



VIKING JOHNSON

World leaders in pipe joints and repair products

Self anchoring method of joining ductile iron or steel pipes - FLEXLOCK



The Viking Johnson FlexLock system provides a unique, patented self anchoring method of joining ductile iron or steel pipes. Viking Johnson FlexLock products are ideal for above ground applications and provide a cost effective, simple and quick alternative to traditional anchoring systems such as site welding, harnessing or thrust blocks. The FlexLock range consists of couplings and flange adaptors with nominal sizes from DN50 (2") up to DN250 (10").

Prevents pipe pull out

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

Angular deflection

Viking Johnson FlexLock permits angular deflection between pipes, allowing for normal pipeline movement such as ground settlement. Long radius curves can also be accommodated, dispensing with the need for special fittings. FlexLock couplings allow for a total angular deflection of $\pm 6^\circ$ ($\pm 3^\circ$ for flange adaptors).

Pressure capabilities

The pressure ratings of all standard FlexLock products are detailed in the adjacent tables, on page 3.

Gasket range

Although FlexLock is normally supplied with E.P.D.M. gaskets, it is also available with British Gas approved Nitrile gaskets to BS2494:1990:Type G suitable for: natural gas, petroleum products, low aromatic fuels, compressed air, sewage and drainage.

Corrosion & site protection

All FlexLock components, excluding nuts and bolts, are coated with the thermoplastic polymer Rilsan Nylon 11 as standard, in Viking Johnson's own fluidised bed dipping facilities. Rilsan Nylon 11 has met the stringent performance standards of WIS 4-52-01 (Part 1) which requires the highest adhesion, flexibility, penetration and impact resistance characteristics. As a result, FlexLock products are well equipped to withstand transport, storage, site and corrosion damage, eliminating the need for further protection such as on-site wrapping. FlexLock is also available in red primer (Shopcoat) finish, for applications where the high anti-corrosion characteristics of Rilsan are not required. FlexLock nuts and bolts are coated with PTFE Sheraplex. Sheraplex has met the stringent performance standards of WIS 4-52-03.

Cost effective

Can provide significant cost saving compared to non-locking coupling plus harnessing system.

Spares

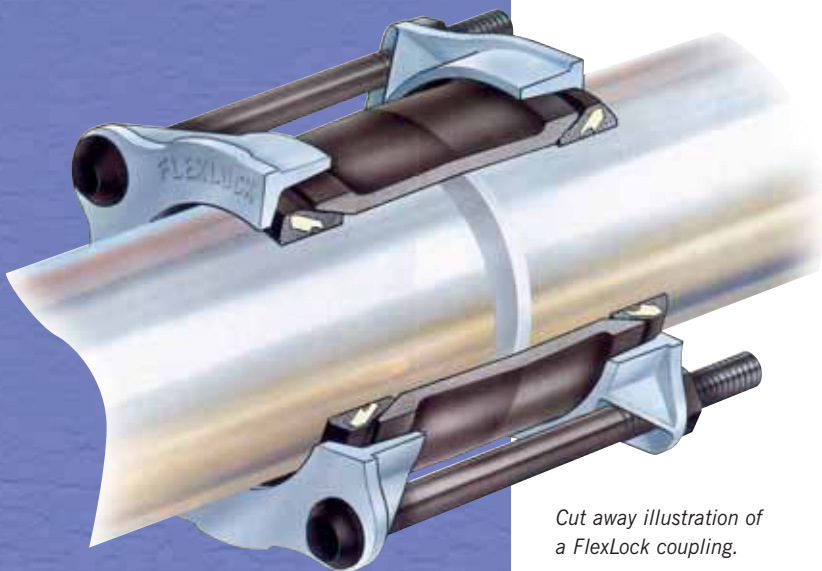
A range of spares for the FlexLock range is available on request.

Re-useable

FlexLock is unique in that it can be dismantled and refitted as often as is required simply by replacing the gasket. This makes FlexLock ideal as a temporary or a permanent self anchoring joint.

FlexLock Plus

FlexLock Flange Adaptors can be supplied as a complete package including flange connecting bolts, nuts, washers and fitted IBC gasket; please request FlexLock Plus.



