135	1.51	3-M12 x 135	2.09	3-M12 x 135	2.34				
75 - 83	157	109	1.5" BSP	24.0	4.0	2-M12 x 135	1.29	2-M12 x 135	1.55	3-M12 x 135	2.15	3-M12 x 135	2.41				
82 - 89	160	116	1.5" BSP	20.0	4.0	2-M12 x 135	1.36	2-M12 x 135	1.60	3-M12 x 135	2.21	3-M12 x 135	2.48				
87 - 96	163	121	1.5" BSP	20.0	4.0	2-M12 x 135	1.38	2-M12 x 135	1.63	3-M12 x 135	2.25	3-M12 x 135	2.53	4-M12 x 135	3.38		
95 - 105	167	129	2.0" BSP	20.0	4.0	2-M12 x 135	1.49	2-M12 x 135	1.77	3-M12 x 135	2.42	3-M12 x 135	2.73	4-M12 x 135	3.65		
102 - 112	170	136	2.0" BSP	20.0	4.0	2-M12 x 135	1.54	2-M12 x 135	1.83	3-M12 x 135	2.49	3-M12 x 135	2.83	4-M12 x 135	3.78		
113 - 123	176	147	2.0" BSP	20.0	4.0	2-M14 x 135	1.67	2-M14 x 135	1.98	3-M14 x 135	2.70	3-M14 x 135	3.05	4-M14 x 135	4.07		
120 - 130	179	154	2.0" BSP	16.0	4.0	2-M14 x 135	1.71	2-M14 x 135	2.09	3-M14 x 135	2.84	3-M14 x 135	3.21	4-M14 x 135	4.29		
132 - 142	185	166	2.0" BSP	16.0	4.0			2-M14 x 135	2.17	3-M14 x 135	2.94	3-M14 x 135	3.34	4-M14 x 135	4.47		
135 - 145	187	169	2.0" BSP	16.0	4.0			2-M14 x 135	2.19	3-M14 x 135	2.97	3-M14 x 135	3.37	4-M14 x 135	4.51		
147 - 157	193	181	2.0" BSP	16.0	4.0			2-M14 x 135	2.28	3-M14 x 135	3.08	3-M14 x 135	3.50	4-M14 x 135	4.68		
151 - 161	195	185	2.0" BSP	16.0	4.0			2-M14 x 135	2.31	3-M14 x 135	3.11	3-M14 x 135	3.54	4-M14 x 135	4.73		
160 - 170	199	194	2.0" BSP	16.0	4.0			2-M14 x 135	2.39	3-M14 x 135	3.22	3-M14 x 135	3.67	4-M14 x 135	4.91		
167 - 178	203	201	2.0" BSP	16.0	4.0			2-M14 x 135	2.44	3-M14 x 135	3.28	3-M14 x 135	3.75	4-M14 x 135	5.00		
176 - 187	207	210	2.0" BSP	16.0	4.0			2-M14 x 135	2.50	3-M14 x 135	3.36	3-M14 x 135	3.84	4-M14 x 135	5.13		
186 - 196	212	220	2.0" BSP	16.0	4.0			2-M14 x 135	2.58	3-M14 x 135	3.45	3-M14 x 135	3.95	4-M14 x 135	5.27		
193 - 203	216	227	2.0" BSP	16.0	4.0			2-M14 x 135	2.63	3-M14 x 135	3.51	3-M14 x 135	4.02	4-M14 x 135	5.37		
200 - 210	219	234	2.0" BSP	16.0	4.0			2-M14 x 135	2.88	3-M14 x 135	3.83	3-M14 x 135	4.40	4-M14 x 135	5.88		
215 - 225	227	249	2.0" BSP	16.0	4.0			2-M14 x 135	3.00	3-M14 x 135	3.98	3-M14 x 135	4.59	4-M14 x 135	6.12	5-M14 x 135	7.71
219 - 229	229	253	2.0" BSP	16.0	4.0			2-M14 x 135	3.03	3-M14 x 135	4.02	3-M14 x 135	4.64	4-M14 x 135	6.19	5-M14 x 135	7.79
230 - 240	239	264	2.0" BSP	10.0	2.5					3-M14 x 135	4.13	3-M14 x 135	4.77	4-M14 x 135	6.37	5-M14 x 135	8.02
237 - 247	246	271	2.0" BSP	10.0	2.5					3-M14 x 135	4.21	3-M14 x 135	4.86	4-M14 x 135	6.48	5-M14 x 135	8.16
240 - 250	249	274	2.0" BSP	10.0	2.5					3-M14 x 135	4.23	3-M14 x 135	4.89	4-M14 x 135	6.53	5-M14 x 135	8.22
250 - 260	259	284	2.0" BSP	10.0	2.5					3-M14 x 135	4.33	3-M14 x 135	5.01	4-M14 x 135	6.69	5-M14 x 135	8.42
257 - 267	266	291	2.0" BSP	10.0	2.5					3-M14 x 135	4.41	3-M14 x 135	5.10	4-M14 x 135	6.80	5-M14 x 135	8.56
261 - 271	270	295	2.0" BSP	10.0	2.5					3-M14 x 135	4.45	3-M14 x 135	5.15	4-M14 x 135	6.87	5-M14 x 135	8.64
270 - 280	279	304	2.0" BSP	10.0	2.5					3-M14 x 135	4.54	3-M14 x 135	5.26	4-M14 x 135	7.02	5-M14 x 135	8.83
280 - 291	289	314	2.0" BSP	10.0	2.5					3-M14 x 135	4.64	3-M14 x 135	5.38	4-M14 x 135	7.18	5-M14 x 135	9.03
290 - 300	299	324	2.0" BSP	6.0	1.5					3-M14 x 135	4.74	3-M14 x 135	5.50	4-M14 x 135	7.34	5-M14 x 135	9.23
300 - 310	308	333	2.0" BSP	6.0	1.5					3-M14 x 135	4.84	3-M14 x 135	5.62	4-M14 x 135	7.50	5-M14 x 135	9.43
310 - 320	319	343	2.0" BSP	6.0	1.5					3-M14 x 135	4.94	3-M14 x 135	5.74	4-M14 x 135	7.67	5-M14 x 135	9.64
315 - 325	328	349	2.0" BSP	6.0	1.5					3-M14 x 135	5.00	3-M14 x 135	5.81	4-M14 x 135	7.75	5-M14 x 135	9.74
320 - 330	329	354	2.0" BSP	6.0	1.5					3-M14 x 135	5.04	3-M14 x 135	5.86	4-M14 x 135	7.83	5-M14 x 135	9.84
330 - 340	339	364	2.0" BSP	6.0	1.5					3-M14 x 135	5.15	3-M14 x 135	5.99	4-M14 x 135	7.99	5-M14 x 135	10.04
340 - 350	349	374	2.0" BSP	6.0	1.5					3-M14 x 135	5.25	3-M14 x 135	6.11	4-M14 x 135	8.15	5-M14 x 135	10.24
350 - 360	359	384	2.0" BSP	6.0	1.5					3-M14 x 135	5.35	3-M14 x 135	6.23	4-M14 x 135	8.32	5-M14 x 135	10.45

*This is the maximum size BSP outlet offered. Smaller outlets are available: 0.75", 1.0", 1.25", 1.5", 1.75", 2.0".**The rated working pressures quoted above for water applications are based on worst case scenarios including circumferential cracks. When used to repair pipelines with less severe damage and dependant on the pipe surface, higher working pressures may be achieved.
***When using HandiRange products on PE pipe, consideration to clamp length must be given, please contact the Viking Johnson Marketing Department for more details.

Materials & Relevant Standards

Body & Plates

Shell, channel plate, bridging plate, lug plate & nut plate
Stainless Steel to BS1449:Part 2:1983 GRADE 304S15

Gasket

EPDM to BS EN681-1, TYPE WA, WC or Nitrile to BS EN682:2002, Type G 60 IRHD moulded compound

Studs/Nuts/Washers

Studs - Stainless Steel to BS EN ISO3506-1:2009 GRADE A2 Property Class 50

Nuts - Stainless Steel to BS EN ISO 3506-2:2009 GRADE A4 Property Class 80

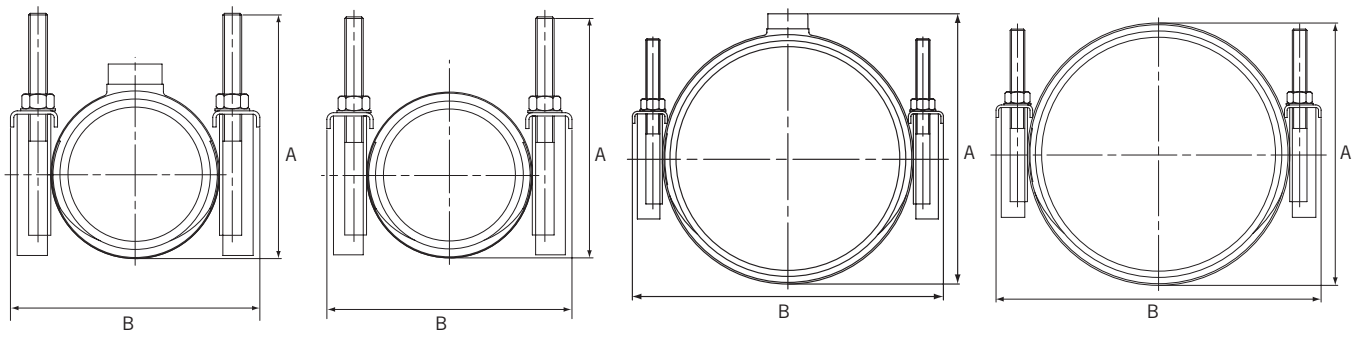
Washers - Stainless Steel BS1449:PART 2:1983 GRADE 304S15

Bolt Torques

M12 = 55 - 65Nm • M14 = 70 - 85Nm • M16 = 95 - 110Nm

HandiClamp & HandiTap Double Band

Specifications



Double Band HandiClamp & HandiTap

OD Range (mm)	A (mm)	B (mm)	Max Outlet Size*	Working Pressure (bar)**		Clamp Length***							
						200 (mm)		250 (mm)		300 (mm)		400 (mm)	
						Bolt Details		Bolt Details		Bolt Details		Bolt Details	
			BSP	Water	Gas	No.-Dia x Length	Weight (kg)	No.-Dia x Length	Weight (kg)	No.-Dia x Length	Weight (kg)	No.-Dia x Length	Weight (kg)
88 - 110	163	122	1.0" BSP	20.0	4.0	4-M12 x 135	2.50	6-M12 x 135	3.76	6-M12 x 135	4.14	8-M12 x 135	5.69
108 - 128	173	142	1.5" BSP	20.0	4.0	4-M12 x 135	2.67	6-M12 x 135	3.97	6-M12 x 135	4.40	8-M12 x 135	6.03
113 - 133	176	147	1.5" BSP	20.0	4.0	4-M14 x 135	2.77	6-M14 x 135	4.09	6-M14 x 135	4.54	8-M14 x 135	6.22
120 - 140	179	154	1.5" BSP	20.0	4.0	4-M14 x 135	2.81	6-M14 x 135	4.15	6-M14 x 135	4.61	8-M14 x 135	6.31
130 - 150	184	164	1.5" BSP	16.0	4.0	4-M14 x 135	2.88	6-M14 x 135	4.24	6-M14 x 135	4.72	8-M14 x 135	6.46
140 - 160	189	173	2.0" BSP	16.0	4.0	4-M14 x 135	2.95	6-M14 x 135	4.33	6-M14 x 135	4.82	8-M14 x 135	6.59
150 - 170	194	184	2.0" BSP	16.0	4.0	4-M14 x 135	3.07	6-M14 x 135	4.47	6-M14 x 135	4.99	8-M14 x 135	6.82
159 - 180	199	192	2.0" BSP	16.0	4.0	4-M14 x 135	3.13	6-M14 x 135	4.55	6-M14 x 135	5.09	8-M14 x 135	6.95
168 - 189	203	201	2.0" BSP	16.0	4.0	4-M14 x 135	3.19	6-M14 x 135	4.63	6-M14 x 135	5.18	8-M14 x 135	7.07
170 - 190	204	204	2.0" BSP	16.0	4.0	4-M14 x 135	3.21	6-M14 x 135	4.65	6-M14 x 135	5.21	8-M14 x 135	7.11
175 - 195	207	208	2.0" BSP	16.0	4.0	4-M14 x 135	3.24	6-M14 x 135	4.69	6-M14 x 135	5.26	8-M14 x 135	7.17
190 - 210	214	224	2.0" BSP	16.0	4.0	4-M14 x 135	3.35	6-M14 x 135	4.82	6-M14 x 135	5.42	8-M14 x 135	7.39
205 - 225	222	239	2.0" BSP	16.0	4.0	4-M14 x 135	3.67	6-M14 x 135	5.22	6-M14 x 135	5.90	8-M14 x 135	8.03
210 - 230	224	243	2.0" BSP	16.0	4.0	4-M14 x 135	3.71	6-M14 x 135	5.27	6-M14 x 135	5.95	8-M14 x 135	8.10
216 - 238	227	250	2.0" BSP	16.0	4.0	4-M14 x 135	3.76	6-M14 x 135	5.33	6-M14 x 135	6.03	8-M14 x 135	8.20
220 - 242	229	254	2.0" BSP	10.0	2.5	4-M14 x 135	3.79	6-M14 x 135	5.37	6-M14 x 135	6.08	8-M14 x 135	8.27
240 - 260	248	273	2.0" BSP	10.0	2.5	4-M14 x 135	3.95	6-M14 x 135	5.57	6-M14 x 135	6.32	8-M14 x 135	8.59
243 - 263	252	277	2.0" BSP	10.0	2.5	4-M14 x 135	3.98	6-M14 x 135	5.60	6-M14 x 135	6.36	8-M14 x 135	8.64
255 - 275	264	289	2.0" BSP	10.0	2.5	4-M14 x 135	4.07	6-M14 x 135	5.73	6-M14 x 135	6.65	8-M14 x 135	8.83
272 - 292	280	306	2.0" BSP	10.0	2.5	4-M14 x 135	4.21	6-M14 x 135	5.90	6-M14 x 135	6.71	8-M14 x 135	9.11
282 - 302	290	315	2.0" BSP	6.0	1.5	4-M14 x 135	4.29	6-M14 x 135	6.00	6-M14 x 135	6.83	8-M14 x 135	9.27
295 - 315	304	329	2.0" BSP	6.0	1.5	4-M14 x 135	4.40	6-M14 x 135	6.13	6-M14 x 135	6.99	8-M14 x 135	9.48
307 - 327	316	341	2.0" BSP	6.0	1.5	4-M14 x 135	4.50	6-M14 x 135	6.25	6-M14 x 135	7.14	8-M14 x 135	9.68
315 - 335	323	348	2.0" BSP	6.0	1.5	4-M14 x 135	4.56	6-M14 x 135	6.33	6-M14 x 135	7.23	8-M14 x 135	9.80
319 - 339	328	353	2.0" BSP	6.0	1.5	4-M14 x 135	4.59	6-M14 x 135	6.38	6-M14 x 135	7.28	8-M14 x 135	9.88
322 - 344	330	355	2.0" BSP	6.0	1.5	4-M14 x 135	4.62	6-M14 x 135	6.40	6-M14 x 135	7.32	8-M14 x 135	9.92
333 - 353	342	367	2.0" BSP	6.0	1.5			6-M14 x 135	6.52	6-M14 x 135	7.45	8-M14 x 135	10.10
341 - 361	350	375	2.0" BSP	6.0	1.5			6-M14 x 135	6.60	6-M14 x 135	7.55	8-M14 x 135	10.23
365 - 385	374	399	2.0" BSP	5.0	1.25			6-M14 x 135	6.84	6-M14 x 135	7.84	8-M14 x 135	10.62
396 - 416	405	430	2.0" BSP	5.0	1.25			6-M14 x 135	7.16	6-M14 x 135	8.22	8-M14 x 135	11.13
410 - 430	419	444	2.0" BSP	4.9	1.22			6-M14 x 135	7.30	6-M14 x 135	8.39	8-M14 x 135	11.35

*This is the maximum size BSP outlet offered. Smaller outlets are available: 0.75", 1.0", 1.25", 1.5", 1.75", 2.0".**The rated working pressures quoted above for water applications are based on worst case scenarios including circumferential cracks. When used to repair pipelines with less severe damage and dependant on the pipe surface, higher working pressures may be achieved.
***When using HandiRange products on PE pipe, consideration to clamp length must be given, please contact the Viking Johnson Marketing Department for more details.

