



PIPE SYSTEMS EXPAND, CONTRACT, VIBRATE. POSIFLEX PROVIDES THE SOLUTION.

SUITABLE FOR A BROAD
RANGE OF INDUSTRIES:

CHEMICAL PROCESSING

HVAC

MARINE

MINING

PAPER & PULP

POWER GENERATION

WATER & WASTE TREATMENT



Trawsfynydd Power Station, North Wales, UK



Introduction

A PosiFlex elastomeric expansion joint is a flexible connector fabricated of natural or synthetic elastomer, fabrics and, where necessary, metallic reinforcements. They provide stress relief in piping systems caused by thermal and mechanical vibration and/or movement. It can also be used to overcome problems of noise. Rubber, as a material of construction in the PosiFlex expansion joint, has superior noise and vibration eliminating qualities over all other types of material.

The standard PosiFlex expansion joint is of the spool-type with a single arch and flanged ends. The movement capability of the PosiFlex expansion joint is dependent upon the arch. If greater expansion or contraction is required than can be absorbed by a single arch, then a multiple arch joint can be used with up to four arches.

PosiFlex elastomeric expansion joints are suitable for both pressure and vacuum systems.

Note, multiple arched constructions are not suitable for vacuum applications unless specifically designed for that service.

In general, PosiFlex elastomeric expansion joints are used in above ground situations. If used in a buried situation, the joint must be housed in a chamber, to allow free movement of the joint.



Heron Towers, London High Rise Development.

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Advantages of PosiFlex Expansion Joints

Compensate for Axial Movements

Expansion and contraction movements, due to thermal changes or hydraulic surge effects, are compensated for by PosiFlex elastomeric expansion joints within a pipe system.

Compensate for Lateral, Torsion and Angular Movements

Pumps, compressors, fans, piping and related equipment move out of alignment due to wear, load stresses, relaxation and settling of supporting foundations. PosiFlex elastomeric expansion joints compensate for lateral, torsion and angular movements – preventing damage to equipment.

Vibration and Sound Absorption

PosiFlex elastomeric expansion joints dampen and insulate against the transmission of vibration and sound. This insulation is particularly important in air-conditioning and heating installations where piping-conducted noise can be transmitted throughout an entire building, and in piping systems where pump noises would ordinarily pass through equipment and pipelines.

Unlike metal joints, PosiFlex elastomeric expansion joints are not subject to failure from vibration fatigue.

Corrosion/Erosion Resistant

PosiFlex elastomeric expansion joints do not corrode, the continuous flexing of the rubber does not permit scale to form. Unlike metal joints, which are susceptible to corrosion and erosion.

A wide range of natural, synthetic and special purpose elastomers and fabrics can be used in the PosiFlex expansion joint construction to meet a wide range of pressure/temperature conditions, corrosive attack, abrasion and erosion. Teflon liners offer good resistance to corrosive and chemical attack.

Minimal Dimensions

PosiFlex elastomeric expansion joints are compact and often require less space than metal joints of the same internal diameter. The outside diameter of a PosiFlex expansion joint is often smaller than that of a comparable metal joint.

PosiFlex multi-arch expansion joints have a smaller space requirement than pipe loops.

Ease of Installation

Because of their lightweight and extreme flexibility, PosiFlex expansion joints do not require special handling equipment and are easy to install. The rubber flanged design eliminates the need for gaskets, saving both cost and installation time.

PosiFlex expansion joints do not have to be precompressed at the job site, as is sometimes necessary with metal expansion joints.

Shock Resistant

PosiFlex expansion joints are constructed mainly of synthetic elastomers which has natural 'shock-absorbing' properties. This provides protection against shock from excessive hydraulic surge, water hammer or pump cavitation from mechanical equipment, for example cooling towers, condensers and pipelines.

Greater Recovery from Movement

When a metal joint is fully compressed, it assumes a permanent set. A PosiFlex elastomeric expansion joint continues to return to its original form.

Freedom from Embrittlement

Failure of metal and polymeric joints is primarily due to continuous flexing which eventually results in fracture at the point of embrittlement. In PosiFlex elastomeric expansion joints, this same flexing keeps the rubber 'alive' and reduces flex cracking.

Eliminates Electrolysis

Since PosiFlex elastomeric expansion joints have full-face rubber flanges, no metal-to-metal contact is made through the joint, consequently electrolytic action is interrupted and its corrosive effects reduced.

Economy

PosiFlex elastomeric expansion joints are a low cost alternative to mechanical compensation systems. This economy is realised in space, ease of installation, labour and maintenance. This eliminates the need for related support equipment necessary for expansion loops or metal joints. PosiFlex expansion joints cause little or no pressure drop in piping systems (as would a loop), meaning that piping and pumping systems do not have to be 'upsized'.

Maintenance Free

Unlike metal joints, which often require periodic replacement of the mating flange gaskets, PosiFlex elastomeric expansion joints being gasket-free are virtually maintenance free over their entire service life.



Expansion Joint Selection

For the selection of the most suitable PosiFlex expansion joint, the following basic criteria must be determined:

Size – joint nominal bore size, required face-to-face length and mating flange size/specification.

Pressure – operating, design, surge and test pressure of the system

Movement – axial, lateral, angular, and torsional (if applicable)

Medium – type of fluid, air, gas or powder

Temperature – minimum and maximum range

PED requirements – Group 1-2 liquid, Group 1-2 as, SEP, CAT 1. (EU applications only)

Please use the enquiry faxback form at the back of this brochure to specify your requirements or contact us at the address below.

1. Size

PosiFlex expansion joints are available in sizes from 25mm (1") nominal bore up to of approximately 3600mm (144").

NB. Special, larger sizes available on application, with dimensions available on request.

2. Pressure

When making any design calculations on PosiFlex expansion joints it is important to consider the maximum pressure of the system, not the operating pressure. This could be either surge or test pressure. Remember that pressure may be positive or negative (vacuum).

The pressure capabilities of a PosiFlex joint are limited by the reinforcement of the carcass at the arch area. Standard pressure ratings exist for each style of PosiFlex expansion joint. If requirements exceed these ratings, special constructions are available on request.

Standard face-to-face dimensions of the joints are detailed on the technical datasheets, other non standard dimensions available on request.

3. Movement

PosiFlex expansion joints are designed to accommodate axial (compression and elongation), lateral, angular and torsion movements.

All movement capabilities are dependent upon the size and number of arches. For increased movement capability, more arches can be added (up to a maximum of four for most sizes).

4. Medium

The medium conveyed through the PosiFlex expansion joint can be fluid, gaseous or powder. The tube material of the joint must be compatible with the medium it is carrying.

Abrasive materials may require a thicker and/or softer tube to improve service life.

Note that in some cases the surrounding environment must be considered. The outer cover may be exposed to oils, chemicals, acid fumes or sunlight.

Refer to chemical resistance tables, pages 41 to 49 to select the correct tube and cover elastomers. Remember that temperature considerations must be taken into account when selecting elastomers.

5. Temperature

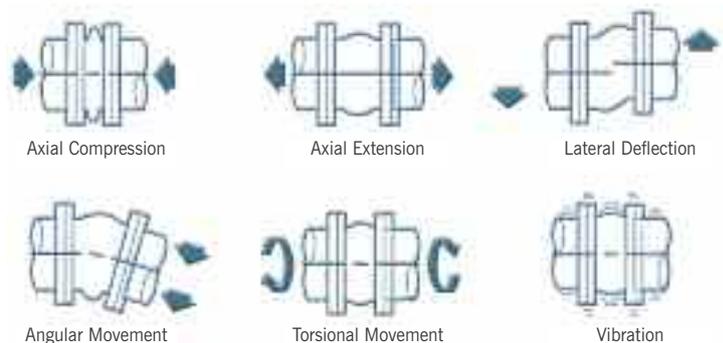
Temperature ratings of expansion joints are governed by the materials of construction. Please contact PosiFlex for details.

6. Pressure Equipment Directive (PED) Regulations 1999

The PosiFlex expansion joint is interpreted as being defined as a pressure accessory within the Pressure Equipment Regulations 1999.

For the purposes of defining the product classification, expansion joints are considered as piping, not vessel, where the nominal size DN is more appropriate than the volume. Therefore for group 2 liquids for pressures above 0.5bar up to and including 10bar for all sizes, the classification is SEP (Sound Engineering Practices) and therefore cannot bear the CE mark.

Against this requirement PosiFlex products are designed and manufactured under ISO 9000 quality management systems to sound engineering practices. Additionally the products are marked for manufacturer identification and traceability and are accompanied by appropriate fitting instructions.



Materials of Construction

EPDM – Outstanding water, vapour and weather resistance. Good resistance to heat, ozone, alkalis, sunlight, and oxygenated solvents. Ideal for outdoor service. Do not use with petroleum oil service. Good general-purpose elastomer for an effective operating range from -34°C to 121°C.

NEOPRENE – Resists alkalis, inorganic acids, and salt solutions. Flame-retardant, as well as, abrasion and weather-resistant. Good resistance to animal and vegetable oils; moderate resistance to petroleum oils. Effective operating range from -29°C to 107°C.

CHLOROBUTYL – Lower permeability, very good resistance to water, heat, fats ozone, alkalis, sunlight, abrasion, and oxygenated solvents. Effective operating range from -34°C to 149°C with brief excursions to 177°C.

BUNA-N (NITRILE) – Good resistance to mineral and vegetable oils, greases, hydrocarbon solvents, dilute acids, and alkalis. Effective operating range from -23°C to 99°C.

PURE GUM RUBBER – Excellent resilience and rebound elasticity with high tensile strength. Excellent resistance to tear and abrasion. Effective operating range from -40°C to 82°C.

FDA FOOD-GRADE SERVICE – Several white and black elastomers meet FDA requirements and can be used in direct contact with food, beverage, pharmaceutical products and potable water.

VITON® – Excellent resistance to aggressive chemicals, solvents, and halogenated hydrocarbons. Viton®, TBR-S provides excellent resistance to steam, aqueous acids, amines and concentrated caustics/bases/alkalies. Viton®, ETP-S offers the most universal chemical resistance and has excellent flexibility at low temperatures. Effective operating range from -23°C to 204°C.

TEFLON LINING – Superior chemical resistance, completely inert to nearly all industrial chemicals and solvents. Effective operating range from -51°C to 232°C.

REINFORCEMENTS – Polyester, Tyre Cord, Nylon, Kevlar®, fibreglass and steel.

TEMPERATURE – rating is dependent on both elastomer and reinforcements. Please contact PosiFlex for specific workings.

Applications

1. Power Industry

PosiFlex elastomeric expansion joints used in power generating stations (nuclear and fossil fuel plants) to compensate for thermal expansion, contraction and lateral movements on condenser, steam turbine exhaust and cooling water pipework.

Of particular advantage to the power industry is the large diameters that can be offered PosiFlex.

2. Flue-Gas De-Sulphurisation

Filled arch PosiFlex expansion joints are recommended for air purification plants on SO₂ (Sulphur dioxide) recovery and fly-ash systems.

3. Process

PosiFlex expansion joints are used for motion, vibration and stress control on process lines handling corrosive chemicals and abrasive slurries. They can also be used for pneumatic conveyance. Mechanical equipment such as pumps, valves, condensers and chillers are protected from thermal motion and shock by PosiFlex expansion joints.

Typical process industries include **chemical**, **paper** and **pulp**, **metal ore** and **petroleum** refining.

4. Sewage Treatment, Water Treatment Plants, Desalination Plants

PosiFlex elastomeric expansion joints are used on sludge pumps, raw and secondary sewage lines, air blowers, blower lines, aeration systems, grit pump digesters, odour control and methane ducting.

5. Marine

Ideally suited for shipboard piping systems, PosiFlex elastomeric expansion joints are impervious to the corrosive effects of seawater. PosiFlex expansion joints are able to cope with the motion and flexibility necessary in piping systems on and off board ships at sea.

6. Heating, Ventilating, Air Conditioning Industry

PosiFlex elastomeric expansion joints are used extensively in piping systems for noise and vibration abatement, particularly in building having occupancy considerations. They are also installed in piping systems in mechanical equipment rooms to isolate all the mechanical noise emitted by pumps, compressors, chillers, heat exchanges and cooling towers.

PED Product Classification

In order to know how the Pressure Equipment Directive Regulations will apply to specific items of pressure equipment, the manufacturer will need to classify the equipment into one of five conformity assessment categories – ‘Sound Engineering Practice’ or Categories I, II, III or IV according to the charts reproduced in Annex B as indicated in the following table. Refer to DTI website for clarification, detailed below.

Annex B

STATE OF CONTENTS	PIPING		LIQUID	
	GAS			
Fluid Group	1	2	1	2
Chart	6	7	8	9

Therefore, to classify pressure equipment, the manufacturer will need to know:

- The state of the intended fluid contents – Gas or Liquid
- The fluid group of the intended contents – Group 1 or 2

Group 1 comprises those fluids classified, according to the EC Directive on the classification of dangerous substances* as:

- explosive
- extremely flammable
- highly flammable
- flammable (where the maximum allowable temperature is above flashpoint)
- very toxic
- toxic
- oxidising

Group 2 comprises all other fluids including steam.

* Council Directive 67/548/EEC of 27 June 1967 on the approximation of the laws, regulations, and administrative provisions relating to the classification, packaging and labelling of dangerous substances as last amended by Council Directive 95/56/EC and last adapted to technical progress by Commission Directive 96/54/EC.

These Directives have been implemented in Great Britain by the Chemicals (Hazard Information and Packaging for Supply) Regulations 1994 (as amended) (CHIP). A free guide leaflet, or a priced guidance book, on CHIP is available from HSE Books, PO Box 1999, Sudbury, Suffolk CO10 2WA. Tel: 01787 881165 Fax: 01787 313995 or from the HSE website at: <http://www.open.gov.uk/hse/hsehome.htm>

With this information we can identify the relevant chart and determine the correct classification of the equipment by plotting the maximum allowable pressure and, the nominal pipe size (DN).

The maximum allowable pressure (PS) is the maximum pressure for which the equipment is designed, as specified by the manufacturer.

Nominal size (DN) means a numerical designation of size which is common to all components indicated by outside diameter or by thread size.

Checklist for PosiFlex Expansion Joints

Pipe Size:	Internal diameter or nominal bore. If Cuff End Joint pipe outside diameter size.
Flange Rating:	ie. PN10/16, ANSI 150, BST'E/D' etc.
Actual Working Pressure:	bar / psi
Design Pressure:	bar / psi
Movement Required:	Compression, Elongation, Lateral - mm
Line Media:	Exact make up of chemical concentration. Group 1 / 2 Liquid, Group 1 / 2 Gas
Maximum Working Temperature:	°C or °F
PED Requirements	
Pipework Anchored:	If not then Tie Rods are required
Is the Installation:	Internal External ie. strong sunlight, aggressive ambient atmosphere

The information above has been taken from the Dept. of Trade and Industry (DTI) URN 99/1147 (refer to DTI for current legislation updates). www.dti.gov.uk

STYLE 1100, 1101, 1102, 1103 & 1104



Style 1100

Features & Benefits

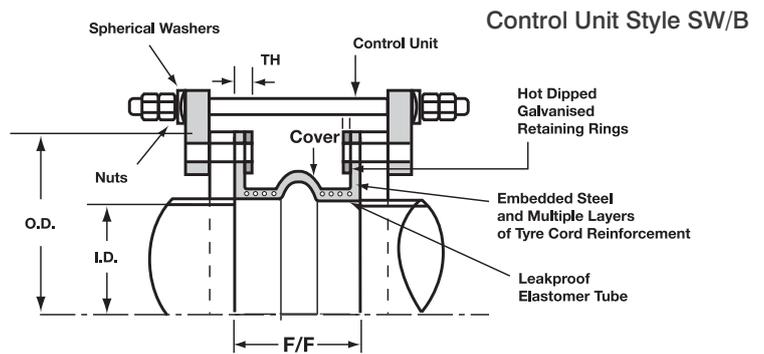
- Versatile hand-built construction
- Standard or custom face-to-face dimensions
- Wide flowing arch design
- Exceptional all directional movement capability
- Virtually eliminates sediment build-up
- Higher pressure rating than conventional expansion joints
- Excellent chemical and abrasion resistance
- Full vacuum rating (-1 Bar g) in all style 1101 sizes
- For multi-arch full vacuum applications refer to style 1200
- 121°C continuous services standard, 204°C available
- Filled arch design available
- Standard drillings include: ANSI/AWWA, DIN and PN
- Hot dip galvanised retaining rings standard
- Wide variety of tube and cover elastomers available, including pure gum rubber, EPDM, neoprene, butyl, nitrile, Viton®, food grade and more
- Absorbs noise, vibration and shock
- Compensates for minor misalignment and offset
- Low stiffness and deflection forces
- Integral flanged design, no gaskets required
- Simple to install, lightweight and high strength
- Provides easy access to piping and equipment



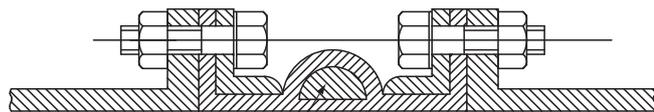
STYLE 1101

Features & Benefits

- Single (1) Arch



STYLE 1101 SINGLE (1) OPEN ARCH



Optional Filled Arch Construction
Also Typical for Other Styles

STYLE 1101 SINGLE FILLED ARCH

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STYLE 1100, 1101, 1102, 1103 & 1104



