Unrivalled

FlexLock

Couplings & Flange Adaptors

For Ductile Iron or Steel Pipes

VIKING JOHNSON™

PIONEERS IN PIPE SOLUTIONS

CRANE BUILDING SERVICES & UTILITIES

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

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 both gas and 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.

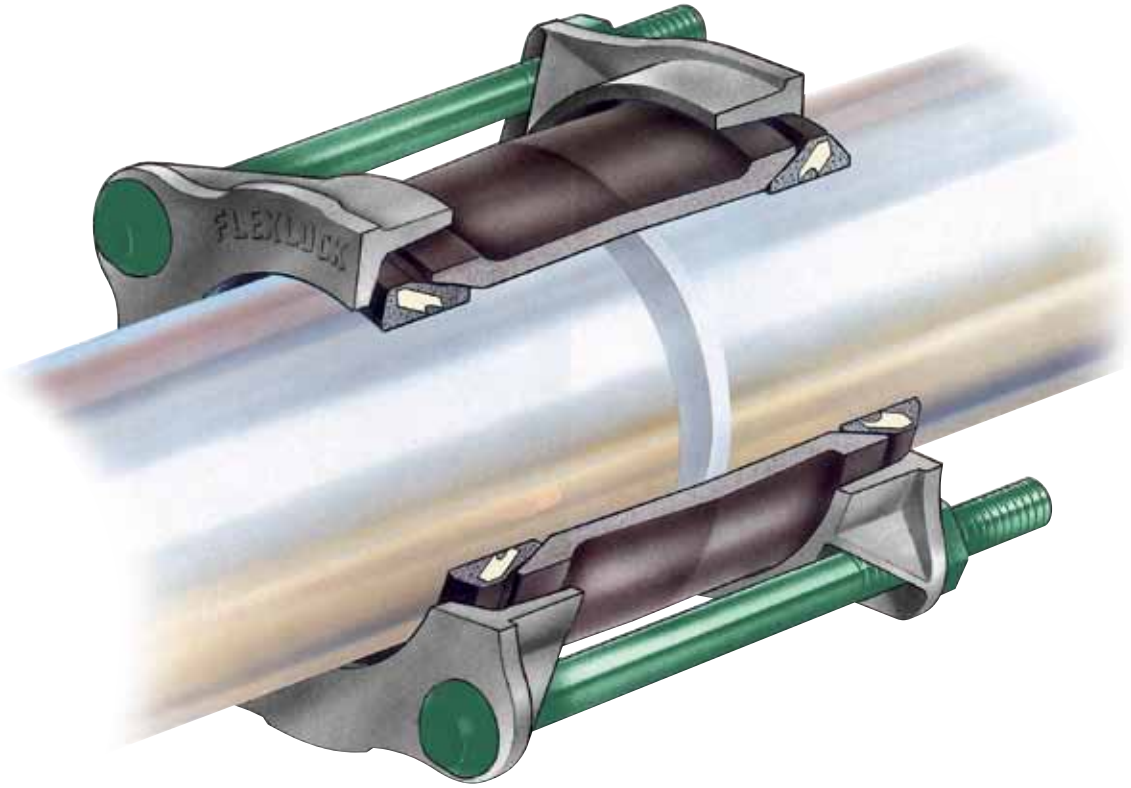
Customer Benefits

- FlexLock permits angular deflection between pipes (couplings ±6° / flange adaptors ±3°), allowing for normal pipeline movement such as ground settlement. Long radius curves can also be accommodated, reducing the need for special fittings.
- Cost effective – FlexLock provides 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. For gas applications a working pressure of 6 bar can be achieved.
- FlexLock provides angular deflection in ANY plane unlike a harness assembly that can only provide angular deflection in one plane.

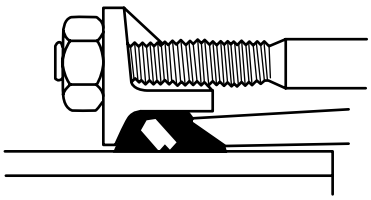
FlexLock Unique Sealing System

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.