Materials & Relevant Standards

Body & Plates

Shell, channel plate, bridging plate, lug plate & nut plate
Stainless Steel to BS1449:Part 2:1983 GRADE 304S15

Gasket

EPDM to BS EN681-1, TYPE WA, WC or Nitrile to BS EN682:2002, Type G 60 IRHD moulded compound

Studs/Nuts/Washers

Studs - Stainless Steel to BS EN ISO3506-1:2009 GRADE A2 Property Class 50

Nuts - Stainless Steel to BS EN ISO 3506-2:2009 GRADE A4 Property Class 80

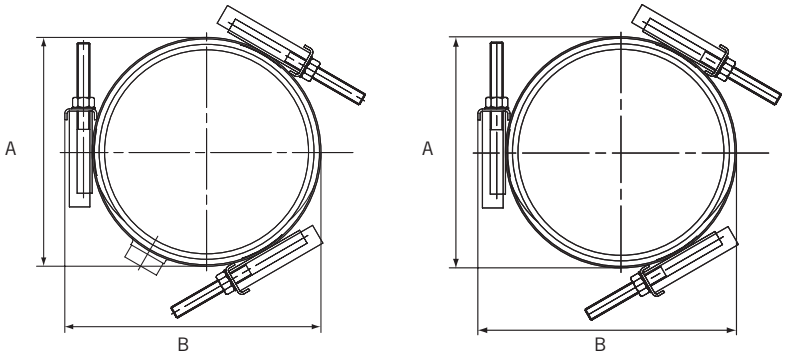
Washers - Stainless Steel BS1449:PART 2:1983 GRADE 304S15

Bolt Torques

M12 = 55 - 65Nm • M14 = 70 - 85Nm • M16 = 95 - 110Nm

HandiClamp & HandiTap Triple Band

Specifications



Triple Band HandiClamp & HandiTap

OD Range (mm)	A (mm)	B (mm)	Max Outlet Size*	Working** pressure (bar)		Clamp Length***							
						300 (mm)		400 (mm)		500 (mm)		600 (mm)	
						Bolt Details		Bolt Details		Bolt Details		Bolt Details	
			BSP	Water	Gas	No.-Dia x Length	Weight (kg)	No.-Dia x Length	Weight (kg)	No.-Dia x Length	Weight (kg)	No.-Dia x Length	Weight (kg)
270 - 300	279	303	2.0" BSP	7.4	1.9	9-M14 x 135	9.23	12-M14 x 135	12.34	15-M14 x 135	15.58	18 - M14x135	17.95
310 - 340	319	344	2.0" BSP	6.5	1.6	9-M14 x 135	9.72	12-M14 x 135	12.99	15-M14 x 135	16.40	18 - M14x135	18.93
335 - 365	344	369	2.0" BSP	6.0	1.5	9-M14 x 135	10.02	12-M14 x 135	13.39	15-M14 x 135	16.90	18 - M14x135	19.53
340 - 370	349	374	2.0" BSP	6.0	1.5	9-M14 x 135	10.08	12-M14 x 135	13.47	15-M14 x 135	17.00	18 - M14x135	19.65
360 - 390	369	394	2.0" BSP	5.6	1.4	9-M14 x 135	10.33	12-M14 x 135	13.79	15-M14 x 135	17.40	18 - M14x135	20.14
385 - 415	393	418	2.0" BSP	5.2	1.3	9-M14 x 135	10.63	12-M14 x 135	14.19	15-M14 x 135	17.91	18 - M14x135	20.74
395 - 425	404	429	2.0" BSP	5.1	1.3	9-M14 x 135	10.75	12-M14 x 135	14.36	15-M14 x 135	18.12	18 - M14x135	21.00
410 - 440	418	443	2.0" BSP	4.9	1.2	9-M14 x 135	10.93	12-M14 x 135	14.60	15-M14 x 135	18.41	18 - M14x135	21.35
420 - 450	429	454	2.0" BSP	4.8	1.2	9-M14 x 135	11.06	12-M14 x 135	14.77	15-M14 x 135	18.62	18 - M14x135	21.60
435 - 465	444	469	2.0" BSP	4.6	1.1	9-M14 x 135	11.24	12-M14 x 135	15.01	15-M14 x 135	18.93	18 - M14x135	21.97
440 - 470	449	474	2.0" BSP	4.5	1.1	9-M14 x 135	11.30	12-M14 x 135	15.09	15-M14 x 135	19.03	18 - M14x135	22.09
450 - 480	458	483	2.0" BSP	4.4	1.1	9-M14 x 135	11.42	12-M14 x 135	15.25	15-M14 x 135	19.22	18 - M14x135	22.32
475 - 505	483	508	2.0" BSP	4.2	1.1	9-M16 x 135	13.89	12-M16 x 135	18.55	15-M16 x 135	23.35	18 - M16x135	27.27
485 - 515	494	519	2.0" BSP	4.1	1.0	9-M16 x 135	14.06	12-M16 x 135	18.77	15-M16 x 135	23.62	18 - M16x135	27.60
505 - 535	514	539	2.0" BSP	4.0	1.0	9-M16 x 135	14.38	12-M16 x 135	19.19	15-M16 x 135	24.15	18 - M16x135	28.24
510 - 540	519	544	2.0" BSP	3.9	1.0	9-M16 x 135	14.45	12-M16 x 135	19.29	15-M16 x 135	24.28	18 - M16x135	28.39
520 - 550	529	554	2.0" BSP	3.8	1.0	9-M16 x 135	14.62	12-M16 x 135	19.51	15-M16 x 135	24.56	18 - M16x135	28.72
530 - 560	539	564	2.0" BSP	3.8	0.9	9-M16 x 135	14.77	12-M16 x 135	19.72	15-M16 x 135	24.81	18 - M16x135	29.02
535 - 565	543	568	2.0" BSP	3.7	0.9	9-M16 x 135	14.84	12-M16 x 135	19.82	15-M16 x 135	24.94	18 - M16x135	29.18
560 - 590	568	593	2.0" BSP	3.6	0.9	9-M16 x 135	15.24	12-M16 x 135	20.34	15-M16 x 135	25.59	18 - M16x135	29.96
570 - 600	579	604	2.0" BSP	3.5	0.9	9-M16 x 135	15.40	12-M16 x 135	20.56	15-M16 x 135	25.87	18 - M16x135	30.30
585 - 615	594	619	2.0" BSP	3.4	0.9	9-M16 x 135	15.65	12-M16 x 135	20.89	15-M16 x 135	26.27	18 - M16x135	30.78
610 - 640	619	644	2.0" BSP	3.3	0.8	9-M16 x 135	16.04	12-M16 x 135	21.41	15-M16 x 135	26.93	18 - M16x135	31.57
640 - 670	648	673	2.0" BSP	3.1	0.8	9-M16 x 135	16.51	12-M16 x 135	22.03	15-M16 x 135	27.71	18 - M16x135	32.50
670 - 700	679	704	2.0" BSP	3.0	0.7	9-M16 x 135	16.99	12-M16 x 135	22.68	15-M16 x 135	28.51	18 - M16x135	33.47
680 - 710	689	714	2.0" BSP	2.9	0.7	9-M16 x 135	17.14	12-M16 x 135	22.88	15-M16 x 135	28.77	18 - M16x135	33.77

*This is the maximum size BSP outlet offered. Smaller outlets are available: 0.75", 1.0", 1.25", 1.5", 1.75", 2.0".**The rated working pressures quoted above for water applications are based on worst case scenarios including circumferential cracks. When used to repair pipelines with less severe damage and dependant on the pipe surface, higher working pressures may be achieved.
***When using HandiRange products on PE pipe, consideration to clamp length must be given, please contact the Viking Johnson Marketing Department for more details.

Materials & Relevant Standards

Body & Plates

Shell, channel plate, bridging plate, lug plate & nut plate
Stainless Steel to BS1449:Part 2:1983 GRADE 304S15

Gasket

EPDM to BS EN681-1, TYPE WA, WC or Nitrile to BS EN682:2002, Type G 60 IRHD moulded compound

Studs/Nuts/Washers

Studs - Stainless Steel to BS EN ISO3506-1:2009 GRADE A2 Property Class 50
Nuts - Stainless Steel to BS EN ISO 3506-2:2009 GRADE A4 Property Class 80
Washers - Stainless Steel BS1449:PART 2:1983 GRADE 304S15

Bolt Torques

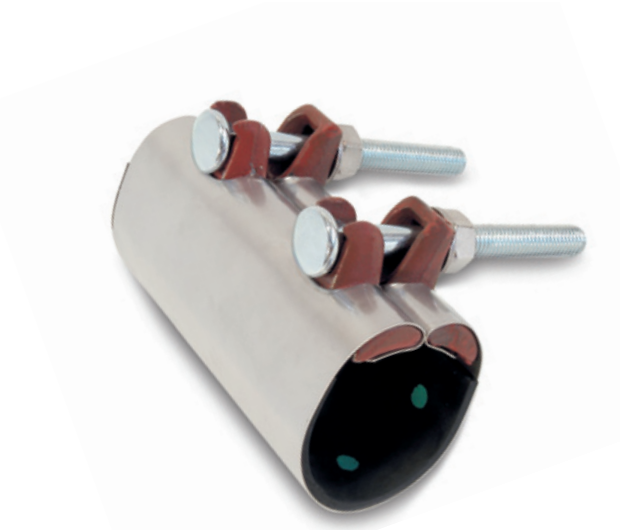
M12 = 55 - 65Nm • M14 = 70 - 85Nm • M16 = 95 - 110Nm

HandiBand

Specifications

HandiBand

Nom Dia	OD Range	Working Pressure (bar)		Clamp Length
		Water	Gas	
0.50”	15.0 - 22.0	7.0	1.8	3” (75mm)
0.50”	15.0 - 22.0	7.0	1.8	6” (150mm)
0.75”	26.0 - 30.0	7.0	1.8	3” (75mm)
0.75”	26.0 - 30.0	7.0	1.8	6” (150mm)
1.00”	33.0 - 37.0	7.0	1.8	3” (75mm)
1.00”	33.0 - 37.0	7.0	1.8	6” (150mm)
1.25”	42.0 - 45.0	7.0	1.8	3” (75mm)
1.25”	42.0 - 45.0	7.0	1.8	6” (150mm)
1.50”	48.0 - 54.0	7.0	1.8	3” (75mm)
1.50”	48.0 - 54.0	7.0	1.8	6” (150mm)
2.00”	60.0 - 64.0	7.0	1.8	3” (75mm)
2.00”	60.0 - 64.0	7.0	1.8	6” (150mm)



Materials & Relevant Standards

Shell
Stainless Steel to BS1449:Part2:1993 Grade 304 / Steel No. 1.4301

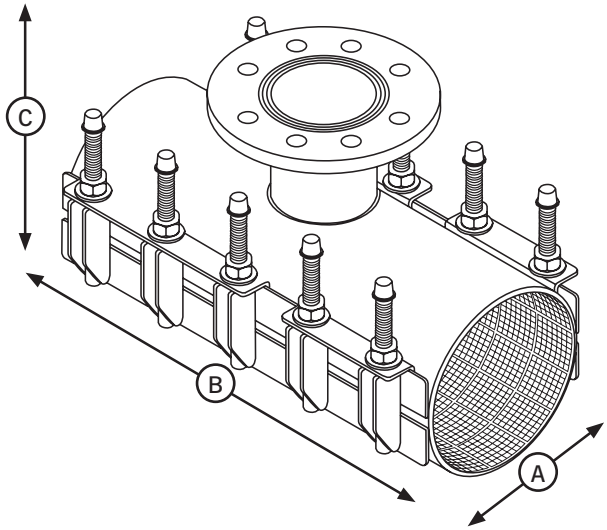
Lugs
Whitehart malleable cast iron equivalent to BS EN 1562 Grade ENGJMW-400-5

Studs/Nuts
Mild steel to BS EN ISO 898-1:2009 Property class 4.6

Gasket
EPDM to BS EN681-1, TYPE WA, WC or Nitrile to BS EN682:2002, Type G 60 IRHD moulded compound

HandiTee Under Pressure Tapping Tee

Specifications



HandiTee

DN (mm)	OD Range (mm)	Working Pressure		Length of Clamp (mm)											
				300				400				500			
		Gas (bar)	Water (bar)	Max Flange Nom & Flange Drilling	A (mm)	B (mm)	C (mm)	Max Flange Nom & Flange Drilling	A (mm)	B (mm)	C (mm)	Max Flange Nom & Flange Drilling	A (mm)	B (mm)	C (mm)
80	88-110	4	16	DN65 PN10/16	140	300	260	DN65 PN10/16	140	400	260	DN65 PN10/16	140	500	260
80	100-120	4	16	DN65 PN10/16	140	300	260	DN80 PN10/16	140	400	260	DN80 PN10/16	140	500	260
100	108-128	4	16	DN65 PN10/16	160	300	280	DN80 PN10/16	160	400	280	DN80 PN10/16	160	500	280
100	114-134	4	16	DN65 PN10/16	160	300	280	DN80 PN10/16	160	400	280	DN80 PN10/16	160	500	280
100	120-140	4	16	DN65 PN10/16	160	300	280	DN80 PN10/16	160	400	280	DN80 PN10/16	160	500	280
100	130-150	4	16	DN65 PN10/16	160	300	280	DN80 PN10/16	160	400	280	DN100 PN10/16	160	500	280
125	133-155	4	16	DN65 PN10/16	185	300	305	DN100 PN10/16	185	400	305	DN100 PN10/16	185	500	305
125	135-155	4	16	DN65 PN10/16	185	300	305	DN125 PN10/16	185	400	305	DN125 PN10/16	185	500	305
125	140-160	4	16	DN65 PN10/16	185	300	305	DN125 PN10/16	185	400	305	DN125 PN10/16	185	500	305
150	158-180	4	16	DN65 PN10/16	210	300	330	DN125 PN10/16	210	400	330	DN125 PN10/16	210	500	330
150	165-185	4	16	DN65 PN10/16	210	300	330	DN125 PN10/16	210	400	330	DN125 PN10/16	210	500	330
150	168-189	4	16	DN65 PN10/16	210	300	330	DN125 PN10/16	210	400	330	DN125 PN10/16	210	500	330
150	170-190	4	16	DN65 PN10/16	210	300	330	DN150 PN10/16	210	400	330	DN150 PN10/16	210	500	330
150	176-196	4	16	DN65 PN10/16	210	300	330	DN150 PN10/16	210	400	330	DN150 PN10/16	210	500	330
150	180-200	4	16	DN65 PN10/16	210	300	330	DN150 PN10/16	210	400	330	DN150 PN10/16	210	500	330
150	190-210	4	16	DN65 PN10/16	210	300	330	DN150 PN10/16	210	400	330	DN150 PN10/16	210	500	330
150	195-217	4	16	DN65 PN10/16	210	300	330	DN150 PN10/16	210	400	330	DN150 PN10/16	210	500	330
150	205-225	4	16	DN65 PN10/16	210	300	330	DN150 PN10/16	210	400	330	DN150 PN10/16	210	500	330
200	210-230	4	16	DN65 PN10/16	260	300	380	DN150 PN10/16	260	400	380	DN150 PN10/16	260	500	380
200	216-238	3	10	DN65 PN10/16	260	300	380	DN150 PN10/16	260	400	380	DN150 PN10/16	260	500	380
200	225-246	3	10	DN65 PN10/16	260	300	380	DN150 PN10/16	260	400	380	DN150 PN10/16	260	500	380
200	230-250	3	10	DN65 PN10/16	260	300	380	DN150 PN10/16	260	400	380	DN150 PN10/16	260	500	380
225	240-260	3	10	DN65 PN10/16	285	300	405	DN150 PN10/16	285	400	405	DN200 PN10	285	500	405
225	250-270	3	10	DN65 PN10/16	285	300	405	DN150 PN10/16	285	400	405	DN200 PN10	285	500	405
250	260-280	3	10	DN65 PN10/16	310	300	430	DN150 PN10/16	310	400	430	DN200 PN10	310	500	430
250	269-289	3	10	DN65 PN10/16	310	300	430	DN150 PN10/16	310	400	430	DN200 PN10	310	500	430
250	273-293	3	10	DN65 PN10/16	310	300	430	DN150 PN10/16	310	400	430	DN200 PN10	310	500	430
250	282-302	3	10	DN65 PN10/16	310	300	430	DN150 PN10/16	310	400	430	DN200 PN10	310	500	430

Materials & Relevant Standards

Body & Plates

Shell, channel plate, bridging plate, lug plate & nut plate
Stainless Steel AISI 304 (A2)

Gasket

EPDM as standard, Nitrile option

Flange Outlets

Stainless Steel AISI 304, flanges according to DIN2576
varying from DN50 up to DN300

Studs/Nuts/Washers

Bolts - Stainless Steel AISI 304 (A2); M16 (metric thread according DIN267), thread is PTFE coated to prevent galling
Nuts - Stainless Steel AISI 304 (A2). M16 according DIN934

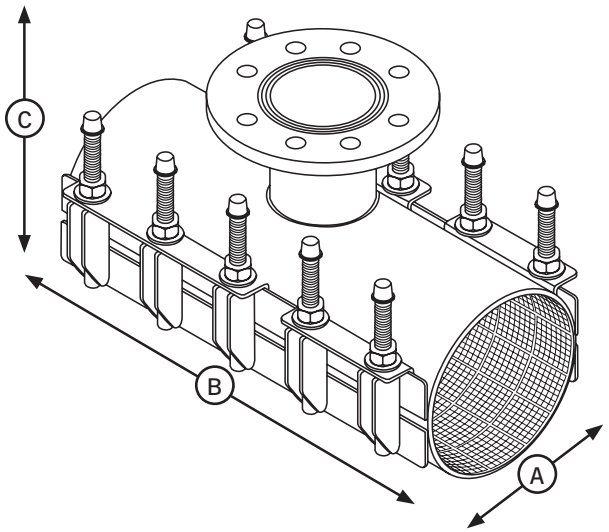
Bolt Torques

M16 = 95-120Nm

When using HandiRange products on PE pipe, consideration to clamp length must be given, please contact the Viking Johnson Marketing Department for more details.