STYLE 1102

Features & Benefits

- Double the movement with 1/2 the spring rate



STYLE 1103

Features & Benefits

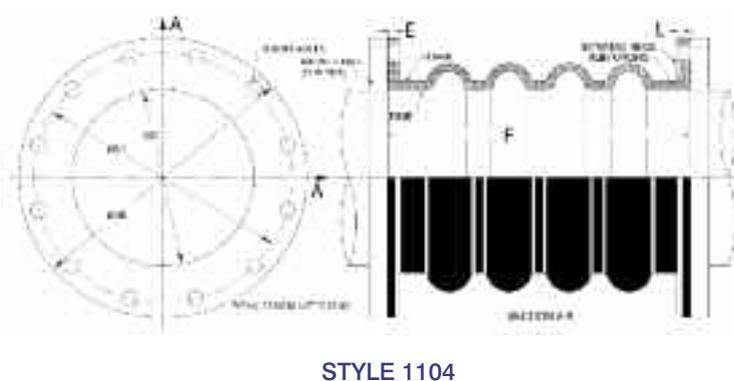
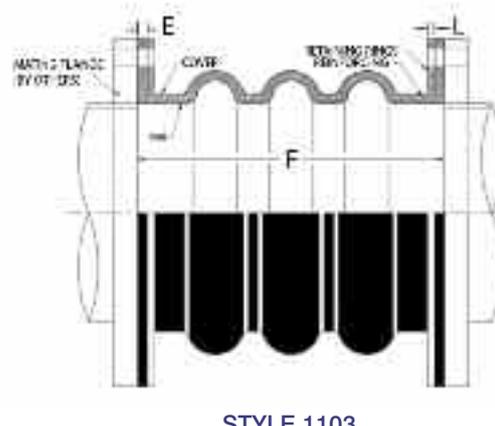
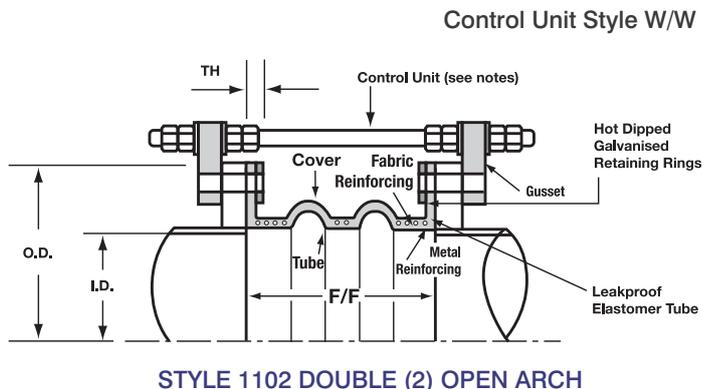
- Triple the movement with 1/3 the spring rate



STYLE 1104

Features & Benefits

- Quadruple the movement with 1/4 the spring rate



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STYLE 1100, 1101, 1102, 1103 & 1104

SIZE DN (mm)	STYLE 1101		STYLE 1102		STYLE 1103		STYLE 1104		FLANGE TH. (mm)	STYLE 1101 MOVEMENTS						STYLE 1101 SPRING RATE		
	LENGTH (F/F) (mm)	WEIGHT (kg)		PRESSUR E (Bar g)	COMP. (mm)	EXT. (mm)	LATERAL (mm)	ANGULAR (degree)	TORSIO NAL (degree)	COMP. (N/mm)	EXT. (N/mm)	LATERAL (N/mm)						
50	150	3.2	250	5.5	350	7.3	450	9.1	22	15	44	22	25	39	4.0	47	60	79
65	150	3.6	250	6.4	350	8.6	450	10.5	22	15	44	22	25	33	3.8	60	74	84
80	150	4.0	250	7.7	350	10.0	450	12.3	22	15	44	22	25	28	3.7	70	89	95
100	150	6.4	250	9.5	350	12.7	450	15.9	22	15	44	22	25	22	3.6	96	124	103
125	150	7.7	250	10.9	350	15.0	450	18.6	22	15	44	22	25	18	3.4	117	154	124
150	150	9.1	250	13.2	350	21.8	450	28.0	22	15	44	22	25	15	3.2	144	184	138
200	150	13	250	19	350	26	450	33	22	15	44	22	25	12	3.1	173	203	168
250	200	18	300	24	400	31	500	38	22	15	51	25	32	17	3.0	175	205	145
300	200	26	300	31	400	41	500	50	22	15	51	25	32	14	2.9	177	219	170
350	200	30	300	42	400	55	500	67	25	15	57	29	32	12	2.8	189	228	200
400	200	36	300	50	400	65	500	81	25	11	57	29	32	11	2.7	201	243	231
450	200	41	300	54	400	71	500	89	25	11	57	29	32	10	2.6	214	275	254
500	200	46	300	65	400	86	500	106	25	9	57	29	32	9	2.5	252	306	284
600	250	55	375	75	500	96	600	116	29	9	64	32	38	8	2.4	303	368	305
750	250	78	375	102	500	129	600	159	29	7.5	64	32	38	7	2.3	382	466	383
900	250	100	375	138	500	176	600	213	29	6.5	64	32	38	6	2.2	466	569	469
1000	300	126	400	164	550	203	650	242	29	6.2	64	32	38	5.0	2.2	505	608	503
1050	300	132	400	172	550	213	650	255	29	6.2	64	32	38	4.8	2.1	530	639	529
1200	300	155	400	204	550	252	650	300	32	6.2	64	32	38	4.2	2.0	593	726	597
1350	300	184	400	248	550	309	650	369	32	6	64	32	38	3.8	1.9	721	879	725
1500	300	227	400	294	550	364	650	434	32	6	64	32	38	3.6	1.8	791	973	802
1650	300	264	400	340	550	422	650	504	32	6	64	32	38	3.3	1.7	919	1118	922
1800	300	295	400	375	550	463	650	550	32	6	64	32	38	3	1.6	1033	1257	1036
1950	300	325	400	495	550	620	650	745	32	6	64	32	38	2.6	1.5	1124	1374	1150
2100	300	355	400	608	550	767	650	922	32	6	64	32	38	2.3	1.4	1216	1517	1295
2250	300	400	400	670	550	840	650	1011	32	5.5	64	32	38	2.1	1.3	1272	1610	1414
2400	300	459	400	720	550	901	650	1083	32	5.5	64	32	38	2	1.2	1339	1768	1587
2550	350	488	400	765	550	957	650	1151	35	4.1	64	32	38	1.6	0.8	1422	1878	1687
2700	350	516	400	809	550	1014	650	1219	35	4.1	64	32	38	1.5	0.7	1506	1988	1785
2850	350	545	400	854	550	1070	650	1286	35	4.1	64	32	38	1.4	0.6	1590	2098	1884

Specifications

- Style 1101 is designed for (-1 Bar g) (full vacuum) and have a maximum test at (-0.9 Bar g) due to facility altitude and equipment limitations.
- Maximum operating temperature of 121°C for EPDM, butyl and Viton®; 107°C for neoprene; 99°C for nitrile; 82°C for pure gum rubber; 149°C for EPDM and butyl in air services at (1.7 Bar g) maximum; higher pressure and temperature ratings available.
- All sizes can be supplied with a filled arch reducing their movements by 50% and increasing the spring rates fourfold. Expansion joints with ANSI/AWWA flanges have lengths (F/F) in nominal inch conversions unless otherwise agreed.
- For full product specifications and installation instructions, see SPEC 1100-1, 1200-1 and ININ 1100-1, 1200-1.
- WARNING: Control units (sold separately) must be used when piping is not properly anchored. Number of rods is dependent upon maximum field test pressures. Expansion joints may operate in pipelines carrying fluids at elevated temperatures and pressures, so precautions should be taken to ensure proper installation and regular inspection. Care is required to protect personnel in the event of leakage or splash. Adequate floor drains are always recommended.
- Movements are non-concurrent. Contact PosiFlex for concurrent movements, and for sizes not shown up to 3600mm DN.
- Style 1101 is designed for full vacuum (-1 Bar g) and have a maximum test at (-0.9 Bar g) due to facility altitude and equipment limitations. Style 1102, 1103 and 1104 sizes 50-600mm are designed for (-0.5 Bar g) and sizes 750-3600 mm are designed for (-0.33 Bar g).
- Technical data shown above reflects Style 1101 single arch design, additional arches typically increases movement and decreases spring rates proportionately. Contact the factory for full details including availability of larger sizes, higher pressure and temperature ratings, as well as additional arches.
- Series 1100 and 1200 will replace Styles 1010, 1015, 1025, 1050 and 1075.
- Flange drilling as per specification of selected Flange table.
- Self-Guiding control units may be required on multiple arch joints to prevent squirm depending on diameter, number of arches, and operating pressures. Contact PosiFlex for full details.
- Gross weights include retaining rings.

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STYLE 1101HP



Style 1101HP (High Pressure)

Features & Benefits

- Versatile hand-built construction
- Standard or custom face-to-face dimensions
- Wide flowing arch design
- Exceptional all directional movement capability
- Virtually eliminates sediment build-up
- Higher pressure rating than standard style 1101 expansion joints
- Excellent chemical and abrasion resistance
- Full vacuum rating (-1 Bar g) in all style 1101 sizes
- 121°C continuous services standard, 204°C available
- Filled arch design available
- Standard drillings include: ANSI/AWWA, DIN and PN
- Hot dip galvanised retaining rings standard
- Wide variety of tube and cover elastomers available, including pure gum rubber, EPDM, neoprene, butyl, nitrile, Viton®, food grade and more
- Absorbs noise, vibration and shock
- Compensates for minor misalignment and offset
- Low stiffness and deflection forces
- Integral flanged design, no gaskets required
- Simple to install, lightweight and high strength
- Provides easy access to piping and equipment



Style 1101T

Features & Benefits

- Superior chemical resistance even at higher temperatures and pressures
- Wide flowing arch design
- Exceptional all directional movement
- Integrally flanged design, no gaskets required
- Liner made of 100% Virgin DuPont Teflon®
- Ideal for food, pharmaceutical, chemical and ultra pure water applications

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STYLE 1202, 1203 & 1204

For Full Vacuum Capability

- Additional embedded steel reinforcement enables the Series 1202, 1203 and 1204 to handle full vacuum (-1 Bar g) for multiple arch joints in all sizes offered

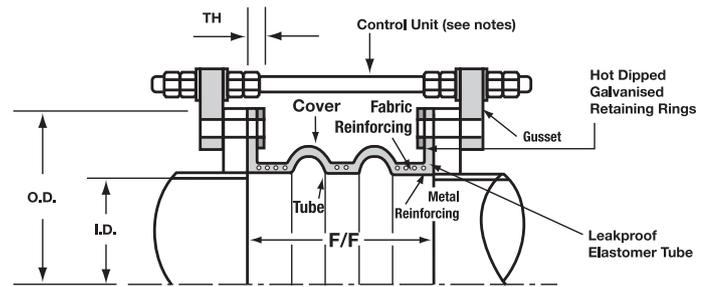


STYLE 1202

Features & Benefits

- Double the movement with $\frac{1}{2}$ the spring rate

Control Unit Style W/W



STYLE 1202 DOUBLE (2) OPEN ARCH



STYLE 1203

Features & Benefits

- Triple the movement with $\frac{1}{3}$ the spring rate



STYLE 1204

Features & Benefits

- Quadruple the movement with $\frac{1}{4}$ the spring rate

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STYLE 1202, 1203 & 1204

SIZE DN (mm)	STYLE 1202		STYLE 1203		STYLE 1204		FLANGE TH. (mm)
	LENGTH (F/F) (mm)	WEIGHT (kg)	LENGTH (F/F) (mm)	WEIGHT (kg)	LENGTH (F/F) (mm)	WEIGHT (kg)	
50	250	5.5	350	7.3	450	9.1	22
65	250	6.4	350	8.6	450	10.5	22
80	250	7.7	350	10.0	450	12.3	22
100	250	9.5	350	12.7	450	15.9	22
125	250	10.9	350	15.0	450	18.6	22
150	250	13.2	350	21.8	450	28.0	22
200	250	19	350	26	450	33	22
250	300	24	400	31	500	38	22
300	300	31	400	41	500	50	22
350	300	42	400	55	500	67	25
400	300	50	400	65	500	81	25
450	300	54	400	71	500	89	25
500	300	65	400	86	500	106	25
600	375	75	500	96	600	116	29
750	375	102	500	129	600	159	29
900	375	138	500	176	600	213	29
1000	400	164	550	203	650	242	29
1050	400	172	550	213	650	255	29
1200	400	204	550	252	650	300	32
1350	400	248	550	309	650	369	32
1500	400	294	550	364	650	434	32
1650	400	340	550	422	650	504	32
1800	400	375	550	463	650	550	32
1950	400	495	550	620	650	745	32
2100	400	608	550	767	650	922	32
2250	400	670	550	840	650	1011	32
2400	400	720	550	901	650	1083	32
2550	400	765	550	957	650	1151	35
2700	400	809	550	1014	650	1219	35
2850	400	854	550	1070	650	1286	35

Specifications

- All parts listed are designed for (-1 Bar g) (full vacuum) and have a maximum test at (-0.9 Bar g) due to facility altitude and equipment limitations.
- Maximum operating temperature of 121°C for EPDM, butyl and Viton®; 107°C for neoprene; 99°C for nitrile; 82°C for pure gum rubber; 149°C for EPDM and butyl in air services at (1.7 Bar g) maximum; higher pressure and temperature ratings available.
- All sizes can be supplied with a filled arch reducing their movements by 50% and increasing the spring rates fourfold. Expansion joints with ANSI/AWWA flanges have lengths (F/F) in nominal inch conversions unless otherwise agreed.
- For full product specifications and installation instructions, see SPEC 1100-1, 1200-1 and ININ 1100-1, 1200-1.
- WARNING: Control units (sold separately) must be used when piping is not properly anchored. Number of rods is dependent upon maximum field test pressures. Expansion joints may operate in pipelines carrying fluids at elevated temperatures and pressures, so precautions should be taken to ensure proper installation and regular inspection. Care is required to protect personnel in the event of leakage or splash. Adequate floor drains are always recommended.
- Movements are non-concurrent. Contact PosiFlex for concurrent movements, and for sizes not shown up to 3600mm DN.
- Style 1101, 1202, 1203 and 1204 are designed for full vacuum (-1 Bar g) and have a maximum test at (-0.9 Bar g) due to facility altitude and equipment limitations. Style 1102, 1103 and 1104 sizes 50-600mm are designed for (-0.5 Bar g) and sizes 750-3600 mm are designed for (-0.33 Bar g).
- Technical data shown above reflects Style 1101 single arch design, additional arches typically increases movement and decreases spring rates proportionately. Contact the factory for full details including availability of larger sizes, higher pressure and temperature ratings, as well as additional arches.
- Series 1100 and 1200 will replace Styles 1025, 1050 and 1075.
- Flange drilling as per specification of selected Flange table.
- Self-Guiding control units may be required on multiple arch joints to prevent squirm depending on diameter, number of arches, and operating pressures. Contact PosiFlex for full details.
- Gross weights include retaining rings.

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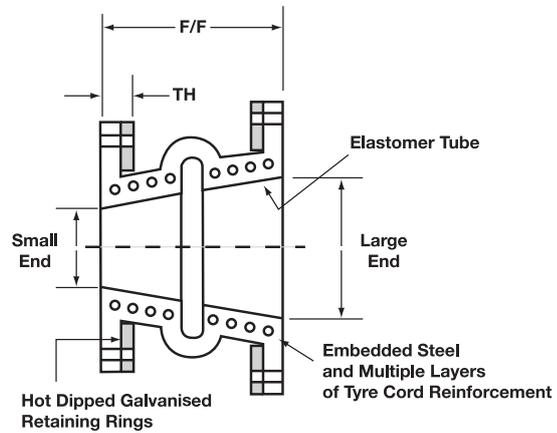
STYLE 1101CR & 1101ER

Features & Benefits

- An economic and space saving way to combine a reducing pipe fitting with an expansion joint
- Available in concentric, eccentric or custom offset arrangements
- Versatile hand-built construction
- Standard or custom face-to-face dimensions
- Excellent all directional movement capability
- Absorbs noise, vibration and shock
- Multiple plies of tyre cord reinforcement and a wide variety of tube and cover elastomers available
- 121°C continuous services standard, 204°C available
- Standard drillings include: ANSI/AWWA, DIN and PN
- Integral flange design, no gaskets required



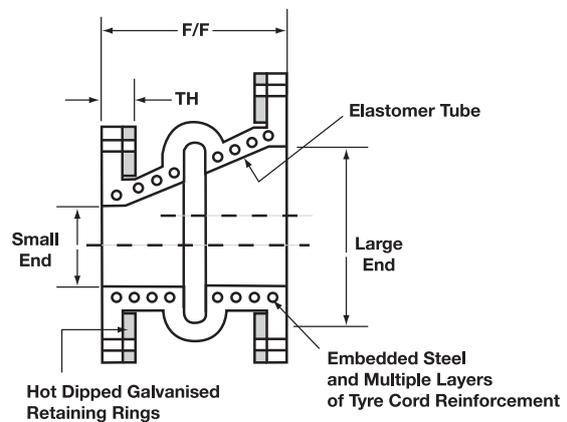
STYLE 1101CR



STYLE 1101CR
CONCENTRIC REDUCER



STYLE 1101ER



STYLE 1101ER
ECCENTRIC REDUCER

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STYLE 1101CR & 1101ER

LARGE END DN	SMALL END DN	CONCENTRIC SHORTEST LENGTH (F/F)	ECCENTRIC SHORTEST LENGTH (F/F)	LARGE END FLANGE TH. (mm)	MOVEMENTS						GROSS WEIGHT (kg)
					MAX PRESSURE (Bar g)	COMP. (mm)	EXT. (mm)	LATERAL (mm)	ANGULAR (degree)	TORSIONAL (degree)	
50	25	150	150	22	12	13	6	13	16	3.1	2.7
65	25	160	160	22	12	13	6	13	14	3.0	3.2
80	25	150	150	22	12	13	6	13	12.5	2.9	3.6
100	50	150	150	22	12	13	6	13	9.5	2.7	4.5
125	50	150	200	22	10	13	6	13	6.3	2.6	7
150	80	150	200	22	10	13	6	13	6.1	2.4	8
200	100	150	200	22	10	19	10	13	6.0	2.2	9
250	150	200	200	22	10	19	10	13	5.8	2.1	16
300	150	200	250	22	10	19	10	13	5.2	2.0	19
350	200	200	250	25	7	19	10	13	3.9	1.8	25
400	250	200	250	25	5	19	10	13	3.3	1.4	29
450	300	200	250	25	5	19	10	13	2.6	1.0	33

Specifications

- All parts listed are designed for (-1 Bar g) (full vacuum) and have a maximum test at (-0.9 Bar g) due to facility altitude and equipment limitations.
- Maximum operating temperature of 121°C for EPDM, butyl and Viton®; 107°C for Neoprene; 99°C for nitrile; 82°C for pure gum rubber; 149°C for EPDM and butyl in air services at (1.7 Bar g) maximum; higher pressure and temperature ratings available.
- All sizes can be supplied with a filled arch reducing their movements by 50% and increasing the spring rates fourfold. Expansion joints with ANSI/AWWA flanges have lengths (F/F) in nominal inch conversions unless otherwise agreed.
- For full product specifications and installation instructions, see SPEC 1101CR/ER and ININ 1101CR/ER.
- WARNING: Control units (sold separately) must be used when piping is not properly anchored. Number of rods is dependent upon maximum field test pressures. Expansion joints may operate in pipelines carrying fluids at elevated temperatures and pressures, so precautions should be taken to ensure proper installation and regular inspection. Care is required to protect personnel in the event of leakage or splash. Adequate floor drains are always recommended.
- Movements are non-concurrent. Contact PosiFlex for concurrent movements, and for sizes not shown up to 3600mm DN.
- Contact PosiFlex for full details including availability of larger sizes, higher pressure and temperature ratings, as well as additional arches. All sizes are designed for (-0.5 Bar g) vacuum, full vacuum (-1 Bar g) designs available.
- Gross weights include retaining rings.