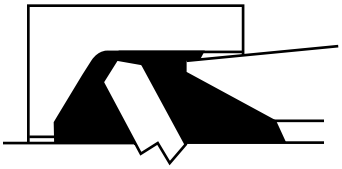


Step 1



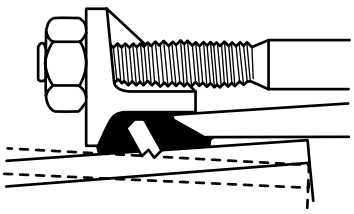
Tightening the bolts compresses the gaskets between the end rings and the centre sleeve, pressing the gasket on to the pipe and driving the edges of the steel teeth to grip on the pipe surface.

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.

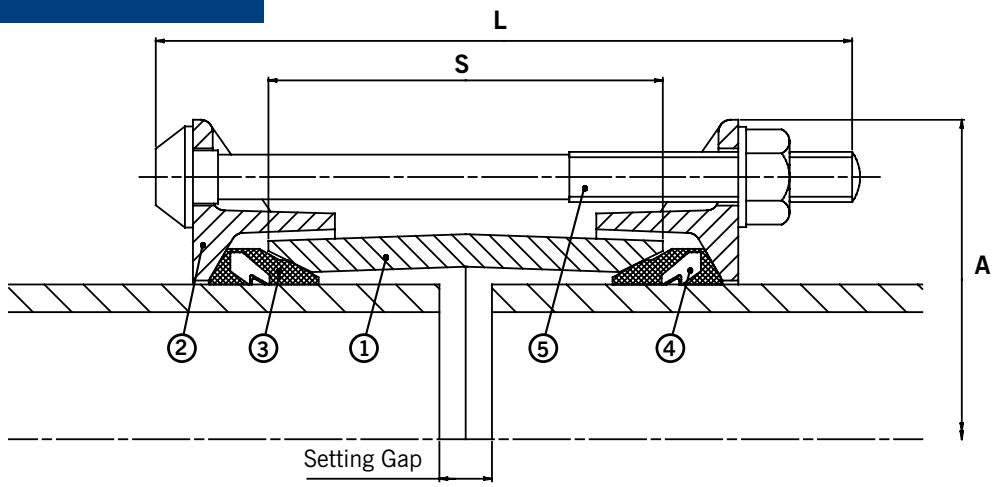
Client
Yorkshire Water

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	Water	Gas		
DN50/2"	60.3	Steel	2-M12 x 145	157	135	80 x 5.5	15	30	16	6	1375	2.7
DN65/2.5"	76.1/77	Steel	2-M12 x 160	170	152	100 x 6.0	20	40	16	6	1394	3.2
DN80/3"	88.9	Steel	4-M12 x 160	170	163	100 x 6.0	20	40	16	6	1382	4.2
DN80/3"	98.0	Ductile Iron	4-M12 x 195	203	181	115 x 6.4	20	40	16	6	1630	5.2
DN100/4"	114.3	Steel	4-M12 x 170	188	195	100 x 6.0	20	40	16	6	1367	6.1
DN100/4"	118	Ductile Iron	4-M12 x 195	203	200	115 x 6.4	20	40	16	6	1618	5.6
DN150/6"	165.1	Steel	6-M12 x 170	188	254	100 x 7.2	20	40	16	6	1369	9.2
DN150/6"	168.3	Steel	6-M12 x 170	188	256	100 x 7.2	20	40	16	6	1369	9.3
DN150/6"	170	Ductile Iron	6-M12 x 170	178	256	100 x 7.2	20	40	16	6	1369	9.2
DN200/8"	219.1	Steel	8-M12 x 170	188	310	100 x 7.2	20	40	16	6	1370	11.9
DN200/8"	222	Ductile Iron	6-M16 x 195	206	316	115 x 6.4	20	40	16	6	1631	12.0
DN250/10"	273.0	Steel	12-M16 x 275	286	376	178 x 8.5	20	40	10	6	1737	32.2
DN250/10"	274	Ductile Iron	12-M16 x 275	286	376	178 x 8.5	20	40	10	6	1737	32.2
DN300/12"	323.9	Steel	12-M16 x 275	286	436	178 x 6.0	20	40	10	6	7667/8	33.7
DN300/12"	326	Ductile Iron	12-M16 x 275	286	436	178 x 6.0	20	40	10	6	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: Symbol EN-GJS-450-10
or Rolled Steel to: BS EN 10025: Grade S275.

Coupling Body

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

Bolts/Nuts/Washers

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

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

Washers - BS 4320 Form B Stainless Steel BS 1449:PT2: 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: Part 2 Grade ANC2.