HandiTee Under Pressure Tapping Tee

Specifications



HandiTee

DN (mm)	OD Range (mm)	Working Pressure		Length of Clamp (mm)											
				600				800				1000			
		Gas (bar)	Water (bar)	Max Flange Nom & Flange Drilling	A (mm)	B (mm)	C (mm)	Max Flange Nom & Flange Drilling	A (mm)	B (mm)	C (mm)	Max Flange Nom & Flange Drilling	A (mm)	B (mm)	C (mm)
80	88-110	4	16	DN65 PN10/16	140	600	260								
80	100-120	4	16	DN80 PN10/16	140	600	260								
100	108-128	4	16	DN80 PN10/16	160	600	280								
100	114-134	4	16	DN80 PN10/16	160	600	280								
100	120-140	4	16	DN80 PN10/16	160	600	280								
100	130-150	4	16	DN100 PN10/16	160	600	280								
125	133-155	4	16	DN100 PN10/16	185	600	305								
125	135-155	4	16	DN125 PN10/16	185	600	305								
125	140-160	4	16	DN125 PN10/16	185	600	305								
150	158-180	4	16	DN125 PN10/16	210	600	330								
150	165-185	4	16	DN125 PN10/16	210	600	330								
150	168-189	4	16	DN125 PN10/16	210	600	330								
150	170-190	4	16	DN150 PN10/16	210	600	330								
150	176-196	4	16	DN150 PN10/16	210	600	330								
150	180-200	4	16	DN150 PN10/16	210	600	330								
150	190-210	4	16	DN150 PN10/16	210	600	330								
150	195-217	4	16	DN150 PN10/16	210	600	330								
150	205-225	4	16	DN150 PN10/16	210	600	330								
200	210-230	4	16	DN150 PN10/16	260	600	380								
200	216-238	3	10	DN150 PN10/16	260	600	380								
200	225-246	3	10	DN150 PN10/16	260	600	380								
200	230-250	3	10	DN150 PN10/16	260	600	380								
225	240-260	3	10	DN200 PN10	285	600	405								
225	250-270	3	10	DN200 PN10	285	600	405								
250	260-280	3	10	DN200 PN10	310	600	430								
250	269-289	3	10	DN200 PN10	310	600	430								
250	273-293	3	10	DN200 PN10	310	600	430								
250	282-302	3	10	DN200 PN10	310	600	430								

Not Available

Not Available

Materials & Relevant Standards

Body & Plates

Shell, channel plate, bridging plate, lug plate & nut plate
Stainless Steel AISI 304 (A2)

Gasket

EPDM as standard, Nitrile option

Flange Outlets

Stainless Steel AISI 304, flanges according to DIN2576 varying from DN50 up to DN300

Studs/Nuts/Washers

Bolts - Stainless Steel AISI 304 (A2); M16 (metric thread according DIN267), thread is PTFE coated to prevent galling
Nuts - Stainless Steel AISI 304 (A2). M16 according DIN934

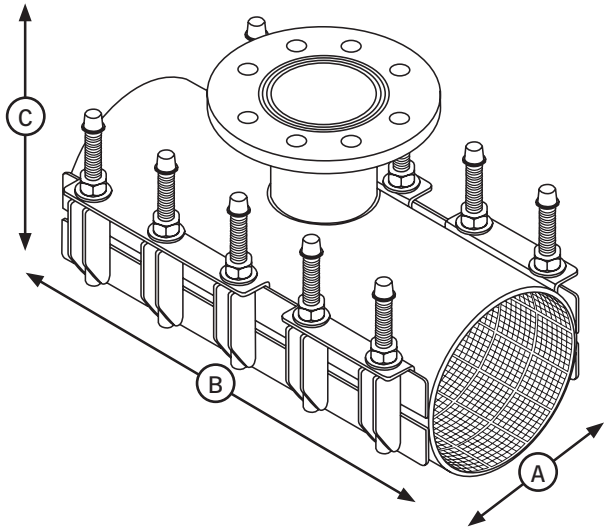
Bolt Torques

M16 = 95-120Nm

When using HandiRange products on PE pipe, consideration to clamp length must be given, please contact the Viking Johnson Marketing Department for more details.

HandiTee Under Pressure Tapping Tee

Specifications



HandiTee

DN (mm)	OD Range (mm)	Working Pressure		Length of Clamp (mm)											
				300				400				500			
		Gas (bar)	Water (bar)	Max Flange Nom & Flange Drilling	A (mm)	B (mm)	C (mm)	Max Flange Nom & Flange Drilling	A (mm)	B (mm)	C (mm)	Max Flange Nom & Flange Drilling	A (mm)	B (mm)	C (mm)
300	295-315	3	10	DN65 PN10/16	360	300	480	DN150 PN10/16	360	400	480	DN200 PN10	360	500	480
300	314-334	3	10	DN65 PN10/16	360	300	480	DN150 PN10/16	360	400	480	DN200 PN10	360	500	480
300	322-344	3	10	DN65 PN10/16	360	300	480	DN150 PN10/16	360	400	480	DN200 PN10	360	500	480
300	335-355	3	10	DN65 PN10/16	360	300	480	DN150 PN10/16	360	400	480	DN200 PN10	360	500	480
300	347-367	3	10					DN150 PN10/16	360	400	480	DN200 PN10	360	500	480
350	350-368	3	10					DN150 PN10/16	410	400	530	DN200 PN10	410	500	530
350	360-380	3	10					DN150 PN10/16	410	400	530	DN200 PN10	410	500	530
350	365-385	3	10					DN150 PN10/16	410	400	530	DN200 PN10	410	500	530
350	382-402	3	10					DN150 PN10/16	410	400	530	DN200 PN10	410	500	530
350	396-420	3	10					DN150 PN10/16	410	400	530	DN200 PN10	410	500	530
400	404-424	3	10					DN150 PN10/16	460	400	580	DN200 PN10	460	500	580
400	410-430	3	10					DN150 PN10/16	460	400	580	DN200 PN10	460	500	580
400	420-440	2	6									DN200 PN10	460	500	580
450	435-455	2	6									DN200 PN10	510	500	630
450	468-488	2	6									DN200 PN10	510	500	630
450	485-505	2	6									DN200 PN10	510	500	630
500	532-552	2	6									DN200 PN10	560	500	680
500	545-575	2	6									DN200 PN10	560	500	680
500	568-498	2	6									DN200 PN10	560	500	680
600	588-618	2	6									DN200 PN10	660	500	780
600	608-638	2	6												
600	628-658	2	6												
600	648-678	2	6												
600	668-698	2	6												
600	688-718	2	6												
700	708-738	2	6												
700	728-758	2	6												
750	748-778	2	6												
750	768-798	2	6												

Materials & Relevant Standards

Body & Plates

Shell, channel plate, bridging plate, lug plate & nut plate
Stainless Steel AISI 304 (A2)

Gasket

EPDM as standard, Nitrile option

Flange Outlets

Stainless Steel AISI 304, flanges according to DIN2576 varying from DN50 up to DN300

Studs/Nuts/Washers

Bolts - Stainless Steel AISI 304 (A2); M16 (metric thread according DIN267), thread is PTFE coated to prevent galling
Nuts - Stainless Steel AISI 304 (A2). M16 according DIN934

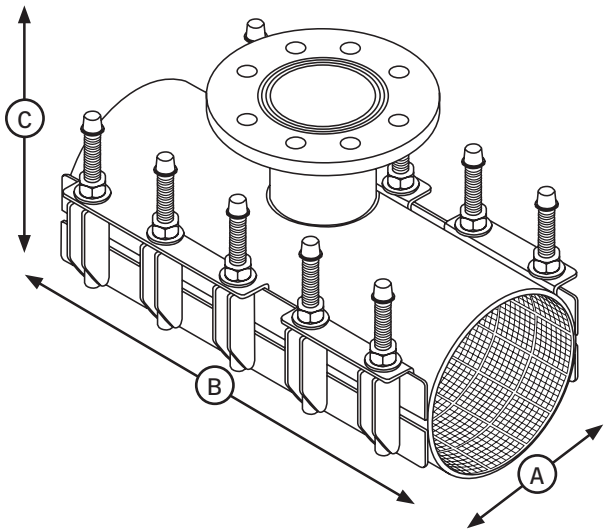
Bolt Torques

M16 = 95-120Nm

When using HandiRange products on PE pipe, consideration to clamp length must be given, please contact the Viking Johnson Marketing Department for more details.

HandiTee Under Pressure Tapping Tee

Specifications



HandiTee

DN (mm)	OD Range (mm)	Working Pressure		Length of Clamp (mm)											
				600				800				1000			
		Gas (bar)	Water (bar)	Max Flange Nom & Flange Drilling	A (mm)	B (mm)	C (mm)	Max Flange Nom & Flange Drilling	A (mm)	B (mm)	C (mm)	Max Flange Nom & Flange Drilling	A (mm)	B (mm)	C (mm)
300	295-315	3	10	DN200 PN10	360	600	480								
300	314-334	3	10	DN250 PN10	360	600	480								
300	322-344	3	10	DN250 PN10	360	600	480								
300	335-355	3	10	DN250 PN10	360	600	480								
300	347-367	3	10	DN250 PN10	360	600	480								
350	350-368	3	10	DN250 PN10	410	600	530								
350	360-380	3	10	DN250 PN10	410	600	530								
350	365-385	3	10	DN250 PN10	410	600	530	DN300 PN10	410	800	530	DN300 PN10	410	1000	530
350	382-402	3	10	DN250 PN10	410	600	530	DN300 PN10	410	800	530	DN300 PN10	410	1000	530
350	396-420	3	10	DN250 PN10	410	600	530	DN300 PN10	410	800	530	DN300 PN10	410	1000	530
400	404-424	3	10	DN250 PN10	460	600	580	DN300 PN10	460	800	580	DN300 PN10	460	1000	580
400	410-430	3	10	DN250 PN10	460	600	580	DN300 PN10	460	800	580	DN300 PN10	460	1000	580
400	420-440	2	6	DN250 PN10	460	600	580	DN300 PN10	460	800	580	DN300 PN10	460	1000	580
450	435-455	2	6	DN250 PN10	510	600	630	DN300 PN10	510	800	630	DN300 PN10	510	1000	630
450	468-488	2	6	DN250 PN10	510	600	630	DN300 PN10	510	800	630	DN300 PN10	510	1000	630
450	485-505	2	6	DN250 PN10	510	600	630	DN300 PN10	510	800	630	DN300 PN10	510	1000	630
500	532-552	2	6	DN250 PN10	560	600	680	DN300 PN10	560	800	680	DN300 PN10	560	1000	680
500	545-575	2	6	DN250 PN10	560	600	680	DN300 PN10	560	800	680	DN300 PN10	560	1000	680
500	568-498	2	6	DN250 PN10	560	600	680	DN300 PN10	560	800	680	DN300 PN10	560	1000	680
600	588-618	2	6	DN250 PN10	660	600	780	DN300 PN10	660	800	780	DN300 PN10	660	1000	780
600	608-638	2	6	DN250 PN10	660	600	780	DN300 PN10	660	800	780	DN300 PN10	660	1000	780
600	628-658	2	6	DN250 PN10	660	600	780	DN300 PN10	660	800	780	DN300 PN10	660	1000	780
600	648-678	2	6	DN250 PN10	660	600	780	DN300 PN10	660	800	780	DN300 PN10	660	1000	780
600	668-698	2	6	DN250 PN10	660	600	780	DN300 PN10	660	800	780	DN300 PN10	660	1000	780
600	688-718	2	6	DN250 PN10	660	600	780	DN300 PN10	660	800	780	DN300 PN10	660	1000	780
700	708-738	2	6	DN250 PN10	760	600	880	DN300 PN10	760	800	880	DN300 PN10	760	1000	880
700	728-758	2	6	DN250 PN10	760	600	880	DN300 PN10	760	800	880	DN300 PN10	760	1000	880
750	748-778	2	6	DN250 PN10	810	600	930	DN300 PN10	810	800	930	DN300 PN10	810	1000	930
750	768-798	2	6	DN250 PN10	810	600	930	DN300 PN10	810	800	930	DN300 PN10	810	1000	930

Materials & Relevant Standards

Body & Plates

Shell, channel plate, bridging plate, lug plate & nut plate
Stainless Steel AISI 304 (A2)

Gasket

EPDM as standard, Nitrile option

Flange Outlets

Stainless Steel AISI 304, flanges according to DIN2576
varying from DN50 up to DN300

Studs/Nuts/Washers

Bolts - Stainless Steel AISI 304 (A2); M16 (metric thread according DIN267), thread is PTFE coated to prevent galling
Nuts - Stainless Steel AISI 304 (A2). M16 according DIN934

Bolt Torques

M16 = 95-120Nm

When using HandiRange products on PE pipe, consideration to clamp length must be given, please contact the Viking Johnson Marketing Department for more details.

HandiRange - The pipe repair product that seals first time even on badly corroded pipes.

Universal

MaxiFit

Wide Tolerance Range

Mechanical Pipe Repair Technology

The Flexible Solution for Pipe Repairs

The range of MaxiFit universal pipe couplings represents the very latest in mechanical pipe coupling technology. MaxiFit products are designed to accommodate plain ended pipes with different outside diameters, one fitting is able to connect steel, ductile iron, PVCu, cast iron, GRP, asbestos cement pipes and limited lengths of PE pipe for repairs.

Versatile Repairs

It is the variety of pipe materials that the MaxiFit range is suitable for and the wide tolerance which make it ideal for repair situations where a section of pipe must be cut out and replaced.

MaxiFit easily transitions between various pipe materials, making a simple, permanent and reliable repair whilst the wide tolerance means that only a few strategic sizes need to be kept in stock to cover many repair or emergency situations.

PE Pipe* can even be used to affect a repair in rigid pipes, but as the MaxiFit range is not end restraint the length of PE used in the repair will need to be limited to 1 metre length of pipe on the standard MaxiFit Range and 2 metre length on the MaxiFit Xtra.

Quick & Efficient Installation

The versatile range is pre-assembled with an innovative gasket which has 'slide easy' ribs to reduce friction on pipes at the upper tolerance range of the fitting, providing maximum sealing pressure, even on scored, pitted and corroded pipe surfaces. The captive non-rotating bolt heads require just a single spanner to install with just one standard bolt torque across the range. These features allow for a quick and efficient installation even in the most difficult of conditions.

Pipe Materials

Use of limited lengths in repairs only

***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 a coupling or flange adaptor is installed

For more information and to review technical data sheets on MaxiFit range please see pages 101 - 118 in the Wide Tolerance Section of this Directory.

Next Generation

UltraGrip

Optimum Wide Tolerance Repair Solution

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 DN400.

For more information and to review technical data sheets on the Next Generation UltraGrip range please see pages 125 - 134 in the Wide Tolerance Section of this Directory.

Flexible Fit

It is the variety of pipe materials that the range is suitable for and the wide tolerance which makes UltraGrip ideal for repair situations where a section of pipe must be cut out and replaced.

UltraGrip offers an easy transition from one pipe material to another, making a simple, permanent and reliable repair, whilst the wide tolerance means that only a few strategic sizes need to be kept in stock to cover many repair or emergency situations.