Cut away illustration of a FlexLock coupling.



A - 222mm FlexLock flange adaptor plus. D - 170mm FlexLock flange adaptor.
B - 170mm FlexLock coupling. E - 88.9mm FlexLock coupling.
C - 114.3mm FlexLock flange adaptor.

FlexLock Couplings

Pipe Nom	Pipe OD		Pipe material	Number of bolts	Bolt size	Coupling weight		Setting Gap (x)		Working Pressure		Gasket mould
	mm	inch				kg	lbs	min	max	bar	psi	
DN50 / 2"	60.3	2.37	steel	2	M12 x 145	2.7	6.0	15	30	16	232	1375
DN65 / 2.5"	76.1	3.00	steel	2	M12 x 160	3.2	7.1	20	40	16	232	1394
DN80 / 3"	88.9	3.50	steel	4	M12 x 160	4.2	9.4	20	40	16	232	1382
DN80 / 3"	98.0	3.86	ductile iron	4	M12 x 195	5.2	11.5	20	40	16	232	1630
DN100 / 4"	114.3	4.50	steel	4	M12 x 170	6.1	13.5	20	40	16	232	1367
DN100 / 4"	118	4.65	ductile iron	4	M12 x 195	5.6	12.4	20	40	16	232	1618
DN150 / 6"	165.1	6.50	steel	6	M12 x 170	9.2	20.4	20	40	16	232	1369
DN150 / 6"	168.3	6.63	steel	6	M12 x 170	9.3	20.4	20	40	16	232	1369
DN150 / 6"	170	6.69	ductile iron	6	M12 x 170	9.2	20.4	20	40	16	232	1369
DN200 / 8"	219.1	8.63	steel	8	M12 x 170	11.9	26.2	20	40	16	232	1370
DN200 / 8"	222	8.74	ductile iron	6	M16 x 195	12.0	26.6	20	40	16	232	1631
DN250 / 10"	273.0	10.75	steel	12	M16 x 275	32.2	70.9	40	75	10	145	1737
DN250 / 10"	274	10.79	ductile iron	12	M16 x 275	32.2	70.9	40	75	10	145	1737

FlexLock Flange Adaptors

Pipe Nom	Pipe OD		Pipe material	No. of studs	Stud size	Flange Nominal drilling			FA weight		Setting Gap (x)		Working Pressure		Gasket mould
	mm	inch				BS 4504	BS10	ANSI	kg	lbs	min	max	bar	psi	
DN50 / 2"	60.3	2.37	steel	2	M12 x 110	PN10, 16	A, D, E	125/150	3.2	7.1	10	30	16	232	1375
DN65 / 2.5"	76.1	3.00	steel	2	M12 x 110	PN10, 16	A, D, E	125/150	3.4	7.5	10	30	16	232	1394
DN80 / 3"	88.9	3.50	steel	4	M12 x 110	PN10, 16	A, D, E	125/150	5.3	11.7	10	30	16	232	1382
DN80 / 3"	98	3.86	ductile iron	4	M12 x 115	PN10, 16	A, D, E	125/150	4.8	10.6	10	30	16	232	1630
DN100 / 4"	114.3	4.50	steel	4	M12 x 115	PN10, 16	A, D, E	125/150	5.6	12.4	10	30	16	232	1367
DN100 / 4"	118	4.65	ductile iron	4	M12 x 115	PN10, 16	A, D, E	125/150	6.4	14.1	10	30	16	232	1618
DN150 / 6"	165.1	6.50	steel	8	M12 x 115	PN10, 16	E	125/150	9.3	20.5	10	30	16	232	1369
DN150 / 6"	168.3	6.63	steel	8	M12 x 115	PN10, 16	E	125/150	9.4	20.7	10	30	16	232	1369
DN150 / 6"	170	6.69	ductile iron	8	M12 x 115	PN10, 16	E	125/150	9.4	20.7	10	30	16	232	1369
DN200 / 8"	219.1	8.63	steel	8	M12 x 115	PN10	E	-	15.0	33.1	10	30	10	145	1370
DN200 / 8"	219.1	8.63	steel	12	M12 x 115	PN16	-	-	15.2	33.5	10	30	16	232	1370
DN200 / 8"	222	8.74	ductile iron	6	M16 x 125	PN16	-	-	13.8	30.4	10	30	16	232	1631
DN200 / 8"	222	8.74	ductile iron	8	M16 x 125	PN10	E	-	13.9	30.7	10	30	10	145	1631
DN250 / 10"	273.0	10.75	steel	12	M16 x 125	PN10	-	-	20.2	44.5	10	30	10	145	1737
DN250 / 10"	273.0	10.75	steel	12	M16 x 125	PN16	-	-	20.5	45.2	10	30	10*	145	1737
DN250 / 10"	274	10.79	ductile iron	12	M16 x 125	PN10	-	-	20.2	44.5	10	30	10	145	1737
DN250 / 10"	274	10.79	ductile iron	12	M16 x 125	PN16	-	-	20.5	45.2	10	30	10*	145	1737