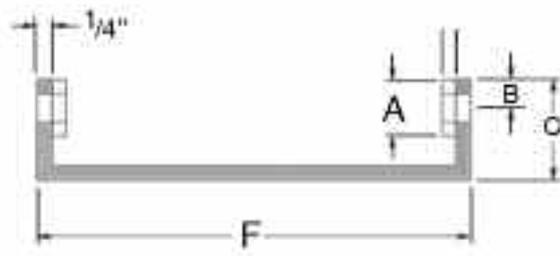
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STYLE 1100LW & 1101LW

Style 1100LW & 1101LW

Features & Benefits

- Extremely flexible design with minimum stiffness and deflection forces
- 121°C with (1.72 Bar g) and (10"Hg) service standard
- Versatile hand-built construction allows PosiFlex to work with the system requirements to develop an optimal and cost-effective solution, including non-standard face-to-face dimensions, no arch, single or multiple arch designs in straight or reducing arrangements
- Standard drillings include: ANSI/AWWA, DIN and PN
- Integral flange design, no gaskets required
- Ideal flex connector for fans, blowers and other industrial OEM equipment
- Absorbs system noise, vibration and shock
- Compensates for minor misalignment and offset while providing easy access to piping and equipment

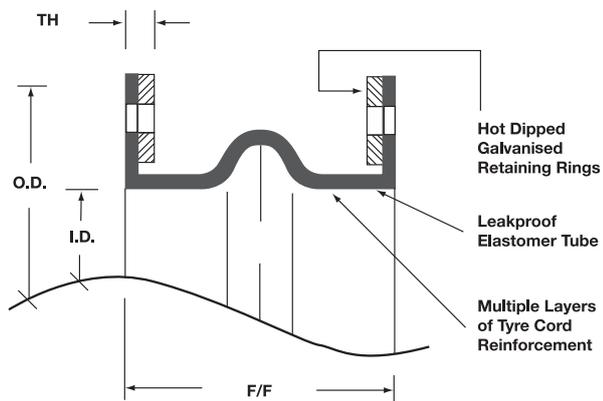


STYLE 1100LW

STYLE 1100LW

Features & Benefits

- No arch



STYLE 1101LW

STYLE 1101LW

Features & Benefits

- Single (1) arch

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STYLE 1100LW & 1101LW

SIZE DN (mm)	LENGTH F/F (mm)	FLANGE TH. (mm)	COMP. (mm)	STYLE 1101LW MOVEMENTS				STYLE 1101LW SPRING RATE			GROSS WEIGHT (kg)
				EXT. (mm)	LATERAL (mm)	ANGULAR (degree)	TORSIONAL (degree)	COMP. (N/mm)	EXT. (N/mm)	LATERAL (N/mm)	
25	150	16	50	25	25	43	5.0				4
65	150	16	50	25	25	36	4.0				5
80	150	16	50	25	25	31	4.0				6
100	150	16	50	25	25	24	4.0				7
125	150	16	50	25	25	20	4.0				8
150	150	16	50	25	32	17	4.0				9
200	150	16	50	25	32	13	3.0				13
250	150	16	50	25	32	19	3.0				18
300	150	16	57	25	32	15	3.0				23
350	150	16	57	29	35	13	3.0				25
400	150	16	57	29	35	12	3.0				36
450	150	16	57	29	35	11	3.0				40
500	150	16	64	29	35	10	3.0				47
600	200	16	64	32	35	9	3.0				59
700	200	16	64	32	35	8	3.0				79
900	200	16	64	32	35	7	2.0				107

Please contact PosiFlex for more information

Note: Style 1100LW length dimensions as per 1101LW. For movement/spring rate details contact PosiFlex.

Specifications

1. Technical data shown above reflect the single arch design, additional arches typically increase movements and decrease spring rates proportionately. Contact the factory for full details including availability of larger sizes, higher pressure and temperature ratings.
2. All parts listed are designed for (1.72 Bar g) and (10"Hg) service standard.
3. Maximum operating temperature of 121°C for EPDM, butyl and Viton®; 107°C for neoprene; 99°C for nitrile; 82°C for pure gum rubber; 149°C for EPDM and butyl in air services at (1.7 Bar g) maximum; higher pressure and temperature ratings available.
4. All sizes can be supplied with a filled arch reducing their movements by 50% and increasing the spring rates fourfold. Expansion joints with ANSI/AWWA flanges have lengths (F/F) in nominal inch conversions unless otherwise agreed.
5. For full product specifications and installation instructions, see SPEC 1101LW-1 and ININ 1101LW-1.
6. WARNING: Control units (sold separately) must be used when piping is not properly anchored. Number of rods is dependent upon maximum field test pressures. Expansion joints may operate in pipelines carrying fluids at elevated temperatures and pressures, so precautions should be taken to ensure proper installation and regular inspection. Care is required to protect personnel in the event of leakage or splash. Adequate floor drains are always recommended.
7. Movements are non-concurrent. Contact PosiFlex for concurrent movements, and for sizes not shown up to 3600mm DN.
8. Style 1101LW will replace Style 2000.
9. Flange drilling as per specification of selected flange table.
10. Gross weights include retaining rings.

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STYLE A15-90

Features & Benefits

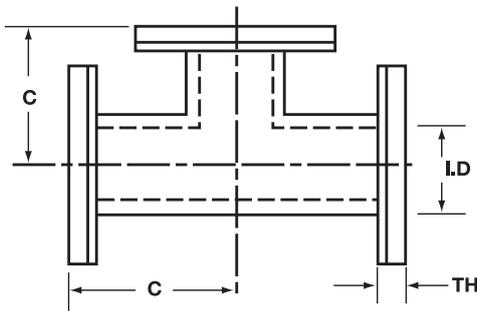
- The capacity of a flexible connector to absorb noise and vibration is directly proportional to its flexible length; this original design pre-dates the spherical connector and is still preferred by many design engineers and is considered the ultimate in noise and vibration control
- 121°C continuous services standard, 204°C available
- Standard drillings include ANSI/AWWA, DIN and PN
- Versatile hand-built construction, available as reducers both concentric and eccentric, as well as elbows and tees; elbows in long or short radius to ANSI dimensions
- Excellent chemical and abrasion resistance
- Wide variety of tube and cover elastomers available
- Integrally flanged design, no gaskets required
- Style A15-TF = Tee Pieces
- Style A15-45 = 45° Elbow
- For elbows, tee pieces and reducers dimensions please contact PosiFlex



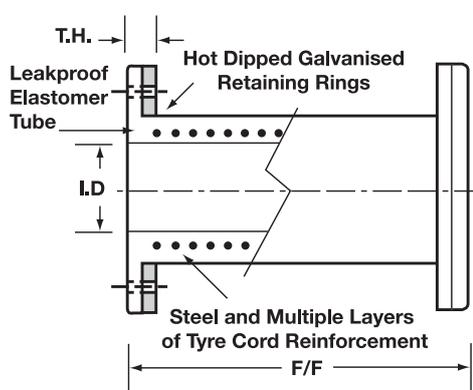
STYLE A15



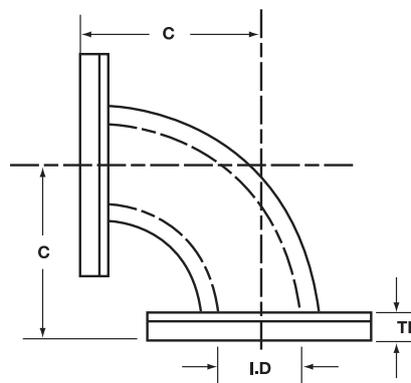
STYLE A15-90



STYLE A15 - TEE



STYLE A15 - STRAIGHT



STYLE A15 - ELBOW

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STYLE A15-90

SIZE DN (mm)	LENGTH F/F (mm)	MAX PRESSURE (Bar g)	FLANGE TH. (mm)	MOVEMENTS			GROSS WEIGHT (kg)
				EXT. (mm)	COMP. (mm)	LATERAL (mm)	
25	300	10	22	6	6	6	2.5
32	300	10	22	6	6	6	2.5
40	300	10	22	6	6	6	3
50	300	10	25	6	6	6	3
65	300	10	25	6	10	10	4.5
80	450	10	29	6	10	10	7
100	450	10	29	6	13	13	9
125	600	10	29	6	13	13	13
150	600	10	29	6	13	13	15
200	600	10	29	6	13	13	21
250	600	10	29	6	13	13	25
300	600	10	29	6	13	13	36
350	600	10	29	6	13	13	47
400	600	9	29	6	13	13	55
450	600	7	29	6	13	13	68
500	600	7	29	6	13	13	80
600	600	7	29	6	13	13	114

Specifications

- All parts listed are designed for (-1 Bar g) (full vacuum) and have a maximum test at (-0.9 Bar g) due to facility altitude and equipment limitations.
- Maximum operating temperature of 121°C for EPDM, butyl and Viton®; 107°C for neoprene; 99°C for nitrile; 82°C for pure gum rubber; 149°C for EPDM and butyl in air services at (1.7 Bar g) maximum; higher pressure and temperature ratings available.
- All sizes can be supplied with a filled arch reducing their movements by 50% and increasing the spring rates fourfold. Expansion joints with ANSI/AWWA flanges have lengths (F/F) in nominal inch conversions unless otherwise agreed.
- For full product specifications and installation instructions, see SPEC A15-1 and ININ A15-1.
- WARNING: Control units (sold separately) must be used when piping is not properly anchored. Number of rods is dependent upon maximum field test pressures. Expansion joints may operate in pipelines carrying fluids at elevated temperatures and pressures, so precautions should be taken to ensure proper installation and regular inspection. Care is required to protect personnel in the event of leakage or splash. Adequate floor drains are always recommended.
- Movements are non-concurrent. Contact PosiFlex for concurrent movements, and for sizes not shown up to 3600mm DN.
- Contact PosiFlex for full details including availability of larger sizes, higher pressure and temperature ratings. All sizes are designed for (-0.5 Bar g) vacuum, full vacuum (-1 Bar g) designs available.
- Flange drilling as per specification of selected flange table.
- Gross weights include retaining rings.

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TO SUIT 1100 & 1200



CONTROL UNIT

Features & Benefits

- Protects expansion joints from over-expansion and over-compression
- High tensile galvanised steel rods standard, stainless steel and other materials available
- Galvanised gusset plates standard, stainless steel and other materials available
- Rubber grommets isolate vibration and are standard on sizes 25-500 mm DN
- Internal nuts or compression sleeves available and prevent over-compression
- Spherical washers available and prevent binding while minimising lateral forces
- Double nuts are used to lock limit points and allow for field adjustment
- Standard drillings Include ANSI/AWWA, DIN and PN
- Universal tied/self-guiding control units available and prevent squirming on longer expansion joints
- Hinges are available and allow for angular movement in one dimension
- Gimbals are available and allow for angular movement in two dimensions

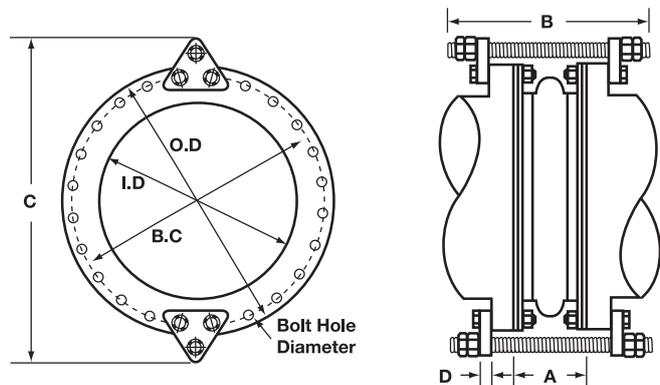


STYLE 1101DJ

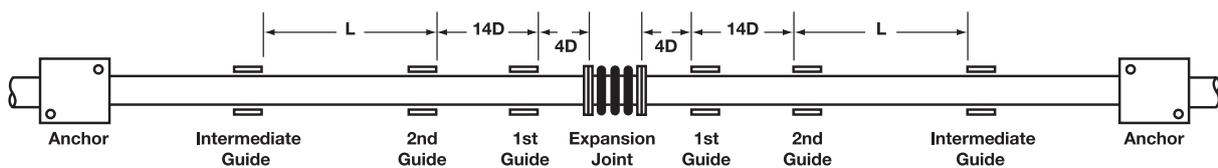
DISMANTLING JOINT WITH TURNBUCKLES

Features & Benefits

- D1101DJ can be made to suit site specifications
- Rubber joints that are easily pulled-back to allow clearance and easy access to an adjacent valve



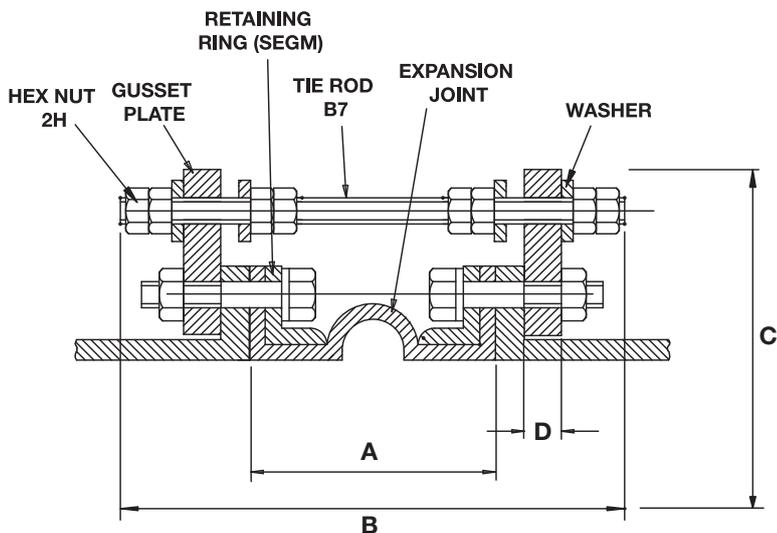
EXPANSION JOINT WITH CONTROL UNIT FITTED



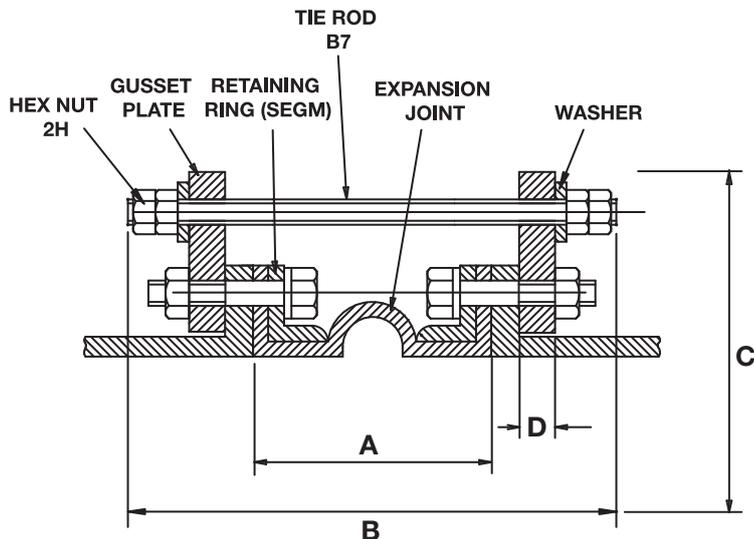
TYPICAL APPLICATION OF EXPANSION JOINT IN STRAIGHT LINE PIPEWORK

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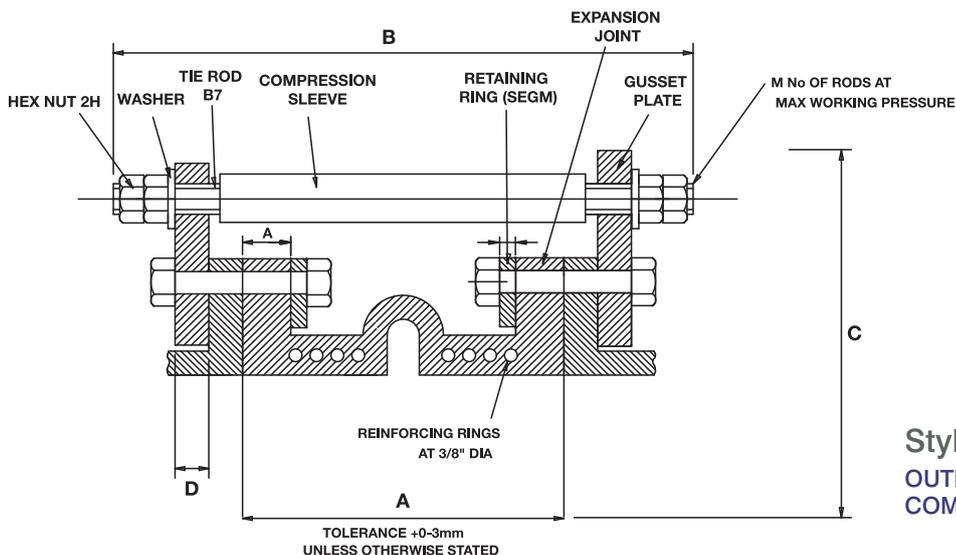
TO SUIT 1100 & 1200