Approvals/Standards

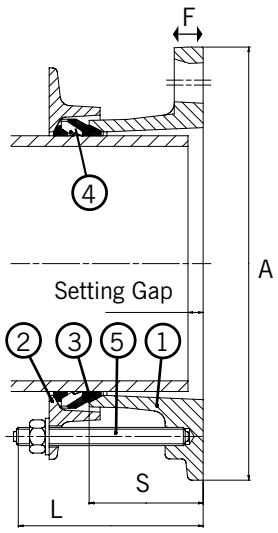
Designed and manufactured under quality management systems to BS EN ISO 9001. They have been tested in accordance with the requirements of WRc Water Bye-laws Scheme and conform to the American Water Works Associations standard AWWA/ANSI C.219 for bolted couplings.

Note: 1) 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. 2) Due to the surface characteristics of stainless steel pipe, FlexLock grippers are unable to achieve a guaranteed grip on the pipe surface. 3) 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)
									Water	Gas	Min	Max		
DN50/2"	60.3	Steel	2-M12 x 115	160	123	16	75	50 PN10/16	16	6	10	30	1375	2.3
DN65/2.5"	76.1	Steel	2-M12 x 115	180	123	16	75	60/65 PN10/16	16	6	10	30	1394	2.6
DN80/3"	88.9	Steel	4-M12 x 115	195	123	16	75	80 PN10/16 90 PN6	16	6	10	30	1382	3.4
DN80/3"	98	Ductile Iron	4-M12 x 115	195	123	16	75	80 PN10/16 90 PN6	16	6	10	30	1630	4.0
DN100/4"	114.3	Steel	4-M12 x 115	215	123	16	75	100 PN10/16 110 PN6	16	6	10	30	1367	4.5
DN100/4"	118	Ductile Iron	4-M12 x 115	215	123	16	75	100 PN10/16	16	6	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	6	10	30	1369	9.3
DN150/6"	168.3	Steel	8-M12 x 115	286	123	19	75	150 PN10/16	16	6	10	30	1369	8.0
DN150/6"	170	Ductile Iron	8-M12 x 115	286	123	19	75	150 PN10/16	16	6	10	30	1369	8.0
DN200/8"	219.1	Steel	8-M12 x 115	341	123	19	75	200 PN10	10	6	10	30	1370	9.7
DN200/8"	219.1	Steel	8-M12 x 115	340	127	25	73	200 PN16	16	6	10	30	1370	15.2
DN200/8"	222	Ductile Iron	6-M16 x 125	341	137	19	75	200 PN16	16	6	10	30	1631	10.6
DN200/8"	222	Ductile Iron	8-M16 x 125	340	137	25	75	200 PN10 8"E	10	6	10	30	1631	13.9
DN250/10"	273.0	Steel	12-M16 x 125	405	137	19	90	250 PN10/16*	10	6	10	30	1737	16.4
DN250/10"	274	Ductile Iron	12-M16 x 125	405	137	19	90	250 PN10/16*	10	6	10	30	1737	16.4
DN300/12"	323.9	Steel	12-M16 x 125	467	137	19	90	300 PN10/16*	10	6	10	30	7667/8	22.7
DN300/12"	326	Ductile Iron	12-M16 x 125	467	137	19	90	300 PN10/16*	10	6	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

End Rings

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

Flange Adaptor Body

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

Studs/Nuts/Washers

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

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

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

Coating

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

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: 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: 1) 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. 2) Due to the surface characteristics of stainless steel pipe, FlexLock grippers are unable to achieve a guaranteed grip on the pipe surface. 3) 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

VIKING JOHNSON™

46-48 WILBURY WAY
HITCHIN, HERTFORDSHIRE
SG4 0UD. UNITED KINGDOM

TELEPHONE: +44 (0)1462 443322
FAX: +44 (0)1462 443311
EMAIL: info@vikingjohnson.com

www.vikingjohnson.com

ISO 14001 • EMS 51874

ISO 9001 • FM 00311

YouTube To visit our Video Library go to:
www.youtube.com/user/CraneBSU

- Designed and manufactured under quality management systems in accordance with BS EN ISO 9001.
- Environmental Management System accredited to ISO 14001.
- For full terms and conditions, please visit our website.

DR7976_04_2015

PIONEERS IN PIPE SOLUTIONS

CRANE BUILDING SERVICES & UTILITIES

www.cranebsu.com

CRANE CO. 1855 160 2015 · YEARS ·