

## Series 302 Double Sphere Spherical Expansion Joint

**Series 302 Double-Sphere** connectors are similar in construction to the single sphere style, but with a second sphere to provide even more pipe movement absorbing capability and even greater efficiency for noise and vibration control. In fact, **Series 302** connectors offer the industry's best option for vibration reduction—up to 98%, depending on pressure and frequency. A plated steel external root ring surrounds the connector between the spheres, preventing ballooning or swelling under pressure.

Double-Sphere connectors are precision molded in hydraulic presses. The spherical design insures that internal pressures are exerted in all directions, distributing the forces evenly over a large area. The spherical design acts as a free-flowing arch, reducing turbulence and growth due to pressure thrust forces. These connectors are standard with a high-quality EPDM rubber tube and cover, and Nylon tire cord reinforcing. Special elastomers such as Neoprene, Nitrile, Hypalon, and Chlorobutyl are also available. FDA styles in either EPDM or Nitrile are also an option. Zinc plated steel floating flanges are recessed to engage the rubber beaded end of the expansion joint and rotate easily for speed of installation.

**Series 302 Double-Sphere** expansion joints are ideal for many demanding industrial applications such as water & waste treatment, power generation, pulp & paper, chemical handling, mine processing, and marine. Spool type expansion joints should always be installed using split steel retaining rings. Control units are always required in unanchored piping systems and are recommended in all other pressure applications as a back-up safety device in the event of anchor failure.

Ultra-Sphere connectors are manufactured to meet or exceed the pressure, movement, and dimensional ratings of the Rubber Expansion Joint Division, Fluid Sealing Association.

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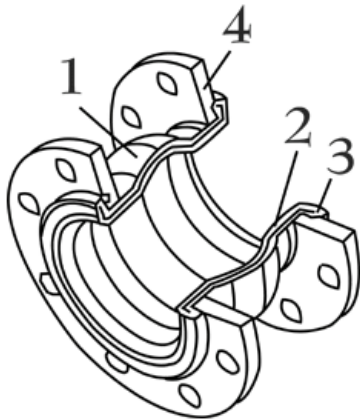
### Materials & Temperatures:

Style Number	Cover Elastomer	Tube Elastomer	Max. Operating Temp
302EE	EPDM	EPDM	212°F (100°C) 1
302BB	Chlorobutyl	Chlorobutyl	212°F (100°C) 1
302NN	Neoprene	Neoprene	212°F (100°C)
302NP	Neoprene	Nitrile	212°F (100°C)
302HH	CSM	CSM	212°F (100°C)
302FD	EPDM	FDA EPDM	158°F (70°C)
302NJ	Neoprene	FDA Nitrile	158°F (70°C)

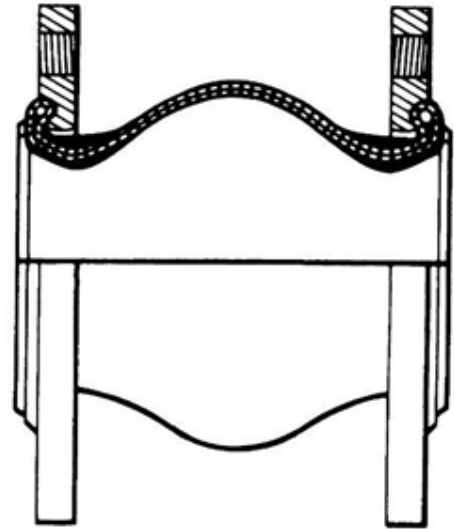
1) 250 Deg. F. for blower service.



## Series 302 Double Sphere Spherical Expansion Joint



- 1) Rubber tube and cover
- 2) Nylon reinforcing
- 3) Beaded end with wire to engage flange
- 4) Plated carbon steel floating flanges



### SERIES 302 DOUBLE SPHERE - SIZES, MOVEMENTS, PRESSURE RATINGS, WEIGHTS

Size (I.D.) (In.)	F/F (In.)	Allowable Movements From Neutral Face-to-Face (in.)				Effective Area (Sq. In.)	Pressure Ratings <sup>4</sup>		Weights	
		Axial Comp	Axial Ext	Lateral Deflection	Angular Rotation		Positive (PSIG)	Vacuum (in. Hg.)	Exp Jt.	Control Rods <sup>3</sup>
1-1/2	7	2.0	1.0	1.75	35	6.49	225	26	6.8	4.8
2	7	2.0	1.0	1.75	35	7.07	225	26	9.0	7.0
2-1/2	7	2.0	1.0	1.75	35	11.05	225	26	13.3	8.0
3	7	2.0	1.38	1.75	35	13.36	225	26	14.3	8.6
4	9	2.0	1.38	1.50	35	22.69	225	26	20.3	8.0
5	9	2.0	1.38	1.50	30	30.02	225	26	24.5	8.3
6	9	2.0	1.38	1.50	30	41.28	225	26	29.5	11.8
8	13	2.5	1.38	1.25	30	63.62	225	26	43.8	15.5
10	13	2.5	1.38	1.25	30	103.87	225	26	65.5	24.5
12	13	2.5	1.38	1.25	20	137.89	225	26	95.0	31.0
14	13-3/4	1.5	1.1	1.1	20	182.65	115	26	112.0	32.0
16	13-3/4	1.5	1.1	1.1	20	240.53	115	26	132.0	30.8
18	13-3/4	1.5	1.1	1.1	20	298.65	115	26	180.0	36.0
20	13-3/4	1.5	1.1	1.1	20	363.05	115	26	185.0	35.5
24	10	0.75	0.50	0.75	15	510.70	115	26	255	32

- 1) For single sphere, see Unisource Series 301 style.
- 2) See chart on opposite page for temperature ratings.
- 3) Control unit weight is based on a two-rod set.
- 4) Pressure and vacuum ratings are calculated at 70 Deg. F.

**Sealing Information:** When installing rubber expansion joints, it is the responsibility of the installer to ensure bolting forces are evenly distributed to provide optimum clamping force to prevent the connection from leaking. When the expansion joint is being installed in non-ferrous piping systems, such as PVC, reinforcement of the mating flanges may be required to increase the mating flange rigidity. Unisource recommends the use of ring gaskets or full face gaskets when a rubber expansion joint is being installed against a raised face flange. The use of ring gaskets or full face gaskets may be required when installing PTFE lined expansion joints. If you should have any questions pertaining to the installation, please call Unisource or refer to the Fluid Sealing Association Technical Handbook for Non-Metallic Expansion Joints.