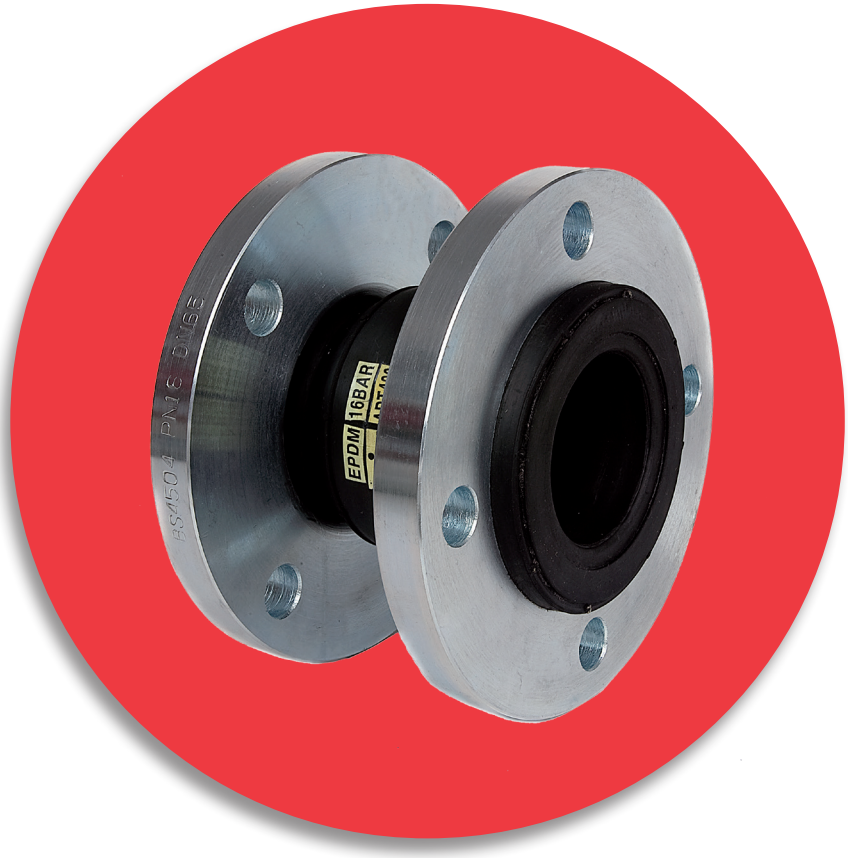
Installation & Operating Manual



Flexible Connectors

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1. Introduction

Moulded Rubber Bellows for pressurised systems are designed to reduce noise and vibration from pumps and other reciprocating machinery and can accommodate mis-alignment and lateral movement. They are suitable for use on LTHW, MTHW, and CW systems and are available with working pressures up to 16 bar and diameters;

Female Union End – ½" to 3"

Flanged - 1 ¼" to 24"

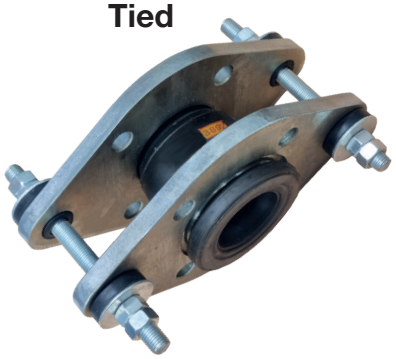
Female Union Ended Connectors

Manufactured from rubber (NBR or EPDM) and Galvanised Malleable Iron and are available up to and including 2" with at standard length of 200mm, above this (2 ½" & 3") with a standard length of 245mm.

Flanged Connectors

Untied

Tied



Flanged Connectors are manufactured from rubber (NBR or EPDM) with Zinc Coated Carbon Steel flanges according to BS4504 / EN 1092 or ANSI 150 (B16.5).