FlexLock bolt torques: M12 = 40-50 lbf.ft (55-65Nm). M16 = 70-80 lbf.ft (95-105Nm)

* Working pressure rating is less than flange rating.



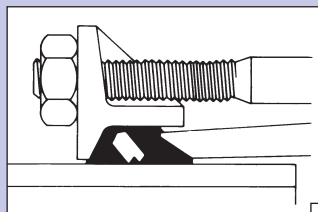
170mm FlexLock coupling and flange adaptor used to install a valve.

118mm FlexLock flange adaptors installed on Ductile Iron pipework.



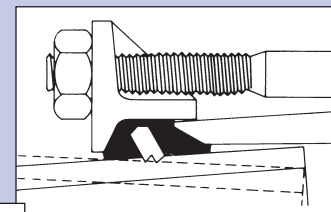
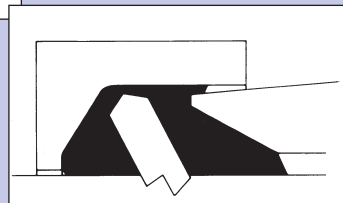
How FlexLock works

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.



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

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



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

Material Specification

All FlexLock products are 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 and have Lloyds Register Type Approval.

Centre Sleeve/End Rings

Malleable Cast Iron to BS EN 1562.

or

Rolled Steel to: BS EN 10025:1993:Grade S275.

Flange Adaptor Body

S.G. Ductile Iron to BS EN 1563.

or

Mild Steel to: BS EN 10025:1993:Grade S275.

Studs/Bolts

Cold Forged Steel Fasteners to: BS EN 20898-1:1992
Grade 8.8.

Nuts

to BS 3692:1967:Grade 8.

Washers

BS 4320 Form B Stainless Steel A2.

Gaskets

EPDM compound Grade 'E' to BS EN 681-1 WBS listed.

Suitable for: water, sewage, many strong and oxidising chemicals and food applications.

or

Nitrile compound Grade 'G' to BS2494:1990:Type G.

Suitable for: natural gas, petroleum products,
low aromatic fuels, compressed air, sewage and drainage.

Stainless Steel teeth in gaskets to BS 3146:1992:Part 2
Grade ANC2.

Coating

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

Bolts, studs and nuts are zinc plated to BS 1706:1990 followed by Sheraplex for double protection against corrosion.

Viking Johnson reserves the right to modify the details in this publication as products and specifications are updated and improved.

Note

Standard Viking Johnson products cannot be fitted with FlexLock gaskets to provide pull-out resistant coupling/flange adaptor. FlexLock couplings and flange adaptors are suitable for Steel or Ductile Iron pipes only, according to size. They are not suitable for use on Spun or Grey Cast Iron and should not be used to provide an end load resistant connection on this material.

FlexLock is only guaranteed to provide full end-load resistant joints up to the stated working pressures if **all** bolts/studs are tightened to the recommended torques during assembly. Use of a torque wrench is recommended.

For further information on all Viking Johnson products and services contact our Marketing Department.



ISO 9001



ISO 14001

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