

Expansion Joint Technical Information

Elastomer Expansion Joint Overview



Elastomer Expansion Joints allow for expansion, contraction, lateral and angular movement in piping systems. Ideal for use on pumps, chillers, cooling towers, etc., to absorb pipe movement and stress, compensate for minor misalignment and offset, aid in system noise reduction and vibration dampening, and to help protect against start-up surge forces. Features reinforced Double-Arched tube design in chemically resistant Neoprene or optional EPDM elastomers. Produced in IPS sizes 3/4" through 3" with PVC or CPVC Union end connections in Socket or Spears® Patented Special Reinforced (SR) Female Plastic Threads for convenient, reliable installations.

PVC or CPVC & Bonded Elastomer Construction

Constructed from corrosion resistant PVC or higher temperature handling CPVC with high-pressure molded elastomer tube for optimum chemical and corrosion resistance. Never rusts, scales or pits. Select from standard Neoprene or optional EPDM elastomer tube bellows.

Double Spherical Arch, Reinforced Tube

Wide Spherical Double-Arched design provides maximum movement capability in lateral deflection, angular misalignment, axial compression and extension. Special 3-layer construction features internal polyester cord reinforcement bonded within the elastomer so that no reinforcement material will be exposed to atmosphere or media. Maintains high strength while allowing thinner wall for greater flexibility.

Convenient Double Union (True Union) Connectors

Double union design with strong Buttress thread union nuts allows easy servicing and replacement. Available in Socket or Spears® patented Special Reinforced (SR) Female Plastic Threaded End Connectors.

Pressure Rated to 150 psi, Plus Vacuum Service

The inherent design strength of the spherical arch allows for full 150 psi pressure rating for water at 73°F (pressure de-ratings apply at elevated temperatures). The spherical arch design and the reinforcing material combine to provide for full vacuum service capability.

Sample Engineering Specifications

Elastomer Expansion Joints shall be elastomer tube design with double-union end connectors. Elastomer tubes shall be double spherical arch constructed from reinforced Neoprene or EPDM. All unions shall be constructed from PVC or CPVC with Buttress threaded Union Nuts and choice of Socket or Special Reinforced (SR) plastic threaded connections. All Elastomer Expansion Joints shall be pressure rated to 150 psi for water @ 73°, as manufactured by Spears® Manufacturing Company.

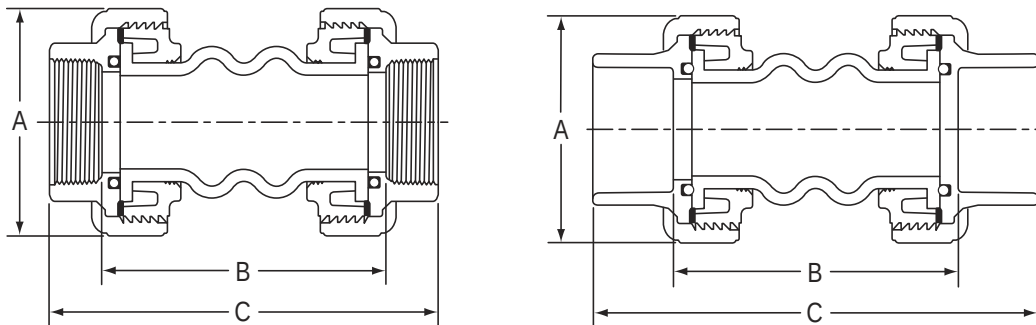




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Dimensions (inches)

Size	A	B		C		MAXIMUM MOVEMENTS			
		Socket	Threaded	Socket	Threaded	COMPRESSION	EXTENSION	LATERAL	ANGULAR
3/4	2-1/4	6-3/8	6-3/8	8-3/8	7-13/16	7/8	1/4	7/8	35°
1	2-9/16	5-15/16	6	8-3/16	7-3/4	7/8	1/4	7/8	25°
1-1/4	3-1/8	6-1/16	6-1/16	8-9/16	7-15/16	7/8	1/4	7/8	25°
1-1/2	3-9/16	5-7/8	5-7/8	8-5/8	7-3/4	7/8	1/4	7/8	20°
2	4-3/16	5-7/16	5-7/16	8-7/16	7-3/8	7/8	1/4	7/8	15°
2-1/2	6-1/8	6-3/16	6-3/16	9-3/4	9	7/8	1/4	7/8	15°
3	6-1/8	6-3/16	6-3/16	10	9	7/8	1/4	7/8	15°

Maximum specified movements are non-concurrent.

General Specifications

Materials:

Union components – PVC/CPVC

Elastomers – Neoprene Tube Bellows/ Nitrile O-ring seal

EPDM Tube Bellows/ EPDM O-ring seal

Pressure Rating:

150 psi @ 73° F (1.03 MPa @23° C)

Vacuum Service:

Rated @ 26 in-Hg (88 kPa)

Maximum Service Temperature:

PVC = 140° F (60° C)

CPVC = 200° F (93° C)

Note: Pressure de-ratings apply at elevated temperatures.

Installation Considerations

Piping system must be properly aligned and anchored to prevent damage to an expansion joint of system components. Movement must not exceed maximum specified capacities.

Forequipment isolation: Install Elastomer Expansion Joints just before and after the equipment generating the vibration. While vertical and perpendicular installation may be used, for optimum performance install horizontally and parallel to any rotating equipment shaft. For maximum vibration transmission reduction, the piping section beyond the rubber connector must be anchored.

Warning: Excessive noise and vibration may indicate severe problems in system design, operation, or support that cannot be compensated for through use of dampening devices. Such severe problems may also damage union components. Specific application and suitability must be evaluated and determined by the end user.