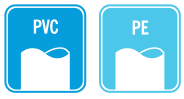
Ease of Installation

On site, UltraGrip is easy to install. The product is pre-assembled to allow for quick positioning over 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.

See pages 97 -100 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 a coupling or flange adaptor is installed.

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

United Kingdom - Leeds

Knostrop WWTP

Large Diameter Flange Adaptors & Couplings - DN1800

Project
Yorkshire Water's largest waste water treatment works services 1.1 million people.

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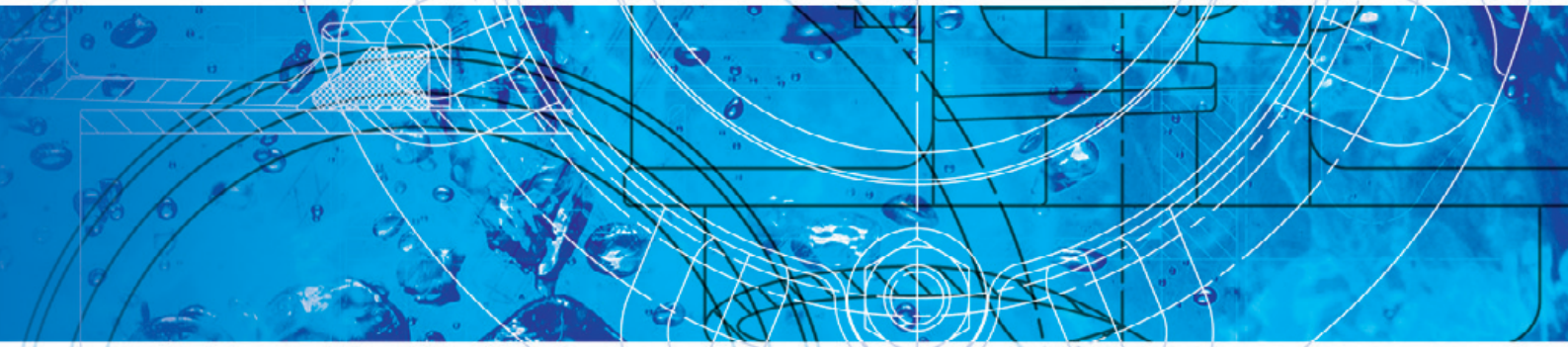


Important Notice

The technical, performance data, specifications, dimensions and all other information published in the Design Data section supersede all previously published information.

All data contained herein is subject to change without notice.

The information given in the following pages is intended as a general guide to the proper design and installation of practical piping systems using Viking Johnson products. It is not intended as a substitute for competent, professional advice, which should always be sought in the design of any piping system. Good piping practice should always prevail and recommended design pressures, temperatures, tolerances and loads should never be exceeded.

Special conditions often exist for which the information given here is not specifically suited and specialist engineering advice should be obtained. As with any other piping system, the specific advantages and limitations of Viking Johnson products should be considered when designing a system using Viking Johnson products. The suggestions made here do not set out to give specific solutions to actual installation problems but to give ideas on which to base your own unique solutions.

While every effort has been made to ensure its accuracy, Viking Johnson make no express or implied warranty of any kind in respect of the information contained in this brochure or the materials referred to herein. Any person making use of the information contained here does so entirely at their own risk and assumes any and all liability resulting from such use.

The information contained within this section applies specifically to Viking Johnson products only, and is not intended to apply to any other bolted sleeve type coupling product.

Glossary of Terms

The following abbreviations are used in this brochure:

OD	-	Pipe outside diameter
NB	-	Nominal bore
DN	-	Nominal diameter, in millimetres
PN	-	Nominal pressure, in bar (1 bar = 0.1 MPa = 0.1 N/mm^2 ≈ 14.5 lbf/in^2)
CI	-	Grey cast iron
DI	-	Ductile iron
PE	-	Polyethylene
MDPE	-	Medium density polyethylene (PE80)
HDPE	-	High density polyethylene (PE100)
AC	-	Asbestos cement
GRP	-	Glass reinforced plastics
uPVC	-	Unplasticised polyvinyl chloride
PVC-u	-	Metric uPVC pipe (including Molecular Oriented and Impact Modified)
ABS	-	Acrylonitrile butadiene styrene
EPDM	-	Ethylene propylene diene monomer
NBR	-	Nitrile butadiene rubber
WRAS	-	Water Regulations Advisory Scheme
PCD	-	Pitch circle diameter

Design & Specifications of Piping Systems

The Viking Johnson system is suitable for an enormous range of pipework applications and it is therefore impossible to give a comprehensive list of potential uses. In general terms, the system is suitable for virtually any pipeline, above or below ground level, working within the following typical parameters:

Working Pressure

Up to 100 bar (1450psi), according to size and type of product. Up to full vacuum. Higher pressures are available on request.

Temperature

Limited by gasket grade used, but within the range -60°C to +200°C (-75°F to +390°F)

Note: At elevated temperatures, accelerated gasket relaxation will occur, leading to reduced life of fitting

Suitable for

Water, gas, oil, petrochemicals, sewage, powdered solids, granular solids, air. Subject to gasket grade used and product/pipe limitations.

Location

Above or below ground (subject to certain limitations according to product type and pipe material).

Backed by many years of design and manufacturing experience, the Viking Johnson system is a complete and cost-effective answer to almost all pipeline installation problems.

Compare the following benefits with those offered by alternative pipe jointing systems:

- ISO 9001 certification is proof of our exacting quality standards.
- ISO 14001 certification is proof of our environmental credentials.
- Exclusive Viking Johnson gaskets, moulded to exacting specifications, assure perfect lifetime sealing, meeting all relevant Standards.
- Size range extends from DN15 (0.5") to more than DN5000 (200").
- The Viking Johnson system is designed for plain-ended pipes, eliminating threading, bevelling, welding or flanging.
- The system can joint most types of pipes, valves or meters.
- By specifying Viking Johnson, installation delays caused by adverse weather conditions are overcome, particularly relevant to PE installation.
- You can rely on Viking Johnson products. Their dependability has been demonstrated for more than 75 years in all conditions of service.
- On-site jointing equipment - with Viking Johnson products all you need is a spanner and a torque wrench.
- The simplicity of our design assures you of couplings which will assemble quickly, easily and accurately every time. Company representatives are available to offer technical advice to the installer.
- As a mechanical jointing system it can eliminate the need for specialist labour or on-site fabrication.
- Viking Johnson couplings are protected against corrosion with a range of specialised coatings. Please state coating required when ordering.
- Viking Johnson has over 100 agents and distributors worldwide, in addition to an exclusive distributor network throughout the UK.

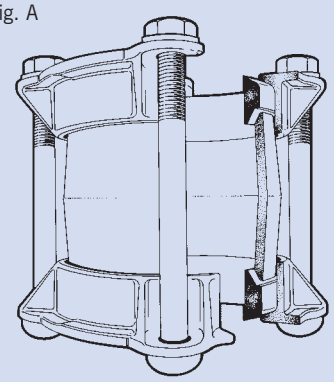
The Concept

All Large Diameter Dedicated Viking Johnson couplings, stepped couplings, flange adaptors, MaxiFit, QuickFit, MegaFit, UltraGrip, FlexLock and AquaGrip (up to DN180) operate on the same basic compression principle.

How it Works

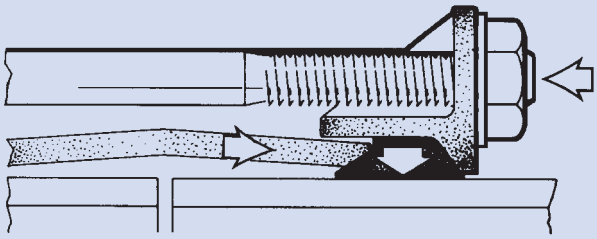
The Viking Johnson coupling (Fig. A) comprises a centre sleeve located between two end rings. Wedge-shaped elastomeric gaskets separate the sleeve and end rings. As the captive 'D' head bolts are tightened, the end rings are drawn together, compressing the gaskets between the end rings and the centre sleeve onto the surface of the pipe to form an effective, leak-proof seal (Fig. B).

Fig. A



Cutaway illustration of Viking Johnson straight coupling.

Fig. B

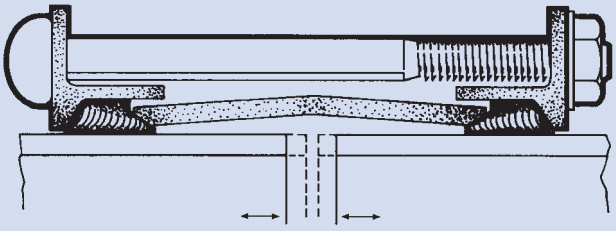


Tightening the bolts compresses the gasket between the end ring and the centre sleeve, forcing the gasket to seal onto the pipe surface.

Features

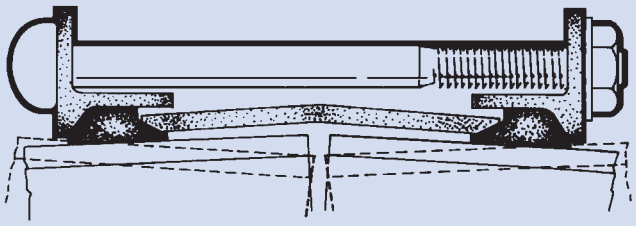
The basic concept of the Viking Johnson coupling means that it can be used on plain-ended pipe, removing the need for costly and time-consuming pipe end preparation. The Viking Johnson coupling is also capable of absorbing expansion and contraction which occurs in pipelines as a result of temperature fluctuations, without the need for special expansion joints (Fig. C). In addition, it can accommodate enough angular deflection to allow for pipeline movement or ground settlement, or to provide for long radius curves without the necessity of incorporating purpose-made bends (Fig. D).

Fig. C



Gaskets deform to accommodate expansion and contraction.

Fig. D



Flexible gasket and centre sleeve clearance allows angular movement.

System Overview

Pipe Materials

Most rigid and semi-rigid pipe materials can be joined with Viking Johnson coupling products:- steel (including stainless steel), grey cast iron, ductile iron, asbestos cement, uPVC, GRP, concrete, polyethylene and ABS.

Of these, the rigid materials with high strength capabilities, such as steel, grey cast iron, ductile iron and concrete can be joined using standard Viking Johnson couplings without revision to our normal fitting instructions.

Certain lower strength materials, such as clayware and the lower classes of asbestos cement pipe, may need reduced bolt torques to avoid pipe damage. Glass reinforced plastic (GRP) pipe is relatively flexible and its structure may be damaged by high gasket pressures. Reduced bolt torques are also recommended for this pipe material (details available on request).

Polyethylene (PE) pipe is produced in various types and with various performance capabilities. All exhibit the tendency to creep i.e. change shape when loaded. The use of standard Viking Johnson couplings may result in leakage or pipe pull-out. Viking Johnson AquaGrip and AquaFast products are both specifically designed to join PE pipe either to another PE pipe or to flanged equipment or other pipe materials. Certain sizes of EasiClamp are also suitable for use on repairs to PE pipe. UltraGrip may be used on PE pipe if a supporting internal liner is also used.

See page 21 for a table that lists which Viking Johnson products will work on which standard pipe material.

Pipe Outside Diameters

Dedicated Viking Johnson couplings and flange adaptors may be specified for any pipe size between DN50 (2") and DN5000 (200"), even for outside diameters not covered by recognised pipe standards. Since Viking Johnson couplings fit over the outside of the pipe, it is essential that the OD is specified at time of enquiry/order.

Pipe Tolerances

Viking Johnson couplings give their optimum performance when they are a close fit on the pipe. Seal effectiveness depends on the pressure which the gasket applies to the pipe surface. Undersized pipes may mean a loss in pressure rating.

Many pipe standards quote the main pipe barrel tolerance separately from the tolerance on the pipe ends.

Unless otherwise informed, Viking Johnson products are designed to accommodate the pipe end outside diameter and associated tolerance from the relevant industry specification for the pipe material concerned. In the event that the pipe outside diameter and tolerances are not in accordance with the standard then guidance should be sought from Viking Johnson on how these can be accommodated in our products.

Pipe Ovality

Moderate ovality, especially in large diameter steel or ductile iron pipes, can frequently be rectified by selective bolt tightening to give a uniform annular gap between pipe and coupling. More severe ovality, up to a limit of about ±1% of diameter, may be corrected by jacking, taking care not to damage the internal lining of the pipe.

Pipes having local stiffening near the ends may be impossible to correct or shape by these methods and good circularity is essential if couplings are to be fitted successfully.

N.B. The Viking Johnson MaxiFit, MegaFit and UltraGrip ranges of Universal Coupling products can accommodate larger pipe tolerances and ovality, see separate brochures for details.

Diameter Measurement

The most reliable method of measuring OD is by circumference measurement. This eliminates the effects of ovality and, provided that ovality is moderate, it is almost always possible to correct during assembly. Circumference measurement may be carried out using either a purpose-made circumference tape which reads out directly as an effective diameter, or it is possible to use an ordinary tape wrapped around the pipe and the resulting circumference value converted to effective diameter by dividing the result by $\pi(= 3.142)$.

If pipe calipers are available, these can give a useful further indication of pipe shape and the possible need for special sizing of the coupling. If in doubt, contact Viking Johnson for further advice.

Pipe Coatings

Many pipes are finished with a coating of some description, which can affect pipe O.D. Allowance must be made for these coatings in the manufacturing size of the coupling, or installation of the coupling may be difficult or impossible. Very thick pipe wrappings (typically several millimetres thick) must be removed at pipe ends so that the coupling will seat either on the bare pipe or on a high quality thinner paint film. It is important that details of the intended pipe corrosion protection are made known to us when ordering so that the correct size of coupling can be produced. Alternatively, we must be informed of the finished pipe diameter including all coatings, with appropriate tolerances.

Pipe Surface Finish

The Viking Johnson system relies on good uniform contact of the gaskets with the pipe surface.

It is important to ensure that the pipe ends, in the areas where the coupling gaskets will seat, are free from loose surface deposits, bumps, dents, score marks, weld beads, flat spots and the like, or the full pressure capability of the coupling may not be realised.

Working Pressure

The working pressure capability of a coupling varies with its size and construction. It is also dependent upon correct pipe tolerances and surface finish. Wider pipe OD tolerances than those specified will result in a reduction in pressure capability. For most pipe materials, the actual test pressure will be lower than that of the coupling and will be determined by the pipe capability or class. Similarly the pressure rating of a flange adaptor will be determined by the rating of the main flange (eg. PN16 = 16 bar working pressure, 24 bar test).

When assembled onto the pipe(s), the pressure rating of the completed assembly will be that of the lowest rated component. Under normal circumstances working pressures are up to 2/3 of the maximum test pressure shown in any Viking Johnson literature appropriate schedule.

Operating Temperature

The operating temperature of Viking Johnson couplings is determined by the temperature rating of the gaskets and on coating type. Different grades of gaskets are available to suit various temperature ranges as well as different chemical resistance requirements. For details see the Gaskets section (pages 190-191). Most Viking Johnson Couplings are supplied with Rilsan Nylon 11 coating which has a maximum operating temperature of 90°C.

For higher temperatures, alternative coatings may be necessary.

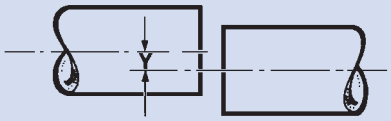
Viking Johnson couplings operate at their maximum efficiency under conditions of relatively constant temperature. If temperature fluctuations occur or at elevated temperatures >60°C, retightening of the bolts may be required. For this reason, where maintenance-free operation is required, Viking Johnson couplings are not recommended as a pipe jointing system for central heating or similar systems which do not operate at a relatively constant temperature.

Chemical Resistance

The chemical resistance of a Viking Johnson coupling is determined by suitability of the gaskets and by the chemical resistance of the internal surfaces of the coupling sleeve. If the coupling is coated with Rilsan, epoxy, etc. it is necessary to ensure that this material is chemically suitable for contact with the pipe contents. Chemical resistance of the gaskets and coatings may be checked with the chart on page 191 or by contacting Viking Johnson.

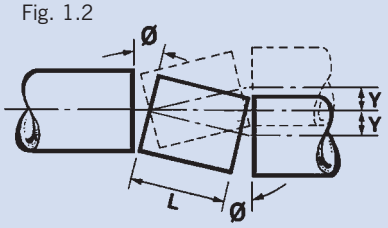
Angular Deflection

Fig. 1.1



Lateral displacement (Y) can be accommodated using two couplings.