Style W/W
OUTER WASHER, INNER WASHER



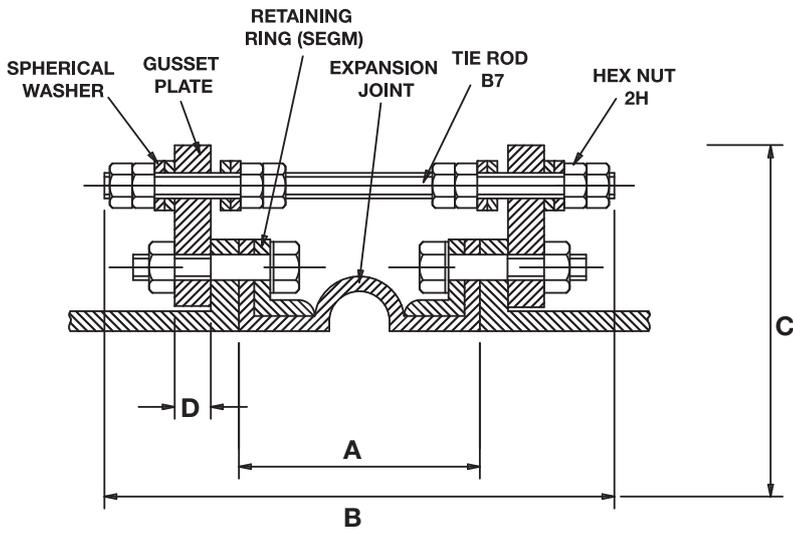
Style W/B
OUTER WASHER, INNER BARE



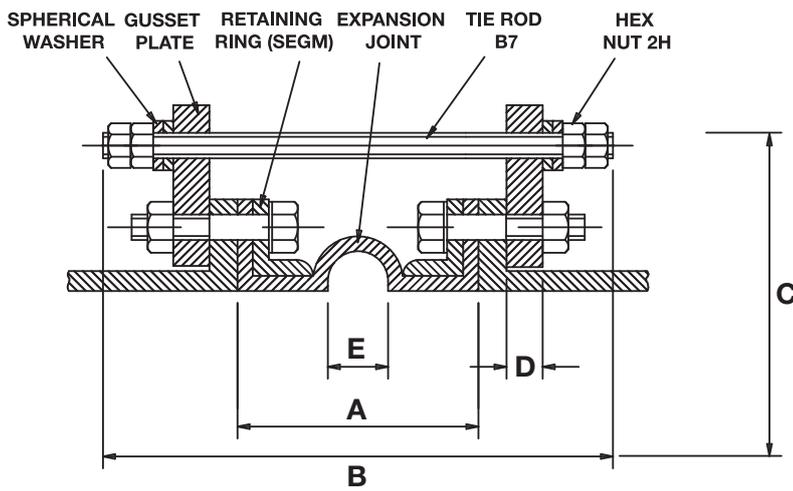
Style W/CS
OUTER WASHER, INNER
COMPRESSION SLEEVE

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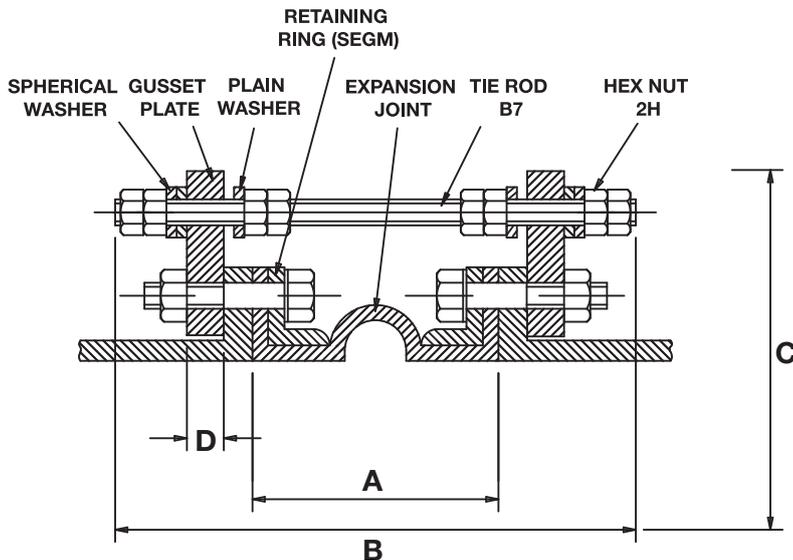
TO SUIT 1100 & 1200



STYLE SW/SW
OUTER SPHERICAL WASHER,
INNER SPHERICAL WASHER



STYLE SW/B
OUTER SPHERICAL WASHER, INNER BARE



STYLE SW/W
OUTER SPHERICAL WASHER, INNER WASHER

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TO SUIT 1100 & 1200

PIPE SIZE DN (mm)	STANDARD LENGTH (F/F) A (mm)	MAX CONTROL UNIT LENGTH B	MAX CONTROL UNIT DIA. C	MAX GUSSET TH. D (J mm)	2 ROD SET MAX PRESSURE (Bar g)	3 ROD SET MAX PRESSURE (Bar g)	4 ROD SET MAX PRESSURE (Bar g)	5 ROD SET MAX PRESSURE (Bar g)	6 ROD SET MAX PRESSURE (Bar g)	7 ROD SET MAX PRESSURE (Bar g)	8 ROD SET MAX PRESSURE (Bar g)	9 ROD SET MAX PRESSURE (Bar g)	20 ROD SET MAX PRESSURE (Bar g)
25	150	381	191	10	15.5	-	-	-	-	-	-	-	-
40	150	381	216	10	15.5	-	-	-	-	-	-	-	-
50	150	381	235	10	15.5	-	-	-	-	-	-	-	-
65	150	381	260	10	15.5	-	-	-	-	-	-	-	-
80	150	381	273	10	15.5	-	-	-	-	-	-	-	-
100	150	381	311	10	15.5	-	-	-	-	-	-	-	-
125	150	381	362	13	15.5	-	-	-	-	-	-	-	-
150	150	381	387	13	15.5	-	-	-	-	-	-	-	-
200	150	381	489	13	15.5	-	-	-	-	-	-	-	-
250	200	457	578	19	15.5	-	-	-	-	-	-	-	-
300	200	457	629	19	13.1	15.5	-	-	-	-	-	-	-
350	200	457	641	19	9.0	13.4	15.5	-	-	-	-	-	-
400	200	457	718	19	7.6	11.4	15.2	-	-	-	-	-	-
450	200	457	757	19	6.1	9.2	12.3	-	-	-	-	-	-
500	200	457	816	19	5.1	7.7	10.2	-	-	-	-	-	-
600	250	610	953	25	4.8	7.2	9.5	-	-	-	-	-	-
750	250	610	1118	32	3.6	5.4	7.2	-	-	-	-	-	-
900	250	686	1334	38	4.6	6.9	9.2	-	-	-	-	-	-
1000	300	686	1461	38	3.7	5.5	7.3	-	-	-	-	-	-
1050	300	686	1505	38	3.3	5.0	6.2	-	-	-	-	-	-
1200	300	686	1670	44	3.9	5.8	7.7	-	-	-	-	-	-
1350	300	813	1899	44	3.3	5.0	6.6	8.3	-	-	-	-	-
1500	300	813	2064	44	2.8	4.1	5.5	6.9	-	-	-	-	-
1650	300	813	2235	48	2.3	3.5	4.7	5.9	-	-	-	-	-
1800	300	813	2400	48	1.9	2.9	3.9	4.8	5.9	-	-	-	-
1950	300	813	2585	51	1.7	2.5	3.3	4.1	5.1	5.8	-	-	-
2100	300	813	2762	57	1.4	2.1	2.8	3.4	4.1	4.8	5.5	-	-
2250	300	813	2991	64	1.4	2.1	2.8	3.4	4.1	4.8	5.5	-	-
2400	300	813	3150	64	1.1	1.7	2.2	2.7	3.3	3.9	4.4	5.0	5.5
2550	300	813	3327	64	1.03	1.59	2.07	2.62	3.10	3.66	4.14	4.69	5.17
2700	300	813	3505	64	0.90	1.38	1.79	2.28	2.69	3.17	3.59	4.07	4.48
2850	300	813	3658	64	0.85	1.28	1.7	2.13	2.55	3.0	3.4	3.83	4.25

Note: This table is to be used as a guide only.

Specifications

- Maximum control unit lengths and diameters, as well as gusset thickness, are meant to assist in determining adequate clearance and mating hardware selection. The values are maximum values and are based on mild steel design. Dimensions will change when using high tensile steel and with different arrangements. Contact PosiFlex and request a specific submittal drawing for your job.
- Expansion joints should be installed between anchors. Anchors should be located at changes in pipe direction and guides should be spaced according to industry standards. Piping must be supported so the Expansion joints do not carry any pipe weight. Contact PosiFlex for more details.
- WARNING: Control units (sold separately) must be used when piping is not properly anchored. Number of rods is dependent upon maximum field test pressures. Expansion joints may operate in pipelines carrying fluids at elevated temperatures and pressures, so precaution should be taken to ensure proper installation and regular inspection. Care is required to protect personnel in the event of leakage or splash. Adequate floor drains are always recommended.
- Outer and inner control unit gaps are set to a maximum of half the allowable movements, equal on each side so that the sum does not exceed the allowable movement in any one direction.

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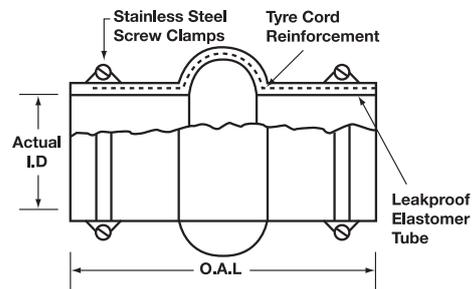
STYLE 1081, 1082 & 1083

Features & Benefits

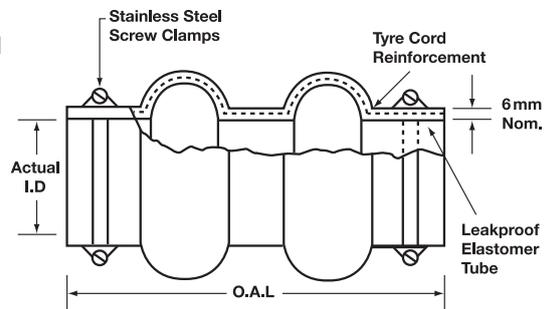
- Economical slip-on design eliminates the need for mating flanges and hardware
- Extremely lightweight and flexible
- Large all directional movement capability with low stiffness and deflection forces
- EPDM and multiple plies of tyre cord reinforcements standard, with a wide variety of other tube and cover elastomers available
- 121°C continuous service standard, 204°C available
- More than 3 arches as well as reducers and offset arrangements available
- No gaskets required
- Stainless steel screw clamps are not supplied with the joints



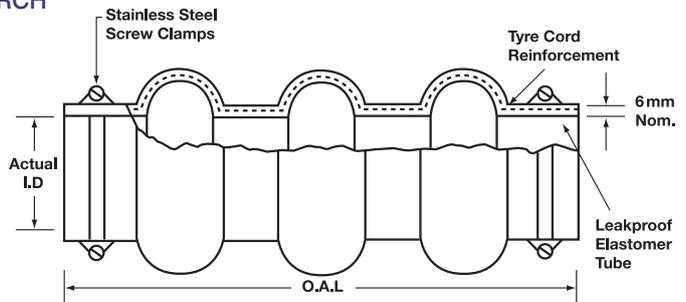
STYLE 1081
SINGLE (1) ARCH



STYLE 1082
DOUBLE (2) ARCH



STYLE 1083
TRIPLE (3) ARCH



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STYLE 1081, 1082 & 1083

SIZE PIPE (DN)	ACTUAL ID (mm)	MAX PRESSURE (Bar g)	VACUUM (Bar g)	MAX TEMP (° C)	STYLE 1081				STYLE 1082				STYLE 1083			
					OVERALL LENGTH	COMP. (mm)	EXT. (mm)	LATERAL (mm)	OVERALL LENGTH	COMP. (mm)	EXT. (mm)	LATERAL (mm)	OVERALL LENGTH	COMP. (mm)	EXT. (mm)	LATERAL (mm)
40	49	6.2	-0.5	121	200	45	19	19	300	90	38	38	350	135	57	57
50	60	6.2	-0.5	121	200	45	19	19	300	90	38	38	350	135	57	57
65	73	6.2	-0.5	121	200	45	19	19	300	90	38	38	350	135	57	57
80	89	6.2	-0.5	121	200	45	19	19	300	90	38	38	350	135	57	57
100	114	6.2	-0.5	121	200	45	19	19	300	90	38	38	350	135	57	57
125	141	3.5	-0.5	121	200	45	19	19	300	90	38	38	350	135	57	57
150	168	3.5	-0.5	121	200	45	19	19	300	90	38	38	350	135	57	57
200	219	2.4	-0.5	121	200	45	19	19	300	90	38	38	350	135	57	57
250	273	2.5	-0.5	121	200	45	19	19	300	90	38	38	350	135	57	57
300	324	2.4	-0.5	121	200	45	19	19	300	90	38	38	350	135	57	57

Specifications

1. Expansion joints are sized to slip over schedule 40 pipe. Other ID dimensions area available.
2. Movements are non-concurrent movements. Contact PosiFlex for concurrent movements, and for sizes not shown up to 2400mm DN.

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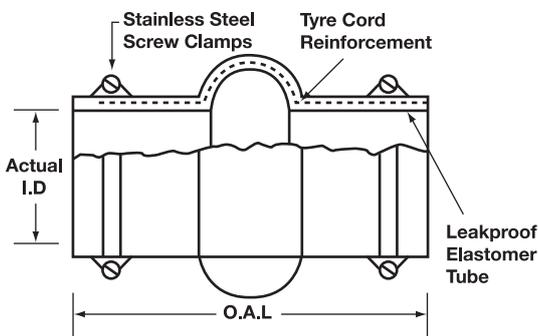
STYLE 1080, 1086, 1087 & 1091

Features & Benefits

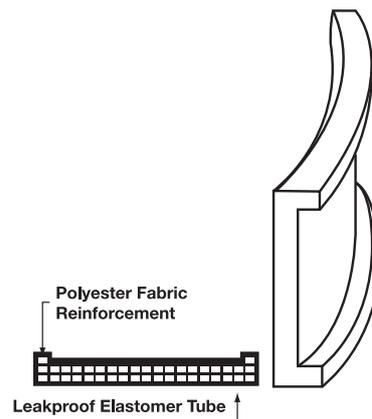
- Versatile hand-built construction allows general rubber to work with the system requirements to develop an optimal and cost-effective solution
- 121°C continuous service standard, 204°C available
- The no arch style 1080 typically incorporates wire reinforcement for higher pressure and vacuum ratings, while the no arch style 1086 has no wire and is designed for ducting applications operating within ± 35 KPa
- The single or multiple arch style 1087 is also designed for ducting applications operating within ± 35 KPa as well as requiring significant all directional movement and/or low deflection forces
- The unique beaded ends on the fully molded style 1091 prevent the sleeve from being pulled out from under the clamps, making this design ideal for vibrating bin activators as well as other Industrial OEM Equipment
- Economical slip-on design eliminates the need for mating flanges and hardware
- Dimensions on application



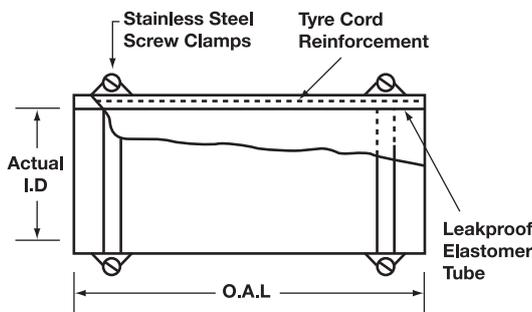
STYLE 1081LW



STYLE 1087
SINGLE OR MULTIPLE ARCH



STYLE 1091
BEADED ENDLESS BELT
AVAILABLE IN 100MM AND 125MM
WIDTH BEAD IS 6MM WIDE



STYLE 1080 & 1086
NO ARCH

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STYLE 1092 & 1097

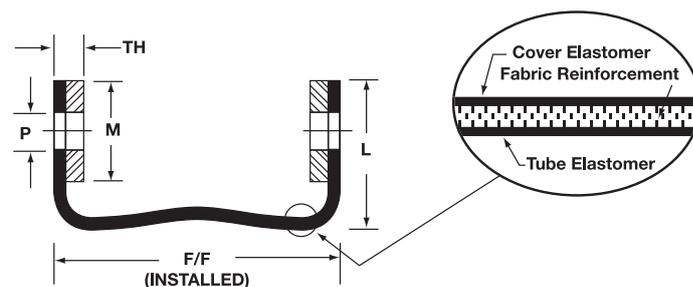
Features & Benefits

- Round and rectangular designs in all styles
- Exceptional all directional movement capability
- Absorbs system noise, vibration and shock
- Compensates for minor misalignment and offset
- Integrally flanged design
- Low stiffness and deflection forces
- Simple to install, lightweight and high strength
- Provides easy access to ducting and equipment
- Carbon steel, stainless steel, or hot dipped galvanised backing rings available for easy bolting to mating flanges
- Up to 204°C and ±35 KPa continuous service
- Standard face-to-face dimensions of style 1092 include 80, 100, 150, 200 and 300mm with molded flanges
- Custom face-to-face dimensions with style 1097
- No gaskets required
- Wide variety of tube and cover elastomers available
- Excellent chemical and abrasion resistance

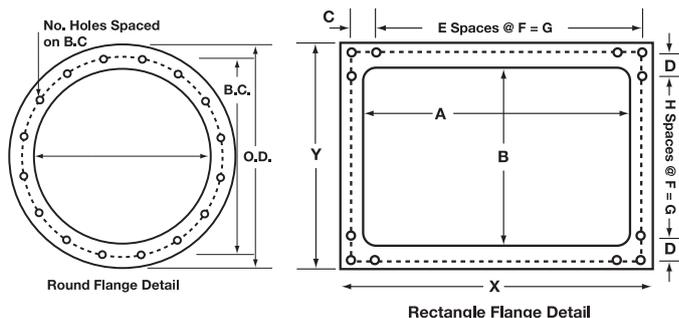


STYLE 1092 & 1097

1092 – MOLDED FLANGE, FIXED FACE DESIGN				
INSTALLED LENGTHS (mm)	MFD F/F + (mm)	MOVEMENT CAPABILITIES		
		COMP. (mm)	EXT. (mm)	LATERAL (mm)
80	13	25	13	13
100	13	25	13	13
150	13	50	13	25
200	13	80	13	50
300	13	100	19	80



1097 – MOLDED FLANGE, VERSATILE FACE-TO-FACE CONSTRUCTION				
INSTALLED LENGTHS (mm)	MFD F/F + (mm)	MOVEMENT CAPABILITIES (mm)		
		COMP. (mm)	EXT. (mm)	LATERAL (mm)
80-150	13	50	13	25
151-225	19	80	19	50
226-300	25	100	25	80
301-400	25	125	25	100



Specifications

1. Extension movement capabilities can be increased with additional pre-compression during installation.
2. Anchors should be used to resist the pressure thrust force and isolate the thermal movements between expansion joints.
3. For vacuum or large pre-compressed applications, a set-back may be required to keep the expansion joint from protruding into the gas stream or touching the flow liner/baffle.
4. Retaining rings/backing bars of 8mm thickness standard. Suggested bolt spacing at 100mm centres max.
5. Flange gaskets suitable for the system temperature and fluid media should be used to ensure a full seal on all fluoroplastic styles. (Style 1093, 1094 and 1095).
6. For full product specification and installation instructions, see SPEC 1092-1093-1094-1095-1097-1098 and ININ 1092-1093-1094-1095-1097-1098.

