

Company Overview



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

CRANE

BUILDING SERVICES & UTILITIES

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

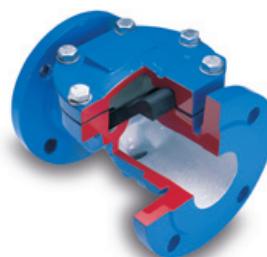
Posiflex expansion joints provide stress relief in piping systems caused by thermal and mechanical vibration and/or movement and can also be utilised to overcome problems of noise. These flexible connectors are fabricated from a wide range of rubber compounds, open or filled, single or multiple arch 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



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.

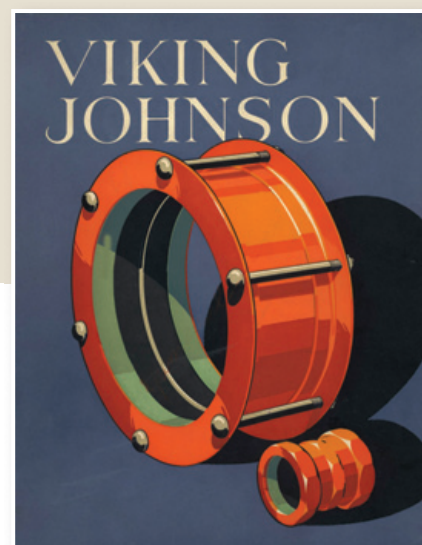
1967 saw nationalisation of the major steel companies, including S&L, and Viking Johnson became part of British Steel Corporation's Tubes Division. This Company continued until 1983 when, under Margaret Thatcher's conservative government, the non-steel making parts of BSC were privatised and Victaulic 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 Victaulic 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.



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, including for marine - Lloyds Register, Bureau Veritas and ABS, for potable water - WBS, NSF, ACS and Belgaqua and 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





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.



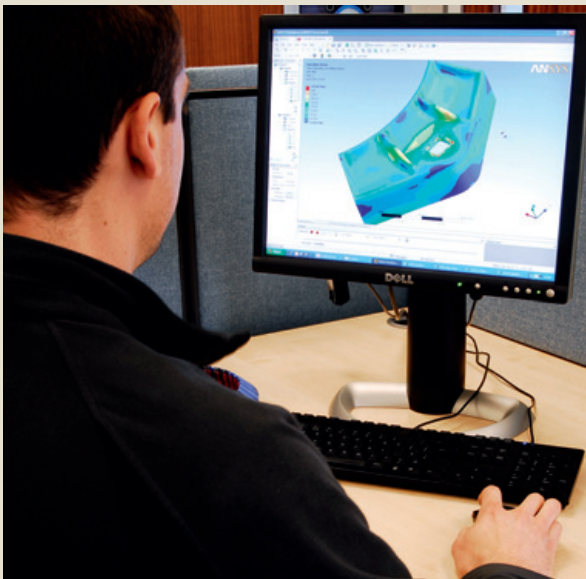


Manufacturing

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.

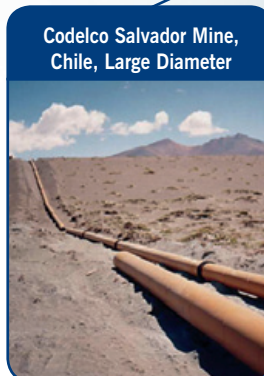
These products feature wide tolerances for repair and branch connections for pipes manufactured from a variety of materials. The range can be installed under pressure, removing the requirement for costly mains shut downs.



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



Wastewater Treatment Plant,
Lyon, France, Large Diameter



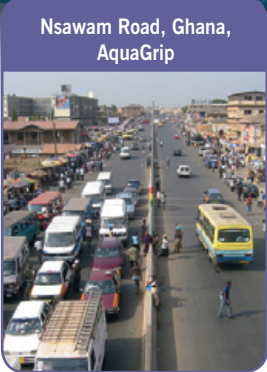
Stadtwerke Coesfeld,
Germany, UltraGrip



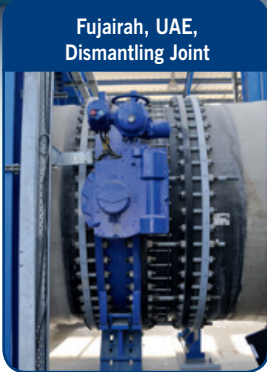
Prague Water, Czech,
UltraGrip



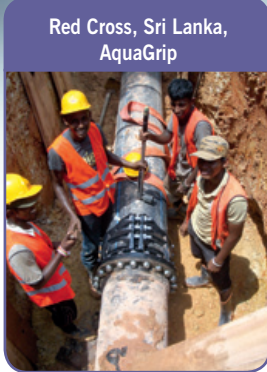
Ekaterinburg, Russia,
Ural, Various Products