Fig. 1.2



Length of closing pipe (L) depends on maximum angularity (Ø).

Each dedicated Viking Johnson coupling or flange adaptor will allow for a setting angularity (Ø) as shown in Table 1.1.

The ability of Viking Johnson couplings to accommodate angular deflection, either on installation or in service, can be used in a number of valuable ways:

a) To take up minor misalignment or lateral displacement in straight pipes, eg. at closing lengths.
b) To accommodate ground settlement.
c) To lay pipes to long radius curves without special bends.

a) Lateral Displacement

Lateral displacement between two pipes can be easily accommodated using two couplings and an appropriate length of closing pipe which can be allowed to angulate (Fig 1.1 & 1.2).

A SINGLE COUPLING CANNOT ACCOMMODATE LATERAL DISPLACEMENT.

The length, L, of the closing pipe can be calculated from the closing length Table 1.2.

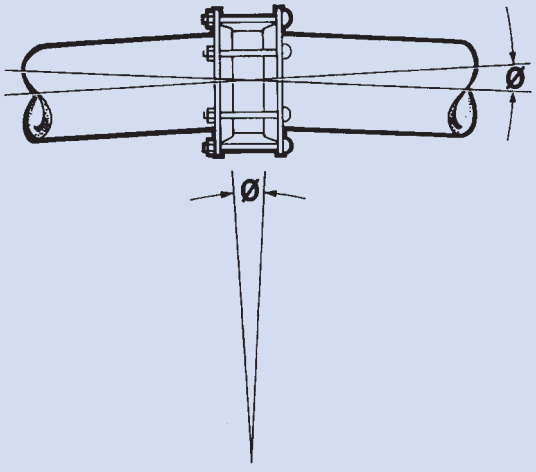
b) Ground Settlement

Ground settlement, for example where a pipe leaves an underground structure, may be accommodated using a pair of Viking Johnson couplings. In this case, pipe trenches are excavated below the pipe invert to allow for pipe bedding. If this bedding is to be flexible (eg. granular fill), some settlement will inevitably occur when the trench is backfilled. (Fig. 1.4)

To minimise stresses in pipe 1, coupling A should be installed as close as possible to the structure. The two couplings A and B allow pipe 2 to angulate to take up settlement Y. The minimum length of pipe 2 is determined using the Closing Length Table in Table 1.2. The structural strength of the pipe in bending may need to be considered.

Alternatively, a Viking Johnson wall coupling can be used instead of pipe 1 and coupling A.

Fig. 1.3



Angular deflection (ø). Up to 6° in smaller pipes, reducing to 1° in larger diameters.

Table 1.1

SETTING ANGULARITY TABLE - DEDICATED RANGE		
Coupling Size	**Angle**	**Inclination**
Up to DN450 (18")	± 6°	1 in 10
Over DN450 - DN600 (18" - 24")	± 5°	1 in 12
Over DN600 - DN750 (24" - 30")	± 4°	1 in 15
Over DN750 - DN1200 (30" - 48")	± 3°	1 in 20
Over DN1200 - DN1800 (48" - 72")	± 2°	1 in 30
Over DN1800 (72")	± 1°	1 in 60
Flange Adaptor Size		
Up to DN450 (18")	± 3°	1 in 20
Over DN450 - DN600 (18" - 24")	± 2.5°	1 in 24
Over DN600 - DN750 (24" - 30")	± 2°	1 in 30
Over DN750 - DN1200 (30" - 48")	± 1.5°	1 in 40
Over DN1200 - DN1800 (48" - 72")	± 1°	1 in 60
Over DN1800 (72")	± 0.5°	1 in 120

The above schedules represent the maximum angular deflection for each size range and should only be used when the pipes will not move in service. For other conditions it is recommended to halve these figures to allow for in-service flexibility.

Angular Deflection

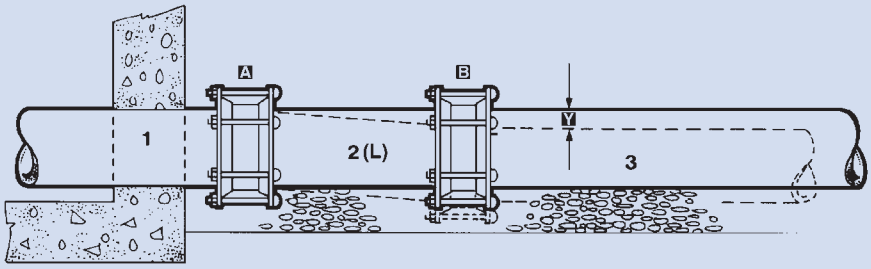
Table 1.2 CLOSING LENGTH TABLE (see Fig. 1.2 & 1.4)	
Pipe Nominal Diameter	**L, Minimum Length (mm)**
Up to DN450 (18")	Displacement Y x 10
Over DN450 - DN600 (18" - 24")	Displacement Y x 12
Over DN600 - DN750 (24" - 30")	Displacement Y x 15
Over DN750 - DN1200 (30" - 48")	Displacement Y x 20
Over DN1200 - DN1800 (48" - 72")	Displacement Y x 30
Over DN1800 (72")	Displacement Y x 60

EXAMPLE: Pipe OD = 711mm
Lateral displacement to be accommodated = 90mm
Minimum closing length = 90 x 15 = 1350mm

EXAMPLE: Pipe OD = 28"
Lateral displacement to be accommodated = 4"
Minimum closing length = 4 x 15 = 60"

NOTE: For Viking Johnson flange adaptors these lengths must be doubled.

Fig. 1.4



Ground Settlement. Displacement c Y be accommodated using two couplings a A B

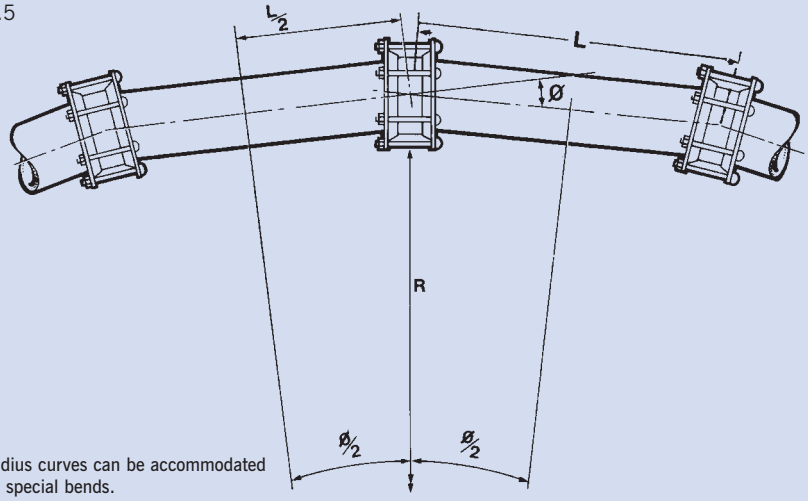
c) Long Radius Curves

Using Viking Johnson couplings it is possible to lay a pipeline to long radius curves, taking a small angular deflection at each coupling, without the need for special large-angle bends with associated thrust blocks. This method can be used to avoid major obstacles on cross-country pipelines or follow the line of roads or streams, etc. using the equation given below.

$$R = \frac{L}{2 \sin 1/2\ \phi} \quad \text{Or} \quad \phi = 2 \sin^{-1} \left(\frac{L}{2R}\right)$$

where L = pipe length
ø = angular deflection
r = radius of curve

Fig. 1.5



Long radius curves can be accommodated without special bends.

See minimum radius Table 1.3

NB: In an above ground pipeline, lateral pressure thrusts will need to be restrained by the support system. Buried pipes laid to a curve will normally receive sufficient support from the trench backfill material.

Table 1.3

MINIMUM RADIUS TABLE						
Pipe diameter	<DN450	>DN450-600	>DN600-750	>DN750-1200	>DN1200-1800	>DN1800
	18"	18" - 24"	24" - 30"	30" - 48"	48" - 72"	72"
Nominal Angle ø	6°	5°	4°	3°	2°	1°
Pipe Length (L)	Minimum Radius (R)					
3m (10ft)	29m (95ft)	34m (110ft)	43m (140ft)	57m (185ft)	86m (280ft)	172m (565ft)
6m (20ft)	57m (187ft)	69m (225ft)	86m (280ft)	115m (375ft)	172m (565ft)	344m (1130ft)
9m (30ft)	86m (280ft)	103m (335ft)	129m (425ft)	172m (565ft)	258m (845ft)	516m (1690ft)
12m (40ft)	115m (375ft)	138m (450ft)	172m (565ft)	229m (750ft)	344m (1130ft)	688m (2260ft)

Other radii may be calculated using the formula given above. **NOTE:** These minimum radii do not allow any in-service movement.

Setting Gap

Viking Johnson couplings are used to join pipes flexibly, so that if there is pipe or ground movement during the life of the pipeline, the coupling will accommodate this without leakage. However, such movement will result in relative longitudinal and/or angular displacement of the pipes within the coupling.

Under normal conditions, adjacent pipe ends should not make contact with each other in service. If there is insufficient gap so that pipes do touch, the pipeline will tend to buckle as temperatures increase and pipe end damage may occur. At the other extreme, if the pipe end gap is too large on installation, there is a risk that pipes may pull out past the gasket(s) of the coupling leading to leakage and failure of the pipeline.

It is therefore necessary to ensure that pipe end gaps are set within specified limits during installation of the coupling to ensure that neither situation occurs.

We give a Recommended Setting Gap for all sizes of Viking Johnson coupling and flange adaptor, which specifies the normal initial gap between adjacent pipe ends such that if the full recommended angularity or expansion occurs in service, the pipe ends should not touch together causing damage. (see Table 1.4)

Similarly, we also give a Maximum Recommended Gap which ensures that even with full recommended angularity there should not be any risk of pipe ends pulling out past the coupling or flange adaptor gasket, leading to leakage.

(see Fig. 1.6 and Table 1.4)

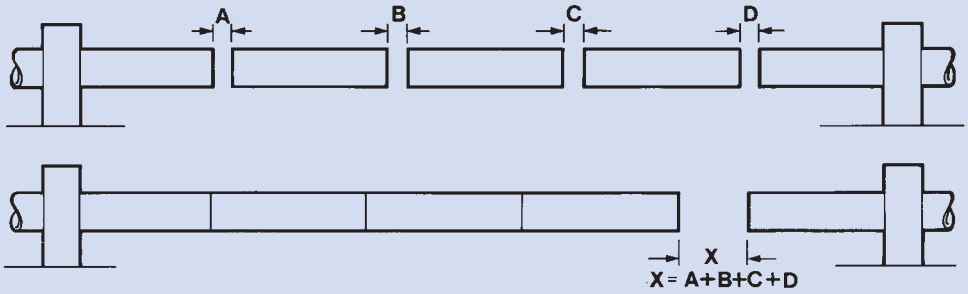
For pipes above ground, it is possible for unanchored pipes to shunt together after installation, opening up a large gap between pipes at certain points. Such pipe movement must be controlled to ensure that the Maximum Permissible Gap is not exceeded, or there may be a risk of the pipe pulling out of the coupling. Soil friction acting on pipes laid below ground normally prevents any such pipe shunting movement.

The Maximum Permissible Gap, measured on the centreline, should not be exceeded in service. Consideration of actual thermal movement or deflection conditions may lead to different initial setting gaps.

When couplings are specified with a locating plug, the Recommended Setting Gap should be increased by the diameter of the pin or plug (9.5mm or 12.7mm). However, the Maximum Permissible Gap should not be increased.

Where the standard Viking Johnson sleeve length is found to be insufficient, longer sleeved couplings and flange adaptors can be supplied.

Fig. 1.6



a) Pipes laid straight with equal setting gaps.
b) Accumulated gap (X) on straight pipeline must not exceed maximum permissible value given in Setting Gap Table.

Table 1.4

SETTING GAP TABLE				
Coupling Sleeve Width	Nominal Size (D)	Recommended Setting Gap		Maximum Permissible Gap (x)
		Couplings	Flange Adaptors	
100mm	DN50 (2") to DN300 (12")	20mm	20mm	40mm
150mm	DN350 (14") to DN900 (36")	25mm	25mm	50mm
178mm	DN1000 (40") to DN1800 (72")	40mm	30mm	75mm
254mm	Over DN1800 (72")	55mm	55mm	115mm

General guide for dedicated couplings, see fitting instructions related to each product type for further details.

Pressure Forces

All pipelines under pressure are subject to longitudinal forces which tend to separate the component parts of the pipeline. Consider the case of pressure acting on a blank end (Fig 1.7). The force, F, necessary to prevent pipe separation is given by:

$$F = \frac{p \pi d^2}{4}$$

Where d = pipe OD
p = internal pressure.

Example:

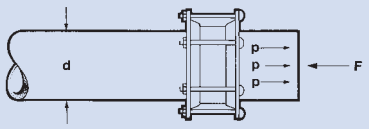
d = 508mm OD.
p = 16 bar = 1.6 N/mm^2

Then $F = \frac{1.6 \times \pi \times 508^2}{4} =$

324293 N = 324.3 kN = 33.07 tonnes

It is important to appreciate the magnitude of the end thrusts which can result from internal pressure in a pipeline. These longitudinal forces are particularly important in flexibly jointed pipelines, such as those jointed with Viking Johnson standard couplings. The pipeline designer must carefully consider not only the magnitude of these forces but also the means of resisting them to prevent failure of the pipeline.

Fig. 1.7



Longitudinal pressure forces acting at a blank end.

Pressure thrusts will be produced at all changes of direction, eg. bends, tees, etc. and at cap ends, valves and reducers. Unless these thrusts are restrained locally at the point at which they are developed, pipe components may move under the load, leading to failure.

Even small diameter pipes may pull out of couplings at modest pressures unless proper external restraint is provided, especially if the pipe system is subjected to temperature or pressure fluctuations, vibration or external loadings.

With surface or above-ground pipelines it is generally necessary to take full account of the thrusts produced by internal pressures and to restrain them with thrust blocks, anchorages or tie bars. At a bend, there is a force, R, tending to push the bend outwards (Fig. 1.8).

In this case there must be sufficient anchorage to resist resultant force R. In a buried system a thrust block (Fig. 1.8a) may be used to resist R.

$$R = \frac{p \pi d^2}{2} \sin \frac{\phi}{2}$$

where d = pipe outside diameter
p = internal pressure

and ø = angle of the bend

NOTE: Any consistent set of units is suitable.

VIKING JOHNSON FLEXIBLE COUPLINGS DO NOT RESIST LONGITUDINAL THRUST LOADINGS, AND PIPE PULL-OUT WILL OCCUR UNLESS THE LOADS ARE RESTRAINED BY OTHER MEANS.

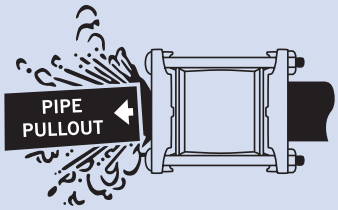
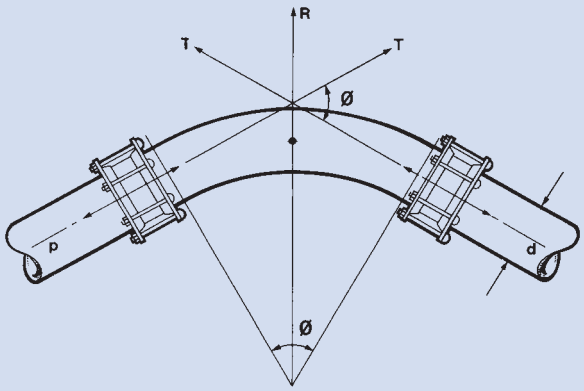
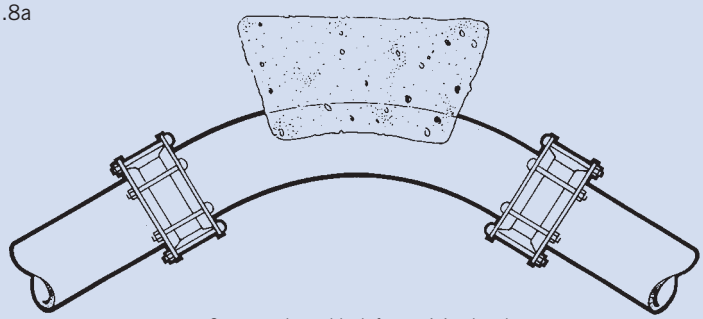


Fig. 1.8



Longitudinal pressure forces acting at a bend.

Fig. 1.8a



Concrete thrust block for retaining bend.