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STYLE 1093

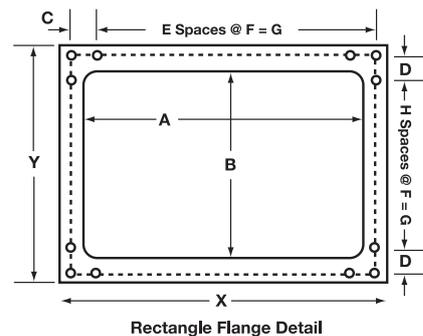
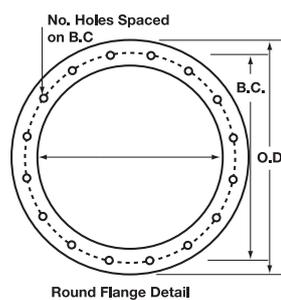
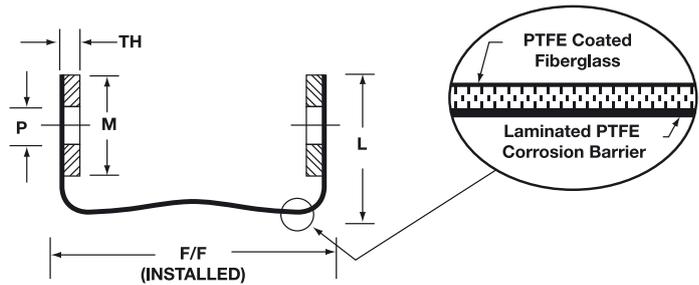
Features & Benefits

- Round and rectangular designs in all styles
- Exceptional all directional movement capability
- Absorbs system noise, vibration and shock
- Compensates for minor misalignment and offset
- Integrally flanged design
- Low stiffness and deflection forces
- Simple to install, lightweight and high strength
- Provides easy access to ducting and equipment
- Carbon steel, stainless steel, or hot dipped galvanised backing rings available for easy bolting to mating flanges
- Up to 305°C and ±35 KPa continuous service
- Laminated fluoroplastic PTFE corrosion barrier
- Superior chemical resistance
- Zero porosity in wet and dry service
- Heat form and sealed to any size and arrangement



STYLE 1093

1093 – MOLDED FLANGE, VERSATILE FACE-TO-FACE CONSTRUCTION				
INSTALLED LENGTHS (mm)	MFD F/F + (mm)	MOVEMENT CAPABILITIES (mm)		
		COMP. (mm)	EXT. (mm)	LATERAL (mm)
80-150	13	50	13	25
151-225	19	80	19	50
226-300	25	100	25	80
301-400	25	125	25	100



Specifications

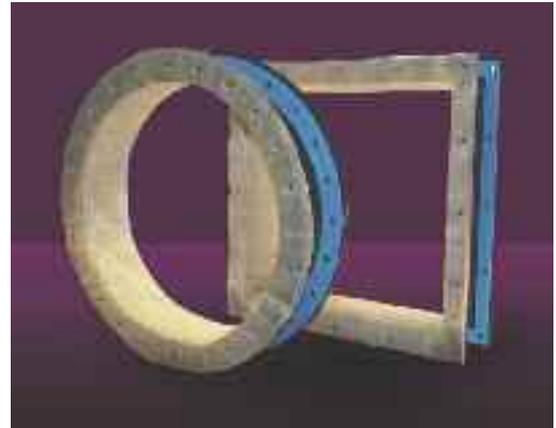
1. Extension movement capabilities can be increased with additional pre-compression during installation.
2. Anchors should be used to resist the pressure thrust force and isolate the thermal movements between expansion joints.
3. For vacuum or large pre-compressed applications, a set-back may be required to keep the expansion joint from protruding into the gas stream or touching the flow liner/baffle.
4. Retaining rings/backing bars of 8mm thickness standard. Suggested bolt spacing at 100mm centres max.
5. Flange gaskets suitable for the system temperature and fluid media should be used to ensure a full seal on all fluoroplastic styles. (Style 1093, 1094 and 1095).
6. For full product specification and installation instructions, see SPEC 1092-1093-1094-1095-1097-1098 and ININ 1092-1093-1094-1095-1097-1098.

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STYLE 1094

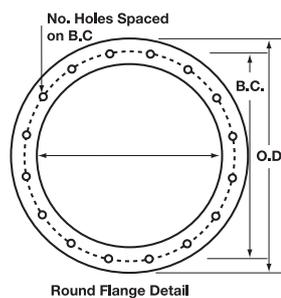
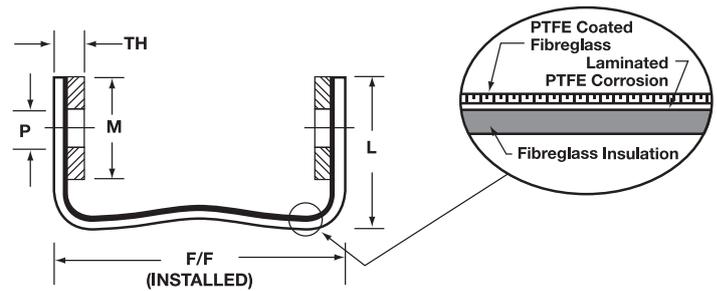
Features & Benefits

- Round and rectangular designs in all styles
- Exceptional all directional movement capability
- Absorbs system noise, vibration and shock
- Compensates for minor misalignment and offset
- Integrally flanged design
- Low stiffness and deflection forces
- Simple to install, lightweight and high strength
- Provides easy access to ducting and equipment
- Carbon steel, stainless steel, or hot dipped galvanised backing rings available for easy bolting to mating flanges
- Up to 538°C and ±21 KPa continuous service
- 13mm thick laminated fibreglass insulation layer
- Laminated fluoroplastic PTFE corrosion barrier
- Heat form and sealed to any size and arrangement

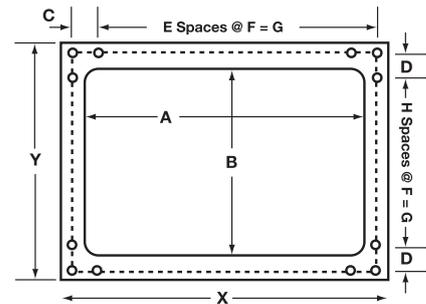


STYLE 1094

1094 – MOLDED FLANGE, VERSATILE FACE-TO-FACE CONSTRUCTION				
INSTALLED LENGTHS (mm)	MFD F/F + (mm)	MOVEMENT CAPABILITIES (mm)		
		COMP. (mm)	EXT. (mm)	LATERAL (mm)
80-150	13	50	13	25
151-225	19	80	19	50
226-300	25	100	25	80
301-400	25	125	25	100



Round Flange Detail



Rectangle Flange Detail

Specifications

1. Extension movement capabilities can be increased with additional pre-compression during installation.
2. Anchors should be used to resist the pressure thrust force and isolate the thermal movements between expansion joints.
3. For vacuum or large pre-compressed applications, a set-back may be required to keep the expansion joint from protruding into the gas stream or touching the flow liner/baffle.
4. Retaining rings/backing bars of 8mm thickness standard. Suggested bolt spacing at 100mm centres max.
5. Flange gaskets suitable for the system temperature and fluid media should be used to ensure a full seal on all fluoroplastic styles. (Style 1093, 1094 and 1095).
6. For full product specification and installation instructions, see SPEC 1092-1093-1094-1095-1097-1098 and ININ 1092-1093-1094-1095-1097-1098.

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STYLE 1095

Features & Benefits

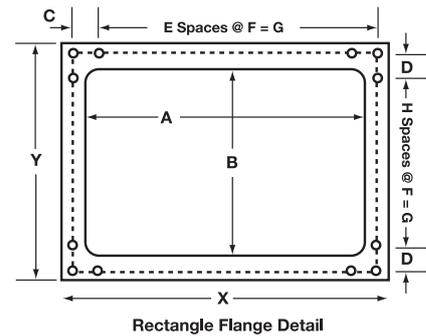
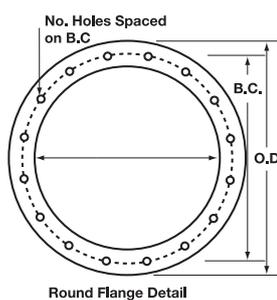
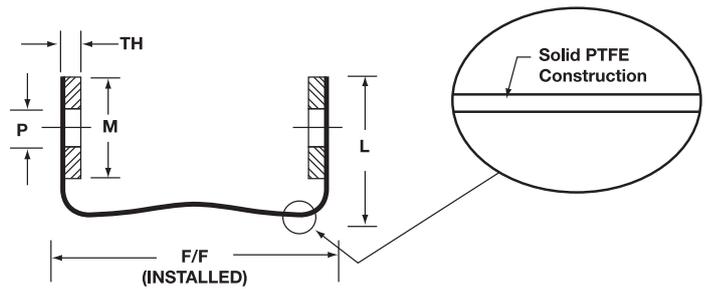
- Round and rectangular designs in all styles
- Exceptional all directional movement capability
- Absorbs system noise, vibration and shock
- Compensates for minor misalignment and offset
- Integrally flanged design
- Low stiffness and deflection forces
- Simple to install, lightweight and high strength
- Provides easy access to ducting and equipment
- Carbon steel, stainless steel, or hot dipped galvanised backing rings available for easy bolting to mating flanges
- Cycle life in the millions
- Up to 260°C and ±21 KPa continuous service
- Ultimate chemical resistance
- No fibreglass component to fatigue
- Solid fluoroplastic PTFE construction
- Heat form and sealed to any size and arrangement



STYLE 1095

1095 – MOLDED FLANGE, VERSATILE FACE-TO-FACE CONSTRUCTION

INSTALLED LENGTHS (mm)	MFD F/F + (mm)	MOVEMENT CAPABILITIES (mm)		
		COMP (mm)	EXT. (mm)	LATERAL (mm)
80-150	13	50	13	25
151-225	19	80	19	50
226-300	25	100	25	80
301-400	25	125	25	100



Specifications

1. Extension movement capabilities can be increased with additional pre-compression during installation.
2. Anchors should be used to resist the pressure thrust force and isolate the thermal movements between expansion joints.
3. For vacuum or large pre-compressed applications, a set-back may be required to keep the expansion joint from protruding into the gas stream or touching the flow liner/baffle.
4. Retaining rings/backing bars of 8mm thickness standard. Suggested bolt spacing at 100mm centres max.
5. Flange gaskets suitable for the system temperature and fluid media should be used to ensure a full seal on all fluoroplastic styles. (Style 1093, 1094 and 1095).
6. For full product specification and installation instructions, see SPEC 1092-1093-1094-1095-1097-1098 and ININ 1092-1093-1094-1095-1097-1098.

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STYLE 1098

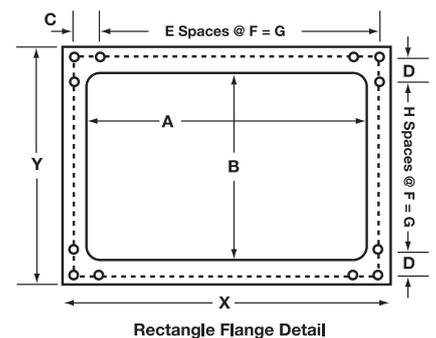
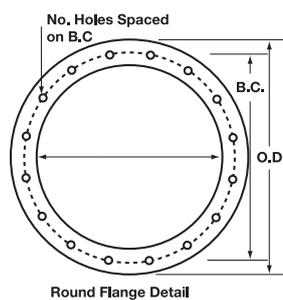
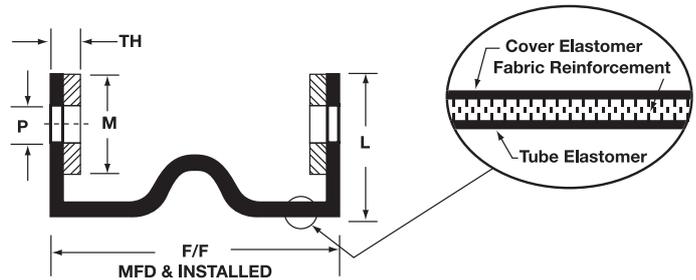
Features & Benefits

- Round and rectangular designs in all styles
- Exceptional all directional movement capability
- Absorbs system noise, vibration and shock
- Compensates for minor misalignment and offset
- Integrally flanged design
- Low stiffness and deflection forces
- Simple to install, lightweight and high strength
- Provides easy access to ducting and equipment
- Carbon steel, stainless steel, or hot dipped galvanised backing rings available for easy bolting to mating flanges
- Versatile hand-built construction allows general rubber to work with the system requirements to develop an optimal and cost-effective solution
- Single or multiple arch style 1098 is designed for round or rectangular ducting systems operating within 204°C and ±35 KPa as well as requiring significant all directional movement and/or low deflection forces
- No gaskets required
- Wide variety of tube and cover elastomers available
- Excellent chemical and abrasion resistance



STYLE 1098

1098 MANDREL MADE CONSTRUCTION
 Dimensions and movements tailored for exceptional performance. Single or multiple arches as well as reducers available.



Specifications

1. Extension movement capabilities can be increased with additional pre-compression during installation.
2. Anchors should be used to resist the pressure thrust force and isolate the thermal movements between expansion joints.
3. For vacuum or large pre-compressed applications, a set-back may be required to keep the expansion joint from protruding into the gas stream or touching the flow liner/baffle.
4. Retaining rings/backing bars of 8mm thickness standard. Suggested bolt spacing at 100mm centres max.
5. Flange gaskets suitable for the system temperature and fluid media should be used to ensure a full seal on all fluoroplastic styles. (Style 1093, 1094 and 1095).
6. For full product specification and installation instructions, see SPEC 1092-1093-1094-1095-1097-1098 and ININ 1092-1093-1094-1095-1097-1098.

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STYLE TSS, EPS & LPS

STYLE TSS

Teflon Spray Shield

Features & Benefits

- Safely deflects harmful spray-out if leakage occurs at flanges, valves or expansion joints
- Solid fluoroplastic PTFE construction offers superior chemical resistance and 204°C service
- Simple to install, lightweight and high strength



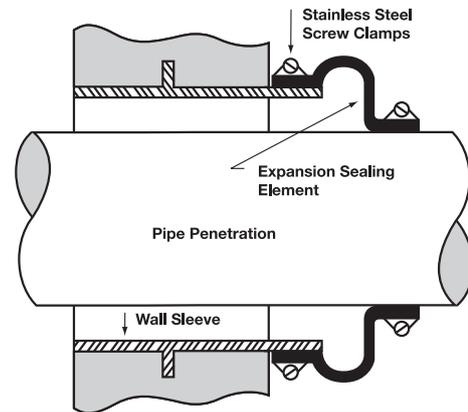
STYLE TSS

STYLE EPS

Expansion Penetration Seal

Features & Benefits

- Seals pipes through walls, floors and casings with excellent all directional movement capability and low deflection forces
- Absorbs noise, vibration, pipe misalignment, thermal movements, ground settlement and seismic displacements
- Sealing pressure 275 KPa and 121°C service
- Versatile flanged or slip-on designs
- Custom designs available for larger movements, higher pressure and/or higher service temperature
- Wide variety of sealing elements and hardware available



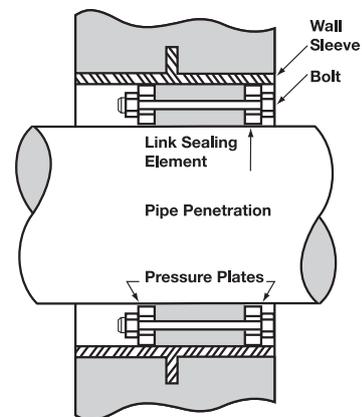
STYLE EPS

STYLE LPS

Link Penetration Seal

Features & Benefits

- Seals pipes through walls, floors and casings
- Sealing pressure 137 KPa and 121°C service
- Seals around any round or radius penetration
- Wide variety of sealing elements, pressure plates, and hardware available
- Absorbs noise, vibration and minor misalignment
- Simple to install, most cost-effective solution



STYLE LPS

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STYLE PVS

Features & Benefits

- The sleeve of a pinch valve has no obstruction or working parts to block or break down. This means long trouble-free service and greater reduction in valve maintenance time
- Pinch valve sleeves are can be made in a variety of materials that are corrosion resistant and can handle a range of fluids
- Installed pinch valves will completely stop water hammer in piping and other vibrations
- Pinch valves can accommodate extreme temperatures as low as -40°C
- Typical applications include chemical, conveying, food, mining, painting, pharmaceutical, power, water and wastewater
- Available in a variety of elastomers, including pure gum rubber, neoprene, chlorobutyl, Buna-N, EPDM and Viton®



STYLE PVS

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STYLE 4100 SLIP-ON TYPE

Features & Benefits

- Eliminates backflow and seals around entrapped solids
- 25mm to 2438mm (1" to 96") DN
- Rugged all elastomer construction is a full variety of materials
- Maintenance free operation with no mechanical components that can corrode or freeze
- Lower head loss than conventional check valves
- Will open with as little as 25mm WC. Drop tight at 30psi over 18.3m WC.
- Quiet operation, no slamming
- Non-plugging
- Provides corrosion and abrasion resistance
- Versatile construction for a wide range of applications
- Can be designed to slip over any smooth or corrugated pipe
- No flanges needed for installation
- Special sizes available
- Slip-on and seals to OD of pipe using two clamp bands



STYLE 4100

Typical Applications

Storm Water Outfall/Overflow

The FlexValve® Duck-Bill Style 4100 check valves provide quiet, maintenance free operation with an added benefit of low opening pressure, thereby eliminating standing water; a major health concern.