Nsawam Road, Ghana,
AquaGrip



Fujairah, UAE,
Dismantling Joint

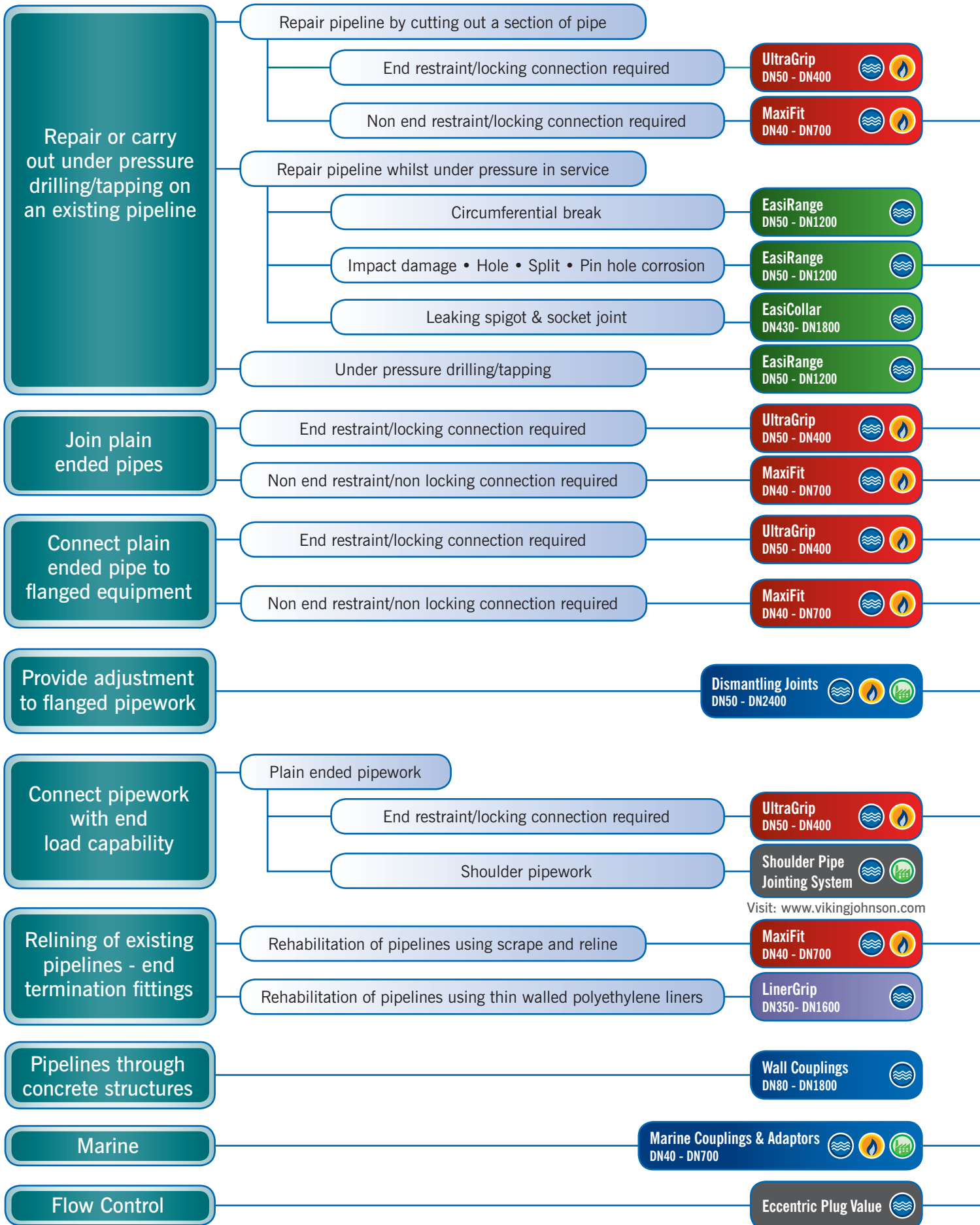


Red Cross, Sri Lanka,
AquaGrip



Desalination Plant, Australia,
Large Diameter

Typical Applications Selector



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

Pipe Materials



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

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

Standard Outside Diameter Chart

STANDARD OUTSIDE DIAMETER																				
NOMINAL BORE	IMPERIAL CAST IRON & ASBESTOS CEMENT (TURNED END) BS1211 (1981) (UTI 27" NB) BS78 (1981) BS486 (1966)				STEEL ISO/4200 (1991)								PVC-U		ABS		DUCTILE IRON		GRP	METRIC ASBESTOS CEMENT (TURNED END) BS486 (1990)
	CLASS AB ONLY	CLASS CD ONLY	NON STD	SER1	SER2	SER3	SER3	BS1387 (1990)	BS3600 (1997) & BS3601 (1993) (pipe ends to BS334 (1990))	API 5L (2000) & BS1600 (2000) UTI 36 NB	BS3505 (1998)	BS3506 (1989)	BS3391 (1976)	BS EN 545 (2002), BS EN 598 (1995), BS4772 (1988) DIN 28601, 28602, 28603, 28605	BS EN 545 (2002), BS EN 598 (1995), BS4772 (1988) DIN 28601, 28602, 28603, 28605	CLASS 15	CLASS 20	CLASS 25		
mm inches																				
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
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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	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



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