Coupling Movement Under Pressure

Internal pressure will mainly cause pipe movement if there is inadequate restraint. However it can also cause coupling movement. A Viking Johnson stepped coupling is in effect a reducer, and internal pressure will tend to push it towards the smaller diameter pipe. Under normal circumstances, i.e. modest diameter reduction, buried service, standard water pressures etc., soil and pipe friction are sufficient to prevent coupling movement. However, for larger diameter and for above ground service, and in particular higher pressures, the pressure thrust acting on the stepped coupling sleeve can be sufficient to cause coupling movement and consequent disengagement. Positive steps must be taken to restrain the coupling to prevent movement. This may take the form of harness rods, stops on the pipe or within the coupling or encasement in concrete. For further advice, please contact Viking Johnson Technical Support.

Accommodating End Load System

Below ground, pipe thrusts can normally be restrained by means of concrete thrust blocks at bends, valves, etc. However, above ground this is more difficult. In such circumstances it may be necessary to provide a harness assembly, attached to the pipes on both sides of the coupling. This consists of one or more pairs of tie bolts located in either harness lugs welded to the pipe (Fig. 1.9 (a)) or attached by other means, eg. flanges cast on. Accommodating pipe thrusts in above ground applications with Viking Johnson standard coupling products requires either external brackets / pipe supports or the use of harness assemblies attached to the pipe some distance back from each joint. Harness assemblies consist of one or more pairs of tie rods located in lugs / flanges welded to the pipe a short distance away from the joint. The design of the harness lug assembly has to include for the transfer of end load forces via the tie rods into the pipe wall, and it is essential to verify that the interface between the lug and pipe wall is sufficiently strong enough to accommodate these loads. For this reason Viking Johnson deem that the responsibility of the design for the harness lugs lies with the pipe manufacturer and therefore we are not able to include these as part of our product offering.

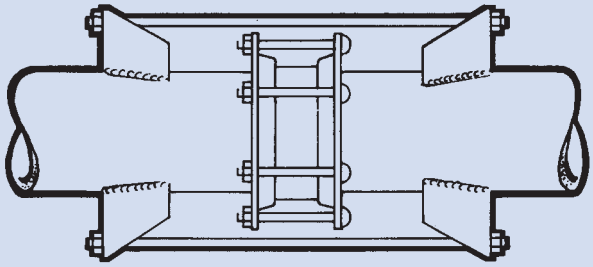
Use of a single pair of tie rods permits angularity between pipes in one plane, eg. to permit ground settlement.

Flange adaptors can also be supplied complete with harness assembly. Here, a number of the flange bolts are replaced with long tie bars (Fig 1.9 (b))*.

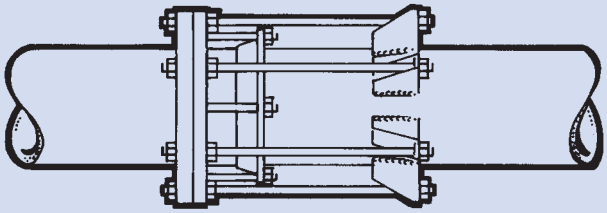
Harnessed flange adaptors used with a flanged spigot (Fig. 1.9 (c)) give a simple, cost-effective method of providing a demountable joint in an otherwise flanged system. Viking Johnson provide the complete package for Fig 1.9 (c) as the Viking Johnson Dismantling Joint, for which a separate brochure is available.

When a flange adaptor is harnessed (or a Dismantling Joint used), there will be no resultant angular deflection, or in service expansion capability within the joint, unless special arrangements are specified beforehand.

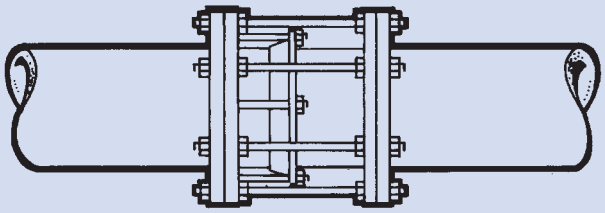
Fig. 1.9



a) Harness assembly for straight or stepped coupling to prevent pipe separation under pressure.
(It may be necessary to reinforce the pipe wall locally to the harness assembly to resist pipe distortion.)



b) Harness assembly with flange adaptor.



c) Flange adaptor with flanged spigot (supplied complete as the Viking Johnson Dismantling Joint).

** NOTE: If a flange adaptor is to be used in a tied arrangement, it may be necessary to notch the end ring to ensure sufficient clearance for the tie bars. If notified beforehand, Viking Johnson can incorporate notching of the end rings during manufacture. (Please note that the Viking Johnson MaxiDaptor cannot be notched).*

For ductile iron flange systems, it is normally recommended that the end ring is notched to accommodate a number of tie bars equal to half the quantity of main flange bolts. For steel flange systems, this number may be reduced.

Alternative Viking Johnson Products

Viking Johnson has within its comprehensive range specialist products capable of accommodating end load forces these include:-

FlexLock
Dedicated flange adaptors and couplings for steel and ductile iron pipes.

UltraGrip
Wide tolerance couplings, flange adaptors, end caps and reducers for most pipe materials. (For below ground installations)

Dismantling Joint
Double flanged adjustable spool piece in a variety of flanges.

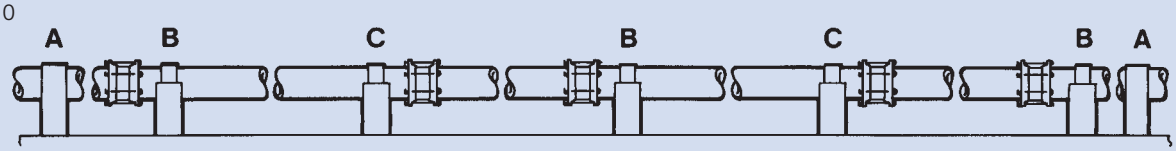
Pipe Support

Pipes laid above ground, usually with supports at specified locations, must transfer all the weight of pipe and contents, plus any pressure-related forces, through those supports.

Fig. 1.10 shows a standard method of supporting a pipeline where subsidence is expected and which allows freedom of movement within the capabilities of the Viking Johnson couplings while anchoring and supporting the pipes. Alternate pipe lengths are fully supported between two couplings, provided that the clear pipe span does not exceed 10 metres (30ft).

This pipe span distance does not apply to MaxiFit, MegaFit or New QuickFit as anchored couplings. Contact Viking Johnson for details. Intermediate anchors (B) are necessary to prevent any cumulative pipe creep, with full thrust anchors (A) at the ends of long runs or at major changes in direction.

Fig. 1.10



Method of supporting pipes where subsidence is expected.
A. Anchor at end of each straight run. B. Intermediate anchor points. C. Guide supports or cradles.

Anchored Couplings

The Viking Johnson Anchored Coupling (Fig. 1.11) provides an alternative method of supporting pipes above ground. Brackets welded to the centre sleeve of the coupling can be bolted directly to the supporting structure without the need for specially shaped saddles, straps, etc., thus reducing installation costs and greatly improving laying times. The brackets are capable of withstanding the thrust produced by maximum angularity and will support a 10 metre (30ft) long pipe filled with water.

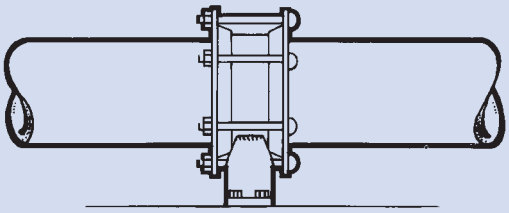
Anchored couplings may be bolted to the structure in any orientation (ie. bolted to a ceiling, side wall, etc.), provided that the pipeline is substantially horizontal. Useful when installing a number of pipes in a confined space i.e. a pipe duct. Anchor brackets are not designed to withstand longitudinal or lateral forces due to external pressure thrusts.

Large diameter (>DN1600/54") or heavy section couplings may require a reinforced saddle around the anchor brackets.

The use of locating plugs with anchored couplings is recommended to help control pipe movement.

(Please note that MaxiFit, MegaFit and New QuickFit couplings are not available, as anchored couplings.)

Fig. 1.11



Viking Johnson anchored coupling.

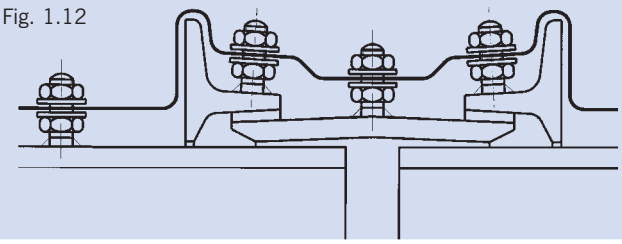
Important:
1. Harness assemblies should not normally be used in conjunction with anchored couplings.

2. Ensure that sufficient clearance is allowed between the coupling and the plinth to permit full assembly of ALL bolts.

Cathodic Protection

If specified, Viking Johnson couplings can be included in a pipe system that is to have cathodic protection. They can be supplied with a threaded stud on the centre sleeve and end rings, such that electrical connections can be made across and including the coupling. Contact Viking Johnson for further details. See Fig. 1.12.

Fig. 1.12



Locating Plugs

Couplings installed above ground may tend to creep along the pipe with repeated pipe movement, temperature variation or vibration. This can be restrained by using couplings fitted with removable locating plugs, which prevent the coupling from moving beyond fixed limits Fig. 1.14.

Removable locating plugs enable single pipe removal. Once the locating plug is removed, the end rings can be slackened off and the gaskets and centre sleeve can be slid along the pipe to expose the joint. The pipe can then be removed.

Normally it is unnecessary to use locating plugs in couplings below ground since soil friction will ensure that the couplings remain in their correct position relative to the pipes. However, locating plugs can provide a useful method of coupling centralisation over the pipe ends.

Removable locating plugs are only available on Dedicated couplings.

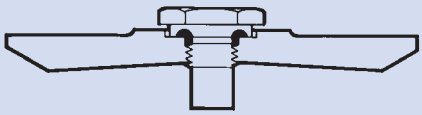
Removable locating plugs are available Zinc plated or stainless steel.

For Dedicated Viking Johnson couplings, locating plugs are produced in the following standard sizes-

Pipe OD	Thread Diameter	Peg Diameter
up to 914mm (36")	0.25" BSP	9.5mm (0.375")
over 914mm* (36")	0.5" BSP	12.7mm (0.5")

**may be used on smaller diameter heavy section couplings.*

Fig. 1.14



a) Removable locating plug.

Inclined Pipelines

Where Viking Johnson couplings are to be installed in pipelines laid on significant slopes, it is important to consider the restraint of the component of self-weight acting parallel to the axis of the pipeline, to stop the pipe sliding down the slope (Fig. 1.15).

Below ground pipelines will receive significant restraint from backfill loading and therefore less extra axial restraint will be necessary than for above ground pipelines, but the gravity forces still need to be considered in a proper engineering assessment of the design.

On above ground pipelines the Viking Johnson couplings should be fitted with locating plugs to ensure the coupling's location relative to the pipe ends.

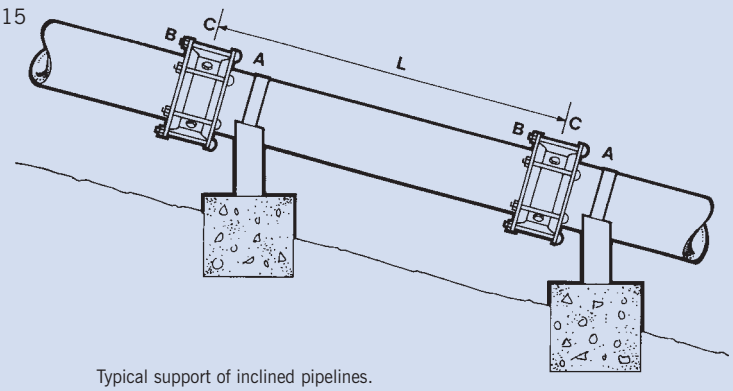
N.B. Locating plugs are not designed to restrain pipe self-weight, axial forces or other pipeline thrusts, only to restrain the coupling itself, ie the pipes must be fixed.

Where the length L of pipe to be supported by the Viking Johnson couplings does not exceed 10 metres (30ft), it is normally desirable to anchor one end, A, of each pipe in position relative to the ground, allowing the other end, B, to be supported by coupling C and to move axially with temperature fluctuations as shown. Its limitations are detailed in Expansion and Contraction (refer to page 185).

Pipeline anchorage must be designed to restrain all axial forces due to self-weight, fluid friction and pressure. The pipe support design will be determined by pipe diameter, pressure, wall thickness, pipe inclination to horizontal, etc and is beyond the scope of this brochure. Certain diameter, pipe length and inclination conditions may necessitate the use of supports on both sides of the coupling. In this instance one support should be fixed, the other sliding to permit thermal movement. It is essential that accurate pipe alignment is observed to prevent excessive shear stress in the coupling.

In certain cases of limited diameter and inclination to the horizontal it may be possible to permit the use of Viking Johnson anchored couplings to both support and restrain the pipes. In this instance the pipe self-weight axial loads are restrained by the coupling locating plug and Viking Johnson should be contacted for specific design recommendations before proceeding.

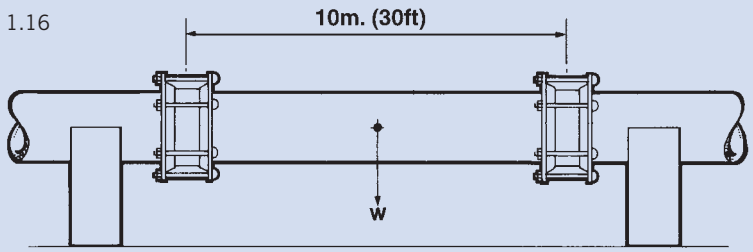
Fig. 1.15



Typical support of inclined pipelines.

Shear Strength

Fig. 1.16



Shear Strength

Up to DN1500 (60"), Dedicated Viking Johnson couplings are capable of withstanding a shear force corresponding to the weight of a 10 metre (30ft) length of water-filled pipe of the diameter for which the couplings were designed, when supported between two couplings. This also applies to flange adaptors. In the case of stepped couplings the maximum shear resistance is that of the smaller end of the coupling - Fig. 1.16.

External superimposed forces will reduce the maximum clear span. MaxiFit and MegaFit Wide Range couplings are not generally suitable for this duty and the pipe should be adequately supported to prevent sagging and coupling rotation.

Expansion & Contraction

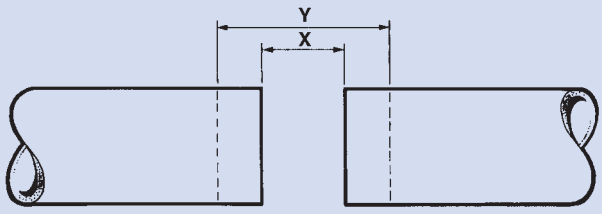
Viking Johnson couplings and flange adaptors can accommodate significant regular expansion and contraction movement in a pipe system, usually enough to remove the need for special expansion jointing products. This is achieved by deformation of the gaskets rather than by sliding on the pipe surface. Most expansion movements due to normal ambient temperature variations can be accommodated using Viking Johnson couplings.

Under certain circumstances, e.g. occasional or long-term movement, it may be possible to allow for increased expansion and contraction, but this should not be attempted without first contacting Viking Johnson.

Stepped couplings permit the same total expansion movement as straight couplings. However, pressure thrust may act on the stepped coupling causing the stepped coupling to move along the pipe with repeated expansion movement. Restraint for the coupling will be required.

	Maximum Relative Pipe Movement, Y-X (all sizes)
Couplings	10mm
Flange Adaptors	5mm

Fig. 1.17



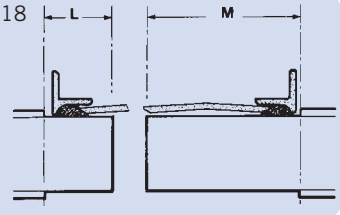
Expansion and contraction y - x = 10mm (0.375")

Pipe End Preparation

As stated earlier in System Overview (Page 7 - Pipe Surface Finish and Pipe Tolerances) it is important to remember:

a) Within the area of the seal, pipe surfaces should be round, clean, smooth and free from bumps, dents, score marks, flat spots etc.
b) Tolerances Should be in accordance with industry standards / specifications, if pressure ratings are to be maintained.

Fig. 1.18



In the Pipe End Preparation Table (Table 1.6) dimension L is the distance back from the end of the pipes which must be rounded where necessary to meet the tolerances required. It is also the distance back from the end of the pipe from which any pipe wrapping should be removed to permit coupling assembly.

This applies equally to coupling sleeves with or without locating plugs.