Submerged Outfall Diffuser

The FlexValve® Duck-Bill Style 4100 check valves will eliminate marine fouling and backflow intrusion with the added benefit of higher jet velocities even at low flow rates, providing a more uniform port discharge distribution.

The versatile construction and our creative design team can adapt the FlexValve® Duck-Bill style check valves to multiple applications including: water mixing systems, overflow vents, anti-siphon devices, coarse bubble diffusers, floor drains, sparging devices or even, when needed, to increase back pressure in a pipeline.

Elastomers Available

Pure gum rubber, neoprene, EPDM, Buna-N (Nitrile), chlorobutyl and Viton®.

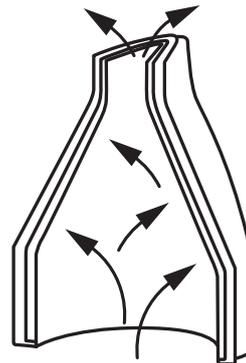
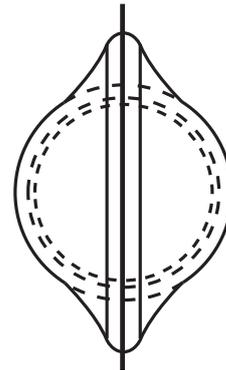
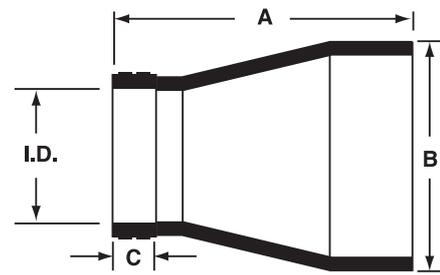
Quality & Testing

Manufactured in the modern ISO-9001:2000 certified production unit, the FlexValve® Duck-Bill style check valves have been tested for minimum opening pressure and maximum back pressure.

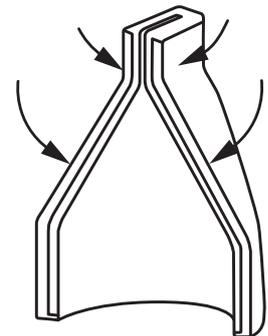
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STYLE 4100 SLIP-ON TYPE

PIPE SIZE (mm)	ID (mm)	LENGTH A (mm)	BILL WIDTH B (mm)	CUFF LENGTH C (mm)
25	33	76	38	25
40	49	152	76	25
50	60	152	102	25
65	73	203	127	25
80	89	203	140	38
100	114	305	178	38
125	141	394	229	51
150	168	406	267	51
200	219	419	330	51
250	273	546	432	76
300	324	673	521	114
350	350	660	559	102
410	410	660	686	127
450	450	762	737	152
500	500	838	838	203
600	600	991	940	203
750	750	1067	1270	229
900	900	1245	1594	254
1050	1050	1372	1803	254
1200	1200	1499	1981	254
1370	1370	1753	2464	254
1500	1500	1880	2464	356
1829	1829	2413	2921	406
2100	2100	2413	2921	406
2438	2438	2565	3023	406



The FlexValve® 4100 check valve opens with line pressure to allow the process media to flow through...



...reverse pressure seals the valve closed, even on solids, to prevent backflow into the process line.

SIZE	25	40	50	65	80	100	125	150	200	250	300	350	410	450	500	600	750	900	1050	1200	1370	1500	1829	2000	2100	2438
ID (mm)	33	49	60	73	89	114	141	168	219	273	324	350	410	450	500	600	750	900	1050	1200	1370	1500	1829	2000	2100	2438
A (mm)	76	152	152	203	229	305	394	457	419	546	673	660	660	762	838	991	1067	1245	1372	1499	1753	1880	2413	2413	2413	2565
B (mm)	38	76	102	127	140	178	229	267	330	432	521	559	686	737	838	940	1270	1549	1803	1981	2464	2464	2921	2921	2921	3023
C (mm)	25	25	25	25	38	38	51	51	51	76"	114	102	127	152	203	203	229	254	254	254	254	356	406	406	406	406
WEIGHT (kg)	0.2	0.3	0.5	0.7	1.4	1.8	2.7	5.4	6.4	9.1	14.5	18.1	21.8	31.8	44.5	56.7	102.1	260.8	362.9	464.9	612.3	762	1202	1505.9	1769	2041.2

Dimensions are for clearance purpose only. Actual product dimensions may vary based upon specific application requirements. IDs in the table are based on carbon steel pipe OD.

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STYLE 4200 FLANGE TYPE

Features & Benefits

- Eliminates backflow and seals around entrapped solids
- 25mm to 2438mm (1" to 96") DN
- Rugged all elastomer construction is a full variety of materials
- Maintenance free operation with no mechanical components that can corrode or freeze
- Lower head loss than conventional check valves
- Will open with as little as 25mm WC. Drop tight at 30psi over 18.3m WC
- Quiet opening, no slamming
- Non-plugging
- Provides corrosion and abrasion resistance
- Versatile construction for a wide range of applications
- Standard flange drillings include: ANSI and BS EN-DIN1092 PN16
- Full faced internal elastometric flange ensures a complete seal while a need for gaskets
- Retaining rings available in galvanised, 304 stainless steel and 316 stainless steel



STYLE 4200

Typical Applications

Storm Water Outfall/Overflow

The FlexValve® Duck-Bill Style 4200 check valves provide quiet, maintenance free operation and with the added benefit of low opening pressure, thereby eliminating standing water, which is a major health concern.

Submerged Outfall Diffuser

The FlexValve® Duck-Bill Style 4200 check valves will eliminate marine fouling and backflow intrusion with the added benefit of higher jet velocities even at low flow rates, providing a more uniform port discharge distribution.

The versatile construction and our creative design team can adapt the FlexValve® Duck-Bill Style check valves to multiple applications including: water mixing systems, overflow vents, anti-siphon devices, coarse bubble diffusers, floor drains, sparging devices or even, when needed, to increase back pressure in a pipeline.

Elastomers Available

Pure gum rubber, neoprene, EPDM, Buna-N (Nitrile), chlorobutyl and Viton®.

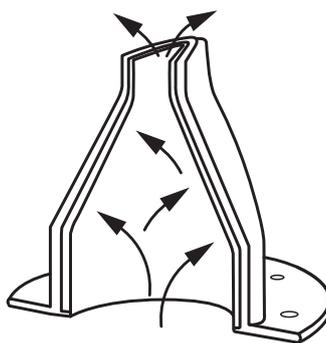
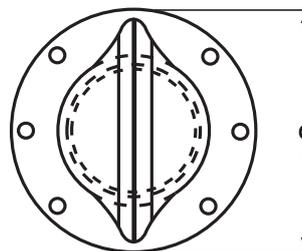
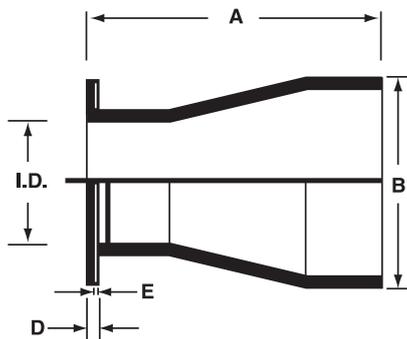
Quality and Testing

Manufactured in the modern ISO-9001:2000 certified production unit, the FlexValve® Duck-Bill style check valves have been tested for minimum opening pressure and maximum back pressure.

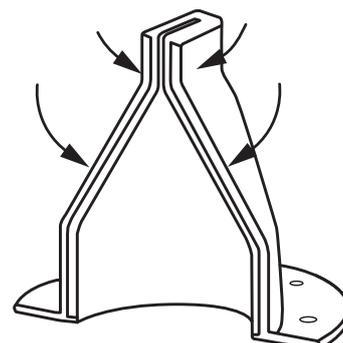
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STYLE 4200 FLANGE TYPE

PIPE SIZE ID (mm)	LENGTH A (mm)	BILL WIDTH B (mm)
25	152	38
40	152	76
50	152	102
65	203	127
80	229	140
100	305	178
125	394	229
150	406	267
200	419	330
250	546	432
300	673	521
350	660	559
410	660	686
450	762	737
500	838	838
600	991	940
750	1067	1270
900	1245	1549
1050	1372	1803
1200	1499	1981
1370	1753	2464
1500	1880	2464
1829	2413	2921
2100	2413	2921
2438	2565	3023



The FlexValve® 4200 check valve opens with line pressure to allow the process media to flow through...

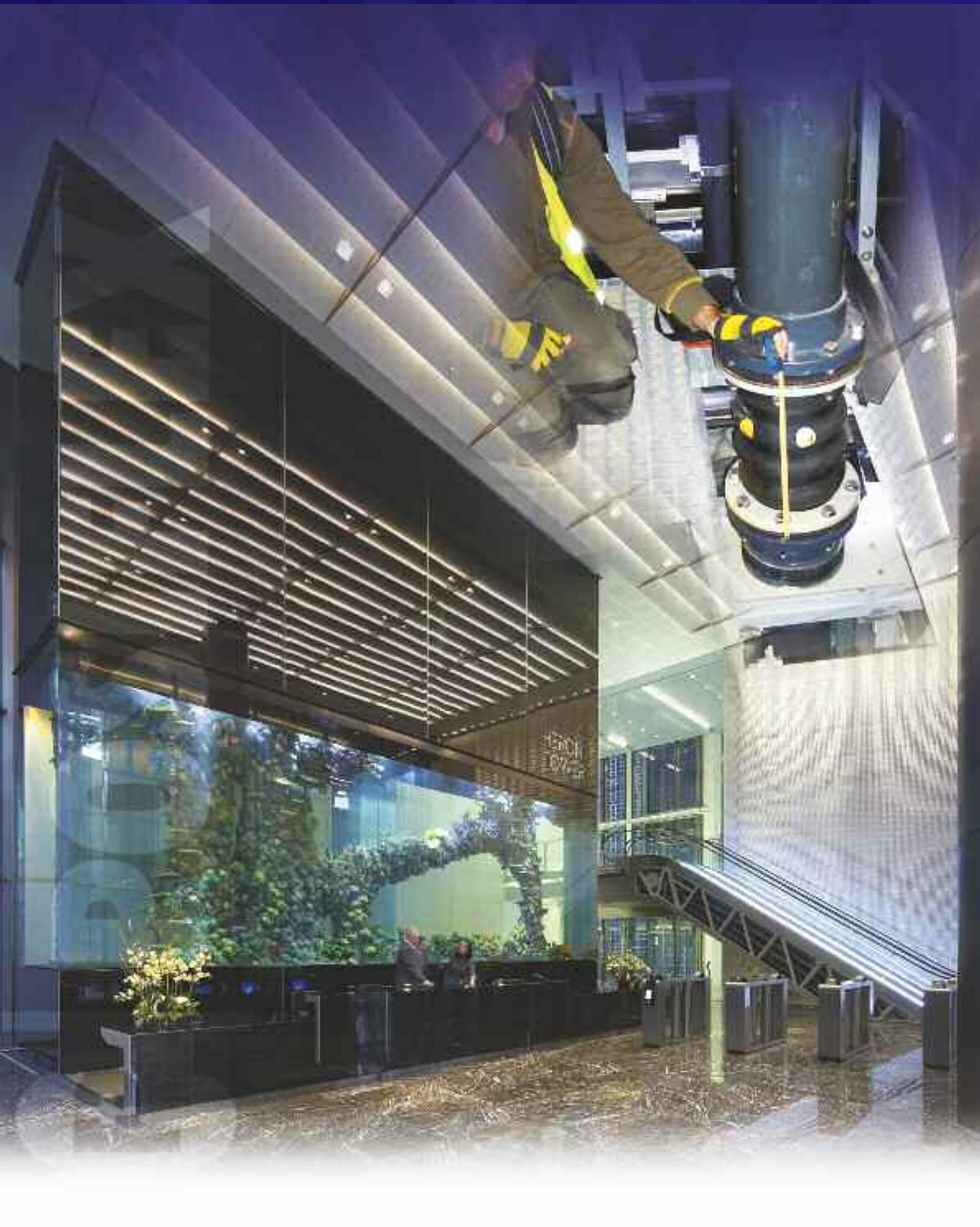


...reverse pressure seals the valve closed, even on solids, to prevent backflow into the process line.

SIZE	25	40	50	60	80	100	125	150	200	250	300	350	410	450	500	600	750	900	1194	1200	1370	1500	1829	2000	2100	2438
A (mm)	76	152	152	203	229	305	394	406	419	546	673	660	660	762	813	991	1219	1372	1473	1626	1829	1930	1930	2464	2464	2565
B (mm)	38	76	102	127	140	178	229	267	330	432	521	559	686	737	838	940	1270	1549	1803	1981	2464	2464	2464	2921	2921	3023
C (mm)	108	127	152	178	191	229	254	279	343	406	483	533	597	635	699	813	984	1168	1346	1511	1683	1854	2032	2197	2534	2877
D (mm)	23	23	23	23	23	23	23	23	23	23	23	23	25	25	25	29	29	29	29	29	29	29	29	32	32	32
E (mm)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
WEIGHT (kg)	0.68	1	1	2	2	3	4	5	9	11	19	23	29	39	52	66	118	283	411	522	703	862	1061	1331	1996	2885

Dimensions are for clearance purpose only. Actual product dimensions may vary based upon specific application requirements.

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Expansion Joint Installation, Operation & Maintenance

Receipt of Goods

Ensure that all items are delivered and no items are missing, please note that all metal work is normally stored in the base of the crate (false bottom) to protect the PosiFlex elastomeric expansion joints during transit.

Storage

Storage should be in a dry, cool location. Store joints, flanges down, on a pallet or wooden platform. Do NOT store other equipment on top of the joints. Do NOT allow the joints to be in contact with the ground.

If the joints are to be stored outside, they should be covered with a tarpaulin to prevent weather and sun damage.

Handling

When handling large joints with material handling equipment such as forklifts or cable slings, care must be taken not to damage the flanges or expansion arch.

Do NOT wrap slings through the bore. Use saddles or padding to prevent contact of the cables or forks with the rubber.

Do NOT allow the PosiFlex expansion joints to deform when large units are handled.

Installation Instructions

1. Make sure that the PosiFlex expansion joint matches the pressure, temperature and movement requirements of the system. Do not subject the PosiFlex expansion joint to conditions that exceed those shown in the catalogue or drawings.

Pipelines containing PosiFlex expansion joints should be lined up accurately with the correct face to face dimensions before installing the joints as they are not designed to make up for piping misalignment or pipe dimensional errors. Make sure pipe guides are used to prevent pipe displacement.

Solid anchoring is required when the pipeline changes direction and expansion joints should be located as close as possible to anchor points. If anchoring is not possible, control units MUST be used to limit movement of the expansion joint to design valves. Piping must be supported to PosiFlex expansion joints do not support the pipe weight.

2. See catalogue or drawings for face/face installation lengths and maximum movement capabilities.

NOTE: POSIFLEX EXPANSION JOINTS SHOULD NOT BE USED IN EXCESS OF THE AGREED MOVEMENTS.

3. Ensure that the mating flanges are full flat faced or no more than 1/16" raised face flanges. Never install Full Faced Rubber Flanges next to wafer type check valves, butterfly valves, lap joints, Victaulic, slip on, or any other non-continuous flanges, if fitted they will invalidate the warranty. Ensure that the mating flanges of the expansion joints are clean, free from dirt, rust, burrs, with bolt holes correctly aligned.
4. Apply a graphite/water solution or glycerine to the rubber flange before installing PosiFlex expansion joints. (Never use a petroleum product or adhesive on the flange face.) This should also apply when assembling the retaining flanges.

The purpose of the graphite solution is to simplify installation and to permit easy removal at some future date if required.

5. Insert bolts (from the arch side) behind the retaining so that they do not interfere with the arch of the PosiFlex expansion joint. Use washers on all bolt heads and/or nuts, especially if the retaining rings are split on hole centres.

NOTE: IF BOLTS ARE NOT INSERTED FROM ARCH SIDE, OR IF STUDBOLTS ARE USED, THEN LITTLE OR NO THREAD, (TWO THREADS MAXIMUM) IS TO PROTRUDE ON THE ARCH SIDE.

** (This is vitally important to minimise the risk of sharp metal edges impinging on the rubber arch under movement of the joint.)**

6. When installing control units, gusset plates should be fitted to the outside of the connecting pipe, pump or valve flange and should be installed at equal spacings around the flange. At gusset plate positions the flange bolt lengths must be longer to accommodate the plate.
7. Tighten all bolts gradually and equally alternating around the flange in a clockwise direction. The bolts will be tightened and the flanges sealed, when the edge of the rubber flanges bulge slightly.
8. Bolts should be tightened until a leak-tight seal is achieved. Over-tightening cannot damage the rubber flange.
9. Insert a control rod through to top hole of each gusset plate, ensuring that all required assembly pieces have been correctly positioned between the inside faces of the gusset plates. (For example two (2) pairs of locknuts and spherical washers OR two (2) pairs of locknuts and plain washers.)

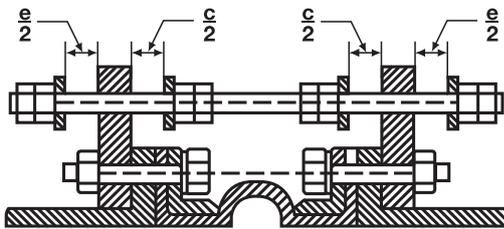
CHECK AGAIN THAT THE FACE/FACE DIMENSION IS CORRECT BEFORE PROCEEDING FURTHER.
10. With the control rod inserted between gusset plates, ensure that all the required assembly pieces are correctly assembled on the outside of the gusset plates, as per the sketch.

NOTE: CORRECT POSITIONING OF EACH SET OF LOCKNUTS AND WASHERS IS ESSENTIAL TO ALLOW THE POSIFLEX EXPANSION JOINT TO OPERATE TO ITS SPECIFIED MOVEMENTS.

11. To ensure the lock nuts and washers have been installed correctly, the following must be observed to be correct whilst the expansion joint is installed at its correct face/face dimension and the control rod is symmetrical with regards to its position relative to the gusset plates. (This is more clearly indicated in the sketch.)

- a) Each outside gap, between the external surface of the gusset plate and facing washer surface must be equal to half the PosiFlex expansion joint's allowable axial elongation.
- b) Each inside gap, between the internal surface of the gusset plate and facing washer surface, must be equal to half the PosiFlex expansion joint's allowable axial compression.