All items are available Temperature range

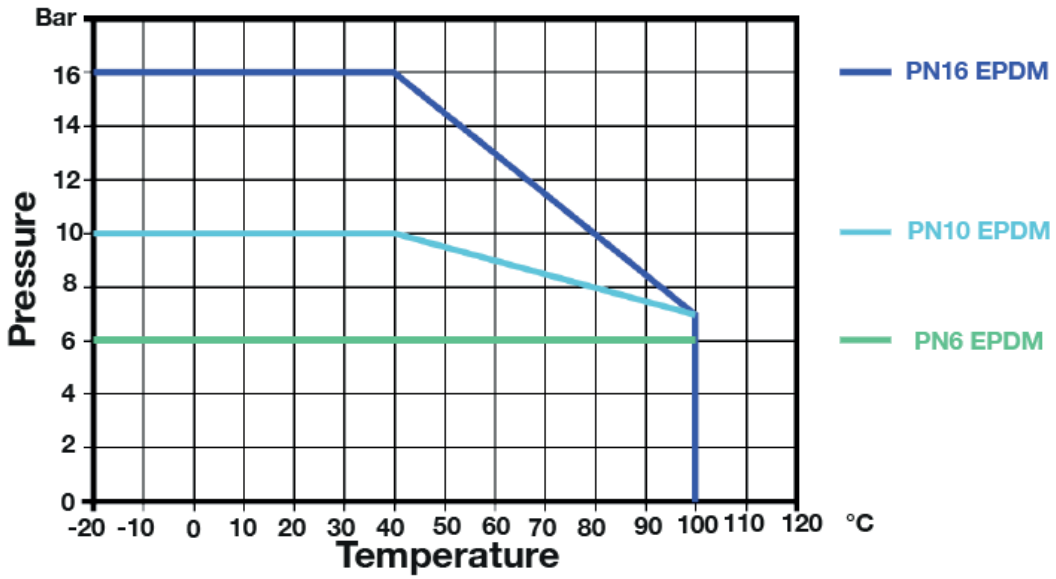
EPDM	-20 to +100
NBR	-20 to +80

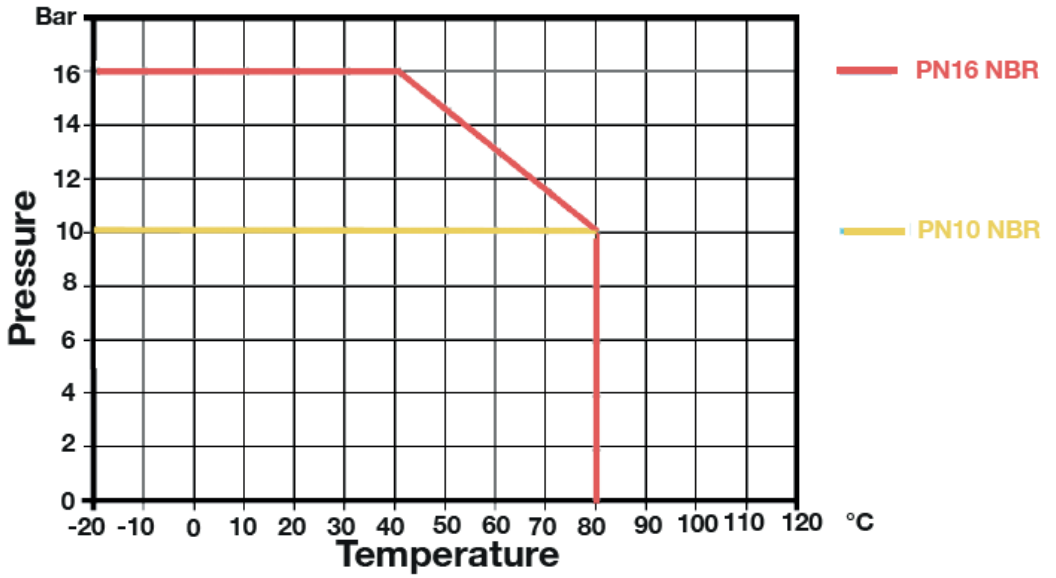
2. Technical Data

Flexible Connector	Size Range	Connection Type	Temperature Rating	Pressure Rating (Max)
ART 400	DN15 – DN75	BSP Taper BS21 or NPT	-20°C – +100°C EPDM	16 bar
ART410	DN15 – DN75	BSP Taper BS21 or NPT	-20°C – + 80°C NBR	16 bar
ART 420	DN32 – DN600	Flange BS4504 / ANSI 150 (B16.5)	-20°C – +100°C EPDM	16 bar
ART 430	DN32 – DN600	Flange BS4504 / ANSI 150 (B16.5)	-20°C – + 80°C NBR	16 bar
ART421	DN32 – DN300	Flanged PN 25	-20°C – +100°C EPDM	25 bar
ART 431	DN32 – DN300	Flanged BS4504	-20°C – + 80°C NBR	25 bar
ART 425	DN32 – DN300	Flanged BS4504	-20°C – +100°C EPDM	10 bar
ART 435	DN32 – DN300	Flanged BS4504	-20°C – + 80°C NBR	10 bar
ART 427	DN32 – DN300	Flanged BS4504	-20°C – +100°C EPDM	6 bar
ART 450 (Tied)	DN32 – DN300	Flanged BS4504	-20°C – +100°C EPDM	16 bar
ART 460 (Tied)	DN32 – DN300	Flanged BS4504	-20°C – + 80°C NBR	16 bar
ART 455 (Tied)	DN32 – DN300	Flanged BS4504	-20°C – +100°C EPDM	10 bar
ART 465 (Tied)	DN32 – DN300	Flanged BS4504	-20°C – + 80°C NBR	10 bar

Selection

- Prior to installation check that the correct flexible connector has been selected for the operating conditions that exist.
- Temperature, pressure and movement should all be confirmed as the incorrect selection may result in product failure.
- Please see charts below for temperature and pressure and respective individual data sheets for allowable deflection.
- Please ensure that if any water treatment flushing or dosing chemicals are to be used in the heating or cooling system then they are compatible with the coupling materials selected.


Bar
16
14
12
10
8
6
4
2
0
Pressure
-20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 °C
Temperature
PN16 EPDM
PN10 EPDM
PN6 EPDM


Bar
16
14
12
10
8
6
4
2
0
Pressure
-20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 °C
Temperature
PN16 NBR
PN10 NBR

3. Installation

- Care should be taken when fitting Flexible Connectors to avoid errors during installation.