Where it is required to slide the coupling completely on to one pipe end, any wrapping must be cut back or obstructions removed, for minimum distance M.

Table 1.6

PIPE END PREPARATION TABLE		
Sleeve Length	Dimension L for normal coupling assembly	Dimension M for closing connections (wrapping cut back)
100mm	100mm	150mm
150mm	150mm	225mm
178mm	150mm	250mm
254mm	200mm	300mm

Couplings

Straight Couplings are used for joining pipes of the same material or pipes of different materials but having the same outside diameter.

Available in 3mm size increments from DN350 (19") nom. up to DN5000 (200") nom. in standard form.

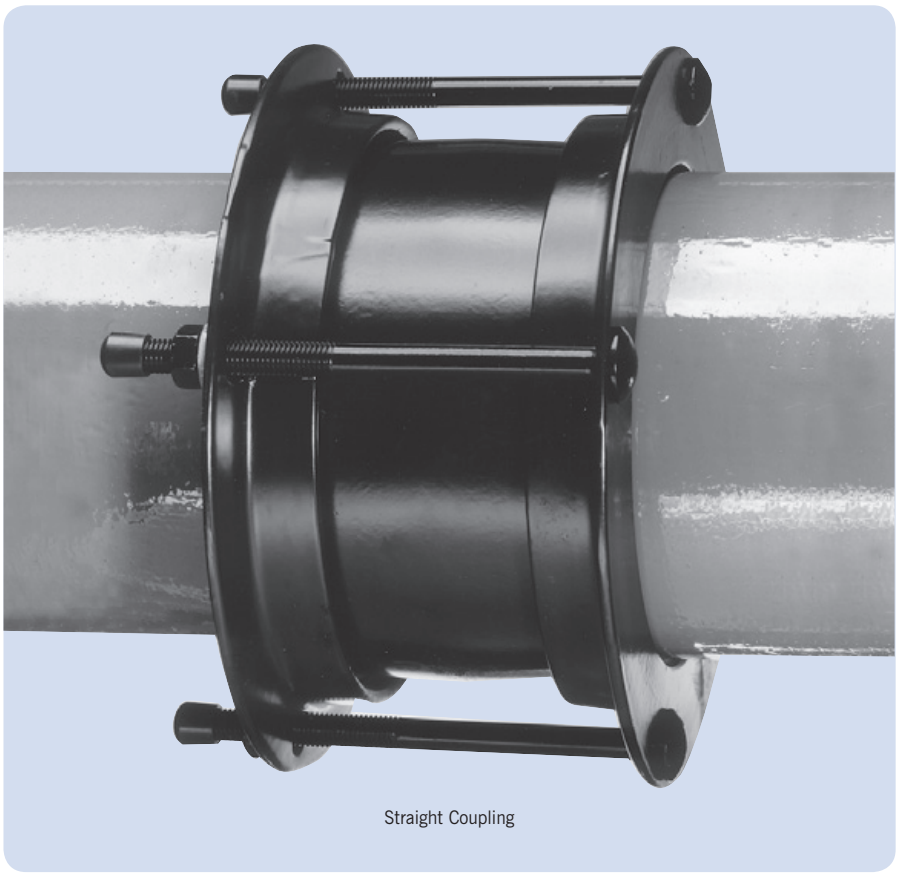
Couplings can be supplied with removable locating plug.

Heavy Duty Couplings, with strengthened end rings and sleeves are available for higher working pressures.

Long Sleeve Couplings, to take up larger pipe end gaps or cutting inaccuracies can also be supplied.

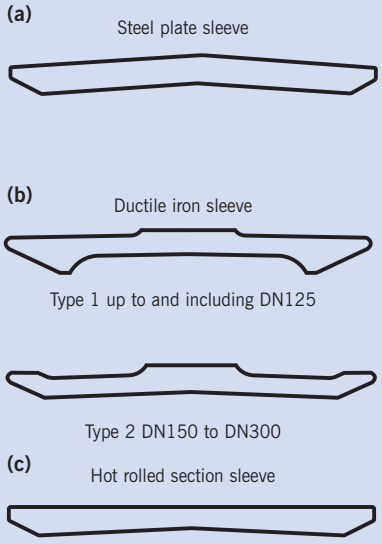
When using couplings, care must be taken to ensure that pipes are within the accepted tolerances, if pressure ratings are to be maintained.

When used on coated pipe, thickness of coating must be considered to be in **addition** to the pipe outside diameter.



Straight Coupling

Fig. 1.19



Bolts

Sheraplex coated bolts are supplied as standard. Galvanised or stainless steel bolts are also available. (Some products may have a limited range of bolt coatings for performance reasons.)

Locating Plugs

Locating plugs are manufactured from carbon steel as standard, zinc plated. They are also available in stainless steel.

Marine Couplings

Couplings specified for marine use are supplied complete with galvanised bolts, zinc plated locating plugs and Grade G nitrile gaskets.

Heavy Section Couplings

Heavy duty couplings with strengthened end rings and sleeves are available in sizes from DN250 (10") nom.

Coupling Sleeve Design

Within the range of Dedicated couplings there are variations of centre sleeve design, depending on the size and application.

Standard Sleeve

There are three types of standard sleeve for differing pipe sizes: (see Fig. 1.19)

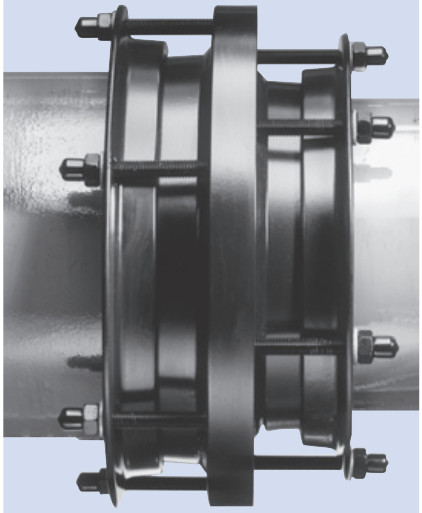
a) Steel plate sleeve
b) Ductile iron sleeve
c) Hot rolled section sleeve

Coupling sleeve design is dependent on diameter and at the discretion of Viking Johnson.

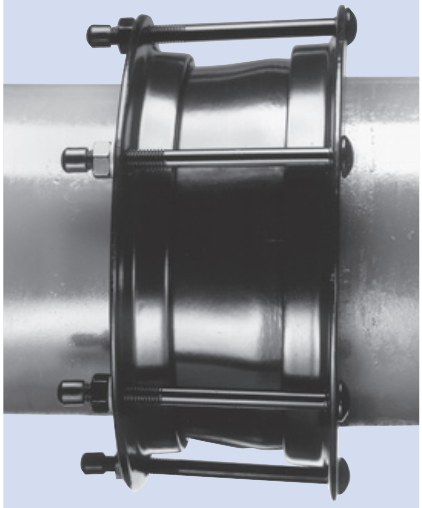
These standard sleeves do not have an integral centre register within the sleeve, enabling couplings to be slipped back along the pipe for pipe cleaning, repair and maintenance.

NOTE
Viking Johnson Flexible couplings do not resist longitudinal thrust loadings, and pipe pull-out will occur unless the loads are restrained by other means.

Stepped Couplings



Make-Up Ring Stepped Coupling



Expanded Sleeve Stepped Coupling

Stepped Couplings are used to connect pipes of different outside diameters and/or pipes of different materials.

Pressure Rating

Pressure ratings for stepped couplings are equivalent to either:

- the rating specified in the straight coupling schedules for the larger of the two pipe sizes involved, or
- the lower of the individual pressure rating of the two.

Coupling Movement

When stepped or wide range couplings are used to join pipes of different outside diameters, it is essential to ensure that the stepped coupling cannot be forced along the smaller diameter pipe by internal pressure forces. This does not normally apply to the standard range of stepped couplings using expanded sleeves in a below ground service at moderate pressures. This is particularly important above ground and/or where a stepped coupling is used as an expansion joint. Regular inspection of the coupling position against a previously applied mark is strongly recommended, especially in above ground installations. (See also Pressure Forces, page 179).

Stepped Coupling Sleeve Design

To accommodate the variety of sizes and combinations required, the centre sleeve of stepped couplings will be one of the three basic designs:

A. Expanded Sleeve

For the standard stepped connections (same nominal size, different materials), an expanded one-part sleeve, made as a casting or of rolled steel, is normally supplied (see Fig. 1.25a).

B. Fabricated Sleeve

For non-standard connections, where the difference in pipe diameters is not excessive, a two-part welded sleeve is fabricated from rolled steel. (Fig. 1.25b)

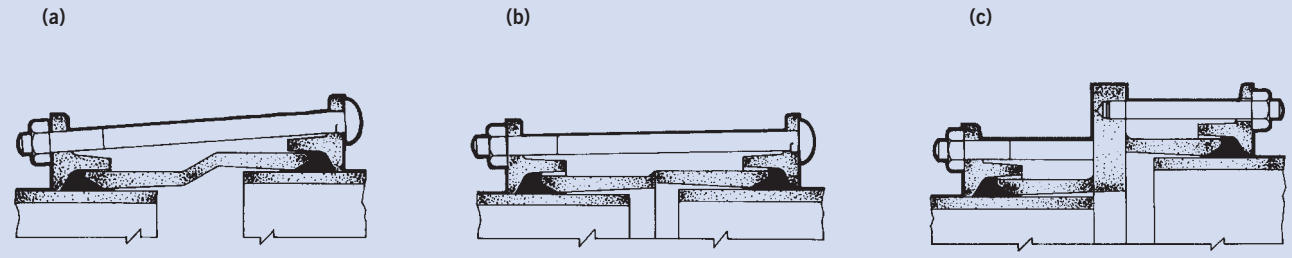
C. Make-Up Ring Sleeve

Where large steps between pipe sizes are required, a three-part welded sleeve is fabricated with studs fitted to the centre plate of the coupling instead of bolts. (Fig. 1.25c).

NOTE
For non-standard couplings the customer is encouraged to ask for an overall dimension drawing of the stepped coupling offered.

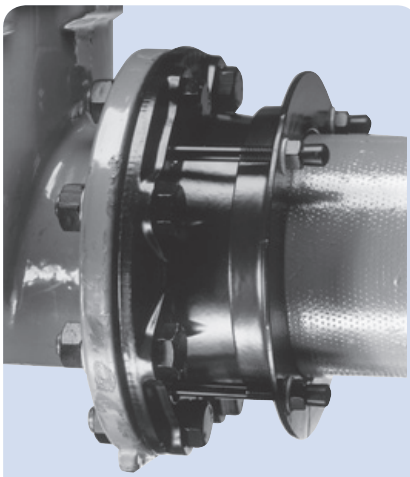
NOTE
Viking Johnson Flexible couplings do not resist longitudinal thrust loadings, and pipe pull-out will occur unless the loads are restrained by other means.

Fig. 1.25



Expanded sleeve | Fabricated sleeve | Make-up ring sleeve

Flange Adaptors



QuickFit Flange Adaptor

Flange adaptors are used to enable plain-ended pipe to be connected either to flanged pipe or to flanged valves and other fittings.

Raised Face Flanges

Viking Johnson flange adaptors are provided with flat mating faces. These are suitable for bolting to both flat and raised faces. The same gasket loading characteristics can be obtained as with a raised face assembly. To obtain a satisfactory seal, the radial contact dimension or ledge (K on Fig. 1.20) should be a minimum of 8mm.

Pressure Ratings

Viking Johnson flange adaptors are supplied to suit the pressure rating of the flange, unless specifically ordered otherwise. The overall pressure rating of the assembled adaptor will be equal to that of the lower rated component, either pipe or flange. e.g. PN10 flange adaptors have a flange rated at a working pressure of 10bar (150 psi). The coupling component of the flange adaptor will invariably have a higher pressure rating than the flange.

Dedicated Flange Adaptors

Are available in four basic forms with different sleeve designs:

Straight Sleeve

The standard form of flange adaptor has a straight sleeve and a flat face. (Fig. 1.21).

Expanded Sleeve (See note (i))

Specifically for use with very thick walled pipe such as asbestos cement or concrete, the expanded sleeve can also be used when the nominal sizes of the flange and the pipe are different (e.g. connecting DN350 (14") pipe to a DN300 (12") valve). See Fig. 1.22.

Typical Dimensions

Nom. flange size:
> DN300 (12")
B= 160mm H= 57mm
B= 235mm H= 82mm

Always confirm dimensional details before ordering.

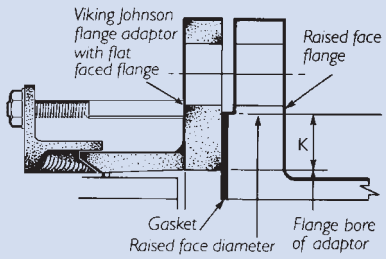
Tapped Flange (See note (i))

As an alternative to the expanded sleeve, mismatched components may be joined using a tapped flange (Fig. 1.23). Studs, instead of flange bolts, are used to make the connection to the mating flange. Dimension B on Fig. 1.23 varies with the flange thickness C, relative to the tapping diameter. (This design is not suitable for some flange arrangements.)

'S' Bore

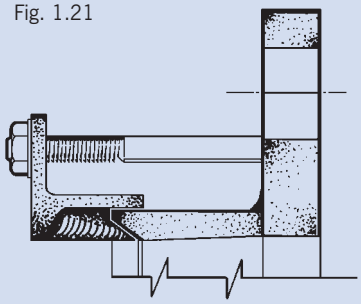
Flange adaptor with full flange faces suitable for use with wafer style (butterfly) valves are available see Fig. 1.24.

Fig. 1.20



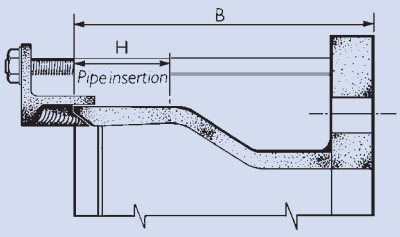
Mating to a raised face flange

Fig. 1.21



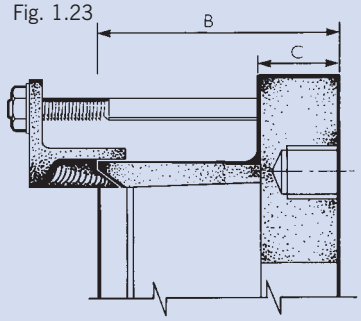
Straight sleeve

Fig. 1.22



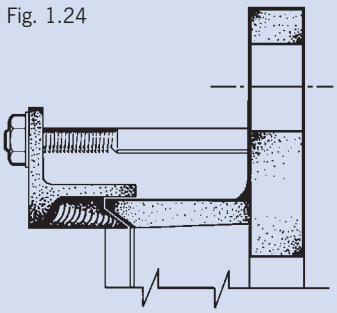
Expanded sleeve

Fig. 1.23



Tapped flange

Fig. 1.24



'S' bore flange

NOTE
(i) Customer approval of the supply of this design is generally sought prior to purchase.

NOTE
Viking Johnson Flexible couplings do not resist longitudinal thrust loadings, and pipe pull-out will occur unless the loads are restrained by other means.