NOTE: The above described method should be used in order to allow the PosiFlex expansion joint to operate to maximum elongation and compression limits. Should the joint be required for lateral movement ONLY then the Control Units are to be assembled such that there is a 0.5mm gaps between Washers and Gusset Plates.



Where e = maximum allowable axial elongation
c = max. allowance axial compression

- 12. Consult PosiFlex if there is any question as to the rated compression and elongation. These rod dimensions are critical in setting the nuts and sizing the compression spacers (where applicable).
- 13. The PosiFlex expansion joints should never be subjected to operating conditions beyond the pressure and temperature recommended by PosiFlex.
- 14. When insulation is used over the pipeline adjacent to the PosiFlex elastomeric expansion joint, the insulation of the PosiFlex expansion joint is not a recommended practice. However, if insulation is required, it should be made removable to permit easy access to the flanges.
- 15. When PosiFlex expansion joints are installed underground, contact PosiFlex for proper back-fill procedure. A PosiFlex expansion joint protective cover should be used. Details concerning the specific environment will assist in the cover selection.

Maintenance Instructions

1. Check flange bolts for tightness one week after going on-stream or after installation and periodically thereafter as any rubber-like material relaxes after a period of compression.
2. Any damage to the outside protective cover of the PosiFlex expansion joint before or after being brought into service should be immediately repaired. (Any small cuts or gouges in the joint protective cover should be cleaned to remove any loose particles and sealed with any neoprene self-curing cement to prevent harmful materials from penetrating the carcass of the joint.)
3. Avoid welding in the vicinity of PosiFlex elastomeric expansion joints. Use an insulation blanket to keep welding sparks off the rubber cover. If welding is necessary within 300 to 500mm of the expansion joint, pack the steel pipe in dry ice to prevent heat transfer.
4. If painting is necessary, use a rubber latex paint only or paint furnished by PosiFlex.
5. Check operating pressure and temperature often to ensure they are within the operating range.
6. If a PosiFlex expansion joint must be removed from the line, use small wooden wedges to break the seal between rubber and mating flanges prior to removal.
7. Periodically inspect the control rod system for signs of cracking, stressing and loss of adjustment. If movement 'set-ups' have change for any reason, restore the settings and apply locking procedures.

Spare Parts

PosiFlex do not consider it necessary to recommend the holding of spare parts for the installation or commissioning period and 2 years operational service. However, if required for strategic purposes, we would suggest the holding of one (1) off PosiFlex joint only, without metalwork.

	Chemical	Chlorobutyl (CIIR)	Buna (SBR)	Natural (NR)	Neoprene (CR)	Buna-N (NBR)	Viton(2) (FKM)	EPDM (EP)
A	Acetaldehyde	A	X	F	C	X		
	Acetamide	A	F	F	F	C	A	
	Acetic Acid: 10%	F	C	F	C	C		F
	Acetic Acid: 30%	C		C	C			F
	Acetic Acid: 50%	F	X	C	C			F
	Acetic Acid: Glacial	F	X	C	C	C	X	F
	Acetic Acid: Vapors	F	F	F	C	F		F
	Acetic anhydride	F	C	A	F	F	X	C
	Acetone	A	A	A	F	X	X	A
	Acetonitrile				A			
	Acetophenone	A	X	C	X	X		
	Acetyl acetone				X			
	Acetyl chloride				X			
	Acetylene	A	A	A	A	A		
	Acrylonitrile	C	X	A	F	X	X	
	Air (150 °F)	A	A	A	A	A	A	A
	Allyl chloride	X	X	X	X	X		
	Aluminium chloride (150 °F)	A	A	A	A	A	A	C
	Aluminium fluoride (150 °F)	A	A	A	A	A		
	Aluminium hydroxide	A	A	A	A	A		
	Alums (150 °F)	A	A	A	A	A		
	Aluminium nitrate	A	A	A	A	A		
	Aluminium sulphate (150 °F)	A	A	A	A	A		C
	Ammonia, anhydrous							
	Ammonia, liquid	A	F	F	A	A	X	A
	Ammonia, in water	A	F	F	F	F		
	Ammonia gas (cold)	A	A	A	A	A	X	A
	Ammonia gas (150 °F)	C	C	C	F	C		
	Ammonium chloride (150 °F)	A	A	A	A	A		C
	Ammonium hydroxide	A	F	F	F	F	A	C
	Ammonium metaphosphate	A	A	A	A	A		
	Ammonium nitrate	A	A	C	A	A		
	Ammonium phosphate mono basic, dibasic or tribasic	A	A	A	A	A		
	Ammonium sulphate	A	A	A	A	A		C
	Ammonium thiocyanate	A	A	A	A	A		
	Amyl acetate	C	X	F	X	X	X	X
	Amyl alcohol	A	A	A	A	A	A	A
	Amyl borate	X	X	X	A	A		
	Amyl chloride	X	X	X	X	X		
	Amyl chloronaphthalene	X	X	X	X	C		
	Amyl naphthalene	X	X	X	X	X		
	Aniline, aniline oil	A	X	X	C	X	A	
	Aniline dyes	A	F	F	F	F		
	Animal fats (see also butter, lard)	A	C	C		A		
	Antimony chloride	A				F		
Aqua regia	X	X	X	X	X			
Arsenic acid (75%)		A		A	A	A		
Asphalt	X	X	X	F	F		X	
Aviation gasoline	X	X		C	A	A		
B	Bardol B	X	X	X	X	X		
	Barium carbonate	A	A	A	A	A		
	Barium chloride (150 °F)	A	A	A	A	A		
	Barium hydroxide (150 °F)	A	A	A	A	A		C
	Barium sulfate	A	A	A	A	A		
	Barium sulphide	A	A	A	A	A		
	Beer	A	A	A	A	A		
	Beet sugar liquors	A	A	A	A	A		
	Benzaldehyde	A	X	X	X	X	X	F
	Benzene, benzol	X	X	X	X	X	A	X
	Benzene chloride			X	X		F	X
	Benzyl alcohol	A	F	A	F	X	A	
	Benzyl benzoate	A	X	C	X	X		
	Benzyl chloride	C	X	F	X	X		
	Bismuth carbonate	A	A	A	A	A		
	Black sulphate liquor	A	A	A	A	A		
	Blast furnace gas	C	C	C	A	C		

A=Good F=Fair C=Conditional X=Not Suitable

CHEMICAL RESISTANCE DATA

Chemical	Chlorobutyl (CIIR)	Buna (SBR)	Natural (NR)	Neoprene (CR)	Buna-N (NBR)	Viton(2) (FKM)	EPDM (EP)
Bleach liquor				X			
Borax	A	A	A	A	A		C
Boric acid	A	A	A	A	A		A
Bordeaux mixture		A	A	A	A		
Brandy	A	A	A	A	A		
Bromine	X	X	X	X	X	A	X
Budium (can coating) – see liquor							
Butadiene			X	F			
Butane							
1-butene (aliphatic hydrocarbon) 95°C				A			
1-butene, 2-ethyl 95°C				F			
Butter	A	C	F	A	A		F
Butyl acetate	F	X	C	X	X	X	X
n-butyl acetate	F	X	C	X	X	X	X
Butyl acetate recinoleate	A	X	C	X	A		
Butyl alcohol (Butanol)	A	A	A	A	A	A	
n-butyl n-butyrate				X			
Butyl carbitol	A				A	A	
Butyl 'cellosolve' (alcohol ether)	A	A	A	F	A		
Butyl ether	X	X	X	F	A		
Butyl stearate	C	X	X	X	A		
Butyraldehyde	C		X	F			X
Butyric acid				F		C	X
C Cadmium cyanide				A			
Calcium acetate	A	A	A	A	F		
Calcium bisulphate		A	A	A	A		
Calcium bisulphite	A	A	A	A	A		C
Calcium carbonate	A	A	A	A	A		
Calcium chlorate	A	A	A	A	A		
Calcium chloride	A	A	A	A	A		C
Calcium fluophosphate				A			
Calcium hydroxide (lime)	A	A	A	A	A		C
Calcium hypochlorite	A	C	C	C	C		C
Calcium nitrate	A		A	A	F		
Calcium sulfate	A	A	A	A	A		
Calcium sulphide	A				F		
Caliche liquors (Sodium Nitrate)	A	A	A	A	A		
Cane sugar liquors	A	A	A	A	A		
Carbitol	A	C	C	A	A		
Carbolic acid (phenol)	C	C	C	C	C	F	
Carbon bisulphide (carbon disulfide)	X	X	X	X	C	A	C
Carbon dioxide, dry	A	A	A	A	A		C
Carbon dioxide, wet	A	A	A	A	A		C
Carbon monoxide	C	A	A	A	A		C
Carbon monoxide, hot (150°F)	C	C	C	C	C		C
Carbon tetrachloride	X	X	X	X	F	A	X
Carbon acid		A	A	A	A		
Castor oil	A	A	A	A	A	C	
Caustic – see sodium hydroxide							
Cellulose acetate		F	F	F	F		
Cellosolve (alcohol ether)	A	A	X	A	C	F	
Cellosolve acetate	A	F	F	X	X	X	
Cellulube hydraulic fluids	A	X	F	X	X		
China wood oil (tung oil)	A	X	X	F	A		
Chlorine dioxide	X		X	X			
Chlorine gas, dry	C	C	C	C	C	F	X
Chlorine gas, wet	F	F	X	X	C	F	X
Chlorine water, sat'd	X	X	X	X			
3%			F	F	F		
Chlorinated solvents, dry	X	X	X	X	X	A	
Chlorinated solvents, wet	X	X	X	X	X	A	
Chloroacetic acid	C	C	X	C	C		C
Chloroacetone	F		A	F	X		
Chlorobenzene	X	X	X	X	X	A	X

A=Good F=Fair C=Conditional X=Not Suitable

Chemical	Chlorobutyl (CIIR)	Buna (SBR)	Natural (NR)	Neoprene (CR)	Buna-N (NBR)	Viton(2) (FKM)	EPDM (EP)
Chlorobromomethane	F	X	X	X	X	A	
Chloroform	X	X	X	X	X	A	X
Chorosulphonic acid	X	X	X	C	C	X	X
o-chloronapthalene	X	X	X	X	X		
1-chloro 1-nitroethane	X	X	X	X	X		
Chlorotoluene	X	X	X	X	X		
Chlorox	A	A	A	A		A	
o-chlorophenol				X			
Chromic acid	C	X	X	X	X		C
Citric acid	A	A	A	A	F		
Cobalt chloride (2N)				A			C
Cocoanut oil	F			A			
Cod liver oil	A		X	A	A	A	
Coke oven gas	C	C	C	C	C		
Copper arsenate, basic	A	A	A	A	A		
Copper chloride (150°F)	A	A	C	F	A		C
Copper cyanide	A	A	A	A	A		
Copper nitrate	A	A	A	A	A		
Copper sulphate (150°F)	F	A	C	A	A		
Corn oil	A	C	X	F	A		C
Cottonseed oil	A	C	X	F	A	A	A
Creosote (wood)	X	X	X	F	A	A	C
Creosote tar (coal tar)	X	X	X	F	A	A	X
Cresols	C	X	C	X	X	A	
Cresylic acid	X	X	X	X			
Cryolite 10% (Alum/Sodium Fluoride)	A			A	F		
Cumene	X	X	X	X	X		
Cupric sulphate	A	A	A	A	A		
Cyclohexane (alicyclic hydrocarbon)	X	X	X	X	F	A	X
Cyclohexanol				A			
Cyclohexanone	F	X	X	X	X	X	F
p-cymene	X	X	X	X	C		
D DDT and Deodorized kerosene		C	X	C	A		
Decalin (du Pont hydrocarbon-cyclo)			X	X			
Decane				X			
Diacetone alcohol	A	A	A	A	X		
Dibenzyl ether	C	X	X	X	X		
Dibenzyl sebacate							
Dibutylamine				X			
Dibutylether	F		X	C	X		
Dibutyl phthalate	A	X	F	X	X	F	A
Dibutyl sebacate	X						
o-dichlorobenzene	X	X	X	X	F	F	X
Dichloro difluoro methane (Freon 12)							
Dichloro fluoro methane (Freon 21)							
Dicyclohexylamine	X	C	X	X	C		
Diethylamine	A	A	A	A	A		
Diethyl ether	X	X	X	C	A		
Diethyl sebacate	A		F	X			
Diethylene glycol	A	A	A	A	A		A
Diethylene ketone	A	C	X	X	X		
Dimethylaniline	X	X	X	X	X		A
Diocytl phthalate	C	X	X	X	X	X	C
Dioxane	A	X	X	X	X	X	A
Dioxolane	F	X	F	X	X		
Dipentene (terpene-hydrocarbon)	X	X	X	X	F		
Dispersing oil #10	X	X	X	X	X		
Diphenyl	X	X	X	X	X		
Diphenyl oxide	X	X	X	X	X	A	
Dowtherm A and Dowtherm E	X	X	X	X	X	F	
Dowfume W-40 100% (fumigant)	X	X	X	C	X		
E Ethanolamine	A	A	C	A	F		
Ethers	C	C	C	C	C		
Ethyl acetate	A	X	F	X	X	X	F

A=Good F=Fair C=Conditional X=Not Suitable

CHEMICAL RESISTANCE DATA

Chemical	Chlorobutyl (CIIR)	Buna (SBR)	Natural (NR)	Neoprene (CR)	Buna-N (NBR)	Viton(2) (FKM)	EPDM (EP)
Ethyl acetoacetate	A	A	A	F	X		
Ethyl alcohol	A	A	A	A	A	A	A
Ethyl benzene	X	X	X	X	X		
Ethyl benzoate				X			
Ethyl butyrate	A	C	C	X	X		
Ethyl cellulose	F	F	F	F	F		
Ethyl chloride	A	F	A	F	X		X
Ethyl ether	C	X	X	X	C	X	X
Ethyl formate				C			
Ethyl mercaptan	X	X	X	X	X		
Ethyl oxalate	A	A	X	C	X		
Ethyl pentachlorobenzene	X	X	X	X	C		
Ethyl silicate	A	A	F	A	A		
Ethylene bromide	X	X	X	X	X		
Ethylene chloride	X	X	X	X	X	A	X
Ethylene chlorohydrin	A	C	C	A	X		
Ethylene diamine	A	C	A	A	A		
Ethylene dichloride	X	X	X	X	X	F	X
Ethylene glycol	A	A	A	A	A	A	A
Ethylene trichloride (see trichlorethylene)							
F Fatty acids	X			F	F		
Feran	F	F	F	F	F		
Ferric chloride (150 °C)	A	A	A	A	A		C
Ferric nitrate	C		A	A			
Ferric sulphate	A	A	A	A	A		
Ferrous ammonium sulphate 30% conc,				A			
Ferrous chloride	A	A	A	A	A		
Fluoboric acid		X	A	A			
Fluorobenzene	X	X	X	X	X		
Fluosilicic acid		F	A	A		C	
Formaldehyde	A	A	A	C	A	A	C
Formamide	A	A	A	A	X		
Formic acid	A	A	A	C	F	X	C
Freon 12 – (liquid)							
Fuels – ASTM Reference Fuel A	X					A	X
Fuels – ASTM Reference Fuel B – (70 iso octain-30 toluene)	X					A	X
Fuels – ASTM Reference Fuel C	X						
Fuels – ASTM #1 oil	X	X	X	F	A	A	X
Fuels – ASTM #3 oil	X	X	X	F	A	A	X
Fuel oil	X	X	X	F	A	A	X
Furan	C	X	X	X	X		
Furfural	A	C	X	C	X	X	C
G Gallic acid (Trihydroxy benzoic acid)		X	X	X	X		
Gasoline	X	X	X	F	A	A	X
Gasoline – 40% aromatic	X	X	X	F	F		X
Gasoline – 65 octane	X	X	X	F	A		X
Gasoline – 100 octane	X	X	X	F	A		X
Gelatin	A	A	A	A	A		
Glucose	A	A	A	A	A		
Glue	F	F	F	A	A		C
Glycerine, glycerol	A	A	A	A	A	A	C
Grease	X	X	X	F	A		
Green sulphate liquor	A	A	A	X	A		
H Halowax oil	X	X	X	A	X		
n-heptane (aliphatic hydrocarbon)	C	X	C	A	A		
2n-hexaldehyde	A	X	X	A	X		
Hexane	X	X	X	A	A	A	X
n-hexane (aliphatic hydrocarbon)	X	X	X	A	A		
n-hexane-1	X	X	X	F	A		
Hexanol (hexyl alcohol)	C			F	A	A	
Hexylene glycol	A	A	A	A	A		
Hydraulic oil	X	X	X	A	A	A	C
Hydrobormic acid – 40% conc	A	X	A	C	C		