- Before installing flexible connectors they should be checked for any damage both internally and externally paying particular attention to the mating face.
- Make sure the sealing face is clean and free of debris as this will prevent satisfactory sealing with the mating flange.
- Flexible connectors should be installed at their natural length. If gaps are being left in the pipework for retro fitting make sure this gap conforms to the exact natural length of the connector.
- Pipework should be aligned as best as possible before installation. The connector is not designed to compensate for poorly aligned pipework, please consult specific datasheet for allowable movements.
- The correct mating flange should always be selected and the sealing face checked for debris and any sharp edges as this could result in damage to the rubber.
- If faces of mating flanges have a different diameter a sealing gasket should be used to avoid damage to the rubber face.
- Flange bolts must be fitted with the bolt head nearest the connector to avoid any damage to the rubber bellows during operation.
- Bolt tightening must be even and diagonal around the valve face to prevent any alignment distortion. (For further guidance please see Albion ‘Bolt Tightening Sequence’ available on our web site)
- Do not overtighten as this will result in leakage. It is prudent to check tighten the bolts after seven days of full system operation
- Avoid installation in direct sunlight and dry hot air as this can reduce the lifetime of the rubber bellows.
- The presence of any solid debris, dirt or grit in the media can lead to abrasion of the interior rubber and a much reduced product service life, as such strainers should always be fitted to remove such debris from the system media.

Common installation errors being;

- Over-tightening of the end connections resulting in torsion being applied to the flexible bellows section.
- Fitting without a washer / gasket (Flange).
- Compression stretching or tensioning of the flexible bellows section prior to operation.
- Flattening, kinking or exceeding the permissible deflection of the flexible bellows section.