Flange Comparison Chart

Nominal Size	Table	Diameter		P.C.D.		Hole Dia.		Bolt Dia.		No. Bolts
		mm	inch	mm	inch	mm	inch	mm	inch	
DN80/3"	PN10/16	200	7.9	160	6.3	18	0.7	16	0.625	8
	BS10 ADE	184	7.25	146	5.75	17	0.688	16	0.625	4
	ANSI 125/150	190	7.5	152	6	19	0.75	16	0.625	4
DN100/4"	PN10/16	220	8.67	180	7.1	18	0.7	16	0.625	8
	BS10 AD	216	8.5	178	7	17	0.688	16	0.625	4
	BS10 E	216	8.5	178	7	17	0.688	16	0.625	8
	ANSI 125/150	229	9	191	7.5	19	0.75	16	0.625	8
DN150/6"	PN10/16	285	11.22	240	9.45	22	0.875	20	0.79	8
	BS10 A	279	11	235	9.25	17	0.688	16	0.625	4
	BS10 D	279	11	235	9.25	17	0.688	16	0.625	8
	BS10 E	279	11	235	9.25	22	0.875	19	0.75	8
	ANSI 125/150	279	11	241	9.5	22	0.875	19	0.75	8
DN200/8"	PN10	340	13.4	295	11.6	22	0.875	20	0.79	8
	PN16	340	13.4	295	11.6	22	0.875	20	0.79	12
	BS10 AD	337	13.25	292	11.5	17	0.688	16	0.625	8
	BS10 E	337	13.25	292	11.5	22	0.875	19	0.75	8
	ANSI 125/150	343	13.5	298	11.75	22	0.875	19	0.75	8
DN250/10"	PN10	395	15.55	350	13.78	22	0.875	20	0.79	12
	PN16	405	15.55	355	14	26	1.03	24	0.95	12
	BS10 AD	406	16	356	14	22	0.875	19	0.75	8
	BS10 E	406	16	356	14	22	0.875	19	0.75	12
	ANSI 125/150	406	16	362	14.25	25	1	22	0.875	12
DN300/12"	PN10	445	17.5	400	15.75	22	0.875	20	0.79	12
	PN16	460	18.2	410	16.15	26	1.03	24	0.95	12
	BS10 A	457	18	406	16	22	0.875	19	0.75	8
	BS10 D	457	18	406	16	22	0.875	19	0.75	12
	BS10 E	457	18	406	16	25	1	22	0.875	12
	ANSI 125/150	483	19	432	17	25	1	22	0.875	12
DN350/14"	PN10	505	19.88	460	18.11	22	0.875	20	0.79	16
	PN16	520	20.47	470	18.50	26	1.03	24	0.95	16
	BS10 A	527	20.75	470	18.5	25	1	22	0.875	8
	BS10 DE	527	20.75	470	18.5	25	1	22	0.875	12
	ANSI 125/150	533	21	476	18.75	29	1.125	25	1	12
DN400/16"	PN10	565	22.24	515	20.28	26	1.03	24	0.95	16
	PN16	580	22.83	525	20.67	30	1.20	27	1.07	16
	BS10 ADE	578	22.75	521	20.5	25	1	22	0.875	12
	ANSI 125/150	597	23.5	540	21.25	29	1.125	25	1	16
DN450/18"	PN10	615	24.21	565	22.24	26	1.03	24	0.95	20
	PN16	640	25.20	585	23.03	30	1.20	27	1.07	20
	BS10 AD	641	25.25	584	23	25	1	22	0.875	12
	BS10 E	641	25.25	584	23	25	1	22	0.875	16
	ANSI 125/150	635	25	578	22.75	32	1.25	29	1.125	16
DN500/20"	PN10	670	26.38	620	24.41	26	1.03	24	0.95	20
	PN16	715	28.15	650	25.59	33	1.30	30	1.20	20
	BS10 A	705	27.75	642	25.25	25	1	22	0.875	12
	BS10 DE	705	27.75	642	25.25	25	1	22	0.875	16
	ANSI 125/150	698	27.5	635	25	32	1.25	29	1.125	20
DN600/24"	PN10	780	30.71	725	28.54	30	1.20	27	1.07	20
	PN16	840	33.07	770	30.31	36	1.42	33	1.30	20
	BS10 A	826	32.5	756	29.75	29	1.125	25	1	12
	BS10 D	826	32.5	756	29.75	29	1.125	25	1	16
	BS10 E	826	32.5	756	29.75	32	1.25	29	1.125	16
	ANSI 125/150	813	32	749	29.5	35	1.375	32	1.25	20

Gaskets

Introduction

The quality and performance of the gaskets is a crucial factor in the efficiency of any compression-fit pipe joint. It is the gasket which absorbs the forces applied by the expansion and contraction of the pipes, the angular movements and even the weight of the pipe itself. To do this successfully, the gasket must retain its flexibility and compressive stress throughout its operational life.

Viking Johnson gaskets are made in accordance with BS EN 681 for water and BS EN 682 for gas, which specifies stringent requirements for physical and chemical properties, aimed at giving the best possible long-term performance.

Gasket Types

Fitted Gaskets

All straight couplings, stepped couplings and flange adaptors in the QuickFit, MegaFit, UltraGrip and MaxiFit products, are normally supplied ready-assembled with the gaskets already in position. Making assembly of the product quicker and easier.

Removal of the gaskets prior to or during assembly of the coupling is neither necessary, nor recommended.

Unfitted Gaskets

Wedge-shaped gaskets are supplied as standard with Dedicated couplings, stepped couplings and flange adaptors in sizes DN350 (14") and over. Unfitted gaskets are always stretched onto the pipe during installation.

Bonded Gaskets

Certain Viking Johnson products, such as EasiClamp, EasiTee etc, are supplied with waffle type gaskets that are bonded into position. These gaskets are not replaceable.

Gasket Grade Selection

Viking Johnson products offer a variety of gasket grades to suit the widest possible range of applications. In order to ensure maximum gasket life in the intended application, proper selection is essential, See table on page 191.

Many factors need to be considered in deciding on the best grade for a specific service. Temperature is the primary consideration, with type and concentration of the product carried, duration and continuity of service also to be considered. Temperatures higher than the maximum quoted for each grade will lead to accelerated deterioration of the gaskets.

Fluctuating and / or Elevated Temperature

Whilst gasket compounds used in coupling type products may be capable of accommodating fluctuating or elevated temperatures (>60ºC) the relaxation rate of the elastomeric seals will increase, thus reducing the life expectancy of the joint. The failure mode is likely to be leakage of the seal between the coupling and pipe outside diameter, which, on the basis that there is sufficient travel on the bolts and the metal components are not touching, can be rectified by tightening the bolts. In the event that the metal components are touching, replacement of the gaskets in the coupling will be required.

Standard Gaskets

Unless otherwise specified, Viking Johnson couplings are supplied with Grade E (EPDM) gaskets as standard in all sizes. Grade E is suitable for potable water, drainage and sewage applications but is NOT suitable for use with natural gas, hydrocarbon fuels and lubricants. For gas, oil and fuel applications Grade G (nitrile) should normally be specified.

For QuickFit and Dedicated range only: where special usage conditions apply, eg. special chemical requirements, low flammability (eg. in confined spaces such as tunnels) or higher temperature resistance, a range of non-standard gasket materials is available, normally to special order. For further information on gasket suitability, contact Viking Johnson.

Summary of Gaskets

Grade E - Ethylene Propylene (EPDM)
BS EN 681-1 WRAS approved.
Colour flash: Green
Temperature range: -40°C to +90°C (-40°F to 195°F) - (Note 1)
Suitable for: potable water, sewage, many strong and oxidising chemicals, some food applications.
NOT suitable for: Gas petroleum products, oily compressed air or hydrocarbon fuels and lubricants.

Grade G - Nitrile (NBR)
BS EN 682 Type G.
Colour flash: Silver
Temperature range: -20°C to +100°C (-4°F to 212°F) - (Note 1)
Suitable for: natural gas, petroleum products, low aromatic fuels (generally <30% aromatic content), oily compressed air and sewage applications.
NOT suitable for: potable water.

SPECIALIST GASKETS - AVAILABLE ON REQUEST FOR DEDICATED AND QUICKFIT COUPLING RANGE ONLY

Grade V - Polychloroprene
Colour flash: Yellow
Temperature range: -30°C to +90°C (-22°F to 195°F) - (Note 1)
Suitable for: Good resistance to ageing, weathering, ozone, oxidation, acids, most inorganic chemicals, vegetable and animal fats. Low flammability.
NOT suitable for: chlorinated hydrocarbons, aromatic solvents.

Grade C - Epichlorhydrin
Colour flash: White with 'ECO' superimposed.
Temperature range: -45°C to +110°C (-50°F to 230°F) - (Note 1)
Suitable for: petroleum products, including low aromatic fuels (<30% aromatic content) and oily compressed air.
NOT suitable for: Aqueous media.

Grade A - Polyacrylic
Colour flash: Purple
Temperature range: -10°C to +130°C (15°F to 265°F) - (Note 1)
Suitable for: Hot transformer and lubricating oils, petroleum products and low aromatic fuels (<30% aromatic content).
NOT suitable for: Water and steam.

Grade O - Fluoroelastomer
Colour flash: Blue
Temperature range: -5°C to +180°C (25°F to 350°F) - (Note 1)
(+100°C (212°F) on water and steam)
Suitable for: Petroleum products, aromatic fuels, hydraulic fluids, oxidising acids and organic liquids.
NOT suitable for: Ketones.

Grade L - Silicone
Colour flash: Red gasket material
Temperature range: -60°C to +200°C (-75°F to 395°F) (dry heat), - (Note 1)
-60°C to +120°C (-75°F to 250°F) (wet heat) - (Note 1)
Suitable for: Dry heat conditions, neutral aqueous and some chemical solutions.
NOT suitable for: Petroleum based products or high mechanical abuse applications.

Note 1: Use on applications with fluctuating and / or elevated temperatures may require regular maintenance to re-tighten the bolts and must be included in any maintenance schedule.

Storage

Stored correctly, gaskets maintain full operational performance and maximum life expectancy. Please observe the following storage conditions.

- Store in a cool dark place and, where possible, in black polythene sacks which exclude light, especially ultra-violet.
- Store away from sunlight, electrical discharges and sparking electric motors.
- Storage temperature should be below 20°C (70°F) and preferably below 15°C (60°F).
- Always store gaskets in an unstressed condition - never hang on hooks, nails, handrails, etc., even for a short time.

Safety Note

Rubber gaskets should never be disposed of by burning, as harmful by-products can be produced. Never handle incinerated or fire damaged gaskets without proper protective clothing.

Lubrication

IMPORTANT: It is strongly recommended that unfitted gaskets are lubricated prior to fitting. Failure to apply lubricant can cause difficulty in fitting and may result in gasket creep under load. This may cause bolt torques to drop, thus necessitating re-tightening.

Renewal of Gaskets

If, for any reason, it becomes necessary to renew a gasket in a Viking Johnson coupling or flange adaptor (where the product cannot be fully dismantled and removed from the pipe), a strip of the correct section gasket material should be cut square about 6mm longer than the pipe circumference and inserted into the tapered recess of the sleeve. Care should be taken that the cut ends of the gasket butt together before bolting up the end rings - glueing the cut ends together prior to bolt-up may assist in this. Gasket strip can be purchased as strip from Viking Johnson.

NOTE: Reference should be made to the grade of gasket material required and coupling type. Alternatively, use a gasket of the same cross-section but a larger diameter and cut this squarely to produce a strip sufficiently long to wrap around the pipe.

Chemical Resistance

The various gasket grades mentioned in this section, in addition to having different operating temperatures, are resistant to different chemicals. When designing a piping system it is important to verify that the correct gasket grade is specified.

Corrosion Protection

Product Coatings

A number of factory applied coatings are available to ensure full protection against corrosion:

Rilsan Nylon 11

Rilsan Nylon 11 is a thermoplastic polyamide powder coating produced from a renewable raw material of plant origin (Castor Oil). Applied by dipping in a fluidised bed, it forms a durable protection with excellent resistance to impact, abrasion, weathering, many chemicals and with good thermal stability and flexibility. Rilsan Nylon 11 provides all the corrosion protection you need for the majority of buried and above ground service applications and eliminates the need for any further protection, such as on-site wrapping. For specific chemical resistance information, please check the chemical resistance chart at the end of the section, or ask for specific recommendations.

Rilsan Nylon 11 is both WRAS and DWI approved, is suitable for use with potable water and has a maximum operating temperature rating of 90°C (195°F) for water service.

Site repair of localised surface damage, e.g. through careless handling, is straightforward using the special two-pack repair kit.

Most Viking Johnson products are supplied with this protection as standard. Rilsan Nylon 11 Black meets the requirements of WIS 4-52-01 Part 1 and EN 10310 and is our standard Rilsan coating colour, since this provides the optimum resistance to sunlight exposure during storage and provides a responsible coating solution that also helps to protect our environment.

Fusion Bonded Epoxy (FBE)

Many Viking Johnson products may be specified with FBE coating, such as 3M's Scotchkote 206N. FBE coatings are thermosetting compounds and offer excellent corrosion protection and resistance to a wide range of organic and inorganic chemicals. Many may be used in contact with potable water. FBE coatings generally offer good resistance to soil compaction and cathodic disbondment. Continuous maximum temperature capability of 90°C (195°F) on water service. Site repair is possible using special repair packs.

Galvanising

A hot dip process giving a zinc coating in conformity with BS.729. Certain Viking Johnson products may be specified with this coating. Other specialist coatings can be supplied according to customer requirements.

Shopcoat

A primer paint for transit.

Bolt Coatings

Depending on product and market/application, bolts may be coated in the following corrosion-protection systems:

Sheraplex	- low friction compound coating based on sheradising and fluoropolymer
Galvanised	- a metallic zinc coating
Flurene 177	- a low friction coating, mainly used for AquaGrip and EasiTee products
Stainless steel	- bolts may be supplied in either grade 304 or 316 stainless steel
Dacromet	- anti-galling coating for stainless steel nuts

Chemical Resistance Chart

CHEMICAL COMPOSITION	GASKET / GRADE	RILSAN	SCOTCHKOTE	CHEMICAL COMPOSITION	GASKET / GRADE	RILSAN	SCOTCHKOTE
Acetic Acid, up to 10%	E,G,V	✓	✓	Hydrogen, Gas	E, G, V	✓	✓
Acetone	E	✓	✓	Hydrogen Sulphide	E, V	✓	✓
Acetylene	E,G	?	?	Kerosene	G, A, O	✓	✓
Air, oil free	E,G	✓	✓	Ketones	E	✓	✓
Air, oily	G, A	✓	✓	Lubricating Oil, Refined	G, O	✓	✓
Alcohol - butyl, ethyl, methyl	E, G	✓	✓	Methane	G, A, O	✓	✓
Aluminium Hydroxide	E	✓	?	Methyl Ethyl Ketone	E	✓	✓
Alums, all types	E, G, V	✓	✓	Mineral Oils	G	✓	✓
Ammonia Gas, cold	E, G, V	✓	✓	Naphtha	O	✓	✓
Ammonium Bicarbonate	E, G	✓	✓	Natural Gas	G	✓	✓
Ammonium Nitrate	E, G	✓	✓	Nitric Acid, to 10%	E	?	✓
Animal Oils/Fats	G	✓	✓	Nitrogen	E, G, V	✓	✓
Aviation Fuel	G, C, O	✓	✓	Oil, Crude Sour	G, O	✓	✓
Benzene	O	✓	✓	Oxygen	E	✓	✓
Blast Furnace Gas	O	?	?	Ozone	E	✓	✓
Bleach Solutions	E	✓	✓	Petroleum Oils	G, O	✓	✓
Brine	E, G, V	✓	✓	Phenol (Carbolic Acid)	O	✓	✓
Butane Gas	G, V	✓	✓	Polyvinyl Acetate	E	✓	✓
Calcium Chloride	E, G, V	✓	✓	Potassium Chloride	E, G, V	✓	✓
Calcium Hydroxide	E, G, V	✓	✓	Potassium Hydroxide	E, V	✓	✓
Calcium Hypochlorite (Bleach)	E	✓	✓	Potassium Permanganate	G	?	?
Carbon Tetrachloride	O	?	✓	Propane Gas	T	✓	✓
Caustic Soda	E, V, G	✓	✓	Sewage	E, G, V	✓	✓
Chlorine (dry)	E	?	?	Sodium Bicarbonate	E, G, V	✓	✓
Coke Oven Gas	G, O	?	?	Sodium Carbonate	E	✓	✓
Copper Sulphate	E, G, V	✓	✓	Sodium Chloride	E, G, V	✓	✓
De-ionised Water	E, G, V	✓	✓	Sodium Hydroxide, to 50%	E, V	✓	✓
Detergents	E, G, V	✓	✓	Sodium Hypochlorite, to 20%	E, G	✓	✓
Developing Fluids	G, V	?	?	Styrene	O	✓	?
Diesel Oil	G, O	✓	✓	Sulphuric Acid, to 25%, 66°C (150°F)	E	✓ (10%)	✓
Ethane	G	✓	✓	Toluene	O	✓	✓
Ethylene	G, O	✓	✓	Turpentine	G	✓	✓
Ethylene Glycol	E, G, V	✓	✓	Vegetable Oils	E, G	✓	✓
Fuel Oil	G, O	✓	✓	Vinyl Acetate	E	?	?
Gasoline, Leaded & Unleaded (<30% aromatics)	G, O	✓	✓	Vinyl Chloride	O	?	?
Glycerine (Glycerol)	E, G, V	✓	✓	Water, to 90°C (195°F)	E	✓	✓
Glycols	E, G, V	✓	✓	Water, Potable	E	✓	✓
Hexane	G, O	✓	✓	Water - Waste, Seawater	E, G, V	✓	✓
Hydrochloric Acid, Cold to 50%	E, O	?	✓	White Spirit	G	✓	✓

For advice on any chemical not listed here, please contact Viking Johnson for further details

✓ ***Good Resistance*** ? ***Contact* Viking Johnson *for further advice***

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