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Chemical	Chlorobutyl (CIIR)	Buna (SBR)	Natural (NR)	Neoprene (CR)	Buna-N (NBR)	Viton(?) (FKM)	EPDM (EP)
Hydrochloric acid 37% conc	A	F	A	A	C		F
	C	X	F	F	C		F
	A	F	A	A	C		C
				F			
Hydrocyanic acid	A	F	A	A	C		C
Hydrofluoric acid	F	F	F	A	C	X	C
	C	X	X	X	X	X	C
	C	C	C	A		X	C
	C	C	C	C		X	C
Hydrofluosilicic acid	A	A	A	F	A		
Hydrogen gas, cold	A	F	F	A	A	A	C
Hydrogen gas, hot	A	F	F	A	A		C
Hydrogen peroxide	C	X	C	C	C		C
Hydrogen sulphide	A	A	A	A	A		C
Hydrogen sulphide dry, cold	A	C	C	F	C		
Hydrogen sulphide wet, cold	A	C	C	F	C		
Hykil #6, 33%; water 67%	X	X	X	X	C		
Iodine			X	F			
Isoamyl alcohol	A	A	A	A	A	A	
Isobutyl alcohol	A	A	A	A	A	A	
Isobutyl n-butyrate				X			
Isododecane (aliphatic hydrocarbon)	C	C	X	A	A		
Isooctane (aliphatic hydrocarbon)	C	C	X	A	A	A	X
Isopropyl acetate	A	X	C	X	X		
Isopropyl alcohol	A	A	A	A	A	A	C
Isopropyl chloride0	X	X	X	X	X		
Isopropyl ether	X	X	X	X	A		X
Jet Fuels (JP-1 to JP-5)	X	X	X	F	A	A	X
Kerosene	X	X	X	F	A	A	X
Lacquers	C	X	X	X	X	X	
Lacquer solvents	C	X	X	X	X	X	
Lacquer (synthetic)	X	X	X	X	X	X	
Lacquer (synthetic) solvents	X	X	X	X	X	X	
Lactic acid-cold	C	C	C	C	C		C
Lactol (aliphatic naphtha)	X	X	X	X	C		
Lard (animal fat)	C	F	F	A	A		
Lavendor oil				F			
Lead acetate	A	A	A	A	A		
Lead sulfamate		A	A	A			
Lead sulfate	A	A	A	A	A		
Lime & H2O			F	A	A		
Lime-sulphur-dry			F	A	A		
Lime-sulphur-wet			F	A	A		
Linoleic acid				X	F		
Linseed oil	A	X	C	F	A	A	C
Liquid soap	A	A	A	A	A		
Lubricating oils (crude or refined)	X	X	X	F	A	A	X
Magnesium ammonium sulfate				A			
Magnesium carbonate	A	A	A	A	A		
Magnesium chloride	A	A	A	A	A		C
Magnesium hydroxide	A	F	A	F	F		C
Magnesium nitrate				A			
Magnesium oxide				A			
Magnesium sulphate	A	A	A	A	A		
Magnesium sulphate with wet lime sulphur			F	A	A		
Master kill emulsion	A			A	A		
Mercuric chloride	A	F	F	C	F		C
Mercuric cyanide	A	A	A	F	A		
Mercurous nitrate	A	A	A	A	A		
Mercury	A	A	A	A	A		C
Mesityl oxide	X		X	X	X		
Methyl acetate	F			F	X		
Methyl alcohol (methanol)	A	A	A	A	A	C	C
Methyl bromide				X		A	

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CHEMICAL RESISTANCE DATA

Chemical	Chlorobutyl (CIIR)	Buna (SBR)	Natural (NR)	Neoprene (CR)	Buna-N (NBR)	Viton(2) (FKM)	EPDM (EP)
Methyl cellosolve (ether)		A	X	A			
Methyl chloride	C	C	C	C	C		
Methyl cycopentane				F			
Methyl ethyl ketone	F	X	X	X	X	X	A
Methyl formate	F	C	C	A	X		
Methyl isobutyl carbinol	A	A	A	A	A		
Methyl isobutyl ketone	A	F	F	F	X		
Methyl isopropyl ketone	F	X	X	X	X	X	
Methyl methacrylate	C	X	X	X	X	X	
Methyl oleate				X			
Methyl salicylate	A			X	X		
Methylene bromide				X			
Methylene chloride			X	X	F	F	
Milk	A	C	C	F	F	A	
Mineral spirits	X	X	X	X	C	A	
Monobromobenzene					X		
Monochloro benzene					X		
Monochloro benzene					X		
Monomethylaniline					X		
Muriatic acid (commercial hydrochloric) 50%	A	F	A	A	C		C
Natural gas	C	C	C	A	A		
Naphtha	X	X	X	X	C	A	X
Naphthalene	X	X	X	X	X		X
Naphthenic acid	X				C		
Neosol	A	A	A	A	A		
Nevoll	A	X	X	C	C		
Nickel acetate 10% at 100° F	A	A	A	A			
Nickel ammonium sulphate				A			
Nickel chloride	A	A	A	A	A		
Nickel nitrate				A			
Nickel sulphate	A	A	A	A	A		
Nicotine bentonite					F		
Nicotine sulfate					F		
Nitrana 2 & 3	F	F	F	F	F		
Nitric acid – Diluted (10%)	C	X	X	X	X		C
Nitric acid – Conc. (69%)	C	X	X	X	X		X
Nitric acid – Fuming (over 86%)	X	X	X	X	X		X
Nitrobenzene	X	X	X	X	X	F	F
Nitroethane	A	A	A	C	X		
Nitromethane	A	A	A	C	X		
1-nitropropene	A	F	F	C	X	X	
n-octene-2				C			
n-octyl alcohol	F				A		
Octyl alcohol	F			A	A		
Oil, motor	X	X	X	A	A		
Oil, circo light process	C	C	X	C	A		
Oleic acid	X	F	X	C	F		C
Oleum spirits		C	X	C	C		X
Olive oil	A		X	A	A	A	
Oxalic acid	A	C	F	F	F		
Oxygen	A	C	F	A	C	A	
Ozone	A		C	C	X	A	A
Paint thinner (duco)							
Palm oil	A	X	X	F	A	A	
Palmitic acid	F	F	C	A	A		C
Paradichlorbenzene	X	X	X	X	X		
Paraformaldehyde	F	C	C	F	F		
Para san 10%	A	A	A	A	F		
Paris green and lime 37%	A			A	A		
Pentachlorophenol	A	X	X	X	X		
Pentane	X	X	X	F	A		
n-pentane, 2 methyl, 3 methyl				A			
Pentene-2, 4-methyl				F			
Perchlorethylene	X	X	X	X	X	A	X

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Chemical	Chlorobutyl (CIIR)	Buna (SBR)	Natural (NR)	Neoprene (CR)	Buna-N (NBR)	Viton(2) (FKM)	EPDM (EP)
Perchloric acid				A	X		
Permachlor (degreasing fluid)					X		
Petroleum oils and crude (200°F)	X	X	X	F	A	A	
Phenol (see also carbolic acid)	C	C	C	C	C	F	C
Phenols (di-nitrols)		A	A	F	X		
Phenolates (di-nitrols)		X	X	X	X		
Phenyl ethyl ether	X	X	X	X	X		
Phenylhydrazine	F	C	A	X	X		
Phorone	A	X	X	X	X		
Phosphate esters	A	X	X	X	X		
Phosphoric acid – conc'd (85%)	C	C	C	C	C		A
Phosphoric acid – crude or pure (45%)	C	C	A	C	C		C
Phosphorous trichloride acid	X	X	X	X	X		
Pickling solutions (4% H.F. – 20% nitric)			C	C			
Picric acid – molten	C	C	C	C	C		C
Phosphoric acid – conc'd (85%)	C	C	C	C	C		A
Phosphoric acid – crude or pure (45%)	C	C	A	C	C		C
Phosphorous trichloride acid	X	X	X	X	X		
Pickling solutions (4% H.F. – 20% nitric)			C	C			
Picric acid – molten	C	C	C	C	C		C
Picric acid – water sol.	A	C	A	F	F		C
Pine oil		X	X	X	C		
Pinene	X	X	X	X	C		
Plating solutions (brass, cadmium, copper, gold, lead, nickel, silver, tin, zinc) Not chrome	A	A	A	A	A		
Piperidene (heterocyclic)	X	X	X	X	X		
Potassium acetate	A		A		A		
Potassium bicarbonate				A			
Potassium bisulfite	A			A			
Potassium borate	A	A	A	A	A		
Potassium bromide	A	A	A	A	A		
Potassium carbonate				A			
Potassium chlorate	A	A	A	A	A		
Potassium chloride	A	A	A	A	A		
Potassium cyanide	A	A	A	A	A		
Potassium dichromate	A		X	F			C
Potassium hydroxide	A	F	F	C	C		C
Potassium iodide				A			
Potassium nitrate	A	A	A	A	A		
Potassium nitrite				A			
Potassium permanganate	A	A	A	C	C		
Potassium phosphate				A			
Potassium silicate				A			
Potassium sulphate	A	A	A	A	A		
Potassium sulfite	A	A	A	A	A		
Potassium thiosulfate				A			
Producer gas	A	X	F	F	A		
Propane							
N-propyl acetate	F			X			
Propionitrile			A				
Propyl alcohol	A	A	A	A	A		
Propylene dichloride	X	X	X	X	X		
Purina woody plant spray 10%	X	X	X	X	X		
Pydraul hydraulic fluids	F	X	X	X	X		
Pyranol 1467				C	A		
Pyranol 1476				F	A		
Pyridine oil (bone oil)					X		
Pyridine	A	X	X	X	X	X	C
Pyrrole	A	A	C	X	X		
Richfield 'A' 100%	X	X	X	X	C		
Richfield 'D' 33%	F	X	X	F	F		
Rosin oil				A			
Rotenone and H2O		A	A	A	A		
Rum	A	A	A	A	A		

R

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CHEMICAL RESISTANCE DATA

S

Chemical	Chlorobutyl (CIIR)	Buna (SBR)	Natural (NR)	Neoprene (CR)	Buna-N (NBR)	Viton(2) (FKM)	EPDM (EP)
Secondary butyl alcohol	A	A	A	A	A		
Sewage	C	C	A	F	A	A	
Shell DD	X	X	X	X	X		
Silver nitrate	A	A	A	A	A		
Skelly Solv					A		
Skydrol hydraulic fluid	A	X	X	X	X	F	F
Soap solutions	A	A	A	F	A		
Soda	F	F	F	F	F		
Sodium acetate	A	A	A	A	A		
Sodium bicarbonate (baking soda)	A	A	A	A	A	A	
Sodium bisulphate	A	A	A	A	A		
Sodium bisulphite	A	A	A	A	A		
Sodium bisulphite (black liquor)	A	A	A	A	A		
Sodium borate	A	A	A	A	A		
Sodium carbonate – soda ash	A	A	A	A	A	A	
Sodium chlorate	A	A	A	A	A		
Sodium choride	A	A	A	A	A		
Sodium cyanide	A	A	A	A	A		
Sodium fluoaluminat 10%	A	A	A	A	A		
Sodium fluoride	A	A	A	A	A		
Sodium hydroxide (lye) 50% conc.	A	F	F	C	C	A	C
Sodium hypochlorite	C	C	A	X	C	A	A
Sodium hypochloride	F	C	C	C	C		
Sodium iodide				A			
Sodium metaphosphate	A	A	A	C	A		
Sodium nitrate	A	C	C	C	C		
Sodium nitrite				A			
Sodium perborate	A	C	C	C	C		
Sodium peroxide	A	C	C	C	C		C
Sodium phosphate, monobasic, dibasic, tribasic	A	F	A	C	F		
Sodium salts			A	A			
Sodium silicate	A	A	A	A	A		
Sodium sulphate	A	A	A	A	A		
Sodium sulphide	A	A	A	A	A		
Sodium trisulphate (hypo)	A	A	A	A	A		
Solvasol #1, #2, #3					A		
Solvasol #73					C		
Solvasol #74					X		
Soybean oil	A	C	X	F	A	A	C
Stannic chloride	F	A	A	A	A		C
Stannous chloride	A	A	A	F	A		C
Stearic acid	X	X	X	C	F		C
Stoddards solvent	X	X	X	F	A		
Styrene	X	X	X	X	X		
Sugar (see types of sugar)							
Sulfur – Molten	A						A
Sulfurous acid 10%	A	F	A	A	F		
Sulfurous acid 75%	A	F	A	A	F		
Sulphur	F	F	F	A	F	A	A
Sulphur chloride	X	X	X	C	C		
Sulphur dioxide 1% at 100°F				A			C
Sulphur dioxide, dry	C	C	C	C	C		C
Sulphur dioxide, liquid	A	C	F	A	X		C
Sulphur dioxide trioxide (dry)	C	C	X	C	C		C
Sulphuric acid – 10% cold (hot-150°)	A	A(C)	A(C)	A(C)	A(C)		C
10-75% cold, (hot-150°)	F(C)	C(X)	C	C(X)	C(X)		C
75-95% cold, (hot-150°)	C	X	X	X	X		X
Fuming	X	X	X	X	X		X
Summer oil		A	A	A	A		

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	Chemical	Chlorobutyl (CIIR)	Buna (SBR)	Natural (NR)	Neoprene (CR)	Buna-N (NBR)	Viton(2) (FKM)	EPDM (EP)	
T	Tallow (see animal fats)								
	Tall oil	X	F	F	F	A			
	Tannic acid	C	C	A	A	C		C	
	Tanning liquors (50g. Alum sol.; 50g. dichromate sol.)	X	F		A	A			
	Tar	X	X	X	C	C			
	Tartaric acid	A	A	A	A	A		C	
	Taxaphene 12%	X	X	X	F	F			
	Terpinol	F	X	X	X	F			
	Tertiary butyl alcohol				A				
	p-tertiary butyl catechol	A	A	C	A	X			
	Tertiary butyl mercaptan	X	X	X	X	X			
	Tetrachloroethane	X				X	A		
	Tetraethyl lead	X					F		
	Thionyl chloride						C		
	Tetralin (du Pont hydrocarbon cyclo)	X	X	X	X	X			
	Thiophene (heterocyclic)	C	X	X	X	X			
	Tolyene	X	X	X	X	C	A	X	
	Traicetin	A	A	A	A	A			
	Tributoxy ethyl phosphate	F	F	F	C	X			
	Trubutyl phosphate	F	F	F	X	X	X	C	
	Trichloroacetic acid 10%	F	C	C	A	F	F		
	Trichoroethane						F		
	Trichloroethylene	X	X	X	X	X	A	X	
	Tricresyl phosphate	A	F	A	F	X	F	F	
	Triethanolamine	A	F	A	A	A	X	A	
	Triethylborane						A		
	Trinitrotoluene				A				
	Triphenyl phosphate					X			
	Trisodium phosphate	A	A	A	A	A		A	
	Turbine oil				A				
Turpentine	X	X	X	X	F	A	X		
Two four D with 10% fuel oil		X	X	A	A				
U	Ucon hydrolube oils	A	X	X	F	A			
	Uran	F	F	F	F	F			
V	Vegetable oils	A	C	C	F	A			
	Vinegar	A	C	C	A	F	C		
	Vinyl chloride (monomer)	A	F	F	X	X			
	Water, acid mine (with or without oxidising salts)	A	A	A	C	A	A	A	
	Water, fresh – tap, distilled lab grade, return condensate	A	A	A	C	A	A	A	
	Water, seawater	A	A	A	A	C			
	Whiskey and wines	A	A	A	A	A			
	White oil 10%	A	X	X	A	A			
	Walnut oil		X	X	F	A			
	Wolmar salts				A				
	Wool oil		F	F	A	A			
	X	Xylene	X	X	X	X	C	A	X
		Xyol Stoddard solvent	X	X	X	X	X	A	
Z	Xylidines, mixed (see dimethylaniline)	A	X	X	X	X		A	
	Zinc chloride	A	A	A	A	A		C	
	Zinc sulphate	A	A	A	A	A			

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YOUR COMPANY

DATE		SHEET NO		OF	
COMPANY NAME					
MAILING ADDRESS					
NAME OF PERSON SUBMITTING DATA		PHONE NO			
		FAX NO			
PROJECT NAME					
YOUR CUSTOMER	CUSTOMER NAME		ITEM NO 1	ITEM NO 2	ITEM NO 3
	MAILING ADDRESS				
	CITY, STATE, ZIP CODE	PHONE NO	QTY REQUIRED	QTY REQUIRED	QTY REQUIRED
	CONTACT NAME	FAX NO			
SIZE	PIPE SIZE OF APPLICATION <small>Nominal pipe size or the inside diameter of the pipe flange</small>		INCHES / MM		
	INSTALLED LENGTH <small>Is the space between connecting pipe flanges. Indicate limitations if any.</small>		INCHES / MM		
FLOWING MEDIUM	FLOWING MEDIUM <small>Indicate chemical. If flowing medium is corrosive, abrasive or viscous, explain in detail.</small>				
	TYPE OF MEDIUM <small>Indicate if liquid, gas, slurry, solids etc. PED: GROUP 1-2 LIQUID / GROUP 1-2 GAS</small>				
	TEMPERATURE OF FLOWING MEDIUM <small>Indicate both operating and maximum temperature at the expansion joint.</small>	OPERATE °C	MAXIMUM °C		
	TEMPERATURE OF SURROUNDING ATMOSPHERE <small>Indicate both minimum and maximum temperatures.</small>	MINIMUM °C	MAXIMUM °C		
	TIME DURATION AT MAXIMUM TEMPERATURE <small>Indicate length of time.</small>	HOURS / MINUTES			
	FLOW RATE	M ³ / SEC			
PRESSURES	OPERATING PRESSURE AT THE JOINT <small>Actual pressure in which system works in normal conditions.</small>	POSITIVE + BAR	NEGATIVE -MM Hg		
	DESIGN PRESSURE OF THE SYSTEM <small>Highest/most severe pressure expected during operation.</small>	POSITIVE + BAR	NEGATIVE -MM Hg		
	SURGE PRESSURE OF THE SYSTEM <small>Increased pressure due to pump starts, valve closings etc.</small>	POSITIVE + BAR	NEGATIVE -MM Hg		
	TEST PRESSURE OF THE SYSTEM <small>Hydrostatic test used to demonstrate system capability.</small>	POSITIVE + BAR	NEGATIVE -MM Hg		
	TYPE OF PRESSURE <small>Constant, intermittent, shock, pulsating etc.</small>				
MOVEMENTS	AXIAL COMPRESSION AT JOINT <small>As a result of pipe extension - expansion.</small>	INCHES / MM			
	ACTUAL ELONGATION AT JOINT <small>As a result of pipe contraction.</small>	INCHES / MM			
	LATERAL DEFLECTION AT JOINT	INCHES / MM			
	ANGULAR MOVEMENT AT JOINT <small>In degrees.</small>	DEGREES			
	TORSIONAL MOVEMENT AT JOINT <small>In degrees.</small>	DEGREES			
MISCELLANEOUS	PIPE FLANGE DRILLING <small>Indicate specific standard such as 150# ANSIB16.5. If special, provide Flange OD, Bolt, Circle, Number and Size of Holes.</small>				
	MATING PIPE FLANGE THICKNESS	INCHES / MM			
	LOCATION OF JOINT INSTALLATION <small>Indoors or Outdoors.</small>	IN / OUT			
	RETAINING RINGS <small>Are required on all installations. Reusable, they need to be ordered with replacement or spare expansion joints.</small>	YES / NO			
	CONTROL UNIT ASSEMBLIES <small>Are recommended for use in all expansion joint applications. Control units must be used when piping support or anchoring is insufficient.</small>	YES / NO			
	HYDROSTATIC TEST OF JOINT REQUIRED BY MANUFACTURER OF PRODUCT	YES / NO			
PED REQUIREMENTS	N/A, SEP, CAT 1				

To visit our
Video Library
go to:



<http://www.youtube.com/user/CraneBSU>



ISO 9001



ISO 14001

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