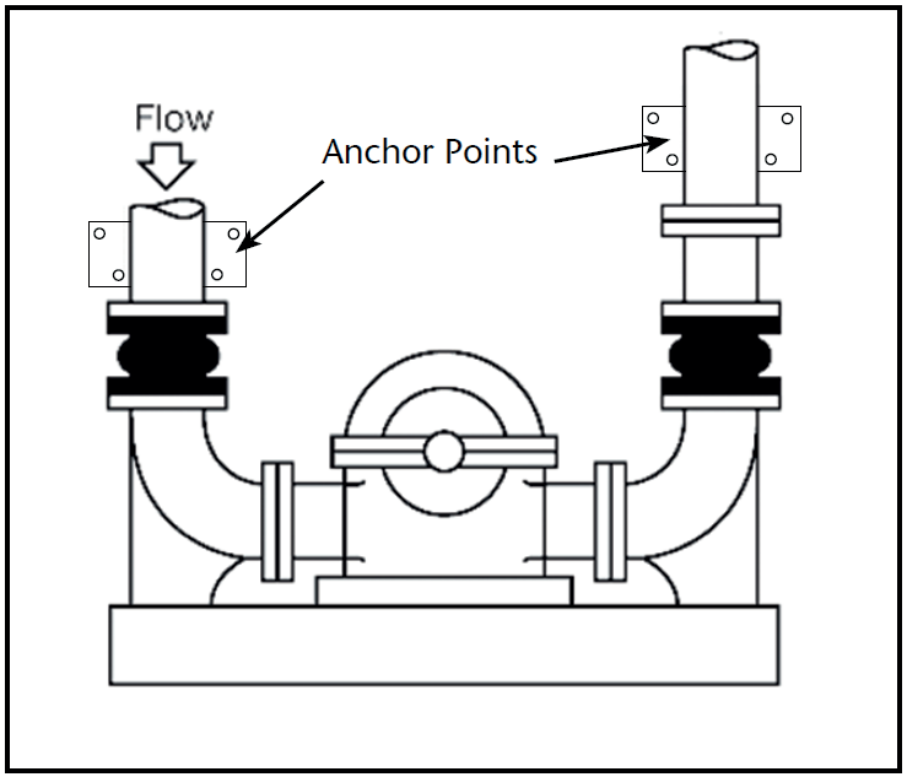
Pressure Testing

- If a hydraulic pressure test is to be carried out on a system containing flexible connectors, ensure that the test pressure (normally 1.5 x system working pressure) does not exceed the maximum test pressure of the Flexible Connector selected.

Anchoring

- It is essential that pipework adjacent to the flexible connectors are anchored to protect the flexible Connectors and plant. Fig 1 shows how to anchor pipework in close installation to pumps.
- Selection of tied rubber flexible connectors should be considered above 100mm and / or the pressure is greater than 2.5 bar.

Figure 1



4. Approvals

- There are no approvals for these items.

5. Maintenance

- When correctly selected and properly installed flexible connectors will provided many years of trouble free service.
- It is essential they are used within their temperature, pressure and media limitations. Regular inspection of the rubber is advised to check for deterioration we also advise a thorough internal and external inspection after a maximum of 12 months of service.
- Flexible Connectors are an important part of any system and consideration should be given to retaining a replacement connector should any evidence of deterioration or wear be witnessed to prevent a long term shut down of the system.
- Flange bolts should be checked for correct tightness at regular intervals.
- The rubber should never be painted as this could damage / deteriorate the rubber and lead to reduced performance and premature service life.
- The supplier will not be responsible for any premature product failure where causation is found to be installation error.

6. Warranty

- For further details of Albion Valves (UK) Ltd warranty period, please refer to Albion Valves (UK) Ltd ‘Conditions of Sale’ available on our website.

About Albion Valves (UK) Ltd

Albion has been supplying valves and fittings to the building services and industrial markets for the past 40 years.

Albion was created with the sole purpose of providing quality products at an affordable price. With a growing reputation for quality and reliability, Albion is now an established brand providing the industry with a trusted alternative to premium-priced products.

Our commitment to setting the highest standards in all areas of our business means, if you're looking for quality, service, delivery and choice — you'll find it's all at Albion.

Quality

Whatever you need, you can rest assured that if it comes from Albion it has been designed and manufactured to deliver optimum performance and is accredited with the necessary approvals. Our in-house quality department are always on hand too!

Service

We pride ourselves on our customer service – we have even won awards for it! Our cradle to grave approach means you will never be on your own!

Delivery

We know that time is money, and when a priority project depends on a part you can trust Albion to deliver – next day for all orders placed before 4:00PM.

Choice

We may have started out with a single brass ball valve, but our range has grown substantially since and we now consider ourselves to be a 'One Stop Shop' with our comprehensive range. It is becoming more and more apparent to the industry, that it really is all at Albion.